

# Bulletin of Duke University

---



School of Medicine  
2023-2024

# Duke University

About the University Bulletins	6
About Duke University	6
University Policies	9
University Resources, Campus Life & Activities	11
About	18
Administration	22
Continuing Medical Education	27
Graduate Medical Education Program Information	27
Duke Graduate Medical Education Employment Requirements	30
Auditing of Courses by House Staff	31
International Medical Graduates (IMG)	31
Resources for Study	31
Duke University School of Medicine	36
Student Ombudsperson	37
Academic Credit	37
Academic Sanctions Appeals Process	38
Policy on Appropriate Treatment of Learners at Duke University School of Medicine	40
Code of Professional Conduct	42
Health Professional Technical Standards for Duke School of Medicine	45
School of Medicine Policies	46
All SoM Programs	52
Doctor of Medicine	52
Academic Calendar	55
Admissions	64
Tuition & Fees	67
Financial Policies	68
Program Policies	73
Course Requirements	90
Courses of Instruction	99
Dual-Degree Programs	109
Doctor of Occupational Therapy	119
Academic Calendar	120
Admissions	120
Financial Information	120

# Duke University

Program Policies	121
Program of Study	122
Program Requirements	128
Courses of Instruction	130
Doctor of Physical Therapy	133
Academic Calendar	134
Admissions	136
Financial Information	137
Program Policies	138
Program Requirements	154
Courses of Instruction	155
Master of Science in Biomedical Sciences	159
Academic Calendar	159
Admissions	160
Financial Information	162
Program Policies	163
Program Requirements	170
Courses of Instruction	171
Master of Biostatistics	173
Academic Calendar	173
Admissions	174
Financial Information	175
Program Policies	175
Program Requirements	178
Courses of Instruction	183
Master of Management in Clinical Informatics	185
Academic Calendar	186
Admissions	186
Financial Information	187
Program Policies	187
Program Requirements	189
Courses of Instruction	191
Master of Health Sciences in Clinical Leadership	192
Academic Calendar	193

# Duke University

Admissions	193
Financial Information	194
Program Policies	194
Program Requirements	197
Courses of Instruction	198
Master of Health Sciences in Clinical Research Training	199
Academic Calendar	200
Admissions	200
Financial Information	201
Program Policies	201
Program of Study	204
Courses of Instruction	204
Master of Health Sciences Pathologists' Assistant	206
Academic Calendar	207
Admissions	207
Financial Information	209
Program Policies	209
Program Requirements	212
Courses of Instruction	213
Master of Health Sciences Physician Assistant	215
Academic Calendar	217
Admissions	218
Financial Information	219
Program Policies	220
Program Requirements	223
Courses of Instruction	224
Cardiac Ultrasound Certificate	230
Academic Calendar	230
Admissions	230
Financial Information	231
Program Policies	232
Program Requirements	233
Courses of Instruction	234
Ophthalmic Medical Technician Certificate	234

# Duke University

Academic Calendar	234
Admissions	234
Financial Information	235
Program Policies	235
Program Requirements	238
Courses of Instruction	238
Population Health Sciences Certificate	239
Academic Calendar	240
Admissions	240
Financial Information	240
Program Policies	240
Program Requirements	242
Courses of Instruction	242
All Courses	242

## About the University Bulletins

The Office of the University Registrar is responsible for compiling, producing, and maintaining the bulletin for each school at Duke University. The content for the bulletins is established by the schools in conjunction with the Duke University Bulletins Policy.

The information in this bulletin applies to the academic year 2023-2024 and is accurate and current, to the greatest extent possible, as of August 2023. All bulletins are published online and serve as static documents for historical records of the university. The university reserves the right to change programs of study, academic requirements, teaching staff, the calendar, and other matters described herein without prior notice, in accordance with established procedures.

**Duke University Registrar:** Frank Blalark, Assistant Vice Provost and University Registrar

**Coordinating Editor:** Maggie Douglas

**Publications Coordinator:** Patrina Hemingway

### Bulletin Editors:

- Divinity School: Deborah Hackney & Katherine Smith
- Fuqua School of Business: B. Tate
- The Graduate School: Matthew Jones & Helene McAdams
- School of Law: Frances Curran
- School of Medicine: Marcie Ellis
- Nicholas School of the Environment: Cynthia Peters
- School of Nursing: Debra Mattice
- Pratt School of Engineering Professional Programs: Cherie Creten
- Sanford School of Public Policy: Anita Lyon
- Undergraduate Instruction: Heather Settle

**Photograph Credits:** Courtesy of Duke University (Chris Hildreth, Jared Lazarus, Nat LeDonne, Reagan Lunn, Megan Mendenhall, Megan Morr, Bill Snead, Les Todd) and School of Nursing.

This publication is available in alternative format on request. Call (919) 684-2813.

## About Duke University

### Mission Statement

Approved by the Duke University Board of Trustees October 1, 1994, and revised February 23, 2001, the Mission Statement for Duke University reads as follows:

"James B. Duke's founding Indenture of Duke University directed the members of the University to 'provide real leadership in the educational world' by choosing individuals of 'outstanding character, ability, and vision' to serve as its officers, trustees and faculty; by carefully selecting students of 'character, determination and application;' and by pursuing those areas of teaching and scholarship that would 'most help to develop our resources, increase our wisdom, and promote human happiness.'

"To these ends, the mission of Duke University is to provide a superior liberal education to undergraduate students, attending not only to their intellectual growth but also to their development as adults committed to high ethical standards and full participation as leaders in their communities; to prepare future members of the learned professions for lives of skilled and ethical service by providing excellent graduate and professional education; to advance the frontiers of knowledge and contribute boldly to the international community of scholarship; to promote an intellectual environment built on a commitment to free and open inquiry; to help those who suffer, cure disease, and promote health, through sophisticated medical research and thoughtful patient care; to provide wide-ranging educational opportunities, on and beyond our campuses, for traditional students, active professionals and life-long learners using the power of information technologies; and to promote a deep appreciation for the range of human difference and potential, a sense of the obligations and rewards of citizenship, and a commitment to learning, freedom and truth.

"By pursuing these objectives with vision and integrity, Duke University seeks to engage the mind, elevate the spirit, and stimulate the best effort of all who are associated with the University; to contribute in diverse ways to the local community, the state, the nation and the world; and to attain and maintain a place of real leadership in all that we do."

### Duke University: A Brief Narrative History

## Duke University

Duke University traces its origins to a small school that opened in 1838 in Randolph County, North Carolina. Originally a preparatory school for young men called the Union Institute Academy, it was then chartered as a teaching college named Normal College by the state of North Carolina in 1851. The school underwent another transformation in 1859 when it turned to the Methodist Church for financial support. Reflecting the new partnership, the school's name changed to Trinity College.

From 1842 to 1882, Braxton Craven served as the principal and then president of the institution, overseeing its transition from a tiny schoolhouse to a full-fledged college. Shortly before his death, he helped to establish the Cherokee Industrial School at Trinity College, one of numerous schools established in the United States to "westernize" indigenous students, in this case boys and young men from the Eastern Band of the Cherokee. The School at Trinity lasted only a few years. It is worth noting that Craven enslaved several Black people prior to the Civil War, and that a number of other faculty and trustees were also enslavers.

John F. Crowell, Trinity College's president from 1887-1894, suggested that moving the college to an urban setting would attract more students, faculty, and financial support. With Crowell's encouragement, the trustees agreed to move the college, and after a spirited competition among regional cities, Trinity opened in Durham in 1892. Local tobacco magnates Washington Duke and Julian S. Carr assisted in providing land and money to Trinity. In 1897, at Washington Duke's request, the school began admitting women as regular students, making it an early co-educational institution. Carr's support for Trinity College was recognized with a building named in his honor in 1930. His name was removed in 2018 in light of his virulent white supremacist beliefs and actions.

Trinity prospered in its new location, and in 1924 the school was again transformed through philanthropy. Washington Duke's son James Buchanan Duke established the Duke Endowment, and the charitable foundation infused the college with funds. The trustees changed Trinity College's name to Duke University as a memorial to his father. The new funds supported the construction of a new campus, designed in a Gothic style by the Philadelphia architectural firm of Horace Trumbauer. The chief designer of West Campus, as well as the re-envisioned East Campus, was Julian Abele, a Black architect whose role in creating the architecture of Duke University was largely overlooked during his lifetime. In 2016, the main quad on West Campus was renamed Abele Quad in his honor.

President William P. Few (1910-1940) oversaw this metamorphosis of a small college into a complex university. In 1930, the Trinity College site (today's East Campus) became the Woman's College, while the West Campus served as the grounds for the all-male Trinity College. In 1972, Trinity College merged both colleges of men and women into what is now known as Trinity College of Arts and Sciences. Other schools include the School of Religion and Graduate School founded in 1926, the School of Medicine and hospital in 1930, and the School of Nursing in 1931. Originally established in 1904, the Law School reorganized in 1930. In 1938, what is today's Nicholas School of the Environment opened, and in 1939 the university formed what is now known as the Pratt School of Engineering. The last of James B. Duke's desires for the university was fulfilled when what is now the Fuqua School of Business, opened in 1969. The Sanford School of Public Policy became Duke's tenth school in 2005. The school was named for President Terry Sanford, formerly the governor of North Carolina, who supported a number of initiatives in the 1970s and 1980s to build Duke's reputation for excellence, growing the university's national and international profile.

Long a segregated institution, Duke first admitted Black graduate and professional students in 1961 and Black undergraduates in 1963. In 1968, a major student protest known as the Vigil demanded pay increases and better treatment of hourly workers, most of whom were Black. In 1969, Black students protested in what is now known as the Allen Building Takeover, demanding improved services and treatment for Black students. The protest resulted in the formation of what is now called the Department of African and African American Studies.

Faculty at Duke produce influential scholarship across a wide range of disciplines and professions. Two Duke faculty members have received the Nobel Prize in Chemistry: Professor Robert Lefkowitz in 2012 and Professor Paul Modrich in 2015. Duke researchers have mapped the human chromosome and led research into the treatment of HIV and AIDS. Duke faculty also research pressing social issues, producing high-impact scholarship on such topics as election districting and public health. Faculty authors have written books of award-winning nonfiction, fiction, and poetry, and have won awards ranging from the National Book Award to the Pulitzer Prize. Fifty Duke faculty are members of the American Academy of Arts and Sciences. Duke students have many opportunities to work with leading faculty in labs and on projects, ensuring hands-on experience during their course of study.

Duke has a number of notable athletic achievements. Best known is the men's basketball team, coached by Mike Krzyzewski from 1980 to 2022. The team has earned 5 national championships. The women's golf team holds the record at Duke for most national championships, at 7. Duke football has been played since the 1880s, when President Crowell coached the team himself. During the 1930s and 1940s, the football team competed in and won a number of bowl games, earning the nickname "Iron Dukes." The Rose Bowl game of 1942 was played in Durham due to wartime concerns on the West Coast and remains the only Rose Bowl played outside of Pasadena, California.

## Duke University

International programs have expanded over the last several decades, bringing international students to Duke in Durham and expanding international opportunities for Duke students. In 2005, Duke partnered with the National University of Singapore and opened the Duke-NUS Medical School. In 2014, graduate programs at Duke Kunshan University began, followed by undergraduate programs in 2018. DKU is a partnership between Duke and Wuhan University in Kunshan, China.

The university has changed in many ways since its founding, and like other historically white schools it continues to confront issues of racism, sexism, and other inclusion and equity challenges. Students of color and international students now represent more than 50% of the student body. Duke's hometown of Durham has also grown and changed, and Duke and Durham collaborate on topics ranging from community service to downtown development.

Ever evolving, Duke University strives to meet the stated aims of the university: "to foster a lively relationship between knowledge and faith; to advance learning in all lines of truth; to defend scholarship against all false notions and ideals; to develop a love of freedom and truth; to promote a respectful spirit of dialogue and understanding; to discourage all partisan and sectarian strife; and to further the advancement of knowledge in service to society."

## Duke University Leadership

Full leadership profiles for those listed below are available at [duke.edu/about/leadership](http://duke.edu/about/leadership).

### Executive Leadership

Vincent Price, President | [president.duke.edu](http://president.duke.edu)

Daniel Ennis, Executive Vice President

Jennifer Francis, Interim Provost

A. Eugene Washington, Chancellor for Health Affairs, Duke University, President and CEO, DUHS

### Academic Leadership

#### Deans of Schools and Colleges

Kerry Abrams, James B. Duke and Benjamin N. Duke Dean of the School of Law

Suzanne Barbour, Dean, Graduate School

Gary Bennett, Dean, Trinity College of Arts and Sciences

William Boulding, Dean, Fuqua School of Business

Edgardo Colón-Emeric, Dean, Divinity School

Vincent Guilamo-Ramos, Dean, School of Nursing and Vice Chancellor for Nursing Affairs

Judith Kelley, Dean, Sanford School of Public Policy

Mary E. Klotman, Dean, School of Medicine

Jerome P. Lynch, Dean, Pratt School of Engineering

Toddi Steelman, Stanback Dean, Nicholas School of the Environment

#### Vice Provosts

Edward Balleisen, Vice Provost for Interdisciplinary Studies

Abbas Benmamoun, Vice Provost for Faculty Advancement

John Brown, Vice Provost for the Arts

Yakut Gazi, Vice Provost for Learning Innovation and Digital Education

Mohamed Noor, Interim Vice Provost for Academic Affairs

Mary Pat McMahon, Vice Provost/Vice President of Student Affairs

Amy Oates, Interim Vice Provost for Finance & Administration

Noah Pickus, Associate Provost

Joseph Salem, Rita DiGiallonardo Holloway University Librarian and Vice Provost for Library Affairs

Candis Watts Smith, Interim Vice Provost for Undergraduate Education

### University Administration

Pamela J. Bernard, Vice President and General Counsel



## Duke University

Maggie Epps, Secretary to the Board of Trustees and Chief of Staff to the President  
Tracy Futhey, Vice President for Information Technology and Chief Information Officer  
Leigh P. Goller, Chief Audit, Risk and Compliance Officer  
Kimberly Hewitt, Vice President for Institutional Equity and Chief Diversity Officer  
David L. Kennedy, Vice President for Alumni Engagement and Development  
Nina E. King, Vice President and Director of Athletics  
Jennifer Lodge, Vice President for Research & Innovation  
Antwan Lofton, Vice President of Human Resources & Chief Human Resources Officer  
John J. Noonan, Vice President for Facilities  
Rachel Satterfield, Vice President for Finance  
Chris Simmons, Interim Vice President for Public Affairs & Government Relations  
Russell Thompson, Interim Vice President for Operations  
Neal Triplett, President, DUMAC  
Stefanie Williams, Vice President for Durham & Community Affairs

### The Faculty

Duke faculty are chosen from among the most competitive selection processes in the country, having demonstrated excellence in their fields of research. Duke currently has two Nobel Laureates among its faculty. Many others hold appointments in the National Academy of Sciences. Their books and publications are numerous and influential.

Duke professors are also excellent teachers. There is an 8-to-1 ratio of students to faculty. Professors are committed to giving students the individual attention that pushes them to excel while nurturing their ideas. Undergraduates, even in their first year, interact with senior faculty on a regular basis in efforts such as the Focus Program, a series of first-year interdisciplinary seminars focused on a theme. In addition, many serve as advisors to students, including those who choose to design their program of study and as mentors to undergraduates who pursue hands-on research.

Profiles of Duke's faculty members are available via [Scholars@Duke](mailto:Scholars@Duke).

## University Policies

### Accreditation

Duke University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, doctorate, and professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call (404) 679-4500 for questions about the accreditation of Duke University.

### Clery Act

Information that the university is required to make available under the federal Clery Act is available by visiting the Records Division, Duke University Police Department, 502 Oregon Street, Durham, NC 27708, or by calling (919) 684-4602. See [police.duke.edu/news-stats/clery](http://police.duke.edu/news-stats/clery) for more details.

### Duke's Commitment to Diversity and Inclusion

Duke aspires to create a community built on collaboration, innovation, creativity, and belonging. Our collective success depends on the robust exchange of ideas—an exchange that is best when the rich diversity of our perspectives, backgrounds, and experiences flourishes. To achieve this exchange, it is essential that all members of the community feel secure and welcome, that the contributions of all individuals are respected, and that all voices are heard. All members of our community have a responsibility to uphold these values.

### Excellence, Diversity, and Inclusion: A statement by the faculty, Provost, and President

To achieve our mission and meet the needs of a rapidly changing world, Duke strives to create a climate of collaboration, creativity, and innovation within and across disciplines. Our success depends upon the robust exchange of ideas – an exchange that flourishes best when the rich diversity of human knowledge, perspectives, and experiences is heard. We nonetheless acknowledge that our policies

## Duke University

and practices have often failed to ensure equality of participation within our community. Our renewed commitment and responsibility to one another is articulated in the following statement.

### Duke University Community Commitment

Because diversity is essential to fulfilling the university's mission, Duke is committed to building an inclusive and diverse university community. Every student, faculty, and staff member —whatever their race, gender, age, ethnicity, cultural heritage or nationality; religious or political beliefs; sexual orientation or gender identity; or socioeconomic, veteran or ability status—has the right to inclusion, respect, agency and voice in the Duke community. Further, all members of the University community have a responsibility to uphold these values and actively foster full participation in university life.

### Duke Community Standard

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and nonacademic endeavors, and to protect and promote a culture of integrity.

To uphold the Duke Community Standard:

- I will not lie, cheat, or steal in my academic endeavors;
- I will conduct myself honorably in all my endeavors; and
- I will act if the Standard is compromised.

### Students' Obligation to Act with Respect to the Duke Community Standard

The Duke Community Standard (DCS) stresses the commitment that students share with all members of the community to enhance the climate for honesty, fairness, respect, and accountability at Duke University. Students affirm their commitment to foster this climate by signing a pledge that includes taking constructive action if they witness or know about behavior they perceive to be inconsistent with the DCS, which may include violation of university policies. Although there are no disciplinary sanctions associated with the failure to act, students are nonetheless expected to take action to do something as a responsibility of membership in the Duke community.

The university recognizes that it is not always easy to act in these situations, but several alternatives are available to suit a student's level of comfort and confidence. These alternatives are not mutually exclusive.

- Speaking directly with the individual exhibiting the behavior, both to gain clarity about the situation and to inform the individual about the concern.
- Publicly calling attention to the behavior as it is occurring.
- For incidents involving social behaviors, alerting residence hall, Student Affairs, or other university staff. The information provided will give staff an opportunity to address the matter informally or through appropriate formal channels.
- For cases involving academic integrity, alerting the instructor that cheating may be occurring in the course. This alert can be in any form, including anonymous notification, and the reporting student will not be identified. The information provided will allow the faculty member to consider corrective measures, in consultation with the Office of Student Conduct and Community Standards, and to address the topic with the class or suspected student(s).
- Directly alerting staff in the Office of Student Conduct and Community Standards at (919) 684-6938 or [conduct@duke.edu](mailto:conduct@duke.edu), who will confer with the faculty member involved, if an academic issue, or with the reporting student(s), strategizing next steps. Maintaining the confidentiality of the source is possible, but may limit the extent of action that can be taken.

For current regulations, refer to the *The Duke Community Standard in Practice: A Guide for Students*.

### Family Educational Rights & Privacy Act (FERPA)

The Family Educational Rights & Privacy Act (FERPA), 20 U.S.C § 1232g; 34 CFR Part 99, is a federal law that guides the release of students' education records, of which disciplinary records are a part.

Duke University adheres to a policy of compliance with the Family Educational Rights and Privacy Act. The policy (1) permits students to inspect their education records, (2) limits disclosure to others of personally identifiable information from education records without students' prior written consent, and (3) provides students the opportunity to seek correction of their education records where appropriate.

For additional information about FERPA, see [ed.gov/policy/gen/guid/fpco/ferpa/index.html](http://ed.gov/policy/gen/guid/fpco/ferpa/index.html). For Duke's full FERPA policy, visit [registrar.duke.edu/student-resources/family-educational-rights-and-privacy-act-ferpa](http://registrar.duke.edu/student-resources/family-educational-rights-and-privacy-act-ferpa).

## Nondiscrimination Statement

Duke is committed to encouraging and sustaining a learning and work community that is free from prohibited discrimination and harassment. The institution prohibits discrimination on the basis of age, color, disability, gender, gender identity, gender expression, genetic information, national origin, race, religion, sex, sexual orientation, or veteran status, in the administration of its educational policies, admission policies, financial aid, employment, or any other institution program or activity. It admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students.

Sexual harassment and sexual misconduct are forms of sex discrimination and prohibited by the institution. Duke has designated the Vice President for Institutional Equity and Chief Diversity Officer as the individual responsible for the coordination and administration of its nondiscrimination and harassment policies. The Office for Institutional Equity is located in Smith Warehouse, 114 S. Buchanan Blvd., Bay 8, Durham, North Carolina 27708, and can be contacted at (919) 684-8222.

Questions or comments about harassment or discrimination can be directed to one of the following administrators in the Office for Institutional Equity.

### **Discrimination in employment or educational programs and activities:**

Cynthia Clinton, AVP Harassment and Discrimination Prevention and Compliance  
Title IX Coordinator  
Office for Institutional Equity  
114 S. Buchanan Blvd., Bay 8  
Durham, NC 27708  
(919) 684-8222

### **Sex discrimination in educational programs or activities:**

Adrienne Allison, Deputy Title IX Coordinator for Students, Compliance Investigator  
Office for Institutional Equity  
114 S. Buchanan Blvd., Bay 8  
Durham, NC 27708  
(919) 684-8222

Additional information, including the complete text of Duke's Policy on Prohibiting Discrimination, Harassment and Related Misconduct and appropriate complaint procedures, may be found here. For further information visit the U.S. Department of Education Office for Civil Rights, or call 1-800-421-3481.

## University Resources, Campus Life & Activities

### Agreements with other Universities

#### **Neighboring Universities (Interinstitutional Agreement)**

Under a plan of cooperation—the interinstitutional agreement among Duke University and The University of North Carolina at Chapel Hill, North Carolina State University, North Carolina Central University, The University of North Carolina at Charlotte, and The University of North Carolina at Greensboro—a student regularly enrolled in Duke University as a degree-seeking student and paying full fees may enroll for one approved course each semester at one of the institutions in the cooperative program unless an equivalent course is offered at Duke in the same academic term. Under the same conditions, one interinstitutional course per summer may be taken at a neighboring institution participating in this agreement provided that the student is concurrently enrolled at Duke for one full course credit. This agreement does not apply to contract programs such as the American Dance Festival or to study abroad programs.

Approval forms for courses to be taken at these neighboring institutions may be obtained from the offices of the academic deans and the university registrar. Forms are also available online at the Office of the University Registrar website ([registrar.duke.edu](http://registrar.duke.edu)), in the Registration section. Only those courses not offered at Duke will be approved. Approval must be obtained at Duke from the director of undergraduate studies of the subject of the course and the student's academic dean. Credit so earned is not defined as transfer credit since grades in courses taken under the interinstitutional agreement are entered on the official record and used in determining the grade point average. The courses may be eligible for Areas of Knowledge and Modes of Inquiry coding. The student pays any special fees required of students at the host institution.

Courses taken at The University of North Carolina at Chapel Hill by Duke students in the Robertson Scholarship Program (a joint scholarship program for students at Duke and The University of North Carolina at Chapel Hill) are interinstitutional courses. However, the restriction on the number of courses and the kind of courses (i.e., those not offered at Duke) permitted does not always apply.

# Duke University

Robertson Scholars should refer to program materials for specific regulations.

## Domestic Exchange Programs

Trinity College has exchange programs with two domestic institutions: Howard University in Washington, DC, and Spelman College in Atlanta, Georgia. Duke students may study for a semester at either institution, while students from these institutions enroll for the same period at Duke. Students may enroll in a wide variety of courses at either Howard University or Spelman College for which they will receive transfer credit at Duke. Transfer credits earned under this exchange program do not count against the maximum allowable domestic or study abroad transfer credits. For more information about these programs, visit 011 Allen.

## Career Center

The Career Center, working in partnership with faculty and colleagues, provides career advising to all Duke undergraduates, graduate students, and alumni. Recognizing the unique talents and needs of each individual, the Career Center encourages students to make the most of their Duke experience by accessing relevant campus resources, developing career interests and values, and establishing and maintaining important human relationships with their peers as well as Duke faculty, staff, and alumni. The Career Center works to build and maintain relationships with alumni and employers who can provide internships and learning opportunities, entry-level positions, and opportunities for experienced professionals. For more information, visit [careerhub.students.duke.edu](http://careerhub.students.duke.edu).

## Continuing Studies

### Academic Study

Admission to the Continuing Studies Program is discretionary. For consideration for admission, applicants to the Continuing Studies Program must meet at least one of the following two criteria.

- Earned bachelor's degree from a college or university accredited by a national or regional accrediting body recognized by the Department of Education.
- Age 25 or older, and intend to initiate or complete academic study in a Duke University academic program.

Students are given academic counseling by the Office of Continuing Studies and Summer Session, and are subject the regulations set forth for degree candidates, unless explicitly noted otherwise. A junior or senior who is currently enrolled at an external college or university who wishes to pursue an academic discipline unique to Duke University, may apply through the Office of Continuing Studies for admission as a nondegree, full-time visiting student for one or two semesters. Students with unique circumstances should contact the Office of Continuing Studies.

**Minimum GPA Requirement.** Successful applicants are expected to have earned a minimum 3.0 GPA in their most recent program.

Applicants who fail to meet the minimum GPA requirement, are subject to additional review and may be admitted on a provisional basis. As part of the additional review, the following will be taken under consideration:

- the applicant has not been enrolled as a full-time student in the last 4 years, and
- the applicant demonstrates the ability to successfully complete college level coursework by earning a passing grade (B or better) in a minimum of 4 courses during the last 2 years.

As part of a provisional admission, a student must earn a minimum 3.0 GPA in the semester immediately following the provisional admission.

**Withdrawal.** If a student enrolled in a Duke University program withdraws from the program, or is no longer in good academic standing, they must wait two academic terms before re-applying to any Duke program, including Continuing Studies (see the Satisfactory Continuation Requirements outlined on page 51 of the Bulletin of Undergraduate Instruction).

**Semester Continuation Requirements.** Semester continuation requires that you earn a passing grade (C-or better) in a minimum number of courses to remain in good standing. Students who receive at least one failing grade (D, D-, F) are subject to academic probation or academic dismissal.

Academic Probation	<ul style="list-style-type: none"><li>• Earned D or D-in at least one course</li><li>• Earned F in one course, and C-or better in at least two courses</li></ul>
Academic Dismissal	<ul style="list-style-type: none"><li>• Earned F in at least one course</li></ul>

## Duke University

Students placed on academic probation must acknowledge their probationary status in writing to the academic dean for Continuing Studies students, in order to continue into the next academic term. They are also expected to seek assistance from campus resources and have their course selection approved by their academic dean. In the probationary term they must earn grades of C or better in all courses to continue. Students who withdraw from all courses must wait two semesters to submit a request to return to study.

Program and application information is available from Duke Continuing Studies. Application deadlines: August 1 for the fall semester, December 1 for the spring semester, April 15 for Term 1 of the summer session, and June 1 for Term 2 of the summer session.

### Certificate Programs

Professional certificate programs offered include human resource management, management accounting, digital media and marketing, big data and data science, technical communications, business communications, business ethics, paralegal studies, financial planning, event development, Six Sigma Green Belt, entrepreneurship, supply side management, sustainable management, online learning, finance essentials, legal nurse consulting, and others.

### Nonprofit Management Program

Students interested in the nonprofit sector or in community development are invited to explore the noncredit course offerings of this program. Taught by experts and practitioners, these short courses offer instruction concerning financial and resource management, management of personnel and volunteers, leadership development, fundraising, planning and evaluation, board development/governance, and media relations.

### Osher Lifelong Learning Institute (OLLI) at Duke

OLLI at Duke began in 1977 as the Duke Institute for Learning in Retirement. Since 2004 the membership organization has been a member of the Osher Lifelong Learning Network, a group of more than 120 institutes across the country dedicated to meeting the needs of older learners and extending the demographic served by traditional universities. OLLI sponsors noncredit course offerings in the fall, winter, and spring as well as fall and spring retreats, language tables, reading groups, film and lecture series, and volunteer opportunities.

### Duke Youth Programs

For more than thirty-five years, Duke Youth Programs has offered academic enrichment opportunities for middle and high school students in the summer. Current offerings range from camps in biosciences and engineering, forensic science, game design, drones, math, cryptography, neurosciences, creative writing, SAT preparation, video production, and a college admissions boot camp.

For more information, call the Office of Continuing Studies and Summer Session at (919) 684-6259, or visit [learnmore.duke.edu](http://learnmore.duke.edu).

## Institutes, Initiatives & Centers

### University Institutes

- **Bass Connections** bridges the classroom and the world beyond the university, giving students from all of Duke's schools a chance to tackle complex societal problems alongside our superb faculty. For more information, visit [bassconnections.duke.edu](http://bassconnections.duke.edu).
- **The Duke Global Health Institute (DGHI)** brings together knowledge and resources from across the university to address the most important global health issues of our time. DGHI faculty, staff and students are engaged in research and educational projects in more than 40 countries, including the United States. For more information, visit [globalhealth.duke.edu](http://globalhealth.duke.edu).
- **The Duke Institute for Brain Sciences (DIBS)** provides a vibrant hub for all who share our vision of making neuroscience greater than the sum of its parts by integrating schools, disciplines, analysis and education to accelerate breakthroughs and benefit society. For more information, visit [dibs.duke.edu](http://dibs.duke.edu).
- **The John Hope Franklin Humanities Institute (FHI)** is built on a fundamentally collaborative model befitting the Duke University emphasis on knowledge in the service of society. Through interdisciplinary cross-fertilization, we seek to encourage the conversations, partnerships, and collaborations that continually stimulate creative and fresh humanistic research, writing, teaching, and practice at Duke. For more information, visit [fhi.duke.edu](http://fhi.duke.edu).
- **The Kenan Institute for Ethics** is an interdisciplinary think and do tank committed to promoting moral reflection and commitment, conducting interdisciplinary research, and shaping policy and practice at Duke and beyond. For more information, visit [kenan.ethics.duke.edu](http://kenan.ethics.duke.edu).
- **The Nicholas Institute for Energy, Environment & Sustainability** advances the university's mission to build a more sustainable world by developing transformative educational experiences; galvanizing and conducting impactful research; and engaging with key decision makers at the global, national, state, and local levels. For more information, visit [nicholasinstitute.duke.edu](http://nicholasinstitute.duke.edu).

## Duke University

- **The Social Science Research Institute (SSRI)** brings together researchers with interests in problems that cross the various social and behavioral sciences, including problems that connect with the humanities and natural sciences. For more information, visit [ssri.duke.edu](http://ssri.duke.edu).

### Initiatives

- **The Duke Initiative for Science & Society** ("Science & Society") fosters research, education, communication, democratic deliberation, and policy engagement on the ethical progress of science and technology in society. For more information, visit [scienceandsociety.duke.edu](http://scienceandsociety.duke.edu).
- **Innovation & Entrepreneurship Initiative (I&E)** believes all Duke students benefit from learning about innovation and entrepreneurship—from those who wish to found a company, to those who want to change the world with innovation, to those who simply want to cultivate a more creative and entrepreneurial mindset. I&E partners with schools and departments across Duke to offer interdisciplinary, experience-based education. For more information, visit [entrepreneurship.duke.edu](http://entrepreneurship.duke.edu).
- **MEDx** (Medicine + Engineering at Duke) was forged in 2015 to enhance existing ties and foster new interdisciplinary collaborations between the School of Medicine and Pratt School of Engineering. An initiative rather than an institute, MEDx is structured to enhance existing ties and encourage new collaborations among faculty from both schools as well as other schools, institutes and initiatives at Duke. For more information, visit [medx.duke.edu](http://medx.duke.edu).
- **The Rhodes Information Initiative at Duke (iiD)** is an interdisciplinary program designed to increase "big data" computational research and expand opportunities for student engagement in this rapidly growing field. For more information, visit [bigdata.duke.edu](http://bigdata.duke.edu).

### Centers

- **The Center for Documentary Studies (CDS)** offers an interdisciplinary program in the documentary arts—photography, audio, film/video, narrative writing, new media, and other means of creative expression—that emphasizes active engagement in the world beyond the university campus. For more information, visit [documentarystudies.duke.edu](http://documentarystudies.duke.edu).
- **The Dewitt Wallace Center for Media and Democracy (DWC)** is Duke University's hub for the study of journalism. DWC studies the interaction between news media and policy, supports watchdog and accountability reporting in the United States and around the world, and teaches about the media's role in democracy. The center is part of the Sanford School of Public Policy, and shares in the Sanford School's mission of teaching, research, and policy engagement, with the goal of putting knowledge in service to society. For more information, visit [dewitt.sanford.duke.edu](http://dewitt.sanford.duke.edu).
- **Duke Civic Engagement (DCE)** strengthens and connects the ways in which Duke partners with communities. DCE supports Duke's collaborations on pressing social challenges by increasing the capacity of the campus to sustain partnerships and sharing best practices in community engagement. For more information, visit [civic.duke.edu](http://civic.duke.edu).
- **The Duke University Center for International and Global Studies (DUCIGS)** grounds its research, teaching, and programming on the deep, region and culture-specific knowledge and experience of its organizational units while exploring global topics, pursuing interdisciplinary and cross-regional collaboration, and welcoming new approaches within areas studies and global studies. DUCIGS is home to various international area studies centers, councils, and initiatives. Visit the DUCIGS website at [igs.duke.edu](http://igs.duke.edu) to learn more about the many centers and initiatives it houses.
- **DukeEngage** provides fully-funded opportunities that enable students and faculty to collaborate with organizations across the globe to address critical societal needs through an immersive summer of civic engagement. For more information, visit [dukeengage.duke.edu](http://dukeengage.duke.edu).
- **The Margolis Center for Health Policy** catalyzes Duke University's leading capabilities including interdisciplinary academic research and capacity for education and engagement, to inform policy making and implementation for better health and health care. The Center has offices and staff on Duke University's campus in Durham, North Carolina and at the Duke in DC offices in the heart of the nation's capital. For more information, visit [healthpolicy.duke.edu](http://healthpolicy.duke.edu).

## Libraries & Technology

### Duke University Libraries

The Duke University Libraries are the shared center of the university's intellectual life. The William R. Perkins Library, Bostock Library and Rubenstein Rare Book & Manuscript Library comprise the main West Campus library complex, which is joined by Lilly and Music libraries on East Campus, the Pearse Memorial Library at the Duke Marine Lab and the separately administered libraries serving the schools of Business, Divinity, Law and Medicine. Together they form one of the nation's top ten private university library systems.

#### All Libraries

## Duke University

- Perkins & Bostock Libraries ([library.duke.edu](http://library.duke.edu))
- David M. Rubenstein Rare Book & Manuscript Library ([library.duke.edu/rubenstein](http://library.duke.edu/rubenstein))
- Duke University Archives ([library.duke.edu/rubenstein/uarchives](http://library.duke.edu/rubenstein/uarchives))
- Lilly Library ([library.duke.edu/lilly](http://library.duke.edu/lilly))
- Music Library ([library.duke.edu/music](http://library.duke.edu/music))
- Marine Lab Library ([library.duke.edu/marine](http://library.duke.edu/marine))
- Library Service Center ([library.duke.edu/lsc](http://library.duke.edu/lsc))
- Divinity School Library ([library.divinity.duke.edu](http://library.divinity.duke.edu))
- Duke Kunshan University Library ([dukekunshan.edu.cn/en/academics/library](http://dukekunshan.edu.cn/en/academics/library))
- Ford Library, Fuqua School of Business ([library.fuqua.duke.edu](http://library.fuqua.duke.edu))
- Goodson Law Library ([law.duke.edu/lib](http://law.duke.edu/lib))
- Medical Center Library ([mclibrary.duke.edu](http://mclibrary.duke.edu))

### Technology Resources

- The Office of Information Technology ([oit.duke.edu](http://oit.duke.edu))
- Computing and Networking ([wireless.duke.edu](http://wireless.duke.edu))
- Printing and Labs ([oit.duke.edu/services-tools/printers-labs](http://oit.duke.edu/services-tools/printers-labs))
- Support and Training ([oit.duke.edu/services-tools/support-training](http://oit.duke.edu/services-tools/support-training))

### Student Disability Access Office (SDAO)

The Student Disability Access Office (SDAO) recognizes disability as an aspect of diversity that is integral to society and to our campus community. Accessibility is an essential feature of the Duke campus, and we strive to create an inclusive community for our students. We strive to ensure that students with disabilities are provided the tools they need to fully access all aspects of student life inside and outside of the classroom.

#### Core Functions of SDAO

- Partner with students with disabilities to establish services for their access and inclusion on campus
- Manage, coordinate, implement and evaluate accommodation/service programs
- Serve as a resource to students/faculty/staff to ensure effective provision of services
- Provide educational and resource support to the campus community to increase awareness regarding how to create and sustain access and inclusion for students with disabilities in all aspects of the university
- Provide resource and referral information to the campus community and prospective student and their families

SDAO works with each student individually to establish academic adjustments and auxiliary aids and services, more frequently referred to as academic accommodations for the purpose of eliminating the environmental barriers impacting the student's equitable access to the campus facilities, programs and activities. To find out more information about how to establish services with SDAO you can contact us in the following ways.

In order to receive consideration for reasonable accommodations under Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990 (ADA), and the ADA Amendments Act of 2008, a student must have a physical or mental impairment that substantially limits one or more major life activities. Students requesting accommodations under the provisions of the ADA, ADA Amendments Act of 2008, and Section 504 of the Rehabilitation Act of 1973 (e.g., academic, accessibility, housing) must contact the Student Disability Access Office to explore possible coverage. Students with medical conditions not covered under the provisions of the ADA and the ADA Amendments Act may wish to contact Duke Student Health Service. Additional information and requests for accommodations may be found on the SDAO website.

For more information, visit [access.duke.edu/students](http://access.duke.edu/students).

### Housing, Dining, & Transportation

#### Housing and Residence Life (HRL)

**Undergraduate Housing.** Housing, Dining and Residence Life manages all aspects of the university's three-year undergraduate residency requirement. Residential programs are designed to build positive communities that value learning, create new opportunities for faculty engagement, and generate positive social connections. HRL, student residents and others in the Duke community develop and maintain environments that support classroom learning and encourage students to seek learning opportunities in the world around

## Duke University

them. HRL promotes opportunities for students to connect with others and develop a strong and enduring sense of belonging; and intentionally provide opportunities for students to grow and develop as they continue to negotiate developmental issues related to identity, autonomy, and responsibility. HRL programs are rooted in the concepts of mutual respect and civility, and recognize and celebrate the dignity and self-worth of all members. For more information, visit [studentaffairs.duke.edu/hdrl](http://studentaffairs.duke.edu/hdrl).

**Graduate and Professional Student Apartments.** Limited on-campus housing is available to full-time graduate students. For more information on graduate student housing application timeline and facility amenities, visit [students.duke.edu/living/housing/graduate-professional-housing](http://students.duke.edu/living/housing/graduate-professional-housing). Assignments are made in the order of receipt of completed applications.

**Off-Campus Housing.** The Duke Community Housing Office maintains a listing of rental apartments, rooms, and houses provided by property owners or real estate agencies in Durham at [durhamgradhousing.com](http://durhamgradhousing.com).

Duke Housing and Residence Life (HRL) operates a website specifically to simplify the off-campus housing search for students, parents, faculty and staff, and for area property owners and managers at [nearduke.com/housing](http://nearduke.com/housing).

**Duke Dining.** Duke is home to one of the most innovative, dynamic, and cutting edge collegiate dining programs in the country, with access to over 50 dining locations that include 33 on-campus locations, Merchants-on-Points (off-campus restaurants that deliver), and food trucks. Find more information at [students.duke.edu/living/dining](http://students.duke.edu/living/dining).

### DukeCard

All Duke students are issued electronic Duke University identification cards through their mobile devices. This identification should be carried at all times. DukeCards are the means of identification for library privileges, athletic events, and other university functions or services open to them as university students. Students will be expected to present their cards on request to any university official or employee. DukeCards are not transferable and fraudulent use may result in loss of student privileges or suspension. For more information, visit [dukecard.duke.edu](http://dukecard.duke.edu).

### Parking & Transportation

Duke Parking & Transportation provides the Duke community with parking options that balance price and convenience while managing supply and demand across the parking system. A valid permit is required in all locations; most locations are gated and the permit activates the entry and exit gates. Visitors who do not have a permit pay by the hour in facilities specially set aside for them. Accommodations are also available for patrons that require accessible parking or transportation.

Options include annual permits and short-term permits that allow for flexible or occasional parking. Anyone affiliated with Duke is eligible to purchase on-campus parking in available locations. There are also many transportation options available at Duke, including Duke Transit (buses), vans, city and regional buses, private taxi service, and a ride-hailing program. For more information, visit [parking.duke.edu](http://parking.duke.edu).

## Student Affairs & Organizations

The Division of Student Affairs is critically engaged in supporting the holistic engagement and personal growth of all students who attend Duke. The Division collaborates with student leaders, faculty, families, community members and many others in the delivery of key services.

Its programs and services are designed to support holistic wellbeing, foster an inclusive and dynamic community, and complement Duke's commitment to academic excellence. For more information, visit [studentaffairs.duke.edu](http://studentaffairs.duke.edu).

The Student Affairs Identity and Cultural Centers also serve as important resources and places of connection and support for many of our students. The centers are offering programming and support throughout the year, including summer. ICCs include:

- Center for Multicultural Affairs
- Center for Muslim Life
- Center for Sexual and Gender Diversity
- Duke International Student Center
- Jewish Life at Duke
- Mary Lou Williams Center for Black Culture
- Women's Center

### Graduate and Professional Student Government

The Graduate and Professional Student Government of Duke University (GPSG) is the umbrella student government organization for Duke's nine graduate and professional schools. Its purpose is to: represent and advocate on behalf of graduate and professional students at Duke University; serve as a liaison among the student governments of the graduate and professional schools of the



## Duke University

University; serve as a liaison between graduate and professional students and the University Administration; nominate graduate and professional student representatives to University committees; program events of interest to the graduate and professional student community; and financially support the programming of graduate and professional student groups.

Visit the GPSG website at [gpsg.duke.edu](http://gpsg.duke.edu). Contact GPSG ([gpsgexec@duke.edu](mailto:gpsgexec@duke.edu)) for additional details on how students can become involved.

### **The Black Graduate and Professional Student Association**

The Black Graduate and Professional Student Association (BGPSA) represents all minority graduate and professional students on the Duke University campus. The association's primary mission is to enhance the Duke experience for its members through community service, social, and academically based programming events. As an umbrella organization, the association welcomes students from groups including the Black & Latino MBA Organization, Black Law Students Association, Black Seminars Union, Bouchet Society, Hurston-James Society, and Student National Medical Association. Through its academic forums, luncheons, community service initiatives, social events, and recognition ceremony the group hopes to assist in the development of future minority leadership in the Duke community and in the world.

### **Religious Life**

In partnership with the Division of Student Affairs, the Chapel convenes, supports, and advocates for all of the officially recognized Religious Life groups on campus that serve students, including Buddhist, Catholic, Hindu, Jewish, Latter-Day Saints, Muslim, Orthodox, and Protestant organizations and groups. There are about two dozen Religious Life groups at Duke; find a listing of them at [chapel.duke.edu/religiouslife](http://chapel.duke.edu/religiouslife).

With a mission of "bridging faith and learning," the Chapel holds ceremonies, concerts, Christian worship services, and more. It is a sanctuary open to all people for important personal moments of prayer, reflection, grief, and gratitude. The Chapel's Student Ministries provides opportunities for undergraduate students to hear and respond to God's call for their lives on campus, in Durham, and beyond through study, artistic expression, counsel, service, and community. Learn more at [chapel.duke.edu](http://chapel.duke.edu).

### **Intercollegiate Athletics**

The Athletic Department fosters intercollegiate athletics by striving for excellence and by providing the best possible framework within which highly accomplished student-athletes can compete. The department has a dual responsibility to provide a high-quality athletic program and environment so that all students have the opportunity to compete to the fullest extent of their abilities. Duke is a member of the National Collegiate Athletic Association (NCAA) and the Atlantic Coast Conference (ACC).

## **Student Health & Safety**

### **Campus Police**

It is the mission of the Duke University Police Department to protect and serve the people and property of Duke. We are guardians of a community of world class education, research and healthcare and must prevent violence, reduce fear, and build relationships. For more information, visit [police.duke.edu](http://police.duke.edu).

### **Counseling & Psychological Services (CAPS)**

CAPS helps Duke students enhance their strengths and learn to cope with the trials of living, growing, and learning. CAPS offers many services to Duke undergraduate, graduate, and professional students, including brief individual counseling/psychotherapy, consultation, couples and group counseling, and assistance with referrals. CAPS' staff also provide outreach education programs to student communities, promoting an empathic and supportive culture. Staff members are available for consultation with faculty concerning students or other matters relating to mental health in the university community. The CAPS staff includes psychologists, clinical social workers, and psychiatrists experienced in working with college-age adults. CAPS' staff carefully adhere to professional standards of ethics, privacy, and confidentiality. For more information, visit [studentaffairs.duke.edu/caps](http://studentaffairs.duke.edu/caps).

### **DukeReach**

DukeReach provides direct case management services including interventions, advocacy, referrals and follow-up services for students who are experiencing significant difficulties related to mental health, physical health, and/or psycho-social adjustment. The Assistant and Associate Deans in DukeReach coordinate student services and provide connections with campus departments as well as outside agencies and providers. For more information, visit [studentaffairs.duke.edu/dukereach](http://studentaffairs.duke.edu/dukereach).

### **DuWell**

## Duke University

DuWell works to enhance the educational experience for Duke students by addressing substance use and abuse issues and promoting healthy physical, emotional and social development, including issues related to sexual health. It offers one-on-one screening (for substance use) and health coaching, workshops and trainings on the different topic areas of wellness (including Social Host Education, Stress and Sexual Health workshops) and programs for student groups upon request. Consultation on prevention of high-risk behavior and promotion of wellness is available to students, faculty, professionals and staff. DuWell is dedicated to fostering a living/learning environment on campus and within the surrounding community that encourages the full development of the individual as an engaged member of the community. For more information, visit [studentaffairs.duke.edu/duwell](http://studentaffairs.duke.edu/duwell).

### Student Health

Student Health Services at Duke University is jointly supported by the Division of Student Affairs and the Department of Pediatrics. The Duke Student Health Center is the primary source for a wide range of healthcare services, many of which are covered by the Student Health Fee. Its mission is to provide evidence-based, patient-centered health care to the Duke student community in a professional and compassionate manner that directly contributes to the student's well-being and overall success. For more information, visit [studentaffairs.duke.edu/studenthealth](http://studentaffairs.duke.edu/studenthealth).

### About

In 1924 James Buchanan Duke, an industrialist and philanthropist, established The Duke Endowment and directed that part of his gift be used to transform Trinity College in Durham, North Carolina, into Duke University. The following year, upon his death, Mr. Duke made an additional bequest to the endowment and the university, including funds to establish a medical school, hospital, and nursing home.

One of Mr. Duke's primary motivations in establishing the endowment and the School of Medicine was the improvement of health care in the Carolinas. At a time when medicine in the region was still a cottage industry, James B. Duke dared to dream of creating what he hoped would become one of the leading medical institutions in the nation. By the time the new school and hospital opened in 1930, this dream was already well on its way to becoming a reality.

Less than five years after the School of Medicine opened, the Association of American Medical Colleges ranked it among the top 25 percent of medical schools in the country. It has consistently been considered one of the best academic medical institutions in the nation ever since.

The School of Medicine also is ranked ninth among medical schools for NIH research funding by the Blue Ridge Institute for Medical Research rankings released in 2023. Eight clinical science departments and two basic science departments in the School of Medicine ranked among the top 10 in the country for federal research funding.

The school's unique MD curriculum allows students to study the core basic sciences for one year instead of two, giving them the opportunity to devote their entire third year to a scholarly research project. Students care for patients during their second year, a full year earlier than most of their peers. In 2020, the School of Medicine's MD Program launched a new "patient first" curriculum that puts students in the clinic even earlier and trains them in social determinants of health, data science, and leadership.

The School of Medicine includes numerous highly regarded educational programs in addition to the MD program including the nation's number one ranked Physician Assistant Program, the Doctorate of Physical Therapy program, a new Occupational Therapy Program, eighteen biomedical PhD programs, as well as nine master's programs.

The School boasts the research efforts of more than 2,600 basic science and clinical faculty. Their combined efforts make Duke one of the largest biomedical research enterprises in the country, with more than \$1 billion in sponsored research annually. The School of Medicine, along with the School of Nursing and Duke University Health System, constitute Duke Health, which carries out the missions of patient care, research, education, and community partnership.

The School's core values are:

- Excellence in education, research, and patient care
- Respect for and inclusion of people from all backgrounds
- Commitment to service, solving real world problems
- Sense of urgency in transforming discoveries into improved human health
- Professionalism and integrity demonstrated in all aspects of performance and effort

The Duke University School of Medicine is committed to dismantling racism. In 2020, the School launched Moments to Movement, an initiative that brings together faculty, students, and staff from across the School of Medicine committed to sustainable change to create a more diverse, just, and equitable institution.

The website for Duke University School of Medicine is [medschool.duke.edu](http://medschool.duke.edu).

## School of Medicine History and Notable Achievements

- 1891: First plan for a medical school. Trinity College President John Franklin Crowell makes public a plan to create a medical college with a teaching hospital at Trinity College.
- 1924: Duke Endowment established. James B. Duke establishes The Duke Endowment and directs that part of his \$40 million gift be used to transform Durham's Trinity College into Duke University.
- 1925: Bequest to improve health care. James B. Duke makes an additional bequest to establish the School of Medicine, School of Nursing, and Duke Hospital, with the goal of improving health care in the Carolinas.
- 1927: Dean selected. Dr. Wilburt Cornell Davison, a pediatrician from Johns Hopkins, is appointed dean of Duke University School of Medicine and Duke Hospital on January 21.
- 1927: Construction begins. Construction begins on the School of Medicine and Duke University Hospital.
- 1929: Students selected. 3,000 applicants apply to the new medical school. Seventy first- and third-year students are selected, including four women.
- 1930: Duke University Hospital opens. Duke University Hospital opens for patients on July 21.
- 1930: Medical classes begin. The 18 third-year and 30 first-year medical students begin classes on October 2.
- 1931: Dedication ceremony. The dedication ceremony for Duke University School of Medicine and Duke Hospital is held on April 20.
- 1931: PDC organized. The Private Diagnostic Clinics are organized.
- 1932: First MD graduates. The first medical class graduates, including E.W. Robbins, MD'32, the first female alumna.
- 1935: Duke ranks in top 25 percent. The Association of American Medical Colleges (AAMC) ranks Duke among the top 25 percent of medical schools in the country—less than five years after it opened.
- 1936: Hospital infection breakthrough. Duke surgeons led by Dr. J. Deryl Hart pioneer the use of ultraviolet lamps in operating rooms to eliminate infectious organisms that cause post-operative infections. This procedure dramatically reduces the number of infections and related deaths.
- 1937: Equine encephalomyelitis vaccine. Dr. Joseph Beard, working with his wife and research partner, Dorothy Beard, develops a vaccine against equine encephalomyelitis.
- 1937: Brain tumor program established. Duke establishes the nation's first brain tumor research and education program, launching what will become one of the world's foremost cancer programs.
- 1939: Dietary breakthrough. Continuing through the 1940s and 1950s, Dr. Walter Kempner's research, using a rice-based diet and daily laboratory testing, demonstrates that degenerative processes attacking the kidney, heart, brain, and retina can be arrested by dietary changes. These dramatic findings draw patients to Duke from across the nation.
- 1940: Medical Alumni Association organized. Duke's Medical Alumni Association is organized.
- 1947: Research building opens. Bell Research Building opened as the first building of the medical center that wasn't connected to the main buildings.
- 1950: Cerebral palsy hospital dedicated. North Carolina Cerebral Palsy Hospital is dedicated with forty beds, now Lenox Baker Children's Hospital.
- 1950: Child-proof safety caps. Duke pediatrician Dr. Jay Arena leads the push for drug companies to develop the child-proof safety cap to prevent childhood poisoning, then a major health problem.
- 1955: Duke Center for Aging. Psychiatrist Dr. Ewald W. Busse establishes the Duke University Center for Aging, the first research center of its kind in the nation. Now the oldest continuously running aging center in the United States, the Duke Center for the Study of Aging and Human Development has pioneered long-term studies of health problems among the elderly.
- 1957: Medical Center expansion. Outpatient Private Diagnostic Clinics and Hanes and Reed private floors and operating rooms opened.
- 1959: Advances in open-heart surgery. Duke develops a machine that lowers patients' blood temperatures below 68 degrees Fahrenheit and is the first to place a patient under this deep hypothermia during open-heart surgery.
- 1960: Second dean appointed. With the retirement of Dean Wilburt C. Davison, Dr. Barnes Woodhall, a neurosurgeon, is appointed dean of the School of Medicine.
- 1963: New building opens. The Clinical Research Building opens (Stead Building).
- 1963: Hyperbaric chamber. The hyperbaric chamber opens.
- 1963: Minority students admitted. The first African American student, W. Delano Meriwether, is admitted to Duke University School of Medicine.

## Duke University

- 1964: Third dean appointed. When Dean Barnes Woodhall becomes vice provost of Duke University, Dr. William G. Anlyan, a general and thoracic surgeon, becomes dean of the School of Medicine.
- 1965: Physician Assistant program. Under the leadership of then-chair of medicine Dr. Eugene A. Stead Jr., Duke establishes the nation's first Physician Assistant Program.
- 1966: Building expansion. New Duke Hospital Entrance, the Woodhall Building, opens.
- 1966: New curriculum. Duke introduces a new medical school curriculum that emphasizes critical thinking and evaluation over rote memorization and provides greater flexibility, earlier clinical exposure, and increased research opportunities.
- 1966: MSTP established. The Duke Medical Scientist Training Program, a joint degree program leading to both the MD and the PhD degrees, is founded. It is one of the first three in the nation.
- 1968: Research building opens. The Nanaline Duke Research Building opens.
- 1968: Superoxide dismutase. Dr. Irwin Fridovich and graduate student Joe McCord discover the enzyme which protects all living things against the toxicity of oxygen.
- 1969: 1,000-foot dive. In its hyperbaric chamber, Duke conducts the first recorded studies of human ability to function and work at pressures equal to a 1,000-foot deep-sea dive.
- 1969: The Davison Club. A group of Duke medical alumni establish the Davison Club to provide support for scholarships and medical education at Duke.
- 1972: Duke Comprehensive Cancer Center established. The Duke Comprehensive Cancer Center becomes one of the nation's first cancer centers to be established with the passage of the National Cancer Act. In 1973, Duke is designated as a "comprehensive" cancer center by the National Cancer Institute in 1973.
- 1973: Expansion continues. The Sands Research Building opens.
- 1973: Duke Eye Center opens. The Duke Eye Center opens in what is now the Wadsworth Building.
- 1975: Research building expansion. The Jones Research Building opens.
- 1978: Cancer research expansion. The Morris Cancer Research Building opens.
- 1980: Duke North opens. The new \$94.5 million, 616-bed Duke North Hospital opens, bringing the total number of patient beds to more than 1,000.
- 1981: Major scientific breakthrough. Duke biophysicist Jane Richardson's ribbon diagram, a method of representing the 3D structure of proteins, is first published.
- 1982: Rare childhood disease breakthrough. Duke pediatric immunologist Rebecca Buckley uses matched or unmatched bone marrow transplantation to restore the immune systems of children born with severe combined immunodeficiency, also known as bubble boy disease. Today, Duke's program is the world's largest and most successful.
- 1985: AZT clinical trials. Duke becomes one of two hospitals to conduct the first human clinical trials of AZT, the first drug to offer a substantial improvement in the quality of life for AIDS patients.
- 1989: Fourth dean appointed. Dr. Ralph Snyderman, HS'67, a rheumatologist, is appointed chancellor for health affairs and dean of the School of Medicine on January 1.
- 1990: New research building. The Bryan Research Building opens.
- 1990: Alzheimer's discovery. Duke researchers discover a gene that increases people's risk of developing the most common kind of Alzheimer's disease, showing for the first time that it can be inherited.
- 1992: First bone-marrow transplantation program. The Duke Comprehensive Cancer Center develops the nation's first outpatient bone-marrow transplantation program.
- 1993: First umbilical cord blood transplant. Dr. Joanne Kurtzberg performs the world's first umbilical cord blood transplant at Duke, opening the door for lifesaving transplants between unmatched donors and recipients.
- 1994: Cure for DiGeorge syndrome. Dr. Louise Markert demonstrates that babies born with no immune system, a fatal condition known as complete DiGeorge syndrome, can be cured with thymus transplantation, a procedure she perfected at Duke.
- 1994: Major research expansion. The Levine Science Research Center and Medical Sciences Research Building opened.
- 1994: Breast cancer discovery. Duke scientists help discover the BRCA1 the gene responsible for many inherited forms of breast cancer.
- 1995: MRI lung image. Duke scientists, with colleagues at Princeton University, generate the first clear images of the human lung using magnetic resonance imaging (MRI). The new technique greatly aids diagnosis and treatment of lung disorders such as emphysema and asthma.
- 1998: Duke University Health System established. The Duke University Health System—an integrated academic health care system—is created as Duke establishes partnerships with Durham Regional Hospital (now Duke Regional Hospital, Raleigh Community Hospital (now Duke Raleigh Hospital), and other regional health care providers. Dr. Ralph Snyderman is the first president.

## Duke University

- 1998: New Ambulatory Surgery Center. Duke North Pavilion, a new outpatient surgery center, opens.
- 1999: Fifth dean appointed. Dr. Edward W. Holmes, HS'70-'74, a scientist specializing in genetics and metabolic disease, becomes the fifth dean of Duke University School of Medicine. The role of chancellor for health affairs is separated from the dean's role and retained by Dr. Ralph Snyderman, who is also president and CEO of Duke University Health System.
- 1999: New clinics. The old Duke Hospital (Duke South) is renovated and opened as Duke Clinic in 1999.
- 2000: Children's health center opens. The McGovern-Davison Children's Health Center opens.
- 2001: Sixth dean appointed. Dr. R. Sanders "Sandy" Williams, MD'74, HS'77-'80, a cardiologist, is appointed 6th dean of Duke University School of Medicine.
- 2002: Research expansion. Genome Sciences Research Building I opens on LaSalle Road.
- 2004: Third chancellor for health affairs appointed. Dr. Victor J. Dzau, MD, a cardiologist, is appointed chancellor for health affairs, Duke University, and president and CEO, Duke University Health System.
- 2004: Eye Research Institute. Ruth and Herman Albert Eye Research Institute opens.
- 2004: Engineering-medicine collaboration. The Center for Interdisciplinary Engineering, Medicine, and Applied Sciences (CIEMAS) opens, expanding the collaboration between Duke University's Pratt School of Engineering and the School of Medicine.
- 2005: Center for HIV/AIDS Vaccine Immunology. Funded by the largest NIH grant in the country, Dr. Barton Haynes leads a team of experts in efforts to lay the groundwork for a vaccine against HIV/AIDS.
- 2006: Pompe disease cured. Duke wins FDA approval of the drug Myozyme, the first and only cure for Pompe disease, a rare and fatal metabolic disorder. The drug is the work of Y.T. Chen, MD, and Priya Kishnani, MD, in the Department of Pediatrics, Division of Medical Genetics.
- 2007: Seventh dean appointed. Nancy C. Andrews, MD, PhD, is appointed the 7th dean of Duke University School of Medicine. She is the first woman to lead a top ten US medical school.
- 2009: Duke Singapore partnership. Duke-National University of Singapore Graduate Medical School opens as a partnership in research and education between the School of Medicine and the Singaporean government.
- 2011: Duke Cancer Center opens. The Duke Cancer Center, dedicated solely to the care of patients with cancer opens in February 2011.
- 2011: Major advancement in brain tumor research. Hai Yan, MD, PhD, and a team of scientists from Duke and Johns Hopkins universities identify mutations in a gene that makes cells immortal and appear to play a pivotal role in three of the most common types of brain tumors, as well as cancers of the liver, tongue and urinary tract.
- 2011: Primary Care Leadership Track. The School of Medicine establishes an innovative program to educate students who will become change agents in community health and primary care.
- 2012: Nobel Prize. Dr. Robert Lefkowitz shares the Nobel Prize in Chemistry with Dr. Brian Kobilka, HS'87, for their work on cell receptors.
- 2013: Trent Semans Center opens. In January, classes begin in the Mary Duke Biddle Trent Semans Center for Health Education, the first building dedicated to medical education since the Davison Building opened in 1930. The \$53 million Trent Semans Center was paid for almost entirely through philanthropy.
- 2013: Duke Medicine Pavilion. The 8-floor, 608,000 square foot in-patient pavilion includes 160 critical care rooms, 18 operating rooms, and an imaging suite. The building's environmentally friendly design earned it a LEED silver certification.
- 2013: First in human procedure Physician-scientist. Jeffery Lawson, MD, PhD, and Laura Niklason, MD, PhD, of Yale School of Medicine, develop a bioengineered blood vessel, which Lawson grafted into an artery in a Duke patient's arm, the first in-human procedure of its kind in the United States.
- 2014: Anniversary of the heart transplant program. Duke celebrates the twenty-fifth anniversary of the creation of its heart transplant program. More than 1,000 patients had received new hearts through the program at that time.
- 2015: Nobel Prize. Dr. Paul Modrich receives the Nobel Prize in Chemistry for his groundbreaking research in DNA mismatch repair.
- 2016: Brain tumor treatment breakthrough. The FDA awards Duke "breakthrough therapy designation" for a poliovirus therapy for glioblastoma. The therapy was developed and is being tested by researchers at Duke's Preston Robert Tisch Brain Tumor Center.
- 2016: Major milestone in transplantation. A Duke team, led by Linda Cendales, MD, performed the first hand transplant in NC, attaching the limb to a 54-year-old patient from Laredo, Texas, whose hand was severed in a childhood accident.
- 2017: Eighth dean appointed. Mary E. Klotman, MD, becomes the dean of the School of Medicine.
- 2018: Brain tumor research. A Duke team led by Peter E. Fecci, MD, PhD, finds missing immune cells that could fight lethal brain tumors. The missing T-cells in glioblastoma patients were found in abundance in the bone marrow.

## Duke University

- 2018: Gut cell research. Duke researchers, led by Diego Bohórquez, PhD, discover a new set of pathways that allow gut cells to rapidly communicate with the brain.
- 2018: Breakthrough in peanut allergies. In a study using mice bred to have peanut allergies, Duke researchers were able to reprogram the animals' immune systems using a nanoparticle delivery of molecules to the lymph nodes that switched off the life-threatening reactions to peanut exposures.
- 2018: Duke Cancer Institute Therapy Promising for Glioblastoma Long-Term Survival. A genetically modified poliovirus therapy developed at Duke Cancer Institute shows significantly improved long-term survival for patients with recurrent glioblastoma, with a three-year survival rate of 21% in a phase 1 clinical trial.
- 2019: Advances in flu vaccine development. Duke Human Vaccine Institute received three research contracts from the National Institute of Allergy and Infectious Diseases (NIAID), with an initial award of approximately \$29.6 million in first-year funding to develop a longer-lasting, more broadly protective vaccine to replace the seasonal flu shot.
- 2019: Duke Human Vaccine Institute is awarded a \$129 million grant in its ongoing quest for an HIV vaccine.
- 2019: Duke performs first HOPE Act HIV+ live kidney transplant in NC and region. A donor's altruism leads to the nation's second HIV-positive live kidney transplant.
- 2020: The FDA issues its first-ever approval of a video gaming device as a method for managing ADHD in children; the Duke Clinical Research Institute designed and conducted the randomized clinical trials that resulted in this approval.
- 2021: Pioneering therapy for immune system disease. The FDA approved the first and only therapy for congenital athymia, a group of rare and usually fatal diseases characterized by the lack of a functioning thymus. The new therapy is based on the work of Louise Markert, MD, PhD.
- 2021: Pan-coronavirus vaccine grant. The National Institute of Allergy and Infectious Diseases (NIAID) awards \$17.5 million over three years to the Duke Human Vaccine Institute to develop a vaccine that protects against multiple types of coronaviruses and viral variants.
- 2021: Alzheimer's Disease Center established. The National Institutes of Health awarded funds to a collaboration between Duke and the University of North Carolina at Chapel Hill to establish a prestigious Alzheimer's Disease Research Center.
- 2022: Combination heart/thymus transplant. Duke surgeons perform the world's first combination heart/thymus transplant, a procedure that should help the patient, a baby, overcome immune rejection without needing prolonged use of immunosuppressant drugs.
- 2022: Groundbreaking pediatric heart transplant. Duke surgeons perform the world's first partial heart transplant, implanting living arteries and valves into a baby born with a congenital heart defect.
- 2023: Contract to produce pan-coronavirus vaccine. The Duke Human Vaccine is awarded a federal contract of \$11.2 million, with the potential for up to \$21.5 million, to manufacture a pan-coronavirus vaccine for clinical 1 trials.
- 2023: Breast cancer breakthrough. The FDA approves elacestrant, developed at Duke in the lab of Donald McDonnell, as the first treatment to fight breast cancers with mutations in the ESR1 estrogen receptor, which makes tumors resistant to standard endocrine therapy.
- 2023: First-ever treatment for geographic atrophy. A groundbreaking treatment for geographic atrophy, a progressive blindness-causing eye disease, is approved by the FDA following clinical trials at Duke led by Eleanora Lad, PhD.

## Administration

### Duke Health and Duke University Health System Administration

Mary Klotman, MD, Executive Vice President for Health Affairs, Duke University and Dean, Duke University School of Medicine

Craig Albanese, MD, MBA, Executive Vice President and Chief Operating Officer, DUHS Duke Health

Rhonda Brandon, Chief Human Resources Officer and Senior Vice President, Duke Health System

Monte Brown, MD, Vice President of Administration, Duke University Health System, and Associate Dean of Veteran's Affairs, Duke University School of Medicine

Edward Buckley, MD, Vice Chancellor for Duke-NUS Affairs; Vice Dean for Education, Duke University School of Medicine

Thomas M. Coffman, MD, Dean, Duke-NUS Medical School

Mike Datto, MD, PhD, Associate Vice President, DUHS Clinical Labs

Mary Ann Fuchs, RN, DNP, Vice President of Patient Care, System Chief Nurse Executive for Duke University Health System and Associate Dean of Clinical Affairs for Duke University School of Nursing

Jeffrey Ferranti, MD, Chief Digital Officer and Senior Vice President, Duke Health

## Duke University

Katie Galbraith, MBA, President, Duke Regional Hospital

Alyson Parker Gordon, CCP, MBA, MSM, SPHR, Assistant Vice President of New Talent Strategies, DUHS

Barbara Griffith, MD, President, Duke Regional Hospital

Christy M. Gudaitis, JD, Deputy General Counsel for Health Affairs, Duke University and Health System Counsel

Vincent Guilamo-Ramos, PhD, MPH, LCSW, RN, ANP-BC, PMHNP-BC, AAHIVS, FAAN, Dean and Professor, School of Nursing; Vice Chancellor for Nursing Affairs, Duke University

Debra Clark Jones, Associate Vice President for Community Health

Michael Kastan, MD, PhD, Executive Director, Duke Cancer Center

Catherine Liao, Associate Vice President for Government Relations, Duke Health

Paul Lindia, Vice President, Network Services, DUHS

Mark McClellan, MD, PhD, Director, Duke-Margolis Center for Health Policy

Ellen Medearis, Vice President, Development and Alumni Affairs, Duke Health

John Mordach, MBA, Senior Vice President, Chief Financial Officer, and Treasurer, Duke University Health System

Rob Odom, Chief Marketing & Communications Officer and Vice President, Duke University Health System Thomas Owens, MD, President, Duke University Hospital, Senior Vice President, Duke University Health System

Colleen Shannon, Chief Compliance and Privacy Officer, Duke University Health System

Richard Shannon, MD, Chief Quality Officer and Senior Vice President, Duke Health

Shilpa P. Shelton, MHA, FACHE, Associate Vice President for Musculoskeletal & Spine Services, DUHS

Scarlet Soriano, MD, ABOIM, Executive Director of Duke Health and Well Being

Cary Unger, MHA, Associate Vice President, Neurosciences and Behavioral Health, DUHS

## School of Medicine Administration

Mary Klotman, MD, Executive Vice President for Health Affairs, Duke University and Dean, Duke University School of Medicine

Scott Gibson, MBA, Executive Vice Dean for Administration

Mara Becker, MD, MSCE, Vice Dean for Faculty

Edward G. Buckley, MD, Vice Dean for Education, Vice Chancellor for Duke-NUS Affairs

Colin Duckett, PhD, Vice Dean for Basic Science

Mason Essif, Vice Dean for Communications and Advancement; Chief Communications Officer

Adrian Hernandez, MD, Vice Dean and Executive Director, Duke Clinical Research Institute

Allan Kirk, MD, PhD, Vice Dean for the Section of Surgical Disciplines

Susanna Naggie, MD, Vice Dean for Clinical Research

Billy Newton, Jr., Vice Dean for Finance and Resource Planning

Theodore N. Pappas, MD, Vice Dean for Medical Affairs

Michael Pencina, PhD, Vice Dean for Data Science and Information Technology

Geeta Swamy, MD, Associate Vice President for Research, Duke University; Vice Dean for Scientific Integrity, School of Medicine

Kevin Thomas, MD, Vice Dean for Equity, Diversity, and Inclusion; Chief Diversity Officer

Jennifer Averitt, Associate Dean for Medical Education Administration

Suresh Balu, Associate Dean for Innovation and Partnership

Ann Brown, MD, MHS, Senior Associate Dean for Faculty Professionalism

Monte Brown, MD, Associate Dean for Veterans Affairs

Aimee Chung, MD, Associate Dean for Student Affairs

Cathleen Colon-Emeric, MD, MHSc, Associate Dean for Research Mentoring

Leonor Corsino, MD, Associate Dean for Student Affairs

Thomas N. Denny, MSc, M.Phil, Associate Dean for Duke RTP Administration

## Duke University

Joanna Downer, PhD, Associate Dean for Research Development  
W. Gavin Foltz, JD, Associate Dean and Executive Director, Office of Research Contracts  
Jane Gagliardi, MD, MHS, Associate Dean for Learning Environment and Well-being  
Rasheed Gbadegesin, MD, mBBS, Associate Dean for Physician-Scientist Development  
David Gordon, MD, Associate Dean for Student Affairs  
Betsy Hames, JM, SPHR-SCP, Associate Dean and Chief Human Resources Officer  
Joseph A. Jackson, MD, Associate Dean for Student Affairs and Director of the Office of Student Affairs  
Catherine Kuhn, MD, Associate Dean for Graduate Medical Education  
Monica Lemmon, MD, Associate Dean for Scientific Integrity  
Diana McNeill, MD, Associate Dean, Duke AHEAD  
Moria Montalbano, Associate Dean, Space Management & Research Resources  
Aditee Narayan, MD, MPH, Associate Dean for Curricular Affairs  
Judy Seidenstein, Associate Dean for Equity, Diversity and Inclusion  
Svati Shah, MD, MHS, Associate Dean of Genomics  
Denise Snyder, MS, RD, Associate Dean for Clinical Research  
Lindsey Spangler, Associate Dean for Research Integrity  
Denise Snyder, MS, RD, Associate Dean for Clinical Research  
Katherine Stanley, Associate Dean for the Section of Surgical Disciplines  
Beth Sullivan, Associate Dean for Research Training  
James E. Tcheng, MD, Associate Dean for Appointments, Promotion & Tenure  
Laurianne Torres, Associate Dean for Research Administration  
Lisa Varani, CPA, Associate Dean for Planning and Chief of Staff  
Megan Von Isenburg, MSLS, Associate Dean for Library  
Cary Ward, MD, Associate Dean for Faculty Development  
Elizabeth Malinzak, MD, Associate Dean for Student Affairs  
Linton Yee, MD, Associate Dean for Admissions  
Kathryn Andolsek, MD, MPH, Assistant Dean, Pre-Medical Education  
Saumil Chudgar, MD, MEd, Assistant Dean for Clinical Education  
Deborah Engle, EdD, MS, Assistant Dean for Assessment and Evaluation  
Eric Peraklis, PhD, Chief Research Technology Strategist  
Andrea Liu, Assistant Dean of Admissions; Assistant Director of Medical Scientist Training Program  
Fatima Syed, MD, Director, Primary Care Leadership Track  
J. Matthew Velkey, PhD, Assistant Dean for Basic Science Education  
W. Todd Cade, PT, PhD, Division Chief for Doctor of Physical Therapy Program  
Barbara Hooper, PhD, Program Director and Division Chief, Doctor of Occupational Therapy  
Lori Crooks, Assistant Dean of Financial Aid and Registrar  
Christopher Kontos, MD, Director, Medical Scientist Training Program  
Anna Hampton, Director, Institutional Animal Care and Use Committee/Office of Animal Welfare Assurance  
Maureen D. Cullins, AM, Program Director, Multicultural Resource Center  
Antony Schwartz, PhD, Director, Biological Safety  
Jacqueline S. Barnett, DHSc, MHS, PA-C, Division Chief, Division of Physician Assistant Studies  
John Norton, DVM, Program Director, Division of Laboratory Animal Resources  
Scott Heflin, MA, Director of the Office of Curricular Affairs



## Duke University

### Duke-NUS Graduate Medical School in Singapore

Edward Buckley, MD, Vice-Chancellor of Duke-NUS Affairs (at Duke)

Michael (Luke) James, MD, Assistant Vice Chancellor for Duke-NUS Research, Duke-NUS Clinical Research Liaison (at Duke)

Thomas Coffman, MD, Dean, Duke-NUS Medical School

Patrick Casey, PhD, Interim Head, Office of Innovation and Entrepreneurship

Karen Chang, Senior Vice Dean and Group Director of Corporate Services

Ian Curran, BSc, AKC, MBBS, FRCA, Vice Dean of Education

Chow Wan Cheng, MBBS, MMED (Int Med), MRCP (UK), FAMS, Vice Dean of Academic & Clinical Development

Chan Choong Meng, Senior Associate Dean & Co-Director, Academic Medicine Education Institute

Lim Soon Thye, MD, Senior Associate Dean, MD Programme

Silke Vogel, PhD, Associate Dean, Graduate Studies

Scott Compton, PhD, Associate Dean, Quality Assurance and Accreditation; Associate Dean, Medical Education

Bello Guerra Fernando, Associate Dean, Technology Enhanced Learning & Innovation

Lalit Kumar Radha Krishna, Associate Dean, Ethics & Professionalism

Suzanne Goh, MD, Associate Dean, Student Affairs

Mara McAdams, MD, Associate Dean, Alumni Relations

Suzanne Goh, MD, Associate Dean, Student Affairs

Nigel Tan, Associate Dean, MD Programme

Ooi London Lucien, MBBS, FCSHK, FRCS, MD, Associate Dean, Admissions, Recruitment, and Financial Aid

Shiva Sarraf-Yazdi, MD, MEHP, Associate Dean, Educational Strategies & Programme Development

Ng Yee Sien, Assistant Dean, Professional Support & Development

Ong Thun How, Assistant Dean, Assessment & Progression

Daniel Laskowitz, MD, Joint Academic Committee (at Duke)

Christopher Counter, PhD, Duke-NUS Basic Science Research Liaison (at Duke)

Samira Wellemeyer, Director, Office of Duke-NUS Affairs (at Duke)

Aditee Narayan, MD, Associate Dean for Curricular Affairs, Joint Academic Committee (at Duke)

Sulochana Naidoo, PhD, Associate Director, Global Education for Duke-NUS (at Duke)

J. Matthew Velkey, PhD, Assistant Dean for Basic Science Education, Joint Academic Committee (at Duke)

### Standing Committees of the Medical Center Academic Administration

#### Admissions Medical School

Linton Yee, Associate Dean of Admissions; Drs. Elizabeth Livingston and Bradley Collins, Executive Committee on Admissions Chairs; Committee Members: Drs. Anne Akwari, William Bradford, Richard Chung, Zachary Dionise, Robert Drucker, Liping Feng, Henry Friedman, Charles (Chuck) Gerardo, Carolyn Glass, David Gordon, Jennifer Greene, Megan Huchko, Christopher Kontos (*ex officio*), Nicole Larrier, Shu Lin, Elizabeth Malinzak, Abigail Melnick, John Middleton, Julie Penzner, Devdutta Sangvai, Lauren Siewny, Linda Sutton, Fatima Syed, Leonard White, and Delbert Wigfall; Ms. Andrea Liu and Maureen Cullins; Third or Fourth year medical students from the Davison Council, SNMA, LMSA, APAMSA, and Duke Pride

#### Basic Science Faculty Steering

Lorena Beese, PhD, Chair; Drs. Stefano DiTalia, Matthew Dupree, Kevin Franks, Sarah C. Goetz, Gianna Hammer, George Jackson, Jeremy Kay, Andrzej Kosinski, Chay Kuo, Daniel Lew, Craig Lowe, Debbie Silver, Herman Staats, Thomas Tedder, Jichun Xie, Hai Yan, and Pei Zhuo

#### Clinical Sciences Appointments, Promotions, and Tenure

Cindy Amundsen, MD, Chair; Sharon Fekrat, MD, Vice Chair; Drs. Ron Goldberg, Roger Liddle, Christine Marx, Sarah Myers, Mark Stafford-Smith, Georgia Tomaras, Julia Walker, and Qianben Wang

### **Clinical Science Faculty Council on Academic Affairs**

Thomas Ortel, MD, PhD, Chair; Drs. Kathryn Andolsek, Cecil Borel, Brian Brigman, Claude Burton, Bradley Collins, Stephen George, Susan Halabi, Carol Hahn, Brant Inman, Andrzej Kosinski, Walter Lee, Howard Levinson, John Madden, Page McAdams, Sarah Myers, Thomas Price, Svati Shah, Craig Sobolweski, Brett Stolp, Dean Taylor, and Zhihang Wang. Alternates: Drs. Andrew Allen, Sanjay Asrani, Allan Chrisman, Dennis Clements, Brian Czito, Dennis Darcey, Eplin, Anne Ford, Joseph Govert, Steven Grambow, Heyneman, Kimberly Johnson, John Kirkpatrick, Anand Lagoo, Eugene Moretti, Holly Muir, Mark Stafford-Smith, Cynthia Toth, Debara Tucci, and Chip Walter

### **Clinical Training Committee**

Saamil Chudgar, MD, Chair; Drs. Melinda Blazar, Melanie Bonner, Dana Clifton, Cerrone Cohen, Leonor Corsino, Samrat Das, Sarah Dotters-Katz, Deborah Engle, Robert French, Karissa Gamble, David C. Gordon, Joseph Jackson, Jonathan Martin, Aditee Narayan, Cecily Peterson, Fatima Syed, Poonam Sharma, Dean Taylor, Jenny Van Kirk, Cory Vatsaas, Matthew Velkey, Nancy Weigle, and Delbert Wigfall. Mses. Jennifer Averitt, Lori Crooks, and Andrea Liu

### **Comprehensive Administration Group**

Edward Buckley, MD, Chair; Drs. Saamil Chudgar, Deborah Engle, Jamie Fox, Mitchell Heflin, Joseph Jackson, Nancy Knudsen, Daniel Laskowitz, Erin Leiman, Diana McNeill, Sulochana Naidoo, Aditee Narayan, Poonam Sharma, Fatima Syed, Matthew Velkey, Nancy Weigle, Gabriel Yapuncich and Linton Yee; Ex-Officio members: Jennifer Averitt, Joseph Cawley, Lori Crooks, Kristin Dickerson, Marcie Ellis, Renee Hedstrom, Scott Heflin, Andrea Liu, Sharon Kaiser, and Megan Von Isenburg

### **Curriculum Committee – Undergraduate Medical Education**

Edward Buckley, MD, Chair; *Voting Members:* Drs. Kathy Andolsek, Jacqui Barnett, Joel Boggan, Taylor Broome, Bruce Burnett, Laura Caputo, Jennifer Carbrey, Saamil Chudgar, Aimee Chung, Andrea Deyrup, Sarah Dotters-Katz, Deborah Engle, Jamie Fox, Rob French, Liza Genao, David Gordon, Mitch Heflin, Julian Hertz, Tiffany Hilton, Barb Hooper, Joseph Jackson, Michelle Johnson, Darsh Kothari, Andrew Landstrom, Danny Laskowitz, Erin Leiman, Elizabeth Malinzak, Sneha Mantri, Sharon McCartney, Jacquelyn McMillian-Bohler, Andrew Muzyk, Aditee Narayan, Toyosi Onwuemene, Julie Penzner, Cecily Peterson, Denise Pong, Dev Sangvai, Kevin Shah, Poonam Sharma, Betty Staples, Fatima Syed, Jenny Van Kirk, Matt Velkey, Nancy Weigle, Gabe Yapuncich, Linton Yee, Peter Yi, Angel Zeininger; Jen Averitt, Lori Crooks, Scott Heflin, Megan Von Isenburg; Students: Aaron Therien, Christine O’Connell, Claire Sibold, Anivarya Kumar, Isa DeLaura, Ivana Premasinghe, Juliet Dalton, Kira Niederhoffer, Osmel Alvarez, Raiven Harris, Roshini Srinivasan

### **Duke Cancer Institute Steering Committee**

Michael Kastan, MD, PhD, Chair; Drs. Tomi Akinyemiju, Peter Allen, Ted Alyea, Carey Anders, Nadine Barrett, Gerard Blobe, Christopher Counter, Nelson Chao, Robin Famiglietti, Peter Fecci, Daniel George, Shelley Hwang, Warren Kibbe, Chuan-Yuan Li, Donald McDonnell, Steven Patierno, Kathryn Pollak, Tom Stinchcombe, Lars Wagner, and Christopher Willett; Ms. Karen Kharasch

### **Duke University Medical Center Radiation Control Committee**

Terence Wong, MD, PhD, Chair; Drs., John Kirkpatrick, Kevin Hill, Bruce Lobaugh, Leila Murebee, Robert Reiman, Fang-Fang Yin, and Terry Yoshizumi; Ms. Mary Ann Fuchs; Messrs. Vanessa Peoples, Neil Petry, and Grant Smith

### **Duke University Safety Committee**

Matthew Stiegel, PhD, Chair; Drs. Robert Reiman, Satish Subramaniam, Antony Schwartz, and Chu Wang. Messrs. David Bass, Chris Boroski, John Dailey, Doug McGhee, Fred Knipper, Scott Martin, Ken Reikofski, Brad Schlitz, Ben Scoggin, Ken Shaw, Shawn Subasic, Robert Whiteside, and Jason Zivica; Mses. Kristie Barazsu, Nicole Greeson, Erica King, Lindsey Morgan, Phyllis Parrot, Jennifer Phillips, Amy Puglia, Samantha Rimmer, Joy Vollers, Da-Vida White and Robert Whiteside

### **Fourth Year Committee**

Jenny Van Kirk, MD, Chair; Drs. Dan Blazer III, Saamil Chudgar, Aimee Chung, Joe Doty, Deborah Engle, James Fox, David Gordon, Julian Hertz, Susan Izatt, Janet Lee, Sharon McCartney, Aditee Naryan, Cecily Peterson, Lance Roy, and Dean Taylor; Mses. Lori Crooks and Marcie Ellis

### **Hospital Clinical Ethics Consultation Service**

To contact the Clinical Ethics Consultation Service, page (919) 970-8209.

### **Institutional Biosafety Committee**

Richard Frothingham, MD, and Michael A. Stiegel, PHD, Co-chairs; Drs. Patrick Condreay, Paul Cray, Carol Epling, Dieter Mielke, Randall Reynolds, Antony Schwartz, and Tai-Ping Sun; Mr. T. Scott Alderman, Mr. Brian Letourneau, Mr. Arrash Yazdani, and Ms. Lindsey Morgan;

## Duke University

Contact person: Dr. Antony Schwartz

### **Institutional Review Board for Clinical Investigations**

Co-chairs: Drs. Richard Frothingham and Matthew Stiegel. For a complete listing, please refer to the Institutional Review Board for Clinical Investigations website at [irb.duhs.duke.edu](http://irb.duhs.duke.edu).

### **Library Advisory Committee**

Megan von Isenburg, MSLS, Chair; Kathryn Andolsek, MD, MPH; Lorraine Anglin, MHS, PA-C; Jeffrey Baker, MD, PhD; Sherilynn Black, PhD; Rebecca Brouwer, MS; Monique Fleurant, BSN, RN, CIC; Heath Gasier, PhD; Bonnie Hepler, PhD; Alexis Musick, Medical Student; Clay Musser, MD, MS; Alex Suarez, MD; Barbara Turner, PhD, RN, FAAN, and Julie Waldrop, DNP, PNP, FAANP, FAAN. Ex-Officio members: Sarah Cantrell, MLIS; Russel Koonts, MA; and Beverly Murphy, MLS, FMLA

### **Merit Awards**

Mary E. Klotman, MD, Chair; Drs. Edward G. Buckley and Linton Yee; Other members: Jennifer Averitt, Lori Crooks, and Andrea Liu

### **Misconduct in Research**

Misconduct Review Officer, Dr. Donna Kessler; Website: [dosi.duke.edu/misconduct-research](http://dosi.duke.edu/misconduct-research)

### **Progress Committee**

Chair: Joseph Jackson, MD; Drs. Melanie Bonner; Saamil Chudgar, Aimee Chung, Leonor Corsino, Deborah Engle, Jane Gagliardi, David Gordon, Daniel Laskowitz, Fatima Syed, and Matthew Velkey and Del Wigfall; Lori Crooks, Marcie Ellis, and Sheba Hall

### **Promotions Committee**

Jane P. Gagliardi, MD, MHS, FACP, DFAPA, Chair; Drs. Kathy Andolsek, Andrew Alspaugh, Trey Blazer, Catherine Bowes-Rickman, Jennifer Carbrey, Saamil Chudgar, Cerrone Cohen, Bradley Collins, Aimee Chung, Leonor Corsino, Aimee Chung, Liza Genao, David Gordon, Joseph Jackson, Bruce Klitzman, Joseph Lo, Andrew Muzyk, Sarah Dotters-Katz, Poonam Sharma, Jenny Van Kirk, Matt Velkey, and Kanecia Zimmerman. Members (ex officio): Drs. Melanie Bonner, Deborah Engle, Delbert Wigfall; Ex-officio: Jennifer Averitt, Lori Crooks, Marcie Ellis, and Karen Tesoriero

### **Third Year Committee**

Daniel Laskowitz, MD, Chair; Drs. Kathryn Andolsek, Catherine Bowes Rickman, Vivian Chu, David Edelman, Deborah Engle, Neil Freedman, Rory Goodwin, David Hsu, Megan Huchko, Margaret Humphreys, Bruce Klitzman, Andrew Landstrom, Joseph Lo, Chris Marx, Shannon McCall, Richard Moon, Sulochana Naidoo, Becky Schroeder, Kevin Shah, Matthew Sparks, Steve Taylor, and Anh Tran; Official Liaisons and ex-officio members: Mitenna Allen, Gowthami Arepally, Jennifer Averitt, Leonor Corsino, Lori Crooks, June Clement, William Eward, Elizabeth Futrell, Brittany Harris, Scott Heflin, Samantha Kaplan, Nathan Logan, Heather Lloyd, Lysa McKeen, Aditee Narayan, Randy Sears, Mattie Stevenson and Karen Tesoriero

## **Continuing Medical Education**

The mission of the Continuing Medical Education (CME) Program, as part of the Joint Accreditation Program Office, is to assist health care professionals in the translation, diffusion, and application of evidence-based knowledge to specifically improve clinical care and enhance patient safety. The Joint Accreditation program seeks to distill complex research and medical information into formats useful to physicians, scientists, and health care workers to promote implementation of that information in the health care setting. The Duke University Health System Department of Clinical Education and Professional Development (CEPD) designates all types of activities: live presentations, online education, simulation, medical games, and enduring materials (monographs, DVDs, etc.). The Duke University Health System Department of Clinical Education and Professional Development (CEPD) provides educational programs inclusive of medicine, nursing, pharmacy, and other healthcare providers.

To obtain a listing of current CME activities, you may check the School of Medicine website or [ja.dh.duke.edu](http://ja.dh.duke.edu). To request credit for a meeting, please contact Department of Clinical Education and Professional Development DUMC Box 2722, 2424 Erwin Road, Hock Plaza 1, Suite G07, Durham, NC 27705; (919) 385-4339. To view your Duke CME transcripts, log into [ja.dh.duke.edu](http://ja.dh.duke.edu).

## **Graduate Medical Education Program Information**

Appointments are from July 1 through June 30 with a few exceptions. Trainees receive competitive stipends and a comprehensive benefits package, including but not limited to a 403b contribution, professional liability insurance, disability insurance, life insurance, health insurance, parking, and uniforms.

## Duke University

Duke University Hospital is a participating member of the National Resident Matching Program, Washington, DC. All applicants for first-year, post-medical school appointments must register with this program.

The Durham Veterans Administration Medical Center adjoins the Duke University campus and is affiliated with Duke University Medical Center. Currently, approximately two thirds of Duke University Hospital's training programs rotate to the Durham VA. Additional training sites include Duke Regional Hospital, and Duke Raleigh Hospital

ACGME programs offered and the associated program training director are as follows:

<b>PROGRAM</b>	<b>DIRECTOR</b>
Adult Cardiothoracic Anesthesiology	Brandi Bottiger
Adult Congenital Heart Disease	Richard Krasuski
Adult Reconstructive Orthopaedics	Michael Bolognesi
Allergy and Immunology	Amy Stallings
Anesthesiology	Annemarie Thompson
Cardiovascular Disease	Anna Lisa Chamis
Child Abuse Pediatrics	Lindsay Terrell
Child and Adolescent Psychiatry	Tara Chandrasekhar
Child Neurology	Carolyn Pizoli
Clinical Biochemical Genetics	Sarah Young
Clinical Cardiac Electrophysiology	Donald Hegland
Clinical Informatics	Eric Poon
Clinical Neurophysiology	Aatif Husain
Complex Family Planning	Beverly Gray
Complex General Surgical Oncology	Trey Blazer
Congenital Cardiac Surgery	Joseph Turek
Critical Care Medicine (Anesthesiology)	Naszish Hashmi
Critical Care Medicine (Internal Medicine)	Stephen Bergin
Cytopathology	Rachel Factor
Dermatology	Erin Lesesky
Dermatopathology	Rami Al-Rohil
Diagnostic Radiology	Michael Taylor-Cho
Emergency Medicine	Joshua Broder
Endocrine Surgery Fellowship	Randall Scheri
Endocrinology, Diabetes and Metabolism	Matthew Crowley
Epilepsy	Prachi Parikh
Family Medicine	William Bynum
Family Medicine Rural Track	Thomas Koinis
Female Pelvic Medicine and Reconstructive Surgery	Amie Kawasaki
Foot and Ankle Orthopaedics	Mark Easley
Gastroenterology	Richard Wood
Geriatric Medicine	Mamata Yanamadala
Geriatric Psychiatry	Tracey Holsinger
Gynecologic Oncology	Brittany Davidson
Hand Surgery	Marc Richard
Hematology (Hematopathology) Fellowship	Ken Young
Hematology/Medical Oncology	Richard Riedel

## Duke University

<b>PROGRAM</b>	<b>DIRECTOR</b>
Hospice and Palliative Medicine	Alisha Brenner
Infectious Disease	Eileen Maziarz
Internal Medicine	Aimee Zaas
Internal Medicine (P)	Aimee Zaas
Internal Medicine/Pediatrics	Colby Feeney
Internal Medicine/Psychiatry	Jane Gagliardi
Interventional Cardiology	W. Schuyler Jones
Interventional Radiology - Integrated	Paul Suhocki
Interventional Radiology - Independent	Paul Suhocki
Laboratory Genetics and Genomics	Kristen Deaks
Maternal - Fetal Medicine	Sarah Ellestad
Medical Biochemical Genetics	Marie McDonald
Medical Genetics and Genomics	Marie McDonald
Medical Microbiology	Christopher Polage
Molecular Genetic Pathology	Jadee Neff
Neonatal-Perinatal Medicine	Rachel Greenberg
Nephrology	Matthew Sparks
Neurological Surgery	Michael Haglund
Neurology	Suma Shah
Neurocritical Care (multidisciplinary)	Shreyansh Shah
Neuromuscular Medicine	Karissa Gable
Neuropathology	Karra Jones
Neuroradiology	Michael Malinzak
Nuclear Medicine	Olga James
Nuclear Radiology	Olga James
Obstetric Anesthesiology	Jennifer Dominguez
Obstetrics and Gynecology	Brittany Davidson
Ophthalmology	Pratap Challa
Orthopaedic Surgery	Robert Fitch
Orthopaedics Sports Medicine	Dean Taylor
Otolaryngology	Charles Woodard
Otology and Neurotology	David Kaylie
Pain Medicine	Peter Yi
Pathology - Anatomic and Clinical	Thomas Cummings
Pediatric Anesthesiology	John Eck
Pediatric Cardiac Anesthesiology	Warwick Ames
Pediatric Cardiology	Michael Jay Campbell
Pediatric Critical Care Medicine	Omar Alibrhim
Pediatric Dermatology	Neil Prose
Pediatric Endocrinology	Laura Page
Pediatric Gastroenterology	Narayan Venkatasubramami
Pediatric Hematology-Oncology	Jennifer Rothman
Pediatric Hospital Medicine	Mikelle Key-Solle

PROGRAM	DIRECTOR
Pediatric Infectious Diseases	Matthew Kelly
Pediatric Nephrology	Shashi Nagaraj
Pediatric Pulmonology	Mai El Mallah
Pediatric Radiology	Charles Maxfield
Pediatric Rheumatology	Rebecca Sadun
Pediatrics	Mia Mallory
Plastic Surgery	Brett Phillips
Plastic Surgery – Integrated	Brett Phillips
Preventive Medicine - Occupational Medicine	Dennis Darcey
Psychiatry	Heather Vestal
Pulmonary Diseases/Critical Care Medicine	Stephen Bergin
Radiation Oncology	Joseph Salama
Regional Anesthesiology and Acute Pain Medicine	Amanda Kumar
Reproductive Endocrinology and Fertility	Danny Schust
Rheumatology	David Leverenz
Sleep Medicine	Andrew Spector
Sports Medicine (FP)	Jeffrey Bytowski
Surgery	Elisabeth Tracy
Surgery (P)	Elisabeth Tracy
Surgical Critical Care	Amy Alger
Thoracic Surgery	John Haney
Thoracic Surgery - Integrated	John Haney
Transplant Hepatology	Omobonike Oloruntoba Sanders
Undersea and Hyperbaric Med.-Prev. Med.	Bruce Derrick
Urology	Andrew Peterson
Vascular Neurology	Nada El Hussein
Vascular Surgery	Chandler Long
Vascular Surgery Integrated	Chandler Long

Graduate Medical Education Program Information

## Duke Graduate Medical Education Employment Requirements

Those eligible for appointment to the Associate Medical Staff (Graduate Medical Trainee) include:

- Graduates of medical schools in the United States and Canada accredited by the Liaison Committee on Medical Education (LCME)
- Graduates of colleges of osteopathic medicine in the United States accredited by the American Osteopathic Association (AOA)
- Graduates of medical schools outside the United States and Canada who meet one of the following qualifications:
  - Have received a currently valid certificate from the Educational Commission for Foreign Medical Graduates or
  - Have a full and unrestricted license to practice medicine in a US licensing jurisdiction.
- Graduates of medical schools outside the United States who have completed a Fifth Pathway program provided by an LCME accredited medical school

Additionally, the following requirements apply to all members of the Associate Medical Staff:

- ACGME Residency and Fellowship applicants must meet all existing requirements for entry into ACGME subspecialty programs
- Have a Full North Carolina Medical License or Resident Training License (RTL)
- Official medical school transcript with conferred or graduated date
- A completed Postgraduate Training Verification Form (if applicable)
- Appropriate current life-support skills (e.g., ACLS/PALS) certification

## Duke University

- Proof of identity and US Employment Eligibility (I-9) via E-Verify (See: I-9 Form Policy) including SS card
- Health Record Clearance, which includes drug screening
- A signed Agreement of Appointment. The signed Graduate Medical Education Agreement of Appointment is not effective, and employment will not commence, until all credentialing documents have been received and approved by the Office of GME and all requirements for hire have been satisfied.
- Application for Appointment (which requires reference forms, criminal background check, National Practitioner Databank check, EPLS check, OIG check, and ECFMG check for IMGs.)
- Completion of all required online safety training
- Completion of all required payroll forms
- Completion of all prerequisite institutional training modules (completed after hire)
- USMLE (or equivalent) Transcript
  - Document passing scores in the first two parts of appropriate medical licensure examinations (USMLE Step 1 and Step 2CK (if applicable, COMLEX, or equivalent Canadian examinations, etc.) After 24 months of post-graduate training at Duke, documentation of passing all three parts of the licensing examinations must be provided. Subspecialty trainees (fellows) must provide proof of passage of all three medical licensure examinations (USMLE Steps 1, Step 2 CK, Step 2 CS, and Step 3) prior to matriculation.
  - This policy applies to all graduate medical trainees whether United States or International Medical School graduates. Programs have the right to impose more stringent requirements, but no less than those contained in this policy. An Agreement of Appointment will not be valid without satisfying this requirement. (\*USMLE statement if the trainee has not passed Step 3)
- Attend Institutional Orientation

A trainee may begin their clinical duties after they have met the above GME requirements.

Graduate Medical Education Program Information

## Auditing of Courses by House Staff

Residents and fellows at the medical center may audit courses through the undergraduate and graduate divisions of Duke University by obtaining written permission of the course director and the Office of Continuing Studies and by paying the current audit fees. House staff members are not permitted to take courses offered through the School of Medicine. For more information, visit [learnmore.duke.edu/academics/auditing](http://learnmore.duke.edu/academics/auditing). Questions may be directed to Kim Price ([kprice@duke.edu](mailto:kprice@duke.edu)), Director of Summer Session & Special Programs for Duke Continuing Studies.

Graduate Medical Education Program Information

## International Medical Graduates (IMG)

An international medical graduate is a physician who received their basic medical degree or qualification from a medical school located outside the United States and Canada. Citizens of the United States who have completed their medical education in schools outside the United States and Canada are also considered international medical graduates. They must hold a valid certification from the Educational Commission for Foreign Medical Graduates (ECFMG) for admission to and participation in training programs. For information on ECFMG and the examination requirements, physicians must write to ECFMG, 3624 Market Street, Philadelphia, PA, 19104, or visit the website at [ecfm.org](http://ecfm.org).

Physicians who are not United States citizens or lawful permanent residents and who need visa sponsorship must also contact this organization. ECFMG is the sole organization authorized to sponsor physicians for clinical training in J-1 exchange visitor status. No other J-1 program is permitted to sponsor physicians in clinical training. Physicians who have passed additional exams and hold additional qualifications may qualify for visas other than the J-1.

Applicants should send applications directly to the department or training program. For program information and online applications, visit the Office of Graduate Medical Education website at [gme.duke.edu](http://gme.duke.edu). Please note: an application from an IMG that does not include a copy of a valid ECFMG certificate, or other evidence from ECFMG confirming passage of all of the required exams, is considered incomplete and may be discarded without further notice to the applicant.

For additional information regarding international medical graduates, visit the Duke Visa Services website at [visaservices.duke.edu](http://visaservices.duke.edu) or email [visahelp@mc.duke.edu](mailto:visahelp@mc.duke.edu).

## Resources for Study

## Duke University

The goal of Duke University School of Medicine is to provide leadership in fulfilling its core missions which are

- to provide the most advanced and comprehensive education possible; to prepare our students and trainees for lifetimes of learning and careers as leaders, practitioners, or researchers;
- to perform biomedical research producing discoveries that add to understanding life processes and lead to preventing and curing disease and maintaining health;
- to translate, to practice, and to make available to the public, with compassion, the benefits of the unique clinical and technological resources of the School of Medicine and to support our educational and research missions; and
- to the maximum extent possible, we will apply our core missions in education, research, and health care delivery to develop the means to solve regional and national health care problems, including providing accessible, cost-effective health care of measurable quality.

## Library

The Medical Center Library & Archives provides the services and collections necessary to further educational, research, clinical, and administrative activities in the medical field. Services are available to faculty, staff, students, and house staff from Duke Hospital, School of Medicine, School of Nursing, allied health programs, and graduate programs in the basic medical sciences. The library also serves the Duke University Health System.

The library has thousands of health sciences journal titles available electronically, though some of the older years may not be accessible online. Several electronic book collections are also available online. The bound print journal collection and most print books published before 1995 are stored in the Duke Library Service Center located off Briggs Avenue. More current print books are kept within the library facility. The Frank Engel Memorial Collection consists of a small group of books on health and nonmedical subjects for general reading. There is no charge to Duke borrowers for requests of articles not available at Duke, which includes email delivery of PDF journal articles and book chapters. Library staff will contact you if there are copyright or other fees associated with requests. Library services include reference, in-depth consultations, expert database searching including systematic reviews, customized and individual group training, online tutorials, navigating the scholarly communications landscape including bibliometrics and research impact, circulation, and document delivery services. Workstations for searching databases, the online catalog, and other resources are available, along with a variety of study spaces and rooms for online booking. Reservations are required for group study spaces and cubicles. Any open tables, soft seating, PIN stations, and computers are all available for use without reservation. A computer classroom for hands-on training is located on Level 1. Archives provide access to its collections for scholarly research and administrative work and can assist individuals in locating specific information, photographs, and documents concerning the history of the medical center.

Access to the Medical Center Library & Archives is limited to Duke Health ID badge holders. Duke University ID badge holders may get access to the building by requesting a Prox card from the University DukeCard Office. Non-Duke individuals do not have access to the building.

The Medical Center Library & Archives is in the Seeley G. Mudd Building, above the Searle Center, and connected to the Trent Semans Center for Health Education. Detailed information on hours, services, and resources may be found on the website at [mclibrary.duke.edu](http://mclibrary.duke.edu). Additional information about Archives can be found at [archives.mc.duke.edu](http://archives.mc.duke.edu).

## Bookstore

The Medical Center Bookstore offers a wide selection of medical reference books, textbooks, software, and instruments to the Duke University Medical Community. Clothing, including scrubs and uniforms, office supplies, and Duke gifts are also offered. Special orders are welcomed. The store is located in Duke Clinic, lower level adjacent to the Food Court, 40 Medicine Circle, Room 0001, Durham, NC 27710. The bookstore is open from 8:30 a.m. to 5:00 p.m. Monday through Friday.

## Searle Conference Center

The Searle Conference Center for Continuing Education in the Health Sciences provides elegant accommodations for conferences, symposia, lectures, and meetings to support the continuing education activities of the medical center and university. Additionally, banquets, dinners, weddings, receptions, and other private events may be held on a space-available basis. Meeting space, audiovisual needs, catering, and assistance with event planning are all provided by the onsite staff. Accepting credit cards/procurement cards, IRs, and other forms of payment. For information, call (919) 684-2244 or visit [duh.catertrax.com](http://duh.catertrax.com) or [duke.healthcaresh.com](http://duke.healthcaresh.com).

## Medical Center Commons



## Duke University

The Medical Center Commons restaurant is open for fine dining at lunch time Monday through Friday. Accepting credit cards/procurement cards, IR, Flex Account Cards, and reservations at (919) 684-5805, the Commons is located in the Searle Conference Center on the ground floor of the Seeley G. Mudd Building. The restaurant is a Bistro-style atmosphere with full table service/linen, china, and flatware, featuring gourmet salads, fresh homemade salads, freshly prepared soups, and hot buffet selections. There are weekly specials. Private dining rooms are available as well as morning, evening, or weekend meeting and catering space. For additional information on these services, call (919) 684-2244 or visit [duke.healthcaredish.com](http://duke.healthcaredish.com).

### Medical Center Catering

Medical Center Catering is an in-house operation that provides catering services for the Duke Health System. We will deliver coffee breaks, lunch, and receptions to rooms within the North and South Hospital as well buildings accessible for push carts only (non-motorized vehicles). We provide setup and breakdown paper/plastic ware service. The hours of operation are 7 a.m. to 5 p.m. Monday through Friday. Call (919) 684-2904 for assistance or visit [duh.catertrax.com](http://duh.catertrax.com) or [duke.healthcaredish.com](http://duke.healthcaredish.com). Accept credit cards/procurement cards, IRs, and other forms of payment.

### The Office of Curricular Affairs

The Office of Curricular Affairs provides professional, technical, and administrative support for the development, implementation, and assessment of patient-centered medical education. The staff and faculty in the OCA strive to support students throughout their participation in the educational program.

Under the leadership of Aditee Narayan, MD, MPH, Associate Dean for Curricular Affairs, the Office of Curricular Affairs ensures education quality and innovation, alignment of educational goals and outcomes, assessment of student performance, and analysis of course and program evaluations. The Assessment and Evaluation team in the office conduct educational research for the continual improvement of the curriculum, trains faculty in innovations in educational methodology and assessment, and sponsors a third-year study track in medical education research. The OCA also has a state-of-the-art clinical skills program with a robust standardized patient program allowing even the earliest learners practice in patient-centered care.

Mostly located on the third floor of the Seeley G. Mudd building (attached to TSCHE) along with satellite offices on the 1st and 5th floors of TSCHE, the Office of Curricular Affairs provides support to faculty including initial course planning and set-up; coordination for interdisciplinary and longitudinal course and programs; all assessment and evaluation activities; various laboratory set-ups and specimen maintenance; support for various school-wide committees; maintenance of the curriculum management systems; continuous quality review and improvement processes; maintenance of accreditation; and liaison with Duke-National University of Singapore.

### End of Year Objective Structured Clinical Examination (OSCE)

The End of Year Objective Structured Clinical Examination (OSCE) is a standardized patient exam that consists of six to ten individual patient encounters for which the student is in the role of primary provider. Some encounters will involve evaluating an undifferentiated physical complaint through a focused history and physical exam of a standardized patient. After these encounters, the student will write a patient note—similar to a SOAP note—on a computer. Other encounters involve patient counseling or screening. These encounters may be followed by brief test questions.

Cases are selected to sample a variety of dimensions including patient age, gender, all organ systems, and specialties represented throughout the clerkship year. The major purposes of the OSCE are (a) to evaluate, in a standardized way, each student's approach to patients with common complaints, demonstrate the clinical activities of history-taking, physical examination, communication skills, and diagnostic reasoning that cannot be adequately assessed through written tests, (b) to provide individualized feedback to students about their clinical skills performance, and (c) to provide a measure of curriculum effectiveness.

All student encounters with standardized patients during the OSCE are video recorded. Video recordings are available for students to review. The OSCE is structured to be competency-based, where each student's performance is compared to a predetermined standard. Each student receives a written report of their level of competence with each case, comments directly from standardized patients, and their performance scores as well as class performance scores for clinical skill activities. Passing the OSCE is required for graduation.

### Duke Hospital

Duke University Hospital is consistently rated as one of the best in the United States and is known around the world for its outstanding care and groundbreaking research. Duke University Hospital has 1,048 licensed inpatient beds and offers comprehensive diagnostic and therapeutic facilities, including a regional emergency/trauma center; a major surgery suite containing 65 operating rooms; an endo-

## Duke University

surgery center; a separate hospital outpatient surgical department with nine operating rooms and an extensive diagnostic and interventional radiology area.

For 2022-2023, U.S. News and World Report ranked Duke University Hospital nationally in 11 adult specialties: cancer, cardiology & heart surgery, diabetes & endocrinology, ear, nose & throat, gastroenterology & GI surgery, gynecology, neurology & neurosurgery, ophthalmology, orthopedics, pulmonology & lung surgery, and urology. Duke University Hospital is also ranked first in North Carolina and first in the Raleigh-Durham area.

Duke University Hospital is approved for residency by the American Medical Association, the Accreditation Council for Graduate Medical Education and is accredited by the Joint Commission. In addition to its hospitals, Duke Health has an extensive, geographically dispersed network of outpatient facilities that include primary care offices, urgent care centers, multi-specialty clinics, and outpatient surgery centers.

Duke University Hospital is approved for residency by the American Medical Association, the Accreditation Council for Graduate Medical Education and is accredited by the Joint Commission. In addition to its hospitals, Duke Health has an extensive, geographically dispersed network of outpatient facilities that include primary care offices, urgent care centers, multi-specialty clinics, and outpatient surgery centers.

## Durham VA Health Care System

Since 1953, Durham VA Health Care System (DVAHCS) has been improving the health of men and women who have so proudly served our nation. Services are available to more than 200,000 Veterans living in a 27-county area of central and eastern North Carolina.

The DVAHCS offers health care services at 11 locations: the Durham VA Medical Center and 10 community-based outpatient clinics in Raleigh, Durham, Greenville, Morehead City, and Wake County. Outpatient clinics include two specialty clinics at Brier Creek for dialysis and blind rehabilitation. The DVAHCS provides general and specialty medical, surgical, and psychiatric services. It serves as a major referral center for North Carolina, southern Virginia, northern South Carolina, southern West Virginia, and eastern Tennessee.

The medical center has 151 operating beds and is a regional center for radiation therapy, neurological disorders, therapeutic endoscopy, and other special procedures. In addition, it serves as a referral center for high-risk open-heart surgery cases, angioplasty, and hemodynamic cardiac catheterization. The 100-bed Community Living Center (CLC) is reflective of an ongoing emphasis on wellness, preservation of functions, and rehabilitation.

The DVAHCS has five national centers of excellence in primary care, mental health, epidemiology, geriatrics, and epilepsy, as well as several other nationally recognized programs including cardiovascular and diabetes care and telehealth.

For additional information, visit [durham.va.gov](http://durham.va.gov).

## Lenox Baker Children's Hospital

Located just one mile west of the main Duke University Hospital Campus, Lenox Baker Children's Hospital provides outpatient services for children with genetic, metabolic, endocrine, neurologic, orthopedic, gastrointestinal, and neurodevelopmental disorders. On-site services include physical and occupational therapy and speech pathology. Additional multidisciplinary clinics are at that site.

## Duke Regional Hospital

Duke Regional Hospital offers the personal touch of a community hospital while serving as an essential arm of internationally recognized Duke University Health System.

Duke Regional has served Durham, Orange, Person, Granville, and Alamance counties and beyond for more than 45 years. We have 3,500 team members who work together to provide exceptional, compassionate, and equitable healthcare 24/7. We are a place of learning and acceptance for team members just starting their careers, as well as an institution of family culture and professional development for employees who have served in healthcare for decades.

Duke Regional has 388 inpatient beds and offers a comprehensive range of medical, surgical, and diagnostic services, including orthopedics, weight loss surgery, women's services, and heart and vascular services. We also offer care at our Duke Rehabilitation Institute, Davis Ambulatory Surgical Center, Duke Ambulatory Surgery Center Arringdon, Health Services Center, and Duke Behavioral Health Center North Durham. In fiscal year 2022, Duke Regional Hospital admitted 16,246 patients, performed 22,050 surgeries, and welcomed 2,847 babies into the world.

U.S. News & World Report ranked Duke Regional Hospital as #9 in North Carolina and #4 in the Raleigh-Durham area for 2022-23. The Human Rights Campaign consistently names us a Healthcare Equality Leader, and we are a Joint Commission-accredited and Magnet-designated hospital.

For additional information, visit [dukehealth.org/hospitals/duke-regional-hospital/about](http://dukehealth.org/hospitals/duke-regional-hospital/about).

## Duke University

### Duke Raleigh Hospital

Duke Raleigh Hospital provides a patient-friendly setting no matter where you visit us—in our hospital's North Pavilion, South Pavilion, or clinics. Duke Raleigh Hospital has been part of Duke Health since 1998 and has served Wake County for more than 35 years. It employs more than 2,000 people.

The hospital has 186 inpatient beds and offers a comprehensive array of services, including, cancer care, cardiovascular care, neuroscience, advanced gastrointestinal care, and wound healing. We also maintain laboratory and imaging services, a pain clinic, 24/7 emergency care, community outreach, and education programs.

For 2022-2023, U.S. News & World Report has ranked Duke Raleigh Hospital as high performing in orthopaedics and geriatrics and in six common adult procedures/conditions: Chronic Obstructive Pulmonary Disease (COPD), Heart Failure, Kidney Failure, Lung Cancer Surgery, Pneumonia, and Stroke.

For more information, call (919) 954-3000 or visit [dukeraleighhospital.org](http://dukeraleighhospital.org).

### Other Hospitals

Various cooperative teaching and training programs are available for medical and allied health professional students and house staff at other hospitals to include Duke University Hospital, Durham Veteran's Administration Medical Center, Duke Regional Hospital, Duke Raleigh Hospital, and Central Regional Hospital in Butner, North Carolina.

### Medical Center and Health System Buildings and Facilities

The ninety-four buildings and additions which make up the medical education, research, and patient care facilities are located on approximately two hundred acres, mostly on or near the West Campus of Duke University. There are four major zones on/near Duke Campus but multiple clinics and other facilities are off campus in other Durham sites or nearby cities.

**The Clinic Zone** is contiguous with the main quadrangle of the university and consists of the following: Duke Clinic—a multi-building contiguous building complex, including: *Clinic Reception Building*—Entrance lobby, outpatient clinics, food court, and amphitheater; *Edwin A. Morris Building*— Outpatient clinics, diagnostic, treatment, and support services, Departments of Radiation Oncology, Surgery, and Duke Cancer Institute administration, departmental research and offices; *Davison Building*—Hospital Pharmacy offices; Departments of Pathology and Brain Imaging & Analysis administration, research education space and offices; Duke Medicine and Health System Administration, and School Medicine Administration; *Original Hospital, 1940 and 1957 Additions*—Outpatient clinics, diagnostic, treatment, and support services including: clinical laboratories, imaging, pharmacy, Departments of Dermatology, Family Medicine & Community Health; Medicine, Neurology, Orthopedics, Pathology, Radiation Oncology, Anesthesiology, Neurosurgery, and Heart Center offices; *Baker House*—Departments of Obstetrics and Gynecology, Heart Center, Anesthesiology, Medicine, Neurosurgery/Neuro-Oncology program, and Surgery administration, clinical support services; offices for pastoral care and counseling; *Barnes Woodhall Building*—Duke Store, Nursing offices, Clinical Research unit/Duke Early Phase Clinical Research Unit (DEPRU), Departments of Psychiatry, Radiology, Radiation Oncology and Surgery diagnostic, treatment, and support services and research and offices, PRMO offices, outpatient pharmacy, preoperative screening, and hospital administration; *Diagnostic and Treatment #3 Building*—Human Resources offices, Departments of Radiation Oncology, Radiology, Psychiatry, Surgery, and Neurosurgery research support services and offices; *Ewald W. Busse Building*—Center for the Study of Aging and Human Development, diagnostic, treatment, and support services, research, and offices; *Eugene A. Stead Building*— Clinical Research Center/Duke Early Phase Clinical Research Unit (DEPRU) Departments of Surgery, Neurosurgery, Psychiatry, Medicine and Duke Cancer Institute research and offices; *Clinical Research II*—Clinical Research Center/Duke Early Phase Clinical Research Unit (DEPRU) Departments of Surgery, Medicine, Anesthesiology, and Psychiatry research and offices, hyperbaric medicine unit. Other buildings within The Clinic Zone also includes *Marshall Pickens Building*—Family Medicine Clinics; *Parking Garage I (Duke Clinic Garage)*; and *the Cancer Center facility*. diagnostic, treatment, and support services.

**The Hospital Zone** consists of the following buildings: Duke Hospital— a multi-building contiguous building complex including:

*Duke Hospital Anlyan Tower and Ancillary Building*—Inpatient care units, diagnostic, treatment, and support services including surgical suite, cath labs, emergency department, labor and delivery suite, operating and recovery suite, full-term nursery, radiology, clinical laboratories, respiratory therapy, pharmacy, the departments of Anesthesiology, Radiology, Surgery offices; *MRI facilities and Brain Imaging and Analysis facility*; and *Children's Health Center*—Department of Brain Imaging and Analysis and Children's clinics, diagnostic, treatment and support services, Department of Pediatrics administrative offices, and the *Duke Central Tower* - inpatient bed units. The Hospital zone also includes *Duke Eye Ctr Joseph A.C. Wadsworth Building (Eye Center)*—Clinical Labs; Ophthalmology clinics, diagnostic, treatment, and support services including: operating rooms, recovery, research, and offices; *Duke Eye Ctr Albert Eye Research*

## Duke University

*Institute*—Ophthalmology faculty offices and research space, Pharmacology & Cancer Biology research space, and Pediatrics Ophthalmology Clinic; *Duke Eye Ctr Hudson Eye Building*—Department of Ophthalmology administration; Clinical Labs; Duke Eye clinics; *The Lodge Annex*—Hospital Sleep Lab; *Civitan Building*—Clinics and offices for the Departments of Psychiatry and Pediatrics. *Hanes House*—Duke Hospital Transplant offices, Departments of Medicine, Pediatrics, Anesthesiology, Neurology, and Surgery administrative and departmental offices, teaching facilities; *Christine S. Pearson School of Nursing*—School of Nursing offices and educational facilities; *Interprofessional Education (IPE) Building*: Physical Therapy and Nursing education; *Seeley G. Mudd Communications and Library*—Medical Center Library, Medical Center Commons, Medical Education, Trent Center for BHHM, Departments of Surgery, Medicine and Duke Cancer Institute offices; *Parking Garage II (Hospital Garage) and PGII Ofc area*—House Staff and Exercise Facility, and Nursing Recruitment and the *Duke Medicine Pavilion*— Inpatient care units, diagnostic, treatment, and support services including operating and recovery, radiology, Clinical Labs, iMRI, and iCT suites; and the *Trent Semans Center for Health Education*—Central teaching facilities, School of Medicine admissions, registrar, and financial aid.

**The Research Zone** consists of the following: *Joseph and Kathleen Bryan Research Building for Neurobiology*—Department of Neurobiology, Radiology and Neurology administration, departmental research and offices; *Nanaline H. Duke Building*— Departments of Biochemistry, Dermatology, Medicine, and Cell Biology administration, departmental research and offices; *Alex H. Sands Building*—Departments of Anesthesiology, Biochemistry, Cell Biology, Obstetrics & Gynecology, Medicine, Radiology, Duke Human Vaccine Institute and Neurosurgery research and offices; *Edwin L. Jones Building*—Departments of Immunology, Medicine, Pediatrics, Pathology, and Molecular Genetics & Microbiology administration, departmental research and offices; *Medical Sciences Research Building*—Departments of Medicine, Pathology, Pediatrics, Neurosurgery, Orthopedics, Radiology, Surgery, and Duke Cancer Institute research and offices; *Medical Sciences Research Building-II*—Departments of Medicine, Surgery and Duke Human Vaccine Institute research and offices; *Medical Sciences Research Building-III*—School of Medicine space; Departments of Medicine, Surgery, Dermatology, Bioinformatics & Biostatics, Basic Science Admin, Neurology, Pharmacology & Cancer Biology, Molecular Genetics & Microbiology, and Anesthesiology; *Clinical and Research Laboratory Building*—Departments of Cell Biology, Molecular Genetics & Microbiology, and Medicine research and offices; *Leon Levine Science Research Center, section C*—Duke Institute for Brain Sciences, Departments of Pharmacology & Cancer Biology, Medicine, BioMed Engineering, Radiation Oncology, Orthopedics, and Neurosurgery administration, research and offices; *Surgical Oncology Research Building*; *Environmental Safety Building*; *Research Park Buildings 1, 2, 3 and 4*—Departments of Surgery, Radiology, Pharmacology & Cancer Biology, Duke Human Vaccine Institute, Obstetrics & Gynecology, Pediatrics, Neurosurgery, Anesthesiology, Duke Global Health Institute research and offices, and Occupational and environmental safety; and Clinical Labs; *Vivarium & Surgical Research Pavilion*; *Cancer Center Isolation Facility*; *Snyderman Genome Science Research Building*; and *Genome Science Research Building-II*—Departments of Anesthesiology, Neurobiology, Surgery, Duke Cancer Institute; Pathology, Dermatology, Duke Human Vaccine Institute, Psychology & Neuroscience, Medicine, and Pediatrics genomic science research; and Global Health Research Building—DHVI research and offices.

**The West Zone** consists of the *Lenox Baker Hospital*—Clinics, diagnostic, treatment, and support services, Departments of Pediatrics and Orthopedics offices; Center for Living Campus consists of five buildings including *Sarah Stedman Nutrition Center*—Duke Molecular Physiology Institute (DMPI) offices; *Andrew Wallace Clinic Building (original and 2015 addition)*—Department of Orthopedics and Sports Medicine clinics, diagnostic, treatment, and support services; *PepsiCo Fitness Center*—Exercise and physical therapy facilities including indoor track, exercise equipment, swimming pool; *Aesthetic Services and Dermatologic Surgery Clinic*— Clinics, diagnostic treatment, and support services, and CFL administrative offices; and *Duke Integrative Medicine*—treatment facility.

**The North Campus Zone** consists of the following buildings: *North Pavilion*—Ambulatory Surgery Center, Adult, and Pediatric Bone Marrow Transplant, Department of Pediatrics, Psychiatry, Medicine, Marcus Center Cellular Cures, Duke Cancer Institute offices, and Nursing administration; and *2216 Elba Street (House of Healing)*—small residence for families and patients; and *Elder Street Buildings*—Occupational and environmental safety, and medical center engineering and operations offices.

## Duke University School of Medicine

The School of Medicine comprises eight basic departments, eighteen clinical departments, and numerous centers and institutes (several of which are highlighted below) that promote cross-institutional, multidisciplinary efforts designed to harness strengths and leverage knowledge to make significant contributions to science, medicine, and human health.

## Duke-NUS Graduate Medical School Singapore

Duke-NUS is Singapore's first and only medical school, combining the unique medical education curriculum at Duke with the academic rigor and rich resources offered by the National University of Singapore (NUS). It offers students an enriching and innovative educational experience. Graduates of the Doctor of Medicine (MD) program are awarded a joint MD degree by Duke and NUS. The website for Duke-NUS Graduate Medical School Singapore is [duke-nus.edu.sg](http://duke-nus.edu.sg).

### **Duke Human Vaccine Institute**

The Duke Human Vaccine Institute (DHVI) has established a place of national and international leadership in the fight against major infectious diseases including HIV, Influenza, and COVID-19. DHVI is a pioneer in emerging infections and biodefense research. DHVI investigators continue to make significant contributions to overcome global health challenges on behalf of society.

### **Duke Cancer Institute**

The Duke Cancer Institute (DCI) unites hundreds of cancer physicians, researchers, educators, and staff under a shared administrative structure to accelerate research advances related to cancer and improve Duke's ability to translate these discoveries into the most advanced cancer care for patients. In 2022, the DCI celebrated its fiftieth Anniversary as a National Cancer Institute (NCI)-designated "comprehensive cancer center." NCI-Designated Cancer Centers are recognized for their scientific leadership, resources, and the depth and breadth of their research in basic, clinical, and/or population science.

### **Duke Clinical and Translational Science Institute (CTSI)**

The Duke Clinical and Translational Science Institute (CTSI) is the administrative home for the Duke Clinical and Translational Science Award (CTSA), overseeing and integrating sixteen CTSA core services in the fabric of translational science at Duke University. In 2018, the CTSI was awarded a five-year grant of more than \$60 million from the National Institutes of Health (NIH) to advance innovative ideas from the point of discovery to implementation in clinical practice and population health. Duke received one of the original twelve CTSA grants in 2006, with a previous renewal in 2013.

### **Global Health Institute**

Duke's Global Health Institute (DGHI) is a university-wide effort to address health disparities worldwide through multidisciplinary research, education, policy engagement, and service. DGHI's education, research, and capacity building initiatives are built on a strong network of partnerships with institutions around the world.

### **Duke Clinical Research Institute**

Known for conducting groundbreaking multi-national clinical trials, managing major national patient registries, and performing landmark outcomes research, the Duke Clinical Research Institute (DCRI) conducts research that spans multiple disciplines, from pediatrics to geriatrics, primary care to subspecialty medicine, and genomics to proteomics.

### **Student Ombudsperson**

In response to some students' concerns about approaching existing resources (course directors, advisory deans, faculty) when they feel mistreated or have a conflict with another member of the School of Medicine community, students may contact the Office for Institutional Equity. An Ombudsperson position has been created to provide a confidential and anonymous resource to help students in the School of Medicine decide how they want to handle such circumstances, what their options are, and to provide mediation if desired. To contact the Ombudsperson with a concern, email [ombudsman@duke.edu](mailto:ombudsman@duke.edu) or call (919) 668-3326. More information may be found on the Office of the Student Ombudsperson website at [medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program/student-experience](https://medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program/student-experience).

### **Academic Credit**

<b>Doctor of Medicine, Pathologist Assistant, Master of Biomedical Sciences, and Clinical Research Program</b>		
<b>TIME</b>	<b>REQUIREMENT</b>	<b>CREDIT</b>
40 hours	Prep, lecture, and clinical time	1 credit
80 hours	Prep, lecture, and clinical time	2 credits
120 hours	Prep, lecture, and clinical time	3 credits
160 hours	Prep, lecture, and clinical time	4 credits
160+ hours	160 hours plus on-call and defined by the degree of patient responsibility	5 credits
<b>Doctor of Occupational Therapy and Doctor of Physical Therapy</b>		
The Doctor of Occupational Therapy and Doctor of Physical Therapy programs use a CARNEGIE system where 15 hours of student contact = 1 credit (including approximately 5 hours of out of class preparation time).		
<b>Master of Biostatistics and Clinical Leadership Program</b>		
<b>TIME</b>	<b>REQUIREMENT</b>	<b>CREDIT</b>
3 hours	Prep, assignments, and studying	1 credit
<b>Master of Management in Clinical Informatics</b>		
<b>TIME</b>	<b>REQUIREMENT</b>	<b>CREDIT</b>
9 hours	Assignments and lecture	3 credits
<b>Cardiac Ultrasound Certificate Program</b>		
<b>TIME</b>	<b>REQUIREMENT</b>	<b>CREDIT</b>
40 hours	Prep, lecture, clinical time, and studying	1 credit
<b>Ophthalmic Technician Certificate Program</b>		
<b>TIME</b>	<b>REQUIREMENT</b>	<b>CREDIT</b>
32 hours	Prep, lecture, and clinical time	1 credit
<b>Population Health Science Certificate Program</b>		
<b>TIME</b>	<b>REQUIREMENT</b>	<b>CREDIT</b>
39 hours	Prep, lecture, assignments	1 credit

Students enrolled in School of Medicine Programs are not permitted to take undergraduate courses for credit. With the consent of the appropriate instructor and/or mentor, students may request to audit undergraduate courses.

## Academic Sanctions Appeals Process

### The Academic Appeals Committee (AAC)

#### Membership

- One faculty member from each educational program (MD, MS, PA, DPT, Path Assist., Op Tech). Faculty members will serve a 1-year term (renewable annually for a total of three terms) and appointments will be staggered such that new members will join experienced members.
- One student from each program, and one alternate student from a different academic year to serve as representatives to the AAC. Students will serve as needed only for appeals of actions concerning fellow students enrolled in their program (e.g., medical student representative for medical students, DPT student representative for DPT students, etc.). If the student representative is in the same class as the appellant, the student alternate will serve. Students will serve a 1-year term.

## Duke University

- If a committee member was involved in recommending the sanction that is being appealed, an alternate member from that program's faculty is selected in their place.
- The chair will be selected by the vice dean for education.
- The vice dean will serve ex-officio to assist with the process but will not participate in discussions or deliberations.

### Procedures

- The student must submit their appeal in writing along with supporting documents to the vice dean for education within 10 business days of being notified of an academic sanction. The written appeal should address each of the reasons that were provided for the sanction and state why the sanction is not appropriate in their situation. In essence, the student should answer the question, "I should not be sanctioned because..." Any background information to support the student's argument should be provided at that time.
- Pending the determination of the appeals committee, the student will be allowed to continue course work provided they are not felt to be a threat to themselves or others.
- A list of the committee members who will participate on the committee will be forwarded to the student. The student has the option of challenging any member of the committee that is felt to be prejudiced against them because of personal interactions, previous assessments, or participation in prior academic sanction committees. These members will be replaced by faculty members who have no previous interactions with the student.
- The vice dean will create a summary report for the committee explaining the reason for the sanction and include supporting documents from the program and student.
- The vice dean will supply the student's written appeal request, the summary report, and any other pertinent documents to the committee for review.
- The committee will hold a meeting within a reasonable time to make a decision about the appealed sanction. At least 72 hours prior to the meeting, all material to be considered, other than the interviews themselves, will be distributed to the committee members and the student for their review.
- The student will be given an opportunity to explain in person to the committee their rationale as to why the sanction was not appropriate and should be reversed or modified.
- The educational program will be given the opportunity to present why they recommended that the student be sanctioned.
- The committee may ask for additional information and question other individuals as necessary to reach a decision about the appeal request.
- The chair of the committee will inform the vice dean for education of its recommendation in a timely manner after the committee meeting (typically within a week). The committee can uphold the vice dean's sanction, recommend another sanction or recommend no sanction.
- The vice dean for education will then notify the student and other interested parties of the committee's decision.
- The student will have 10 business days after notification of the outcome of the appeal to submit a request to have the dean of the School of Medicine review the appeals process. An appeal to the dean may be made only on the grounds of improper procedures in the process rather than continued disagreement about the outcome of the process. The dean will review the information related to the process of the appeal and determine whether it was appropriate. The dean can uphold the committee's decision, recommend another sanction, recommend no sanction, or send the matter back to the committee for further consideration.
- Once the dean of the School of Medicine upholds a decision of dismissal, the student relinquishes student status and is no longer enrolled in the University.

### Committee Meeting Procedures

- At least 72 hours prior to the committee meeting the members and students will have access to:
  - The vice dean's letter to the student indicating the sanction and its reason
  - The written appeal request by the student indicating why the sanction is not appropriate
  - Supporting documents from the program as to why they requested the student be sanctioned. This includes such things as exam scores, learning contracts, performance reviews, academic counseling attempts, remediation efforts, police reports, etc.
  - Supporting documents from the student as to why the sanction should not be enforced.
- The names of all faculty, students, or staff that will attend the meeting
- The student has the right to be present at the appeals committee for the portion of the meeting that involves the education program's presentation of the rationale for the recommended sanction and questions by the committee to the program's representatives. The student is not permitted to be present for the deliberations of the committee.

## Duke University

- The committee meeting will begin with a review of the sanction and the provided materials.
- The education program that has sanctioned the student will present the reasons for the recommendation and answer any questions that the committee may have. Depending on the issue, additional faculty or other students who are involved may be asked to attend and provide information to the committee.
- The student will then present to the committee why they feel the sanction is inappropriate or should be reconsidered and answer any questions the committee may have. The student may request that the committee also hear information from other faculty or students with knowledge about the circumstances surrounding the reasons for the sanction. These individuals should be able to provide specific clarifying or defining information and not act as “character witnesses.”
- Before making its recommendation the committee may request to meet with other faculty or students that may be able to provide additional information or insight into the circumstances related to the recommended sanction.
- The committee will discuss the issues and reach a recommendation by a majority vote as to whether the sanction should be upheld, changed to a lesser sanction, or removed.
- The chair will draft a summary of the meeting and the committee’s recommendation and circulate it to the committee members for approval.
- Once approved, the recommendation will be communicated to the Vice Dean for Education who will notify the education program and the student.

## Policy on Appropriate Treatment of Learners at Duke University School of Medicine

### Policy Statement

Duke University School of Medicine (SoM) is committed to creating and maintaining a positive learning environment for learners that is respectful and appropriately attentive to their learning needs and free from conduct by teachers that could be interpreted by learners as mistreatment. Behavior that violates this stated expectation will be investigated, and if found to represent mistreatment, may become the subject of disciplinary action by the SoM.

### Policy Rationale

The SoM adopted in 2002 the “Compact Between Teachers and Learners of Medicine” as articulated by the AAMC, and this additional policy is designed to clarify and expand on the goals articulated there. Both documents are based on the premise that students learn how to be professionals by observing and imitating their role models, and that therefore the teachers of a medical school have an obligation to convey professional values by demonstrating appropriate standards of behavior.

This policy is not intended to abridge the academic freedom of teachers, and will be applied in a manner that protects those freedoms. It is consistent with the “Statement on Faculty Professionalism” of the School of Medicine, the “Duke Medicine Code of Conduct: Integrity in Action,” and the “Harassment and Discrimination Policy” of Duke University. Under the “Policy on Appropriate Treatment of Learners at Duke University School of Medicine,” students could be considered teachers or learners, depending on the role they play in any specific situation.

### Policy Standards

Conduct that is expected of those in a teaching role includes:

1. Taking responsibility for learners assigned to one’s course or service, and ensuring a safe, fair, supportive, unbiased learning environment that respects learners’ physical and social boundaries and encourages their development as medical professionals
2. Declining to evaluate the performance or vote on the promotion of any student for whom one has provided clinical care, including psychiatric care or psychological counseling
3. Communicating expectations, and applying consistent evaluation and grading methods which are communicated in advance of learner performance
4. Assigning tasks to learners based on their knowledge, skills, and experience
5. Providing supervision and appropriate remediation when learners are not adequately prepared
6. Providing feedback to learners in a timely, constructive, personalized, and explicit manner
7. Abiding by the Duty Hours Policy and other policies of the SoM
8. Adhering to Duke University’s policies on Harassment and Consensual Relationships

Examples of conduct that is considered inappropriate in a teaching role include, but are not limited to:



## Duke University

1. Threatening or intimidating behavior or words (e.g. verbal threat of intent to harm, making a gesture as if to strike, screaming or yelling at a learner, standing over a learner, or getting “in your face”)
2. Using obscenities, profanity, or racially/culturally-derived/gender-based terms or names directed at a learner, OR using such verbal expressions to create a negative environment even if not directed at the learner. (e.g. cursing at a learner or other members of the team, using a gender- or racially-charged epithet to refer to a learner)
3. Using threatening or obscene gestures, cartoons, or jokes in the presence of a learner
4. Degrading a person or group based on a personal or cultural characteristic (e.g. “people like you are all stupid,” “you people all expect me to read your minds,” “I can’t believe you want to go into specialty X and become a drone”)
5. Ignoring learners assigned to you or failing to complete assigned learner evaluations
6. Requiring learners to perform personal services at any time (e.g. get me coffee, pick up my laundry, pet-sit this weekend, pick up something I forgot in my office, listen to my personal problems)
7. Inviting learners who are being currently supervised, evaluated, or graded to romantic or sexual relationships; sexual assault, or sexual or gender-based discrimination or harassment through words, gestures, and behaviors (e.g. inviting on a date, commenting repeatedly on attractiveness or clothing, making sexually suggestive comments or gestures)
8. Taunting, mocking, or humiliating a learner through acts and words (e.g. mimicking something the student got wrong, giving highly pejorative feedback in the presence of others)
9. Using aggressive questioning to the point of badgering or humiliation in the guise of the “Socratic method” (e.g. after questioning the student to the limits of their knowledge, persisting in asking the same question the student can’t answer or more difficult questions for the purpose of humiliation)
10. Endangering the safety of a learner (e.g. inflicting physical harm, requiring the learner to go somewhere unsafe or to be exposed to dangerous objects or substances without education and proper protection, asking learners to perform tasks they are not trained to do, telling a learner not to report an occupational exposure)
11. Endangering the learner’s professional development (e.g. telling learners to ignore institutional or school policy, inviting learners to do something unethical or illegal)
12. Grading based on factors other than performance on previously announced grading criteria; creating disadvantages in learning opportunities, teaching, feedback, or grading based on personal characteristics of the learner (e.g. giving a better grade because someone is going into your field or you like them best)
13. Acting in retribution against any learner who reports perceived inappropriate treatment (e.g. telling others that a learner is a “snitch” or to “watch out for that one,” giving the learner a grade less than they deserve, calling a residency program to “warn” them about a learner)

## Reporting of Inappropriate Treatment in the Teacher-Learner Relationship

Perceived inappropriate treatment of a learner, either experienced or witnessed, should be reported by using one or more of the following methods:

- verbally or in writing to the course director of the learner’s course
- verbally or in writing to the advisory dean or personal advisor of the learner
- in a mandatory end-of-course evaluation
- in other internal surveys done by the learner’s program
- on the Adverse Events website for the SoM (can be anonymous)
- to a member of the Committee on Appropriate Treatment of Learners (CAT)
- to the SoM or University Ombudsperson
- to the Duke University Office of Institutional Equity

Conduct that may be a violation of the university’s Nondiscrimination Statement or Policy on Prohibited Discrimination, Harassment, and Related Misconduct must be reported to the Duke University Office for Institutional Equity.

## Investigation of Reports of Inappropriate Treatment of Learners in the School of Medicine

All reports of inappropriate treatment of learners will initially be evaluated by the Committee on Appropriate Treatment of Learners (CAT) for an initial determination of merit. This body will serve as a repository of reports from all sources and will therefore track whether multiple reports of inappropriate treatment by the same individuals occur. If a report warrants and provides enough information to support further investigation, CAT will conduct that investigation. If requested by the learner, the timing of this investigation can be

## Duke University

adjusted to protect the learner. If an investigation reveals that inappropriate treatment has occurred, the matter will be referred to the chair, residency program director, course director, or supervisor of the individual involved for potential disciplinary action and for a report back to CAT of what action was taken to ensure that the behavior will stop. For example:

1. Investigations of inappropriate treatment by students who are in a teaching role can be handled as potential breaches of professionalism and can be reported on a Professionalism Notification Form to the student's advisory dean or reported to a school official as a potential Code of Professional Conduct violation.
2. Investigations of inappropriate treatment by residents who are in a teaching role will be reported to the residency program director and/or vice chair for education, or chair of the relevant clinical department.
3. Investigations of inappropriate treatment by faculty who are in a teaching role will be reported to the vice chair for education or chair of the relevant clinical department and may ultimately be reported to the Dean's Advisory Council on Faculty Conduct.

CAT will determine an appropriate deadline for reporting actions taken based on the urgency of the situation. If CAT is not satisfied that appropriate action has been taken to prevent future inappropriate treatment by a teacher, it will report its concern to the vice dean for education for further action. In all cases, CAT will report back to the person who reported the inappropriate treatment, if identified, that action has been taken on their report, though specific details of that action will not generally be revealed.

### Confidentiality of Reporting Mechanisms

While there are several anonymous and confidential ways to report inappropriate treatment of learners, full disclosure of the persons involved and the behaviors witnessed can lead to more effective action to correct the problem. Therefore, we encourage full reporting of incidents of inappropriate treatment of learners and people involved in them. However, anonymous reports will also be investigated to the extent that specific information is provided. The identity of learners reporting inappropriate treatment can often be protected by delaying action on the report until the learner is no longer vulnerable, or by collating reports so individuals cannot be identified. The School and the University will keep confidential all records of complaints and investigations to the extent permitted by law. However, behaviors that violate Title IX of the 1972 Education Amendments to the Higher Education Act, which include discrimination or harassment based on sex or gender, must be reported by any University official (except those designated as confidential—Student Health, CAPS, Ombudsperson, clergy acting in that capacity, and the Women's Center) to the Office for Institutional Equity or the Office of Student Conduct so that they can be promptly acted upon in order to be compliant with Federal Law. Behaviors that pose an immediate danger to others (e.g. violence or threats of physical violence, illegal drug use by caregivers in the clinical setting, deliberate violation of patient safety procedures) or are illegal (e.g. stealing narcotics, falsifying patient records) must also result in immediate reporting so that action can be taken.

### Protection of Rights of Those Reporting Inappropriate Treatment

The success of this policy and procedures in safeguarding the learning environment depends on the timely reporting of incidents of inappropriate treatment. In all cases, retaliation, or the encouragement of another to retaliate, against the person making such a report or the learner involved is strictly prohibited and, if found to exist, would become the focus of an investigation and sanctions.

### Protection of the Rights of Those Accused of Inappropriate Treatment

Intentional false or malicious reports of inappropriate treatment by learners will not be tolerated and will be handled as a disciplinary matter in the learner's program. All reports of inappropriate treatment will be handled confidentially with the exceptions noted above, and in a manner that affords the accused due process.

## Code of Professional Conduct

### Preamble

The Duke University School of Medicine strives to create a community in which all faculty, staff, and learners cultivate a learning environment that is respectful and inclusive. Professionalism is a core component of all health professions. Health professionals are expected to demonstrate behavior that is responsible, accountable, self-directed, ethical, and professional. The community has a responsibility to support one another in achieving these standards of professionalism, recognize exemplars and to address lapses in professionalism.

### Relevant Policies

# Duke University

Faculty, staff, and students must comply with all regulations regarding conduct established by Duke University, the School of Medicine, and the Health System. In addition, sites at which student rotate may have additional expectations, as may the student's own program. These include at a minimum:

- The Duke School of Medicine Bulletin
- Duke School of Medicine Social Media Policy
- Duke Health HIPAA Policy
- Duke Policy on Consensual Relationships
- Individual's own academic program documents
- Regulations of Duke University, School of Medicine, and the Health System

## Statement of the Code of Professional Conduct

The Code of Professional Conduct is intended to promote expected behaviors and clarify the behaviors that are considered unacceptable. This code does not anticipate every potential offense, and unprofessional behavior not specifically mentioned in this code can still be subject to academic sanctions.

**Expected Professional Behaviors** (the following list provides representative examples and is not exhaustive)

- Intellectual integrity and honesty
- Kindness and Empathy
- Maintenance of patient confidentiality
- Respect for and Inclusion of people from all backgrounds
- Concern for the welfare of others and respect for the rights of others
- Prompt, responsive, and respectful interpersonal and electronic communication
- Collaboration and Teamwork
- Respectful and timely completion of administrative tasks (i.e. flu shots, request for personal time off, completion of assignments, and evaluations)
- Adherence to program policies, including those related to attendance, professional dress and appearance, and social media
- Respectful receipt, delivery and incorporation of feedback
- Reporting witnessed violations of the code of professional conduct

**Unacceptable Professional Behaviors** (the following list provides representative examples and is not exhaustive)

- Cheating
- Lying, Stealing, and Plagiarism
- Bullying and disrespectful behavior towards others
- Breaching patient confidentiality
- Misrepresenting one's professional self
- Acting outside one's scope of practice
- Fabricating or falsifying patient/research data
- Being dismissive of or defensive about feedback
- Acting without informed consent
- Discriminating on the basis of group characteristics
- Engaging in behaviors that would be considered sexual harassment
- Engaging in romantic, sexual or other nonprofessional relationship with patient, patient's family member, supervisor, supervisee, or faculty
- Failing to adhere to principles of research integrity & ethics
- Bribing others for personal gain

## Scope of the Code of Professional Conduct

Professional behavior in the classroom, laboratory, clinical settings, and community, including online presence, is considered an essential element of academic performance and is necessary for promotion and ultimately, graduation/successful program completion. Society has high standards for the conduct of health professionals, and behavior outside of the academic setting may come to the attention of the school and impact progression.

## Duke University

In the health professions, professionalism is integral to academic success and cannot be separated from “academic” issues. Failure to adhere to behaviors consistent with these professional standards may jeopardize advancement and graduation. Lapses in professionalism can compromise future licensure and credentialing. Egregious professionalism lapses or a pattern of more minor professionalism issues may require reporting to future educational entities, licensing boards, credentialing organizations, and future employers.

The Code of Professional Conduct applies to a student while enrolled and after graduation in matters pertaining to certifying credentials, issuing transcripts, and verifying degrees that have been granted by the School of Medicine.

### **Civil and Criminal Charges/Offenses**

The matriculating or current student should report the charge/offense against them (final or not) immediately but no later than 3 business days to the vice dean for education for the MD program and the program director for the MBS, DPT, OT, and PA programs.

If the student is charged with a felony or a misdemeanor that implicates the safety or well-being of our community or patients, they will be removed immediately from the course of study until/unless cleared of a criminal charge.

If the program determines that the behavior reported in a civil action could be detrimental to the safety or well-being of our community or patients, the school reserves the right to immediately remove the student from the learning environment.

Once the student reports the situation as outlined above a review will be conducted by the program director and vice dean for education. The outcome of this review will be conveyed to the student by program director and/or the vice dean for education. The student has 10 business days to appeal the decision to the dean.

### **School of Medicine Response to Lapses in Professionalism**

Reports of lapses in professionalism will be managed by each individual program following their specific program policies and procedures located in handbook/bulletin. Specific incidents will be considered in the context in which they occur, their impact on others, the student’s response to feedback as well as the magnitude and pattern of lapses of professionalism.

Members of our community should report witnessed violations of the Code of Professional Conduct to a school official, via the various notification systems identified below. Students may initially report to their advisors and be directed to the official reporting options. Not reporting witnessed violations of the Code of Professional Conduct may also be construed as a lapse in professionalism. The following table compares reporting options.

SYSTEM	METHOD	LOCATION	ANONYMITY
Professionalism Notification System (preferred for professionalism issues)	Electronic	Within professional school	Depends on Program <b>No Anonymity:</b> Physician Assistant (PA); <b>Up to Person Reporting:</b> Physical Therapy (PT), Occupational Therapy (OT), Master of Biomedical Sciences (MBS), Doctor of Medicine (MD)
Adverse Event Reporting System	Electronic	Within professional school	Anonymous
End of Course Evaluations (preferred for content about course)	Electronic, per individual programs	Within professional school	Depends on Program <b>No Anonymity:</b> Physician Assistant (PA); <b>Up to Person Reporting:</b> Doctor of Medicine (MD)
SOM Ombudsperson Email: ombudsman@mc.duke.edu or call office at (919) 668-3326	Initiated by phone call, email or meeting	SoM	Ombudsperson will know your identity, but will not share without your permission
Duke Office for Institutional Equity For Types of Harassment and Discrimination (other types of reports may result in the school contacting OIE)	Initiated by phone call, email or meeting	Duke University	OIE will know your identity, case by case evaluation for severity and possible investigation which may compromise anonymity
Safety Reporting System (SRS)	Electronic on Pin Stations	Duke University Health System	Yes

## Health Professional Technical Standards for Duke School of Medicine

The study of medical sciences is not a pure intellectual exercise. Candidates for all degree programs within the School of Medicine (SoM) must possess the ability to learn, integrate, analyze, and synthesize data. This document is a general guidance document; individual programs may have more rigorous motor, sensory, or other requirements in their individual technical standards. In general students should have certain minimum physical, emotional, cognitive and social capacities to complete all requirements of their individual school either directly or through reasonable accommodations.

Students must possess all of the abilities described in the five categories below, with or without reasonable accommodations as determined by the Student Disability Access Office ([access.duke.edu/students](http://access.duke.edu/students)). Fulfillment of the technical standards of an individual program with reasonable accommodation does not guarantee a graduate of the program will be able to fulfill the technical standards for employment, residency or certifying board. Candidates with disabilities are encouraged to contact the program and/or the Student Disability Access Office early in the application process to discuss accommodation needs.

**Observation:** Candidate must acquire information as presented through demonstrations and experiences in lectures and laboratories. Candidates must be able to evaluate patients accurately and assess their relevant health, behavioral, and medical information. Candidates must be able to obtain and interpret information through a comprehensive assessment of patients, correctly interpret clinical data, accurately evaluate patients' conditions and responses, as well as develop a diagnostic and treatment plan. Vision, hearing and touch or the functional equivalent is required.

**Communication:** Candidates must exhibit interpersonal skills to enable effective caregiving of patients, including the ability to communicate effectively and sensitively in English, with all members of a multidisciplinary health care team, patients, and those supporting patients, in person and in writing. Candidates must be able to clearly and accurately record information and accurately interpret verbal and nonverbal communications.

**Motor & Sensory Functions:** Candidates must have adequate physical endurance, motor function and sensory ability to be able to provide and/or direct the

- provision of general care and emergency treatment to patients

## Duke University

- performance of routine physical examination and diagnostic maneuvers
- performance of treatment maneuvers, which may include lifting, transferring of patients, and assisting during ambulation while assuring their own safety as well as the safety of the patient
- elicitation of information from patients by palpation, auscultation, percussion, and movement of limbs

Candidates must meet applicable relevant safety standards for the environment and follow universal precaution procedures.

**Intellectual-Conceptual, Integrative, and Quantitative-Abilities:** Candidates must effectively interpret, assimilate, and understand the complex information required to function within the health professional programs of the SoM. Problem solving is a critical skill that requires conceptual integrative, and quantitative thinking abilities. The candidates must also be able to comprehend three-dimensional relationships, the spatial and functional relationships of structures and to analyze and apply this information for problem solving and decision-making. Candidates must be able to effectively participate in educational activities either online or in person in individual and small groups in all learning environments. They must have the ability to organize, prioritize, analyze and evaluate detailed and complex information individually, in small groups, in clinical setting and within a limited time frame both in person and via remote technology. Candidates must be able to learn, participate, collaborate, and contribute as part of a team.

**Behavioral and Social Skills:** Candidates must exercise good judgement and promptly complete all responsibilities attendant to the diagnosis and care of patients. A candidate must have the emotional health to fully use their intellectual ability, exercise good judgement, and to complete all responsibilities attendant to the evaluation and treatment of patients. They must be honest, able to self-assess own mistakes, respond constructively to feedback and assume responsibility for maintaining professional behavior. The skills required include the ability to effectively handle and manage heavy workloads, function-effectively under stress, adapt to changing environments, display flexibility, and learn to function in the face of the uncertainties inherent in the practice of their profession.

A candidate must be able to develop mature, sensitive, and effective relationships with faculty, patients, families, caregivers and colleagues. A candidate must be able to tolerate physical and emotional stress, maintain alertness and wakefulness, and continue to function effectively. They must have a high level of compassion for others, motivation to serve and integrity. They must behave in an ethical and moral manner consistent with professional values and standards. A candidate must possess sufficient interpersonal skills to interact positively and sensitively with all people.

Candidates must be able to satisfy the above requirements with or without reasonable accommodations. For questions about reasonable accommodations, see the Duke Accessibility website.

## School of Medicine Policies

### Academic Freedom

Freedom of inquiry and the free exchange of ideas are essential for the fulfillment of the university's mission. Academic freedom is a right and responsibility of students as well as faculty.

Students who believe that their academic freedom has been abridged should submit a written complaint to the Vice Dean of Education. The Dean may enlist the faculty in establishing the merits or extent of the complaint by appointing a disinterested two-person subcommittee of the Clinical Sciences Faculty Council on Academic Affairs to provide advice. Cases not resolved by the Vice Dean may be brought to the attention of the provost. Students may also seek advice of the student ombudsperson in resolving a complaint.

### Academic Standards

The faculty of the Duke University School of Medicine has the responsibility to define minimum acceptable standards for academic performance. In all courses, minimum passing standards are defined by the course director in collaboration with their department chairperson and faculty. These standards are communicated to the students at the beginning of each course. In clinical departments, acceptable professional standards of behavior and attitudes are included in performance evaluation.

Faculty have the responsibility of notifying students who are not meeting minimal standards for passing a course early enough for the student to be able to work toward achieving the minimal standard by the end of the course. In most cases, this is at the midterm of a course. Tutorial help or guidance in correcting deficiencies should be offered to any student so notified.

In addition to performance directly related to course requirements, all students must maintain a high standard of professional behavior. Examples include how a student communicates with course faculty and support staff, their manifestations of responsibility to the school, fellow students, and patients, as well as behavior off-campus that would be deemed unprofessional for students becoming medical professionals. Incidents reported to the Vice Dean's office are investigated. The number of such reports, the severity of the transgression, and other aspects specific to the behavior in question can result in disciplinary action, including dismissal from medical school.

### Commencement

Graduation ceremonies are held once a year, in May, when degrees are conferred on, and diplomas are issued to, those who have successfully completed requirements by the end of the spring semester. Those who successfully complete degree requirements at the end of the summer or fall terms receive diplomas dated September 1 or December 30, respectively. There is a delay of about one month in the mailing of September and December diplomas because diplomas cannot be issued until they are approved by the Academic Council and the Board of Trustees. Degrees will not be conferred prior to the actual graduation date. Students that receive a degree during December or September are invited to participate in the May commencement program immediately following their actual graduation date.

Students are required to apply for graduation online through their DukeHub accounts. Students are sent email notifications from the SoM Registrar's Office or their program to advise of dates and times for the online apply for graduation periods. It is extremely important that students who wish to be graduated in absentia notify the SoM Office of Student Affairs ([medstudaff@dm.duke.edu](mailto:medstudaff@dm.duke.edu)) at least a month prior to graduation.

### Computer Policy

Laptops are provided to students that matriculate into the Doctor of Medicine, Pathologist Assistant, Doctor of Physical Therapy, Doctor of Occupational Therapy, and Master of Biomedical Science programs. Duke required software is installed on each laptop depending on Duke Health System and the program requirements. Students are expected to use the Duke issued laptop during their time at Duke. Devices must be kept regularly up to date with all security updates provided by Apple, Microsoft, Google, or other vendors to keep the Duke Health systems secure.

Students that go on an approved personal or medical leave of absence, that will be on a leave six months or longer, are required to meet with Medical School Education Information Technology (MedEdIT) staff to have their computers erased and returned to factory settings. This will remove Duke installed software from the computer. Students will continue to have access to their Duke email and most web-based applications during this time. Students should contact the MedEdIT staff once they have been approved to return from a leave of absence to have their laptops reconfigured and Duke software re-installed.

Students in their final year are required to meet with MedEdIT staff prior to match day or prior to graduation to have their laptops erased and returned to factory settings without Duke installed software. This is a requirement for clearance to graduate. Medical students who have rotations after Match Day can arrange a time with MedEdIT to have their computers erased once their rotation is complete.

Students charged the technology fee that withdraw from the program or go on a leave of absence, cannot return the equipment for the technology fee to be waived. The only exception would be a student that receives a laptop and then withdraw prior to the first day of classes. Students that withdraw before the first day of classes and return the laptop (and iPad if one was issued) and accessories to the MedEdIT department in good condition within 20 days of the withdrawal, may have the technology fee waived.

### Duke Community Standard

The Duke Community Standard policy is available at [students.duke.edu/get-assistance/community-standard/osccs](https://students.duke.edu/get-assistance/community-standard/osccs).

### Duke University Degree Revocation Policy

The university degree revocation policy is available at [provost.duke.edu/duke-university-degree-revocation-policy](https://provost.duke.edu/duke-university-degree-revocation-policy).

### Education Records/FERPA

In accordance with the Family Education Rights and Privacy Act (FERPA), students are granted certain rights with respect to their education records. They are:

- The right to inspect their education records.
- The right to amend the contents of the education record to ensure that they are not inaccurate, misleading, or otherwise in violation of the student's privacy or other rights.
- The right to file a complaint with the U.S. Department of Education concerning perceived failure on the part of the school to satisfy the requirements of FERPA.

FERPA also limits the disclosure of personally identifiable information to others without the student's prior consent with the following exceptions:

### Directory Information

## Duke University

Certain categories of information are considered to be directory information and do not require the student's prior written consent to be disclosed. However, the medical school registrar's office complies with a student's request to withhold directory information if notice is submitted in writing during the first three weeks of each new academic year; such requests must be renewed annually. Students considering nondisclosure should be aware that negative repercussions may result when inquiries are made by prospective employers, educational institutions, or other interested parties. This is particularly important for graduating students whose final nondisclosure requests continue to be honored until rescinded by the student.

The following have been designated as directory information by the university: name, address, telephone listing, e-mail address, date and place of birth, photograph, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and most recent previous educational institution attended.

- Education records include those records which contain information directly related to a student and are maintained as official working files by the university. They do not include records made by faculty and administrators for their own use and not shown to others; campus police records; employment records; records of physicians, psychologists, etc., made or used only for treatment purposes; and records containing information relating to a person's activities after they graduate or withdraw from the university.
- Although FERPA regulations do not require institutions to provide copies of the education records, unless to do so would effectively prohibit an individual from viewing her or his records, it is the policy of Duke University School of Medicine to make such copies available. However, the medical school may deny requests to release copies of the transcripts of those students in financial default. The medical school also does not release copies of other schools' transcripts unless mandated by FERPA.

### Legitimate Interests

The university discloses education records without a student's prior written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the university has contracted as its agent to provide a service instead of using university employees or officials (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing their tasks. A school official has legitimate educational interest if the official needs to review an education record in order to fulfill their professional responsibilities for the University. Prior consent is not required for disclosure of education records to school officials of Duke University who have been determined to have legitimate educational interests, appropriate parties in connection with an emergency, and in response to a court order or subpoena.

The complete university policy regarding FERPA is located on the website for the university registrar, at [registrar.duke.edu/student-records-resources/ferpa](http://registrar.duke.edu/student-records-resources/ferpa).

### Federal Textbook Requirement

To view the policy, go to [registrar.duke.edu/faqs/?f=/faq/federal-textbook-requirement](http://registrar.duke.edu/faqs/?f=/faq/federal-textbook-requirement).

### Email, Official Means of Communication

Duke University School of Medicine uses email as an official means of communication with students. Deans, faculty, and administrators will generally employ the Duke e-mail address (@duke.edu). Students are expected to check their Duke email account on a regular basis and to respond in a timely fashion. Students who have their @duke.edu forwarded to a different email address are responsible for ensuring that important and time-sensitive communications are not lost. Failure to read and respond to official email in a timely fashion can have serious consequences.

### Health Insurance Portability and Accountability Act (HIPAA)

The Health Insurance Portability and Accountability Act, or HIPAA, requires health care professionals to protect privacy and create standards for electronic transfers of health data. The Office for Civil Rights at the Department of Health and Human Services will enforce the regulations and impose penalties on institutions that do not make a good-faith effort on privacy and security.

HIPAA came about because of the public's concern about how health care information is used. HIPAA gives patients more control over their own health information. All Duke University School of Medicine students are required to complete online HIPAA Compliance Update training on an annual basis via an online training module. This module is located on the Occupational and Environmental Safety Office website at [safety.duke.edu](http://safety.duke.edu).



## Duke University

For more information about HIPAA compliance training, visit [dukehealth.org/privacy/patient-bill-of-rights](http://dukehealth.org/privacy/patient-bill-of-rights).

### **Immunization and Health Record**

North Carolina state law and the Infection Control Committee at the medical center require all new students to provide, within thirty days of matriculation, evidence of immunity to certain vaccine-preventable illnesses. Upon acceptance, students receive the Student Health Immunization Form, which should be uploaded to [shc.duhs.duke.edu](http://shc.duhs.duke.edu), no later than June 15.

Duke University Medical Center and the School of Medicine hold the health and welfare of their students, patients, and faculty in the highest regard. Students' failure to comply with North Carolina state immunization requirements and those of the School of Medicine will result in the student not being allowed to continue coursework or to take exams until all immunization requirements are met. For questions or concerns about immunization requirements, please contact the Student Health Department at [immunizations@duke.edu](mailto:immunizations@duke.edu) or by phone at (919) 681-WELL.

All incoming Duke students are required to have certain immunizations to meet North Carolina and Duke University requirements. Students in a health professional program have additional requirements. Students are encouraged to review and update their records as soon as possible. Failure to meet requirements may result in course scheduling delays. Refer to [studentaffairs.duke.edu/studenthealth/immunization-compliance](http://studentaffairs.duke.edu/studenthealth/immunization-compliance) for the most current detailed immunization information.

### **Payment Policy for Students Who Do Not Hold US Citizenship or US Permanent Resident Status**

Each non-US citizen admitted for enrollment at Duke University School of Medicine is eligible to apply for need-based financial assistance at the time of admission. Financial Aid eligibility is determined at the time a student is admitted and the student is notified of their eligibility prior to accepting admission into the school. Funds accepted by the student will credit to the student account. The amount disbursed is dependent on the number of terms a student is enrolled. It is the student's responsibility to pay all required tuition and fees on a semester/term basis.

For questions regarding this policy, please contact the Office of the Bursar at [bursar@duke.edu](mailto:bursar@duke.edu) or the Duke University School of Medicine Office of Admissions at [medadm@mc.duke.edu](mailto:medadm@mc.duke.edu).

### **Safety/Compliance Training**

All students enrolled in Duke University School of Medicine are required to complete annual online compliance and safety training modules. Newly matriculated students will receive a list of required modules and where to access the modules using Canvas. Completion of the modules will be done on the Occupational and Environmental Safety Office (OESO) website at [safety.duke.edu](http://safety.duke.edu), the Learning Management System (LMS) website at [hr.duke.edu/training/learning-management-system](http://hr.duke.edu/training/learning-management-system), and the CITI website, [citiprogram.org](http://citiprogram.org). Annual reminders to complete required modules, will be sent to returning students from OESO and LMS. Requirements are also tracked via the Compliance Canvas Portal. Requirements are subject to change based on OESO and LMS compliance requirements. Failure to satisfy requirements by specified deadline(s) may result in the completion of a professionalism form. Additional information can be found at [safety.duke.edu](http://safety.duke.edu).

### **Satisfactory Academic Progress Policy for Financial Aid**

Federal regulations that went into effect July 1, 2011 require that Duke establish and implement a policy to measure whether students applying for and/or receiving financial aid are making satisfactory academic progress (SAP) towards a degree. This regulation applies to all students applying for aid, whether or not financial aid has been previously received. Satisfactory Academic Progress (SAP) is the successful completion of degree requirements according to established increments that lead to awarding the degree within published time limits. There are three measurements that are used to determine eligibility: Qualitative (grades), Quantitative or PACE (percentage of completion) and Maximum Timeframe to complete degree. Not meeting these requirements may result in loss of all financial aid. Below is an explanation of these requirements.

#### **Monitoring of Academic Progress**

Students' progress will be reviewed after grades are finalized, with the exception of Medicine which will be at the end of each year. A determination of eligibility to receive financial aid for subsequent enrollment periods will be made at this time. Although Duke will send a notification to the student, the student is fully responsible for monitoring their own academic progress as it relates to financial aid eligibility. The student should review their grades on an on-going basis and compare it to the standards set forth in this SAP policy to determine if they are meeting (or failing to meet) the established criteria.

## Duke University

Evaluations will be done in a timely manner; however, the next term, (or year for medicine), may be in progress at the time we are able to notify students of their ineligibility. Should the student be concerned that they may not have met the requirements, they may contact the Financial Aid Office during normal business hours. Students will be notified via their Duke e-mail account if they have failed the measurement. Students may appeal the decision. The appeal form and directions will be located on our website.

### Frequency of Evaluation and Communication of Status

Satisfactory Academic Progress for students enrolled in Allied Health Programs, and Doctor of Medicine second year and fourth year will be checked when grades become available for each term in which the student is enrolled (including summer). Satisfactory Academic Progress for students enrolled in the Doctor of Medicine first and third year will be checked at the end of each year. Students not achieving SAP will be notified of their status (Financial Aid Warning, loss of eligibility, or Financial Aid Probation) by receiving an email to check their message center on DukeHub.

A student who fails to meet any of the standards will be placed on a Financial Aid Warning for the next semester.

### Financial Aid Warning and Loss of Federal Financial Aid Eligibility

A student who fails to meet SAP will be automatically placed on “financial aid warning” for the next enrollment period.

During the “financial aid warning” enrollment period, the student may receive federal financial aid despite the determination that the student is not meeting SAP standards.

The student must meet SAP standards at the end of the financial aid warning period or will be suspended from further financial aid until such time as the student:

- meets SAP standards (student must pay for any additional course enrollment after the financial aid warning period through personal or private funds), or
- successfully appeals and is placed on financial aid probation (outlined below)

Students will be notified of their status at the time of each SAP evaluation. Those who lose eligibility will be notified by email to review their message center on DukeHub, and the message will include instructions for appealing the loss of eligibility.

There are three (3) parts to the measurement and they are explained below:

- 1. Maximum Time Frame for Eligibility: Reviewed Each Term/Year.** The normal time frame for completion of required course work is determined by each program. Students are allowed to take 1.5 times the years of the program to complete the degree. Leave of Absences (LOA) are not counted unless the time frame from the date of matriculation reaches 10 years. Students are not allowed to take more than 10 years, including LOAs, to complete degree requirements.
- 2. Quantitative: Reviewed at the end of each Term/Year**
  - Students must successfully complete a minimum of 70% of the total number of hours for which they are enrolled after the first week of the enrollment period and cumulatively. Each program determines progress to be reasonable by dividing the cumulative number of credits the student has successfully completed by the cumulative number of credits the student has attempted.
  - Students enrolled in the Doctor of Medicine Program must complete 100% of attempted credits in the first year in order to progress to the second year. All fourth year students must have satisfied all requirements as specified by the program in order to graduate.
- 3. Qualitative Requirement: Reviewed at the end of each Term/Year.** Successful completion of a course for all students, for purposes of SAP calculations, means a student must earn a grade of Credit (Cr), Pass (P), Satisfactory (S) or better. All other grades, including F (Fail), I (Incomplete), or W (Withdrawal) will not be counted as successful completion. Only an incomplete that has been changed to a passing grade can be added to the number of hours completed for the semester of the original registration. It is the students' responsibility to notify the Office of Financial Aid once an incomplete grade has been changed to a valid grade.

### SAP Probation and Appeal Process

Students who lose eligibility for financial aid may appeal the decision by following the procedures outlined below. Those wishing to utilize this process must indicate mitigating circumstances that occurred during the course of the semester or year in question, that could not have been anticipated prior to that period, and that adversely affected their ability to successfully complete their required coursework. (Events such as the death of an immediate family member, extended illness suffered by the student, or other unforeseeable events that may have caused significant hardship for the student may be considered as examples of mitigating circumstances.) To appeal, a student must:

## Duke University

- Submit a letter of appeal to the Financial Aid Office. The appeal letter should include the following:
  - mitigating circumstances that prevented the student from meeting the requirements of academic progress (e.g. death in the family, student illness or injury, other personal circumstances). Mitigating circumstances do not include: withdrawing from classes to avoid failing grades, pursuing a second major or degree, etc.;
  - documentation that supports the student's basis for the appeal;
  - steps the student has taken/will take to ensure future academic success. This plan should outline the student's academic goals for each period (e.g. number of credit hours and/or cumulative GPA) that will enable the student to meet the requirements of academic progress at a specified future point in time; and
  - anticipated graduation date.
- In most cases, the SAP Appeals Committee will render a decision within two weeks of receipt of a fully completed appeal. All decisions of the SAP Appeals Committee are final. Notification of the decision will be sent via the student's Duke message center.
- The promotions committee will monitor and review progress of the student. Failure to meet SAP during the probationary period may result in dismissal from the program.
- If the SAP appeal is approved, financial aid will be awarded for the next semester on a probation period as long as an approved Academic Plan is in place. An Academic Plan must be formulated with a student's advisor. Student will be placed on financial aid warning for the approved appealed term.
- If the SAP appeal is denied, financial aid will be canceled. If you have been denied aid please review the section "Regaining Financial Aid Eligibility" below.
- Term and academic plans and/or other conditions of appeal approval will be included in the notification letter.

### Regaining Financial Aid Eligibility

Upon receipt of all completed appeal materials, the student will be considered for a probationary semester of financial aid in order to reestablish satisfactory academic progress. Students whose appeal is approved will be placed on financial aid warning. Academic progress will be evaluated at the conclusion of each enrolled term.

Students who fail to meet the requirements for academic progress after the second financial aid warning period and do not complete the requirements of their academic plan will again be ineligible for financial aid for the following term and will be placed on financial aid probation and subject to the appeal process.

Students who meet the requirements for academic progress for their second warning period will resume good standing and again be evaluated at the conclusion of the following term/year.

### School of Medicine (SoM) Severe Weather Policy

The School of Medicine will handle the cancellation of classes in the following manner:

All School of Medicine students will follow the provost's decision in regards to cancellation of classes. If classes are cancelled, students should not report for any medical school activities (classes, labs, clerkships, clinical assignments, etc.). Course directors, mentors, and faculty are aware of this policy so that individual decisions should not be made.

These decisions can be determined by calling (919) 684-INFO or the DukeAlert site, [emergency.duke.edu](http://emergency.duke.edu), or [today.duke.edu](http://today.duke.edu), or by visiting the School of Medicine, Office of the Registrar's website, [registrar.mc.duke.edu](http://registrar.mc.duke.edu). Severe weather policy information is automatically added to the top of the SoM and SoM registrar's websites when conditions warrant.

Please note that (919) 684-INFO and [emergency.duke.edu](http://emergency.duke.edu) are considered the official communication for inclement/severe weather announcements.

### Social Media Policy

Duke School of Medicine adheres to Duke Health's policy on social media:

Duke Health, which includes Duke University Health System (DUHS) and its subsidiaries, the Duke University Schools of Medicine and Nursing, understands the significance, and supports the use of social media to promote Duke Health and its educational, clinical and research activities. Duke Health recognizes and supports the professional use of social media and recognizes that Duke Health workforce participates in social media for personal use. This policy covers the use of social media and internet activities that associate Duke Health workforce with Duke Health through use of a Duke Health title, email address or other DUHS-identifying information.

### Transcripts & Diplomas

#### Transcripts of Academic Record

## Duke University

Current students may request copies of their academic transcripts online via their DukeHub accounts. Alumni students may obtain a copy of their academic transcripts by completing a request via a Parchment account. The link to Parchment is included on the SoM Registrar's website, [medschool.duke.edu/education/health-professions-education-programs/student-services/office-registrar/alumni-services](https://medschool.duke.edu/education/health-professions-education-programs/student-services/office-registrar/alumni-services). Students are charged a one-time transcript fee during their first year. Transcripts are released at no charge and only upon consent of the student. Students that elect to have their transcripts sent by a priority mail service are responsible for the mailing costs. Students who graduated during the year 2000 or later may request for the School of Medicine registrar's office to send a secure online transcript via email. Current students and those who have graduated in the past year should make their requests through DukeHub.

Transcripts and records submitted from other schools, through the admissions process, cannot be duplicated and released from the registrar's office. If you have additional questions, please contact [medreg@dm.duke.edu](mailto:medreg@dm.duke.edu) or (919) 684-2304.

### Replacement Diplomas

Duke University partners with Parchment Exchange to fulfill replacement diploma requests. The basic fee for a non-expedited order mailed to an address in the U.S. is \$35 per diploma. For both U.S. and international destinations, expedited processing and delivery services are available for an additional fee as outlined within the Parchment order request. Expedited shipping does not mean expedited processing. Please allow up to 8 weeks for processing and shipping.

### Replacement Certificates for Approved School of Medicine Certificate Programs (May 2000–present)

Duke University School of Medicine provides only one certificate to graduates from approved School of Medicine certificate programs, whether original or replacement. If a student has lost their certificate and wishes to have a replacement certificate made, they must fill out a Request for Replacement Certificate Form, certifying how their certificate was lost, misplaced, or damaged. The form must be notarized and must include the notary seal. The original signed form, not a copy, must be returned along with a \$25 replacement fee, made payable to Duke University School of Medicine Registrar. In cases where the original certificate has been marred beyond legibility, the original certificate must be returned along with the Request for Replacement Certificate Form. Please allow eight weeks for processing. In accordance with university policy, a statement of replacement will be printed above the seal on the certificate. It does not mar the appearance nor detract from the value of the actual certificate. The format of the replacement certificate will be the format that was used in the year the student received their degree. To obtain a Request for Replacement Certificate Form, please contact the Office of the School of Medicine Registrar, 8 Searle Center Drive, DUMC Box 3878, Durham, NC 27701; (919) 684-2304 or by email at [medreg@duke.edu](mailto:medreg@duke.edu), providing an explanation for the need of a replacement certificate. Replacement certificates may only be provided for students that completed approved School of Medicine Certificate programs from May 2000 to present.

## All SoM Programs

### Doctoral Programs

Doctor of Medicine  
Doctor of Occupational Therapy  
Doctor of Physical Therapy

### Master's Programs

Master of Biostatistics  
Master of Health Sciences in Clinical Leadership  
Master of Health Sciences in Clinical Research Training  
Master of Health Sciences Pathologists' Assistant  
Master of Health Sciences Physician Assistant  
Master of Management in Clinical Informatics  
Master of Science in Biomedical Sciences

### Certificates

Cardiac Ultrasound Certificate  
Ophthalmic Medical Technician Certificate  
Population Health Sciences Certificate

## Doctor of Medicine

# Duke University

Website: [medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program](https://medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program)

## Accreditation

The MD program at the Duke University School of Medicine is fully accredited by the Liaison Committee on Medical Education (LCME), the nationally recognized accrediting authority for medical education programs leading to the MD degree in the US and Canada. The MD program received full accreditation status during the 2016-17 academic year. Its next accreditation cycle will occur during the 2024-25 academic year. Contact the Association of American Medical Colleges at 655 K Street NW, Suite 100, Washington, DC 20001-2399, or call (202) 828-0596.

## Vision Statement

To develop a transformational education program that will graduate an innovative, inquisitive, creative, and collaborative physician who aspires to be a leader in health practice, delivery, and research.

## Mission Statement

The mission of the Duke MD educational program is to prepare a diverse student body to serve their patients and communities through advancing biomedical research and patient-centered clinical practice throughout local, national, and global health. Students will graduate as leaders prepared to serve in a spectrum of medical career paths who will thrive in a collaborative and dynamic health care environment.

## Patient FIRST Curriculum

The Duke MD curriculum provides a transformative learning experience that puts the patient **FIRST** (Foundations, Immersion, Research, Service, and Transformation). We start with the patient from day one of medical school. The biomedical sciences are taught in the context of patient symptoms integrating differential diagnoses, clinical reasoning, and the social context of medicine into a holistic view for care of the patient. We remove the artificial barrier between the biomedical and clinical clerkship years with intentional vertical integration of these two phases across the first two years. Our curriculum focuses on developing life-long learning and a habit of inquiry. A dedicated research project along with a curriculum on leadership equips our students to continually push the boundaries as change agents of science, patient care, medical education, health systems and public policy. Our graduates will become compassionate, highly competent physicians who put patients FIRST.

The curriculum offers flexibility in the medical education program and new opportunities for intellectual exploration. It also makes heavy demands upon the student. Medical students at the Duke School of Medicine are expected to maintain a consistent level of performance and to demonstrate qualities of initiative and dedication to their chosen profession. A scholarly attitude toward medicine that continues throughout an entire career is an important objective of the medical school. The foundations of this attitude toward learning should accompany the student upon entering.

Students are also expected to maintain a professional attitude toward patients at all times, to respect confidences, and to recognize that they are the recipients of privileged information only to be discussed within the context of clinical education and patient care. This attitude involves consideration not only of speech and personal appearance but also of emotional intelligence, teamwork, selfless service, critical thinking, and integrity.

The medical education program also focuses on ethics and human values. In the face of major advances in medical technology and sciences, today's medical student must be prepared to deal with new complexities of medical practice. These advances and complexities also make it of paramount importance that medical education enable each student to grow in both depth and breadth as a human being.

## Program Objectives

By graduation, student will be able to

- **Domain 1: Ethics, Integrity, and Professionalism.** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles, centered on diversity, equity, and inclusion. Demonstrate the qualities required to sustain lifelong personal and professional growth.
  - **Objective**
    - Incorporate the values of diversity, equity, inclusion, and anti-racism in one's personal and professional behavior
    - Practice the responsibilities of one's professional identity as a physician and leader
    - Consistently incorporate feedback and performance data for continual professional development
    - Recognize and address ethical issues in clinical care and research

- Develop and engage strategies in self-care to promote well-being and resilience
- Provide timely and respectful constructive feedback to improve the learning environment
- **Domain 2: Scientific Foundations and Medical Knowledge.** Demonstrate knowledge of established and evolving biomedical and clinical sciences related to the development, structure, and function of the human body in health and disease as well as the application of this knowledge to patient care. Practice seeking new biomedical knowledge as part of a commitment to life-long learning.
  - **Objective**
    - Continually seek and develop foundational understanding of the biomedical sciences
    - Demonstrate application of foundational sciences to clinical care
- **Domain 3: Clinical Skills.** Practice the clinical skills needed for patient care across a variety of clinical settings, conditions, and acuity. Students should be entrusted to perform these skills upon graduation in a patient-centered manner across the variety of contexts.
  - **Objective**
    - Efficiently gather essential and accurate information through history taking and physical examination
    - Develop a prioritized differential diagnosis justified by key features of the presentation
    - Formulate diagnostic and therapeutic plans based on prioritized differential diagnoses
    - Develop clinical questions and retrieve evidence to inform diagnostic and therapeutic plans
    - Order and interpret diagnostic tests
    - Organize, prioritize, and carry out patient care tasks
    - Differentiate and manage acute life-threatening conditions
    - Manage common chronic conditions
    - Describe value-based principles and risk-benefit analyses in patient care
    - Demonstrate tolerance for ambiguity in patient care management
    - Demonstrate principles of patient-centered communication
    - Counsel patients and families in health promotion and disease prevention
- **Domain 4: Patient-centered Systems of Practice.** Demonstrate respect and understanding of the social context of health care, including the impact of culture, society, environment, and bias on health care experiences and outcomes. Practice advocacy and patient-centered care that is compassionate, objective, and meets patient needs through humanity. Develop skills to consistently survey contemporary social and cultural contexts to anticipate impacts to patients and populations.
  - **Objective**
    - Assess the impact of social historical and cultural contexts on healthcare and systemic inequities
    - Demonstrate empathy and responsiveness to the needs of diverse patients and populations
    - Support patients in coping with the impact of disease on their lives
    - Advocate for patients across health care systems
    - Recognize the impact of systems of care on patients, communities, and populations
- **Domain 5: Communication and Teamwork.** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with interprofessional team members. Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care. Develop skills to adapt one's role on the team, based on patient care and team needs.
  - **Objective**
    - Demonstrate compassion and respect for interprofessional team members
    - Recognize your role on an interprofessional team across patient care encounters
    - Collaborate with interprofessional teams
    - Practice effective communication with team members in patient care discussions
    - Complete accurate medical documentation on time
    - Contribute to the learning of others on the team
- **Domain 6: Critical thinking, Research and Scholarly Activity.** Demonstrate skills in contributing to and applying our body of knowledge in a given domain, including biomedical sciences, clinical research, medical humanities, health systems, global health, interdisciplinary practices, medical education and and/or patient care. Develop skills that prepare students to be change agents in their chosen fields through skills in life-long learning and improvement.
  - **Objective**
    - Develop skills for scientific inquiry and communication of knowledge
    - Identify, analyze, translate, and participate in discovery of new knowledge

## Duke University

- Develop skills using principles of design thinking, data science and technological advances
- Recognize opportunities where scientific inquiry can advance patient care

The preceding objectives were adapted from the sources below:

- [aamc.org/what-we-do/mission-areas/medical-education/curriculum-inventory/establish-your-ci/physician-competency-reference-set](https://www.aamc.org/what-we-do/mission-areas/medical-education/curriculum-inventory/establish-your-ci/physician-competency-reference-set)
- Health Professions Accreditors Collaborative (HPAC) [2019]  
[healthprofessionsaccreditors.org/wp-content/uploads/2019/02/HPACGuidance02-01-19.pdf](https://healthprofessionsaccreditors.org/wp-content/uploads/2019/02/HPACGuidance02-01-19.pdf)
- Endorsing HPAC members support student achievement of the four IPEC competencies contained in the 2016 update, 2 described below or with minor modifications that embrace the substance of these competencies  
Core EPAs from the AAMC store.[aamc.org/downloadable/download/sample/sample\\_id/63/%20](https://www.aamc.org/downloadable/download/sample/sample_id/63/%20)

## Duke Medical Alumni Association

The Duke Medical Alumni Association (DMAA) supports and promotes the interests of Duke University School of Medicine and the extended Duke Health community of residents, fellows, medical students, volunteers, and donors. Today, the DMAA includes more than 15,000 Duke University School of Medicine graduates including former trainees who live and work across the nation and around the globe. Our goal is to nurture meaningful and satisfying lifelong relationships among alumni, students, and faculty and to promote opportunities for connection and learning. Each year more than five hundred reuniting alumni attend the annual Medical Alumni Weekend, which features the Distinguished Medical Alumni Awards Dinner, Breakfast with the Dean, and class specific activities. The association also supports current medical students, trainees, and fellows in various ways. DMAA sponsors events and programs to assist medical students in networking with School of Medicine alumni; celebrating educational and career milestones; and creating opportunities to engage in alumni and donor events as student representatives. DMAA also produces several publications for alumni and current trainees. DukeMed Alumni News and Blue Devil Docs feature news stories highlighting the school's faculty and students engaged in innovative research and educational programs, while the Golden Blue Devils newsletter is geared to senior alumni (fifty years post-graduation) and emeriti faculty.

## Student Personal and Professional Advisory System for MD Program Students

The advisory dean system is the heart of the Office of Student Affairs. Working as a team with other OSA staff members and an academic resource consultant, the five advisory deans are responsible for the academic, personal, and career advising of Duke medical students. Each incoming student is assigned to an advisory dean and will work closely with that dean over time to maximize the potential of the Duke curriculum for their individual needs and career goals, to gain access to resources the student needs for their professional development, and to have a confidential advisor for any matter. Students are welcome to seek help from any of the five advisory deans, and will also work with advisors in different medical specialties to develop their plan for residency. In addition to individual student advising, the Office of Student Affairs organizes lunch group discussions in the first year and a variety of seminars regarding curriculum planning, residency application and professional development throughout medical school, and coordinates major events (Orientation, White Coat Ceremony, Match Day, Graduation) in the life of the school. Advisory deans also serve on any institutional committees that impact the interest of the students.

Doctor of Medicine (MD)

## Academic Calendar

Calendar and registration dates are subject to change.

## Duke University

16 – Full length of the term	
21 – 1st two-weeks, two-week clerkship	22 – 2nd two-weeks, two-week clerkship
23 – 3rd two-weeks, two-week clerkship	24 – 4th two-weeks, two-week clerkship
25 – 5th two-weeks, two-week clerkship	26 – 6th two-weeks, two-week clerkship
27 – 7th two-weeks, two-week clerkship	28 – 8th two-weeks, two-week clerkship
41 – 1st four weeks of term	42 – 2nd four weeks of term
43 – 3rd four weeks of term	44 – 4th four weeks of term
81 – 1st eight weeks of term	82 – 2nd eight weeks of term
01 – 1st week of term, one-week selective	02 – 2nd week of term, one-week selective
03 – 3rd week of term, one-week selective	04 – 4th week of term, one-week selective
05 – 5th week of term, one-week selective	06 – 6th week of term, one-week selective
07 – 7th week of term, one-week selective	08 – 8th week of term, one-week selective
09 – 9th week of term, one-week selective	10 – 10th week of term, one-week selective
11 – 11th week of term, one-week selective	12 – 12th week of term, one-week selective
13 – 13th week of term, one-week selective	14 – 14th week of term, one-week selective
15 – 15th week of term, one-week selective	17 - 16th week of term, one-week selective

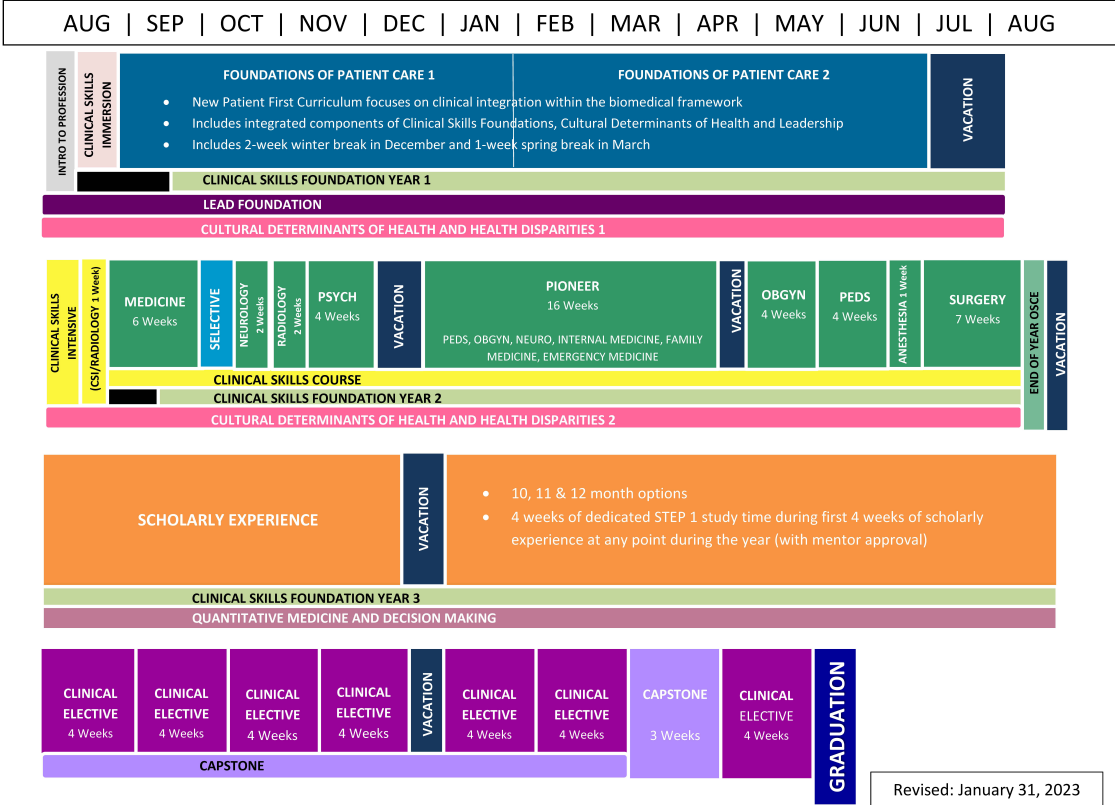
### **Approved School of Medicine Holidays for Medical Students (subject to change)**

Labor Day	All	Martin Luther King Jr. Day	All
Thanksgiving Day (refer to calendar)	All	Memorial Day	All
Christmas Day (and additional days as outlined on School of Medicine academic calendar)	All	Juneteenth	All
New Year's Day	All	Independence Day	All

## **Patient FIRST Curriculum**



# Patient FIRST Curriculum



Revised: January 31, 2023

View a PDF of this graphic here.

## First Year

## Duke University

<b>FALL 2023</b>
<p><b>July</b> 31 - (M) Introductions to the Medical Profession—<b>Mandatory attendance</b></p>
<p><b>August</b> August 4 (F) Introduction to the Medical Profession Ends August 4 (F) Annual Medical Student Research Symposium—<b>Mandatory attendance</b> August 7 (M) Begin class, Clinical Skills Training Immersion August 18 (F) End class, Clinical Skills Training Immersion August 21 (M) Begin class, Foundations of Patient Care 1</p>
<p><b>September</b> September 4 (M) Labor Day—student holiday</p>
<p><b>November</b> November 1 (W, 8:30am) Registration for Spring term opens November 7 (Tu, 1pm) Registration for Spring term closes November 21 (Tu, 6pm) Begin Thanksgiving student holiday November 27 (M) Resume class, Foundations of Patient Care 1</p>
<p><b>December</b> December 15 (F, 5pm) Begin Winter Break for first-year Medical Students</p>
<p><b>January</b> January 1 (M) New Year's Day—holiday observed January 2 (Tu) Resume class, Foundations of Patient Care 1 January 15 (M) Martin Luther King, Jr. Day—student holiday January 29 (M, 12pm) End class, Foundations of Patient Care 1</p>
<b>SPRING 2024</b>
<p><b>January</b> January 30 (Tu) Begin class, Foundations of Patient Care 2</p>
<p><b>March</b> March 16-24 (Sa-Su) Spring Break for MS1 March 25 (M) Resume class, Foundations of Patient Care 2</p>
<p><b>May</b> May 27 (W) Memorial Day Holiday—student holiday</p>
<p><b>June</b> June 19 (M) Juneteenth Holiday—student holiday June 30 (F, 5pm) End class, Foundations of Patient Care 2</p>

Grades are due within four weeks of the last day of class for each section.

## Second Year

<b>FALL 2023</b>
<p><b>July</b> July 31 (M, 8am) Begin Clinical Skills Course—Intensive</p>
<p><b>August</b> August 2 (T) MS2 students register online for fall selectives August 4 (F) Annual Medical Student Research Symposium—Mandatory attendance August 18 (F) End Clinical Skills Course—Intensive August 21 (M) Begin sections 21, 41, and 81 August 23 (W, 3pm) Begin Clinical Skills Course—Longitudinal August 25 (F), End section 01 August 28 (M) Begin section 02</p>

# Duke University

<b>FALL 2023</b>
<b>September</b> September 1 (F) End section 21 September 4 (M) Labor Day—student holiday September 5 (T) Begin sections 03; 22 September 8 (F) End, section 03 September 11 (M) Begin section 04 September 13 (W) Begin Cultural Determinants of Health & Health Disparities September 15 (F) End sections 04; 22 and 41 September 18 (M) Begin sections 05; 23 and 42 September 20 (W, 3pm) Begin Clinical Skills Foundation 2 September 22 (F) End section 05 September 25 (M) Begin section 06 September 29 (F) End sections 06 and 23
<b>October</b> October 2 (M) Begin sections 07 and 24 October 6 (F) End section 07 October 9 (M) Begin section 08 October 12 (F) End sections 08; 24; 42; and 81 October 16 (M) Begin sections 09; 25; 43; and 82 October 20 (F) End section 09 October 23 (M) Begin section 10 October 27 (F) End sections 10 and 25 October 30 (M) Begin sections 11 and 26
<b>November</b> November 1 (W, 8:30am) Online registration for MS2 spring selectives opens November 3 (F) End section 11 November 6 (M) Begin section 12 November 7 (Tu, 1pm) Online registration for MS2 spring selectives closes November 10 (F) End sections 12; 26 and 43 November 13 (M) Begin sections 13; 27 and 44 November 17 (F) End section 13 November 20 (M) Begin section 14 November 22 (W, 12pm) Begin Thanksgiving holiday; End sections 14 and 27 November 27 (M) Resume classes; Begin sections 15 and 28
<b>December</b> December 1 (F) End section 15 December 4 (M) Begin section 17 December 8 (F) End sections 17; 28; 44 and 82 December 8 (F) End section 16 PIONEER December 9 (Sa) Begin Winter Break
<b>SPRING 2024</b>
<b>January</b> January 1 (M) New Year's Day—holiday observed January 2 (Tu) Begin sections 16; 01; 21; 41, and 81 January 5 (F) End section 01 January 8 (M) Begin section 02 January 12 (F) End sections 02 and 21 January 15 (M) Martin Luther King, Jr. Day—student holiday January 16 (Tu) Begin sections 03 and 22 January 19 (F) End section 03 January 22 (M) Begin 04 January 26 (F) End classes sections 04; 22; and 41 January 29 (M) Begin classes sections 05; 23; 42

<p><b>FALL 2023</b></p> <p><b>February</b>                  February 2 (F) End section 05                  February 6 (M) Begin section 06                  February 9 (F) End classes in sections 06 and 23                  February 12 (M) Begin sections 07 and 24                  February 16 (F) End section 07                  February 19 (M) Begin section 08                  February 23 (F) End sections 08; 24; 42; and 81                  February 26 (M) Begin sections 09; 25; 43; and 82</p>
<p><b>March</b>                  March 1 (F) End section 09                  March 4 (M) Begin section 10                  March 6-12 (W-Tu) MS2 students register for summer selectives                  March 8 (F) End sections 10 and 25                  March 11 (M) Begin sections 11 and 26                  March 15 (F) End section 11                  March 18 (M) Begin section 12                  March 22 (F) End sections 12; 26 and 43                  March 25 (M) Begin sections 12; 27 and 44                  March 29 (F) End section 13</p>
<p><b>April</b>                  April 1 (M) Begin section 14                  April 5 (F) End sections 14 and 27                  April 8 (M) Begin sections 15 and 28                  April 12 (F) End section 15                  April 15 (M) Begin section 17                  April 19 (F) End section 17 and 16                  April 20 (S) Begin Spring Break                  TBD MS3 Registration for fall opens                  April 28 (Su) End Spring Break</p>
<p><b>SUMMER 2024</b></p>
<p><b>April</b>                  29 (M) Begin sections 16, 01; 21; 41; 81</p>
<p><b>May</b>                  May 3 (F) End section 01                  May 6 (M) Begin section 02                  May 10 (F) End sections 02 and 21                  May 13 (M) End sections 03 and 22                  May 17 (F) End section 03                  May 20 (M) Begin section 04                  May 24 (F) End sections 04; 22; and 41                  May 27 (M) Memorial Day - student holiday                  May 28 (T) Begin sections 05; 23 and 42                  May 31 (F) End section 05                  May 31 (F, 12pm) Deadline for rising Third Year (MED3) Registration form to Third Year Coordinator; End sections 22 and 41</p>

## Duke University

FALL 2023
<b>June</b> June 3 (M) Begin section 06 June 7 (F) End sections 06 and 23 June 7 (F) Online registration—Third Year, fall ends June 10 (M) Begin sections 07 and 24 June 12 (W) End Clinical Skills Foundation 2 June 17 (M) Begin section 08 June 19 (W) Juneteenth Holiday—student holiday observed June 21 (F) End sections 08; 24; 42; and 81 June 24 (M) Begin sections 09; 25; 43 and 82 June 28 (F) End section 09
<b>July</b> July 1 (M) Begin section 10 July 4 (Th) Independence Day—student holiday July 5 (F) End sections 10; 25 July 8 (M) Begin sections 11 and 26 July 12 (F) End section 11 July 15 (M) Begin section 12 July 17 (W) End Cultural Determinants of Health and Health Disparities 2 July 19 (F) End classes in sections 12; 26 and 43 July 22 (M) Begin sections 13; 27 and 44 July 26 (F) End section 13 July 29 (M) Begin section 14
<b>August</b> August 2 (F) End sections 14 and 27; August 2 (F) Annual Medical Student Research Symposium— <b>Mandatory attendance</b> August 5 (M) Begin sections 15 and 28 August 7 (W) End Clinical Skills August 9 (F) End section 15 August 12 (M) Begin section 17 August 16 (F) End sections 16; 17; 28; 44 and 82

Mandatory Clinical Skills Assessment due by December 2023. Grades are due within four weeks of the last day of class for each section.

## Third Year

## Duke University

<b>FALL 2023</b>
<p><b>August</b>              August 4 (F) Annual Medical Student Research Symposium—<b>Mandatory attendance</b>              August 21 (M) Third Year Begins</p>
<p><b>September</b>              September 4 (M) Labor Day—student holiday</p>
<p><b>October</b>              October 12 (Th) Begin QMDM—Medical Statistics (start date subject to change)</p>
<p><b>November</b>              November 1 (W, 8:30am) Registration for spring opens              November 7 (Tu, 1:00pm) Online Registration for spring closes              November 23-26 (Th-Su) Thanksgiving student holiday              November 26 (M) Resume classes</p>
<p><b>December</b>              December 8 (F) End QMDM II—Medical Statistics; fall term ends, section 44              December 9 (Sa) Begin Winter Break</p>
<b>SPRING 2024</b>
<p><b>January</b>              January 1 (M) New Year's Day—holiday observed; end Winter Break              January 2 (Tu) Research resumes; Begin Quantitative Medicine &amp; Decision Making II              January 9 (Tu) Begin Quantitative Medicine &amp; Dec. Making II—EBM              January 15 (M) Martin Luther King, Jr. Day—student holiday</p>
<p><b>March</b>              March 6-12 (W, 8:30am-Tu, 1pm) Registration for MS3, summer</p>
<p><b>April</b>              April 5 (F) End Quantitative Medicine &amp; Dec. Making II—EBM; end spring term              April 19 (F) End Spring Term</p>
<b>SUMMER 2024</b>
<p><b>April</b>              April 22 (M) Begin Summer Term</p>
<p><b>May</b>              May 27 (M) Memorial Day—student holiday</p>
<p><b>June</b>              June 19 (W) Juneteenth Holiday—student holiday</p>
<p><b>July</b>              July 4 (Th) Independence Day—student holiday</p>
<p><b>August</b>              August 2 (F) Annual Medical Student Research Symposium—Mandatory attendance</p>

Thesis due date is dependent on the approved start date and track. Third-year start dates and thesis deadlines must be approved prior to the third-year registration form due date. Research Ethics due 30 days after start date. Grades are due within four weeks of the last day of class for each section.

## Fourth Year

<b>SUMMER 2023</b>
<p><b>March</b>              March 8-14 (W, 8:30am-Tu, 1pm) Registration opens for rising MS4 summer              March 15 (Th, 8:30am) Drop/Add begins for summer 43 and 44</p>
<p><b>April</b>              April 5 (W, 8:30am) Registration opens for rising MS4 fall              April 11 (Tu, 1pm) Registration closes              April 12 (W, 8:30am) Drop/Add begins for fall</p>

# Duke University

<p><b>SUMMER 2023</b></p> <p><b>May</b>            May 1 (M) Begin classes in sections 41 and 81            May 26 (F) End classes in section 41            May 29 (M) Memorial Day—student holiday            May 30 (Tu) Begin classes in section 42</p> <p><b>June</b>            June 9 (F, 1pm) Drop/Add ends for summer, sections 82, 43, and 44            June 19 (M) Juneteenth—student holiday            June 23 (F) End classes in sections 81 and 42            June 26 (M) Begin classes in sections 82 and 43</p> <p><b>July</b>            July 4 (Tu) Independence Day—student holiday            July 21 (F) End classes in section 43            July 24 (M) Begin classes in section 44</p> <p><b>August</b>            August 4 (F, 1pm) Drop/Add ends for fall sections 41, 42, and 81            August 4 (F) Annual Medical Student Research Symposium—<b>Mandatory attendance</b>            August 18 (F) End classes in sections 82 and 44</p>
<p><b>FALL 2023</b></p> <p><b>August</b>            August 21 (M) Begin sections 41 and 81 and Capstone</p> <p><b>September</b>            September 4 (M) Labor Day—student holiday            September 15 (F) End section 41            September 18 (M) Begin section 42            September 22 (F) Grades for section 41 due            September 29 (F) Drop/Add ends for fall sections 82, 43, and 44</p> <p><b>October</b>            October 13 (F) End sections 42 and 81            October 16 (M) Begin sections 43 and 82</p> <p><b>November</b>            November 1 (W, 8:30am) Registration for spring opens            November 7 (Tu, 1pm) Registration for spring closes            November 8 (W, 8:30am) Drop/Add for spring opens            November 10 (F) End section 43            November 13 (M) Begin section 44            November 23-26 (Th-Su) Thanksgiving student holiday            November 27 (M) Resume classes</p> <p><b>December</b>            December 8 (F) End End section 44 and 82            December 9 (Sa) Begin Winter Break            December 15 (F, 1pm) Drop/Add for spring sections 81, 41, and 42 ends</p>
<p><b>SPRING 2024</b></p> <p><b>January</b>            January 1 (M) New Year's Day—holiday observed            January 2 (Tu) Begin section 41 and 82            January 15 (M) Martin Luther King, Jr. Day—student holiday            January 26 (F) End section 41            January 29 (M) Begin section 42</p>

SUMMER 2023
<b>February</b> February 2 (F) Drop/Add period for spring sections 82, 43, and 44 closes February 23 (F) End sections 42 and 81 February 26 (M) Begin section 43 Capstone—Mandatory
<b>March</b> March 15 (F) Match Day March 22 (F) End section 43 Capstone March 25 (M) Begin section 44
<b>April</b> April 19(F) End section 44
<b>May</b> May 6 (M) All grades due May 10-12 (F-Su) Graduation activities

All grades must be submitted to the Office of the Registrar by specified date in order for students to be approved for graduation. Grades are due within 4 weeks of the last day of class for each section. The exception is for MS4 fall 41 and MS4 spring 44. The grade submission time period is much shorter.

Doctor of Medicine (MD)

## Admissions

### Admission Procedures

Compassion, empathy, passionate and dedicated in caring for others, emotional intelligence, cultural competency, resilience, and grit are among the essential qualities for admission to Duke University School of Medicine (SoM). Students should strive for an education that allows them to think critically and creatively and to develop leadership and team skills. Preparation for medical school should reflect a broad knowledge of both science and non-science (including the humanities).

### Application for Admission

The Duke University School of Medicine participates in the American Medical College Application Service (AMCAS). The electronic AMCAS application may be accessed at the following website: [students-residents.aamc.org](http://students-residents.aamc.org).

Upon receipt of the AMCAS application data, all applicants receive a Duke University School of Medicine Supplemental Application. After submitting the Supplemental Application and application fee, the entire application is reviewed by the admissions committee for interview-potential. AMCAS applications for Duke School of Medicine must be submitted between June 1 and October 15. Interview slots fill quickly; therefore applicants are urged to file their AMCAS applications as early as possible. AMCAS may take as long as four to six weeks to process and verify applications and transcripts. It is the applicant's responsibility to ensure the application is verified by AMCAS by the Duke AMCAS application deadline.

The final deadline for receipt of the Supplemental Application is November 15.

All interviews are conducted virtually. Interviews will occur from early September to late January,

Duke University School of Medicine strives to attract, educate, and nurture students who have extraordinary intellect, compassion, humanism and leadership. We have consistently encouraged our applicants to have a broad and balanced undergraduate academic education as well as a wealth of life experiences. To accomplish this growth and maturation process, a rigorous, challenging, and interdisciplinary academic preparation in the sciences and humanities is of paramount importance.

Duke University School of Medicine is aware of the constant evolution encompassing the medical student educational process. Students applying should be well versed in the biomedical sciences and attentive of the larger psychosocial context in which medicine is increasingly practiced.

### MCAT Examination and Coursework Expectations

For those who are planning to apply to the School of Medicine, our academic expectations will include multidisciplinary coursework in the following areas and completion of the MCAT examination at the time of admissions decisions. All applicants are required to take the MCAT as early as possible in the year they plan to apply. MCAT scores should be dated at least four years prior to the year for which an applicant is seeking.



## Duke University

**Biochemistry:** May be fulfilled by a single course in Biochemistry, or through coursework that incorporates principles of Biochemistry as part of an interdisciplinary course in Cell and/or Molecular Biology and/or Genetics.

**Cellular Biology:** May be fulfilled by a single course in Cell and/or Molecular Biology and/or Genetics.

**Statistics/Biostatistics:** An understanding of the application of statistical methods in the analysis of data is expected given the increasing reliance on current biomedical and healthcare research as part of the curriculum.

**Physics:** An understanding of the correlation of basic physics to human physiology and anatomy (e.g. physics and/or biophysics) should be completed. Labs are optional.

**Sociology:** An introduction to the principles of social organization, with particular emphasis on the social determinants of healthcare is expected.

**Psychology:** An introduction to the basic principles of psychology with emphasis on the biological basis of behavior are recommended.

**Expository Writing:** Experience in expository writing across the humanities, including but not limited to formal courses in English, is a fundamental expectation in the preparation for medicine. This may be accomplished through coursework in a number of disciplines, including but not limited to Philosophy, History, Public Policy, Political Science, Religion, etc. and may be accomplished through an Honors Thesis or completion of a major research paper.

Understanding that the preliminary coursework leading up to the aforementioned cross-disciplinary courses, e.g. Biochemistry, Cell/Molecular Biology, etc., will vary among colleges and universities, the academic expectations as listed represent the absolute courses likely expected of matriculants to the School of Medicine. Online coursework during the academic years of 2020-2023 are acceptable.

The Medical College Admission Test (MCAT), administered by the American College Testing Programs and Services, PO Box 414, Iowa City, IA 52240, is required of all applicants. This test is administered each year at numerous colleges throughout the United States.

## Criminal Background Check/Drug Screening Policy

Incoming students must consent to and undergo a mandatory criminal background check (CBC) and mandatory drug screening prior to matriculation. Both the criminal background check and the drug screening are conducted by a program approved agency and the results of both are kept strictly confidential. Results from any other agency will not be recognized. An incoming student will not be permitted to begin orientation and/or classes without consenting to a criminal background check and drug screening and receiving favorable reports.

Following enrollment, students are required to disclose if they have been charged with, arrested for or convicted of a misdemeanor or felony convictions, other than minor traffic violations including deferred adjudication, within one week (seven days) days of occurrence to the vice dean for education. Nondisclosure or falsification may be grounds for dismissal or degree revocation. Students already enrolled may, for good cause, be required at the request of the vice dean for education to undergo an additional CBC or drug test. In addition, sites conducting clinical education may require students to undergo additional background checks prior to undertaking their clinical internship. The cost for such requested background checks, if not borne by the clinical site, will be incurred by the student.

The student is aware that, when applying for the CBC, they automatically release the results to the Duke University School of Medicine program and that their results will be shared with affiliating agencies that provide clinical experiences in the program.

## Readmission after Withdrawal

Students who wish to re-enter the medical program after withdrawing from the School of Medicine must provide the following to director to the Office of Student Affairs:

- A statement detailing
  - the reason(s) for withdrawing from the program, including relevant history leading up to the decision;
  - how the issue relating to those reasons have been addressed;
  - a discussion as to why the student is re-applying to the medical school, including information concerning changes in situation, reasons for wishing to pursue a career in medicine, and an explanation as to the chosen time for return;
  - a chronological list and brief description of actions since withdrawing from the School of Medicine;
- an updated curriculum vitae;
- a transcript of any academic courses taken since the withdrawal; and
- two letters of reference from people with whom the student worked during the withdrawal period.

In the event of withdrawal because of medical reasons, the School of Medicine requires an evaluation from the student's personal health care provider declaring readiness to return.

## Duke University

The applicant is scheduled for two interviews within the School of Medicine Admissions Committee. After these meetings take place, a committee comprised of the vice dean and the advisory deans convenes to review the information submitted relevant to the reapplication. The decision of the committee, which is final and non-negotiable, is provided in writing to the applicant and to the school administrative offices.

### Reapplication

Applicants who wish to reapply must submit a new AMCAS application.

### Technical Standards

Incoming students must attest that they have read, understand, and satisfy the Duke School of Medicine Health Professional Technical Standards. The study of medical sciences is not a pure intellectual exercise. Candidates for all degree programs within the School of Medicine (SOM) must possess the ability to learn, integrate, analyze, and synthesize data. The School of Medicine Technical Standards are available here.

### Selection

The earliest date of notification of acceptance is mid to late February for applicants entering in July/August. Those selected to interview are carefully evaluated by the Committee on Admissions. Interviews are conducted virtually for those applicants with competitive credentials. The interview format at the Duke University School of Medicine is the Multiple Mini Interview (MMI). Candidates who demonstrate the most promise for exceptional performance in the practice of medicine are interviewed and then considered for acceptance. Since admission is offered in advance of matriculation, it is provisional upon the successful completion of college coursework. Students must attest that they have read, understand and satisfy the Duke School of Medicine Health Professional Technical Standards, consent to and undergo a mandatory criminal background check and a mandatory drug screening prior to matriculation. Both the criminal background check and the drug screening are conducted by the Duke Health System and the results of each are kept strictly confidential. A negative or failed background check or drug screening does not necessarily prohibit a student from entering medical school but the student's standing will be evaluated on a case-by-case basis.

### Transfer

Transfer students are considered only when there is an open seat in the clinical year (Year Two) at Duke University School of Medicine. With the extremely low attrition rate of our students, this is a very rare occurrence. If there is an open position, only students who are enrolled in an LCME-accredited medical school in the United States and who have demonstrated very compelling circumstances will be considered. A student requesting the transfer cannot begin the process until confirmation by the Duke University School of Medicine of space availability in the second year, which is on or before March 15. All required materials and evaluations must be received by July 15.

The application procedures are as follows:

1. completion of the Duke University School of Medicine Secondary Application
2. receipt of the AMCAS application data that was submitted for the applicant's original medical school application;
3. a letter from the dean/registrar of the medical school indicating the student is currently in good standing
4. two letters from faculty supporting the applicant's candidacy for transfer
5. a certified transcript from the institution the student will be transferring from
6. first-time passing/satisfactory performance on the USMLE Step 1 or Step 2
7. satisfactory completion of the basic science (pre-clerkship) coursework at the current medical school with no remediation
8. attestation to reading, understanding, and satisfying the Duke School of Medicine Health Professional Technical Standards
9. interview with at least two members of the Duke University School of Medicine executive committee to determine if the applicant's personal attributes are comparable to those of current medical students admitted through the regular admissions process

The vice dean is responsible for reviewing the academic portfolio to determine comparability. This includes a review of the AMCAS application data, Step results, transcript, and curriculum of the program, in addition to the review of personal attributes as per the two interviewers above. Based on the criteria used in the decision process cited in Section 10, the final decision is agreed upon between the executive committee on admissions and the vice dean of the Duke University School of Medicine. All decisions are non-negotiable.

### Advanced Standing Matriculants

## Duke University

To receive advanced standing at matriculation, applicants must have received a recent quantitative doctoral degree in biomedical or preclinical sciences. If the PhD has been awarded prior to matriculation, the student may apply to be considered for a waiver of the third year Scholarly Experience, allowing the completion of an MD in three years. In this case, completion of the MD program would consist of the core basic science courses during the first year, the core clinical rotations during the second year, and clinical electives during the third year. If the PhD has not been awarded prior to matriculation, the student is not eligible for this program.

To request a waiver at matriculation and to have a tuition waiver for the third year, the student submits a request to the Third Year Office prior to the end of the first year of enrollment, which assigns the initial review to the most appropriate study program director, based on their field of study.

If a student matriculates into a PhD program after matriculating into the MD program, they may request academic credit for the third year by submitting a request to the Third Year Office prior to beginning the PhD program. The Third Year Office assigns the initial review to the most appropriate study program director, based on their field of study. Please note that in this case, a tuition waiver will not be granted for the third year.

In either case, the program director will then present directly to the third-year committee (or at their discretion, assemble a small subcommittee of faculty with the specific content expertise necessary to fairly evaluate the project if needed) and present to the full third-year committee. The committee reviews the following criteria:

- Was the PhD rigorous?
  - Rigorous from the perspective of the subcommittee/SPD who reviewed the thesis
  - From a comparable and reputable institution
  - Quality of publications arising from dissertation
  - Successful defense of their thesis
- Was it timely and relevant?
  - Usually completed within the past 5 years
  - Biomedically related and quantitative
- Does the work product meet or exceed the expectations for the scholarly work product for enrolled third-year students (requirements for the product are identified in the course syllabus on Canvas)?

The request is put to discussion and vote on, or before the 3rd year committee who would make a recommendation to approve or not approve. This recommendation gets reviewed by the Promotion Committee, which makes recommendations to the Vice Dean for Education, who makes a final decision to approve or disapprove the waiver. Following this action, the student and registrar's office are notified. Upon approval, a notation is made to the student transcript to reflect transfer credit, and the tuition for the third year is waived for those with advanced standing at matriculation.

Doctor of Medicine (MD)

## Tuition & Fees

The following table represents an estimate of a student's necessary expenses in the School of Medicine. The total of these figures suggests a basic minimum budget of approximately \$93,964 for a fourth-year student to \$101,315 for a first-year student. These are estimated figures only. Tuition and fees are subject to change without notice.

### 2023-2024 Estimated Cost of Education

EXPENSE	AMOUNT
First-year tuition	\$68,147
First-year fees	\$4,610
Second-year tuition	\$68,147
Second-year fees	\$3,917
Third-year tuition	\$68,147
Third-year fees	\$3,917
Fourth-year tuition	\$68,147
Fourth-year fees	\$3,593

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

## Duke University

All individuals registered in the Duke University School of Medicine as MD degree candidates are considered to be full-time students if they are registered for a minimum of eight credits each semester. Each student determines the number and types of courses taken with their advisory dean and, when applicable, one or more of the appropriate committees.

Tuition and fees are payable on a semester basis. Students are required to pay full tuition for four years as a requirement for graduation. Tuition rates are determined according to matriculation date and increase yearly at a rate determined by the School of Medicine Finance and Resource Planning Office and approved by the Board of Trustees. Students are charged for no more than the equivalent of four full years of tuition. A student who fulfills the tuition payment obligation but has not completed requirements by the end of the last payment period is not assessed additional tuition during any subsequent terms of enrollment.

Students are eligible for need-based financial aid for the four years of tuition-based enrollment. Extended periods of enrollment are not grant eligible and loans are available only if the student meets certain federal requirements. For additional information, please contact the Office of Financial Aid.

Failure to pay tuition, complete any academic requirements, or complete a financial aid exit interview will result in a block of a student's academic transcript. Until all School of Medicine requirements are met, the transcript will not be released for any purpose.

## Financial Policies

### Office of Admissions Payment Policy for Students Who Do Not Hold US Citizenship or US Resident Status

Each non-US citizen admitted for enrollment at Duke University School of Medicine is eligible to apply for needs-based financial assistance at the time of admission. The application deadline for incoming students is April 1. Financial Aid eligibility is determined for all admitted students that meet the stated deadline, and the student is notified of their eligibility prior to accepting admission into the School. Funds accepted by the student will credit to the student account. The amount disbursed is dependent on the number of terms a student is enrolled. It is the student's responsibility for paying all required tuition and fees on a semester/term basis.

For questions regarding this policy, contact the Office of the Bursar, or the Duke University School of Medicine Office of Admissions.

### Payment of Accounts

Statements for tuition, fees, and other charges are processed by the bursar's office. All statements are delivered electronically via DukeHub. Fall bills will be due on August 1, and spring bills will be due on the fourth business day in January. Pay by e-check at [finance.duke.edu/bursar](https://finance.duke.edu/bursar) (click on the Make an e-Check Payment link under the Payment Resources section). If full payment is not received by the stated due date, a late payment penalty charge will be assessed on the subsequent statement.

Check payments can be mailed to Duke University, Cashiering Office, Box 90759, Durham, NC 27708. To ensure prompt credit to your student account, please include a copy of your bill when mailing your payment.

All checks should:

- be payable in US dollars to Duke University;
- include name and student account number (from bill); and
- be from a US financial institution (such as Bank of America) or a US branch of a financial institution (example: the New York City branch of Barclay's Bank PLC).

Checks will be deposited upon receipt.

Students who are paying from abroad and are unable to send a US dollar check from a US financial institution, or whose bank is unable to provide a check drawn on its US branch, should submit payment by bank wire. Students may submit payment via preferred international providers found by clicking the International Payment icon on the Bursar website. Bank wires take several days to reach the United States – students should contact their bank in advance of the due date on their bill to ensure that their wire is received by the University, by the due date.

Duke University does not accept credit or debit cards for payment of tuition and fees.

Scholarship checks and other correspondence should be sent to Duke University Bursar, Box 90759, Durham, NC 27708; Overnight and Express mail should be sent to 114 S. Buchanan Blvd., Bay 8, Room B-103, Durham, NC 27701.

### Restrictions on Past Due Accounts

## Duke University

Tuition and fees are due before the start of each term. If your account becomes past due, a late payment penalty charge (not to exceed 1.25 percent of the past due balance from a prior bill) will be assessed on subsequent bills. If your account remains unpaid, you will not be allowed to register for future semesters and may be administratively withdrawn from Duke. As long as your account is past due, you will not have access to academic transcripts, be able to have academic credits certified, or receive a diploma at graduation. If your account remains outstanding after your departure from Duke, it may be referred to a collection agency and reported to a credit bureau.

### Monthly Payment Plan

Duke University partners with Nelnet to allow currently enrolled students and their parents to pay all or part of the academic term expenses in monthly payments. Enrollment dates and additional details can be found at [bursar.duke.edu](http://bursar.duke.edu).

A nonrefundable fee is charged for Nelnet participation; this fee is paid directly to Nelnet. As a Nelnet participant, you will continue to receive statements on a regular basis from the bursar's office. This statement should reflect your Nelnet payments made to date. The balance due on your statement, which includes charges for the current term, must be covered by your remaining scheduled Nelnet payments for that term. Payments made to Nelnet for July 1 to November 1 must clear fall term charges; payments made December 1 to April 1 must clear spring term charges. If the balance due on your statement will not be cleared by your remaining scheduled payments for the term, please submit a payment for the difference directly to Duke University. For more information, visit [mycollegepaymentplan.com/duke](http://mycollegepaymentplan.com/duke) or contact Nelnet at (800) 609-8056.

### Late Registration Penalty

Failure to register for all required courses during the prescribed online registration periods offered by the School of Medicine will result in a Professionalism Notification. This will become part of your permanent record and may be noted in your Medical Student Performance Evaluation (MSPE).

### Delinquent Accounts

An individual is in default if the total amount due is not paid in full by the due date. A student in default is not allowed to register for classes, receive a transcript of academic records, and have academic credits certified, be granted a leave of absence, or receive a diploma at graduation. In addition, an individual in default may be subject to withdrawal from school and have the account referred to a collection agency or credit bureau.

### Refunds of Tuition and Fees

Tuition and fees refunds are governed by the following policy:

- In the event of death, a full refund of tuition and fees is granted.
- Students who withdraw from the medical school or are approved to take an official leave of absence before the end of the first week of classes (as determined by the calendar corresponding to the student's curriculum) receive a full refund of tuition.
- Students who withdraw or take leaves of absence after the first week of classes of their particular curricula receive no refund of tuition. However, if a student returns to the School of Medicine, that tuition payment is included in the total amount required by the school.

Because Duke University participates in Title IV federal aid programs, it follows federal guidelines with respect to the refund and repayment of Title IV funds. Students will have their Title IV financial aid adjusted according to the federal regulations. Additional information regarding this procedure may be obtained from the Office of Financial Aid.

Students are encouraged to sign up for direct deposit.

## Financial Aid

### Financial Aid Program

The Duke University School of Medicine makes financial assistance available to accepted students who, due to economic circumstances, could not otherwise attend the university. The Doctor of Medicine Program is committed to meeting the demonstrated financial need of applicants based on federal and institutional policies and procedures. For our current academic year, approximately 80 percent of the total student enrollment received financial assistance from sources other than parents. Grants, scholarships, and loans from all sources to medical students totaled more than \$27 million. More than \$15 million of these funds were from Duke University School of Medicine scholarship/grant sources. Financial assistance is available in a combined form of grants and loans, and all awards are made on the basis of demonstrated need to eligible US citizens.

### **Federal Financial Aid – 45 Day Rule**

A student is considered to have withdrawn from the program if the student is not scheduled to begin another course, within the same period of enrollment, within 45 calendar days after the end of the course the student last attended. A student is considered to have withdrawn in a given term for Title IV purposes if the student ceases attendance at any point prior to completing the period of enrollment, unless the school obtains written confirmation from the student at the time of the withdrawal that they will attend a course that begins later in the same period of enrollment.

### **Financial Assistance to Incoming Students**

Students should start the financial aid application process once they have been admitted to the School of Medicine. All students, regardless of their interest in financial aid, are sent information at the time of their acceptance. The economic circumstance of the applicant has no bearing on whether the applicant is accepted into the medical school.

Students applying for need-based funding are required to complete the CSS Profile and the Free Application for Federal Student Aid (FAFSA). Copies of federal income tax returns with all supplemental schedules and W2s for both parent(s) and student are also required as part of the financial aid application. Students applying for federal loans only should complete the FAFSA. An official aid award notice is emailed to the accepted applicant after receipt of the required forms. Application information can be found at [medschool.duke.edu/education/student-services/office-financial-aid/prospective-students](https://medschool.duke.edu/education/student-services/office-financial-aid/prospective-students).

### **Sources of Aid for International and Deferred Action Childhood Arrivals (DACA) Students**

The School of Medicine values the enrichment that comes from having talented international students participate in the medical doctor program, and recognizes that many may need financial assistance in order to participate. A limited amount of need-based institutional grant is offered to students who demonstrate financial need. Applications are due on April 1. Additional information regarding these grants, and how to apply, can be found at [medschool.duke.edu/education/student-services/office-financial-aid/prospective-students](https://medschool.duke.edu/education/student-services/office-financial-aid/prospective-students).

### **Financial Assistance to Upper-Class Students**

Annual reapplication is required of all need-based aid recipients. Typically, May 1 prior to the award year is the filing deadline. International and DACA students must reapply by April 1.

### **Financial Aid When Studying Away**

Need-based financial aid is available during fourth year clinical elective years. A student receiving a research scholarship may also qualify for need-based financial aid funds. External scholarships are used to replace the loan package first.

Your new award will incorporate any research scholarship within your financial aid award in accordance with NIH, Duke SOM policies and federal financial aid regulations. Duke University School of Medicine policy dictates that all external scholarships replace loans first followed by need-based grants if necessary. This includes any merit scholarships as well. Total aid from all sources cannot exceed the established and board approved cost of education. Whenever aid exceeds cost, there is an over-award situation which is a violation of federal regulations (HEA section 673.5 (b) (2), 673.5 (d)). All effort has been made to ensure that students have all the financial aid to which they are entitled.

Need-based financial aid funds are not available for the added monthly cost at study away sites where cost is greater than if the student studies at Duke. Unsubsidized loans can be obtained for these additional expenses. Students are reminded that their refunds include any additional living allowances that may have been added to their budget. Every effort will be made to map refunds to expenses but students are expected to track their own spending habits to scheduled refunds.

External scholarship awards are typically disbursed in August and early January; however, students will want to verify with their scholarship source the actual disbursement calendar and make financial arrangements accordingly. The funds credited to the student account first go to pay any outstanding tuition or fees on the account. Any remaining balance will be refunded to the student. In the case of the Howard Hughes award, the research allowance is allocated to the individual lab mentor through the Duke University Accounting system. They have fiscal responsibility for these funds, not the financial aid office.

For additional information, contact the Office of Financial Aid at (919) 684-6649 or [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu).

### **Need-Based Aid**

**Grants.** The School of Medicine is pleased to be able to offer grants to those students who qualify for need-based aid. The school recognizes, however, the responsibility of the individual and the family to provide funds to achieve the objective of a medical education. Thus, the school does not consider parents to have discharged the full financial obligation for the continuing education of the student upon the completion of the undergraduate degree. When being considered for a Duke grant, it is the responsibility of the student to provide all parental information to the financial aid office. This information is in the form of parents' tax returns/W2s and the CSS Profile

## Duke University

Application, which the student fills out and submits online. It is important that the student submit their financial aid application as soon as possible in order to receive a financial aid notification prior to April 30. It is Duke's policy to calculate and assess each family a parental contribution each year. By accepting the award, you understand that this assessment will take place each year of your medical education. Situations may change for students during medical school—marriage, birth of children, etc.—but parental information is still required to be submitted for students to be considered for Duke need-based grants. Additional information is available at the financial aid website at [medschool.duke.edu/education/student-services/office-financial-aid](https://medschool.duke.edu/education/student-services/office-financial-aid).

It is the responsibility of recipients of financial aid to keep the School of Medicine Office of Financial Aid informed of any outside financial assistance they may receive. It must be understood that the school reserves the right to reconsider its offer of financial assistance in the event of a major outside award to a recipient. No financial aid funds may be used during a period when the recipient is not involved with academic work toward the medical degree. Less than half-time or special students are not eligible for financial aid.

### Loans

- **Federal Direct Grad PLUS Loan.** The Federal Direct PLUS Loan is used to borrow additional funds up to the total cost of attendance, less other financial aid received. This loan is available to graduate and professional students and may also be consolidated with Direct Stafford loans upon graduation. A credit check is required for all Grad PLUS loans. Current interest rates and loan fees may be found at [studentloans.gov](https://studentloans.gov).
- **Private/Alternative Loans.** Private education loans are designed to assist students who need additional funding to meet the gap between the cost of attendance and any financial aid. Private loans are not part of the federal education loan programs. These loans carry a variable interest rate.
- **Federal Direct Stafford Student Loans.** For purposes of Federal Direct Stafford Loans and other Title IV funds, graduate and professional students are financially independent of parents. The annual maximum for medical students is \$47,166. Loans will not have any interest subsidy, meaning the borrower will be responsible for the interest that will accrue during the enrollment period. Students must complete the Free Application for Federal Student Aid (FAFSA). Borrowers must be a US citizen or permanent resident, have no previous default on a federal loan, and be enrolled at least half-time maintaining satisfactory academic progress. Duke University School of Medicine reserves the right to decline loan applications not having a satisfactory credit history. Current interest rates and loan fees may be found at [studentaid.gov](https://studentaid.gov).

**University Loans.** The School of Medicine has an emergency loan fund, the Francis and Elizabeth Swett Loan Fund, available in small amounts to any medical student on a no-interest basis for a short period of time. The emergency loan is not intended for tuition payments.

Additional information may be obtained by contacting the Office of Financial Aid, Box 3067, DUMC, Durham, NC 27710; (919) 684-6649; or [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu).

### Resources with Service Commitment

- **Forgivable Education Loan for North Carolina Residents.** The loan provides financial assistance to qualified students who are committed to working in North Carolina in fields designated as critical employment shortage areas. Additional information can be found at [cfnc.org](https://cfnc.org).
- **Federal Armed Forces Scholarships.** Armed Forces (Army, Navy, and Air Force) scholarship programs may be available for accepted or enrolled students. The recipient receives full tuition, fees, and a monthly stipend in return for a commitment of service as a physician for each year of funding.

### Merit Awards for Medical Students

Duke University School of Medicine has a limited number of merit scholarships. Application and awarding of these scholarships are determined by individual committees. These scholarships are:

**The Dean's Merit Scholarships** range in amount of one-fourth current tuition to full current tuition and are awarded to academically excellent incoming medical students. Selection is made by the Vice Dean of Education based on recommendations from the Medical School Admissions Committee. Annual renewal is contingent upon satisfactory academic progress.

**The Dean's Tuition Scholarships** range in amount of one-fourth current tuition to full current tuition and are awarded to academically excellent incoming medical students whose life experiences and background will meaningfully contribute to the diversity of the class. Factors considered may include personal attributes, experiential factors, demographics, or other considerations. Selection is made by the Vice Dean of Education based on recommendations from the Medical School Admissions Committee. Annual renewal is contingent upon satisfactory academic progress. Funds supporting the Dean's Tuition Scholarship are:

## Duke University

- **Leon Levine Scholarship (formerly Family Dollar Scholarship)**, established November 1984, by gift from Mr. Leon Levine, Chairman of the Board, Family Dollar Stores, Inc., Charlotte, North Carolina.
- **Mary W. and Foster G. McGaw Scholarship**, established February 1986, by bequest from Foster G. McGaw.
- **Richard Finner Scholarship**, established November 2011, by Richard W. Finner.
- **William Orr Wagner**, established August 2006, by Amanda Wagner, Brett Wagner, Dale Harrison, Jeanne McKibben, and Cathy McClure in honor of William Orr Wagner.

**Fullerton Medical Scholarships.** Duke University School of Medicine is one of the six medical schools in North Carolina and South Carolina that participates in the Fullerton Foundation's Medical Scholarship program, established in 1985. The Program's objective is to "identify and reward the student who demonstrates and projects the potential for development into a highly capable professional who is concerned with the total welfare of the society of which they are an active participant, as well as being a competent physician. The nominee must have potential for service in the health care field, which can be demonstrated by, but not limited to, leadership in high school, undergraduate school and the community, knowledge of society and the problems and opportunities of the world today, and the individual's awareness of their own capabilities and limitations." Each year the schools nominate an incoming student for one of the two \$20,000 annual awards. The nominee or family of the nominee must be a resident of North Carolina or South Carolina for the past five years. Final Selection is made by the Foundation. The award continues for the remaining three years of medical school bases on the student maintaining satisfactory progress. On behalf of the four finalists, the Foundation awards a \$1,000 honorary stipend.

**The Rauch Family Merit Scholarships**, established in 2013 by the Rauch Family Foundation, are the first all-inclusive scholarships at the School of Medicine. The scholarships will be awarded to an incoming first-year student who shows outstanding promise for a significant career in medicine. The merit-based scholarships will fund the approved cost of attendance as determined by the Duke Board of Trustees, which includes tuition, fees, transportation, and allowances for living and miscellaneous expenses. The scholarships continue through graduation as long as the student remains in good standing. Students are selected by the Executive Committee for Admissions during the regular merit scholarship selection process.

**Dudley Family Academic Scholarship**, established September 2014 by Mary A. Dudley and Alden W. Dudley, Jr. This scholarship will cover full tuition to an incoming first year medical student based on academic excellence and whose life experiences and background will meaningfully contribute to the diversity of the class.

## Third Year Research Scholarships

### Overview

A variety of research scholarships and research programs are available to support medical students in their year of individual scholarly activity. Most of these require a full twelve-month commitment to research. Students may apply for multiple external scholarships as well as internal scholarships offered by departments at Duke; however, usually a student can accept only one scholarship. All scholarships and programs involve a competitive application process.

The brief descriptions below include the currently approved external and internal scholarships and program details and contact information. Applications to external scholarship programs are often due in January, and applications to internal scholarship programs are due April 1 or the last working day before April 1. There are a few exceptions to these deadlines. Further questions can be directed to Third Year Office at [thirdyear@mc.duke.edu](mailto:thirdyear@mc.duke.edu).

To view the scholarship listings, visit [medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program/curriculum/third-year-45](https://medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program/curriculum/third-year-45).

**Financial Aid and Scholarships.** Need-based financial aid is available during the third-year scholarly research year and fourth-year clinical elective years. A student receiving a research scholarship may also qualify for need-based financial aid funds. The award will incorporate the scholarship along with any financial aid award in accordance with NIH, Duke SOM policies, and federal financial aid regulations. Duke University School of Medicine policy dictates that all external scholarships replace need-based loans first. At such time that these loans are replaced in full, then the grant portion of a student's aid award will be reduced. This includes any merit scholarships as well. Total aid from all sources cannot exceed the established and Board-approved cost of education.

Whenever aid exceeds cost, there is an over-award situation which is a violation of federal regulations (HEA section 673.5 (b) (2), 673.5 (D)). All effort will be made to ensure that students have all the financial aid to which they are entitled.

Need-based financial aid funds are not available for any added monthly cost at study away sites where living expense is greater than if the student studies at Duke. Unsubsidized loans can be obtained for these additional expenses. Contact the Office of Financial Aid for additional information.



## Duke University

**Third-Year Scholarship Students' Ability to Enroll in Coursework.** Students who have been awarded scholarships for third-year research should be aware that some scholarships will not allow coursework while involved in scholarly research funded by a specific scholarship. Student should check with their Advisory Dean to confirm which scholarships are in this category.

All third-year students are required to satisfy the third-year practice course/continuity clinic. When a scholarship prohibits doing coursework for credit, this requirement may be satisfied by an approved outpatient/continuity course during the fourth year. Some students involved in specific study programs are also required to enroll in specific courses related to that lab experience. In no instance, however, should a scholarship recipient enroll in courses without the specific permission of the study program director and their research mentor.

Students should be aware that taking courses during a period when they are not allowed may lead to loss of scholarship support, loss of credit, or other adverse measures.

## Satisfactory Academic Progress Policy for Financial Aid

Refer to School of Medicine Policies.

Doctor of Medicine (MD)

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

### General Education Policies

#### Absences/Attendance Policies

Students in the MD program of the Duke University School of Medicine are expected to attend all classroom, clinical, and laboratory activities of their curriculum with these exceptions:

1. Activities that are clearly identified by the course director as non-mandatory attendance activities;
2. Activities for which the individual student has received permission in advance from the course director for an absence, and which may or may not require make-up work; and
3. Activities for which the student is unexpectedly unable to attend due to illness, accident, or other emergency and for which the student has notified the advisory dean, course director or designee of the reason for the absence, and which may or may not require make-up work.

#### Attendance Requirements for Medical Students—Holidays

Approved holidays for the School of Medicine are outlined in the School of Medicine Bulletin and on the approved Academic Calendar. Holidays that occur on a Saturday may officially be observed on the preceding Friday. Official School of Medicine holidays occurring on Sunday will be observed on the following Monday. Second- and fourth-year medical students that are completing clinical rotations and scheduled for the weekend or evening shifts (or call) prior to the scheduled and approved holiday, must complete their scheduled shift. For example, a holiday observed on the Monday after the actual holiday, a course instructor and/or department may schedule the student to be on the wards until the end of their shift. The approved student holidays (subject to change) are:

- Labor Day
- Thanksgiving Day (and the day after Thanksgiving)
- Christmas Day (and additional days as outlined on academic calendar)
- New Year's Day
- Martin Luther King, Jr. Holiday
- Memorial Day
- Juneteenth
- Independence Day

#### Excused Absences

Students must submit written requests (email) for excused absences from required course activities with the director of a course or clerkship in situations. Examples include illness or health care appointments, attendance at scientific or professional meetings, personal or family emergency, or major life events. Course directors are responsible for making clear to students which portions of their courses require attendance and any limit on excused absences without negative consequence. Written requests for excused absences should be submitted at least six weeks prior to the scheduled activity to allow sufficient time for schedule adjustments and

## Duke University

make-up work. Requests made on short notice for previously planned absences will likely be denied. Absences announced on short notice due to illness or emergency may still be excused with proper notification of the course director or advisory dean, and unannounced absences may be excused in cases of incapacitation to the point of inability to make these contacts. (Refer to “Time Away Requests for Second-Year Courses”).

### Unexcused Absences

Any absence without prior notification of the course director or advisory dean is considered unexcused unless documentation of inability to make those contacts is provided. Any absence not approved by a course director for a required part of a course is considered unexcused. An unexcused absence will have a negative impact on the student’s grade or evaluation, and may result in a Code of Professional Conduct charge if deemed unprofessional behavior.

### Student Attendance During Illness

Duke University School of Medicine values the well-being of students, patients, visitors, faculty, and staff. It is critical that students not come to school when they are sick. Students who have a temperature over 100.4 must not participate in classes or rotations until they have been fever-free for 24 hours. Absences must be communicated to the student’s course and/or clerkship directors as soon as it is determined that they will not be able to attend class or rotations due to illness. Documentation from a health care provider (student health, urgent care, etc.) may be requested by the clerkship or course director upon their return to class/rotations.

### Absences for Internship Interviews

Students must follow the Excused Absence and Incomplete Grades policy for any absences related to interviews. Please note that all make up work must be completed within the time designated by the Incomplete Grading policy (i.e., within six weeks of the end of the course). If makeup time is extended beyond the six weeks post the end of the course, students will receive an Incomplete and makeup time must be completed in the same semester in which the course was originally scheduled.

It is the recommendation of the School of Medicine that a student miss no more than 3 days in any four-week course/clerkship/elective. It is, however, at the discretion of the course director to determine the number of allowable days a student can miss for the purpose of interviewing. The student must give the course director sufficient notice of their intention to be away for an interview so that a mutual determination can be made as to the best time to be absent. This ensures that the learning experience in that course is in no way jeopardized. Please refer also to the excused absences policy and incomplete grading policy.

### Leaves of Absence

In order to be granted a Leave of Absence of greater than one month, a student must complete the “Status Change” form and submit it to their advisory dean. The initial leave of absence may be granted for personal or academic reasons for a period not to exceed one calendar year. The advisory dean presents the completed form to the registrar who will notify appropriate course directors, the Office of Financial Aid, the Office of Curriculum Affairs, and the vice dean for education. A student requesting an extension of the leave of absence beyond one calendar year must update the “status change” form and obtain permission of the advisory dean for the extension before the current leave has expired. Failure to do so will automatically result in administrative withdrawal from the School of Medicine.

For purposes of deferring repayment of student loans during a school-approved leave of absence, federal regulations limit the leave to six months, and other lenders may have varying requirements. It is imperative that a student confer with the Office of Financial Aid about the implications of a leave of absence for financial aid matters. Please refer to the Bulletin for tuition reimbursement information.

To be eligible to return from a leave of absence a student must:

1. have satisfied all financial obligations (debt) to the University, and
2. notify the advisory dean and the registrar at least 30 days prior to re-enrollment so that necessary paperwork and registration may be accomplished, and relevant course directors informed. Failure to notify the School of the intent to return at the end of the approved period of LOA may result in administrative withdrawal from the School of Medicine.

In all cases of leave of absence, other than for approved double degree programs, a student must complete requirements for the MD degree within six years of matriculation. Enrollment after a leave of absence greater than two years, for whatever reason, will require that the student apply for readmission to the School of Medicine. Students who are readmitted after a leave of absence may be required by the vice dean for education to repeat some or all the previously completed coursework.

### Medical Leave of Absence

## Duke University

A medical leave of absence may be requested by a student or recommended by the advisory dean if it becomes apparent that a student is unable to continue the program of study for health-related reasons. A medical leave is initially granted for up to 30 days. If additional medical leave time is required, the "Leave of Absence" policy must be followed and documentation from the treating physician health care provider must be submitted to the advisory dean. To return to the School of Medicine from a medical leave, all requirements for returning from LOA must be met and in addition, a statement from the student's physician health care provider attesting to the student's fitness to resume activities as a full-time student and recommendations for continued treatment must be submitted to the advisory dean. If there is an ongoing health issue requiring prescription medication, the advisory dean will request periodic verification of treatment from the student's provider regarding compliance with treatment requirements.

### Parental Leave of Absence

Students who have become parents while enrolled in the Doctor of Medicine program may take a leave of absence before and/or after the child arrives. The usual length of the leave is up to eight weeks. While a length of eight weeks is permitted, a leave of this length may result in extension of the student's graduation date. Students should consult with the Office of Financial Aid regarding regulations on time not enrolled and implications for their financial aid. Completion and approval of a status change form is required. A link to the form may be found on the School of Medicine Registrar's website. Follow the LOA policy above for submission process and timelines.

### Advancement and Promotion in the Doctor of Medicine Program

Students in the MD program are participants in a professional educational program whose graduates assume positions of responsibility as medical professionals. Accordingly, students are evaluated on their academic and clinical performance as well as their professional conduct. Deficiencies in any of these areas are brought to the student's attention, and failure to correct these issues may result in probation, suspension, or dismissal from the program.

It is the responsibility of the student's assigned Advisory Dean to review the academic and professional progress of each individual student. In addition, the faculty and staff progress committee, which provides formative support for students, reviews all student performance periodically over the year to identify students who require early interventions and academic support prior to reaching the threshold for not meeting academic or professionalism expectations. Course Directors monitor student progress within their courses, which are overseen by the Assistant Dean of Basic Science Education and the Assistant Dean of Clinical Education.

### Determination of Academic Standing

#### *Satisfactory Academic Progress for Advancement and Promotion*

Satisfactory academic progress for students in the Doctor of Medicine program is defined as the successful completion of all academic requirements necessary for the advancement from one year to the next. These requirements are as follows:

- **First to Second Year.** Requires satisfactory completion of 46 course credits in the approved basic science curriculum within 12 months.
- **Second to Third Year.** Requires satisfactory completion of 56.5 course credits in the approved clinical science curriculum within fourteen months.
- **Third to Fourth Year.** Requires satisfactory completion of 36 course credits in basic science within ten months (twelve months for master's or scholarship students).
- **Fourth Year to Graduation.** Requires satisfactory completion of 28 course credits in clinical science within 12 months.

The faculty of the Duke University School of Medicine has the responsibility to define minimum acceptable standards for academic performance within each course. In all courses, minimum passing standards are defined by the course director in collaboration with their department chair and faculty. These standards are communicated to the students at the beginning of each course in writing through course materials distributed or available electronically. In all courses, acceptable professional standards of behavior and attitudes are also included in the performance evaluation. Students must meet both the minimal passing academic performance standards and the expectations for professional behavior (as detailed in the Code of Professional Conduct) in order to receive credit for the course. Professionalism concerns outside of courses may also result in Promotions Committee review, placement on academic probation, and/or dismissal.

Inability to fulfill all the required components, including obtaining a passing score on a required examination, of any course may result in an Incomplete, as per the incomplete policy. The student is eligible for one retake of a failed exam. Per the policy, a grade of "Incomplete" ("I") is reported while a retake of a required examination is pending. If a student fails the reexamination and thereby fails the course, the student will receive a "Fail" grade on the transcript.

## Duke University

All retesting must occur, and all first-year courses must be passed, prior to a student starting second year clerkships. For students in clinical clerkships or electives, examination retakes must be taken within 12 months of the original exam. Time spent on a leave of absence will not be included when calculating the 12-month deadline for examination retakes. For example, if a student takes a leave of absence for 3 months, they will have up to 15 months to retake the exam once they return from their leave of absence.

Ultimately, including in unusual circumstances (including illness, remediation, or irregular sequence of courses) the determination of satisfactory academic progress is made by the Vice Dean.

In accordance with federal regulations, the Office of the School Medicine Registrar uses standards to determine satisfactory academic progress for students to maintain eligibility for financial aid. Please see the Satisfactory Academic Progress Policy for Financial Aid for details regarding the registrar's process to determine satisfactory academic progress for financial aid distribution.

**Academic Probation.** Academic Probation notifies a student that their academic performance or behavior falls short of expectations and requires critical ongoing evaluation for a period of time to ensure achievement of expected development toward competency. A student who fails any course will be placed on academic probation. The probationary period will be determined by the Vice Dean for Education. It will allow sufficient time for remediation and close monitoring of the student's performance. Academic Probation is noted on the academic transcript.

If a student was placed on Academic Probation at the recommendation of the Promotions Committee and the student has satisfied all the conditions of the Academic Probation specified by the Vice Dean, the Promotions Committee can make a recommendation to the Vice Dean to have the student removed from this status. Upon approval by the Vice Dean, removal from Academic Probation status will be noted on their academic transcript.

**Academic Suspension.** Academic Suspension notifies a student that their academic performance or behavior falls short of expectations and requires interventions that cannot occur while enrolled in the educational program. Therefore, the student will be required to take a leave of absence (please see Leave of Absence policy for details). The period of suspension and conditions for re-enrollment will be determined by the Vice Dean for Education. Academic Suspension is noted on the academic transcript.

If a student was placed on Academic Suspension at the recommendation of the Promotions Committee and the student has satisfied all the conditions of the Academic Suspension specified by the Vice Dean, the Promotions Committee can make a recommendation to the Vice Dean to have the student removed from this status. Upon approval by the Vice Dean, removal from Academic Suspension status will be noted on their academic transcript.

**Academic Dismissal.** A student who fails a course, clerkship, or elective will be placed on academic probation. Any of the following circumstances will result in a recommendation for dismissal:

- Failure of two courses.
- Failure of the same course twice.
- Failure to meet requirements to be removed from Academic Probation or Suspension within the defined period.

## Determination of Professional Behavior Standing

### *Good Professional Behavior Standing*

Students must commit to complying with the Code of Professional Conduct for the School of Medicine, as well as any additional regulations regarding conduct established by Duke University, the School of Medicine, and the MD Program.

Students are in Good Professional Behavior Standing if they show mastery of professional behavior in at all times as an enrolled student in the program, particularly in didactic and clinical education learning environments. Faculty will utilize the standard assessment methods to assess professionalism and identify concerns for professional behavior and will provide feedback to assist with correction of the student's behavior. These assessment methods include end of course evaluation forms, formative feedback sessions, performance on formative feedback EPAs, adherence to compliance requirements by the University and Health System, professionalism notifications process, and adverse events reporting system. Written descriptions of professional expectations are included in course syllabi. Faculty retain the responsibility and authority to determine a student's fitness to continue in the program.

**Warnings of Professional Behavior Standing.** If concerns are raised through any of the processes above, the Advisory Dean or their designee will communicate with the students to discuss the concerns.

Promotions decisions and formal decisions regarding academic and professional standing are determined by the Vice Dean for Education at the recommendation of the Promotions Committee.

Any student who does not meet the requirements for academic or professional expectations will be brought forward to the Promotions Committee. All students who have failed a course, failed two final exams (including shelf exams), and/or have received more than one professionalism notification are brought for review by the Promotions Committee. Students may be referred to the Promotions

## Duke University

Committee by faculty, course directors, chairs of the progress committee (formative support for students), and advisory deans for students who have not shown adequate improvement from interventions recommended by the progress committee that puts students at risk for failure, or for any professionalism concerns even in the absence of a professionalism notification.

The Promotions Committee will review the performance, including the academic progress and professional behavior, of medical students on a quarterly basis. Standards for satisfactory academic progress for promotion are defined in the Determination of Academic Standing policy and standards for professional behavior are detailed in the Code of Professional Conduct for the School of Medicine and the Determination of Professional Behavior Standing policy.

The Promotions Committee consists of two course directors from each year of the educational program plus seven other faculty members recruited through self-, peer-, or department chair-nomination, and appointed by the Vice Dean for Education. Serving on the Promotions Committee is a four-year commitment. Ex-officio members include deans from the offices of Student Affairs, Admissions, Curricular Affairs, and the Registrar. The Chair of the Promotions Committee is appointed by the Vice Dean. Meetings occur every October, January, April, and July. Advisory Deans are not allowed to vote or participate in decision-making regarding promotions decisions.

The Promotions Committee will make recommendations to the Vice Dean for Education for:

- Promotion of the cohort of students who have made satisfactory academic progress and exhibited professional behavior to the next academic year or for graduation. Please see below for definitions of satisfactory academic progress as per the Promotions Committee.
- Warn students whose work is less than satisfactory that they must improve their scholastic endeavor and require such students to remediate, retake, or review specific courses, or to undertake other actions that may assist in the correction of deficiencies. Students who have unprofessional behavior or unsatisfactory academic performance may be recommended for placement on Academic Suspension or Probation. See the Determination of Academic Standing policy for definitions of Academic Probation and Suspension.
- Removal of a student from Academic Probation or Suspension who has demonstrated satisfactory academic progress and/or professional behavior either through repeating coursework or demonstration of corrected professional behavior.
- Dismissal from the program.

Based on the recommendations of the Promotions Committee, it is the responsibility of the Vice Dean to make decisions regarding promotion for all students.

**Recusal from the Promotions Committee.** For Promotions Committee members, there may be cases where a conflict of interest exists such that a voting member's ability to consider a student's promotion may be influenced, or have the appearance of being influenced, by a relationship between the committee member and the student or other circumstances. Such cases may include but are not limited to having previously given the student a failing grade, having filed a professionalism notification against the student, having a personal affiliation with the student (e.g., relative, current or former significant other), or having provided health care services to the student. In these cases, the committee member is required to recuse themselves from reviewing that student's academic performance.

In cases where the committee member is unsure a conflict of interest exists, the committee member may submit a written description of the circumstances to the Chair of the Promotions Committee. The Chair will evaluate the committee member's ability to be impartial and recommend recusal as necessary. Please note that ex-officio members are available to assist the Promotions Committee in their review of the students' academic performance, but they are not involved in any decision-making for recommendations to the Vice Dean for Education.

**Promotions Appeal Process.** A student may appeal a promotion decision made by the Vice Dean for Education to the Academic Appeals Committee if the student feels that the process the Promotions Committee used in making their recommendation was unfair or that the decision made by the Vice Dean was inappropriate based on the circumstances surrounding the situation. The appeals process is described in detail in the policy Academic Sanctions and Appeals in the School of Medicine. This appeals process policy includes specific expectations for academic performance principles, timelines and methods for students to submit an appeal, membership of the appeals review committee, timelines and expectations of the appeals review committee, and additional appeals options available to the student. The appeals process is the same for academic and professionalism concerns related to promotion.

The Vice Dean, in consultation with the dean of the School of Medicine, reserves the right to require the withdrawal of any student at any time if, in their opinion, the student should not continue in the School of Medicine.

## Academic Calendar Approval Process

## Duke University

The School of Medicine registrar's office formulates the Academic Calendar for the Doctor of Medicine program annually. This process begins in mid-August and a draft of the proposed Academic Calendar for the School of Medicine is presented to the subcommittees for each academic year and the Curriculum Administration Group for review. Upon their review and recommendations, the calendar is submitted to the Curriculum Committee for approval during the October meeting. Upon approval by the Curriculum Committee, the academic calendar is considered official and no changes will be made to the calendar during that academic year without approval of the Curriculum Committee. The academic calendar is published on the School of Medicine Registrar's website, [medschool.duke.edu/education/health-professions-education-programs/student-services/office-registrar](https://medschool.duke.edu/education/health-professions-education-programs/student-services/office-registrar).

### Course Audit

With the consent of the appropriate instructor, fourth-year students are permitted to audit one course a semester in addition to the normal program. Students who audit a course do not actively participate, submit work, or receive credit for the course. Because of the nature of an audited course, most clinical science courses cannot be audited. However, those offered in a lecture format (as indicated in the electives book provided to fourth-year students) may be audited with the written permission of the instructor. After the first week of classes in any term, no course taken as an audit can be changed to a credited course and no credited course can be changed to an audit. Further, an audited course may not be repeated for credit. Students that are not in the Doctor of Medicine program are not eligible to audit Doctor of Medicine program courses.

### Courses Taken at the Durham Veterans Administrative Medical Center

Students that are scheduled to complete elective rotations at the VA Medical Center must notify the department in which they will be working at the VA Medical Center at least eight weeks prior to the start of the rotation. There are necessary procedures and paperwork that must be completed in order for the student to be eligible to work at the VA Medical Center. Students must be active in the VA system, have a valid PIV badge, and they must complete required paperwork in order to participate in clinics at the VA Medical Center. For questions, contact Kamara Carpenter ([Kamara.Carpenter@duke.edu](mailto:Kamara.Carpenter@duke.edu)) or Clyde Meador ([Clyde.Meador@va.gov](mailto:Clyde.Meador@va.gov)).

### Credit Conformity

Credit for each elective course selected must conform to the amount listed in the course description, as approved by the Curriculum Committee. Credit cannot be increased or decreased by the instructor of the course. Credit changes must be approved by the Curriculum Administrative Group and the Curriculum Committee. A course approved for four credits may only be taken for that number of credits. There are some courses that are approved as variable credit (e.g., three - four credits). The amount of credit awarded for a variable credit course is determined by the instructor and student prior to registration.

### Eligibility to Enroll in Doctor of Medicine Courses

Courses in the School of Medicine are not available for enrollment or credit to undergraduates or students enrolled in other degree programs. Refer to the Visiting Medical Student section for more information.

### Enrollment Status Definitions

For various reasons, it may be appropriate for a medical student to be registered for an enrollment status other than continuously enrolled for credit for one or more terms. Upon receipt of the appropriate approved forms, the registrar's office will process enrollment in the enrollment statuses listed below. The exception would be free time (Interdisciplinary 450C). Students are not required to complete paperwork for free time, and they should enroll in that status during online registration periods. In all cases excepting extended time for second degree programs, a student must still complete the four years of enrollment for credit in medical school within a six-year period. Options include:

- **Continuation of Research Studies (CRS)** is a semester term-based, noncredit-bearing enrollment status used when the student is continuing the scholarly experience with the same mentor. It can be elected for up to three semesters following the initial scholarly experience. An application consisting of an interim report and mentor, study program director, and advisory dean approval is required. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. The required thesis based on the scholarly experience can be submitted either before or at the end of the period of CRS. Students may not be enrolled in any other coursework while enrolled in CRS. A continuation fee is charged for CRS status.
- **Optional Research Studies (ORS)** is a semester term-based, noncredit-bearing enrollment status used following the required scholarly experience when the student is conducting a new research project with a new mentor at Duke or away from Duke. ORS should be due to an extension of the third year research into a new area of investigation due to a change of career plans or a desire to enhance research skills, not to delay graduation. It can be elected for up to three semesters. An application consisting of a brief research project description and approval by the mentor and the advisory dean is required. A brief report to the

## Duke University

advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. Students may not be enrolled in any other coursework while enrolled in this status. A continuation fee is charged for this status.

- **Independent Academic Development (IAD)** is a semester-term-based, noncredit-bearing enrollment status while completing a scholarly experience. It can be elected up to three terms. This status enables a student to explore various aspects of academic medicine, including scholarly activity. Students may pursue independent academic development resulting in poster and platform presentations at regional and national academic meetings, authorship of journal articles, and participation in existing clinical projects. An application consisting of a description of the student's scholarly project and approval by the student's Advisory Dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. Students may not be enrolled in any other course work while enrolled in this status. A continuation fee of \$500 per term is charged for this status.
- **Independent Study (IS)** is a four-week term-based, noncredit-bearing enrollment status used when the student is engaged in medical education-related activity that is relevant to the degree (e.g. structured USMLE preparation, medical volunteerism, internship at organization related to training) but is not research. It can be elected for up to twelve one-month terms. An application consisting of a brief description of the activity and advisory dean approval is required. A brief report to the advisory dean on the progress of the activity is required at the end of each four-week term. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, but is not eligible for financial aid for living expenses. A continuation fee is charged for this status if the student is enrolled in independent study for an entire term.

The School of Medicine encourages students to interrupt their studies to pursue approved research that is complementary to the medical curriculum either at Duke or elsewhere for no credit. Full-time student status can be retained for a maximum period of two years during these periods of study if approval is obtained from the appropriate officials and the student registers for and pays an enrollment fee of \$500 for each semester or part of a semester away. No refund of any portion of the fee is allowed for students who subsequently withdraw from the School of Medicine. Students are eligible to apply for the federal Stafford loans for living expenses during this time. Please contact the Office of Financial Aid for further instructions.

- **Dual-Degree Students.** Students enrolled in an approved dual-degree program at Duke University are responsible for paying tuition expenses in both programs. Students will remain on active status. Students completing a second degree at another institution will be placed on Leave of Absence. Students will be required to pay tuition and expenses at the other institution. Students will apply for federal financial aid through the other institution. Upon completion of their second degree, the student will be returned from Leave of Absence and be required to complete all Third Year Research requirements and pay three terms of Third Year tuition.
- **Remediating Students.** Students who are not registered for courses but are completing required remedial work as determined by the appropriate promotions committees are considered to have full-time status. They are not assessed tuition charges however students are eligible to apply for the federal Stafford loans for living expenses during this time. Please contact the Office of Financial Aid for further instructions.

## Preparation of Residents and Other Non-Faculty for their Role as Educator

The Curriculum Committee of the Doctor of Medicine program requires residents and others (e.g., graduate students, postdoctoral associates, etc.) who teach medical students to be oriented to and prepared for their role in teaching and assessing medical students. All Duke residents and fellows are required to complete mandatory online training modules in the medical school curriculum, policies, assessment methods, and learning environment during their on-boarding process. Completion of these required modules are tracked by the Duke GME Office and are required prior to beginning work at Duke.

## Prohibition of the Involvement of Student Health Service Providers in Student Assessment and Promotion

The health professionals who provide health services, including mental health services, to a medical student will not be involved in the academic assessment or promotion of the medical student receiving those services. The medical school ensures that medical student health records are maintained in accordance with legal requirements for security, privacy, confidentiality, and accessibility.

Providers of health services to a medical student will not be involved in the academic assessment of or in decisions about the promotion of that student.

### Reciprocal Agreements with Neighboring Medical Schools

Under a plan of cooperation between the Duke University School of Medicine, the Wake Forest School of Medicine, East Carolina University's Brody School of Medicine, and The University of North Carolina at Chapel Hill School of Medicine, degree candidates of one institution may participate in elective courses for credit at one of the other schools. Courses taken usually are ones not available at the home institution or not offered at times that can be accommodated by the students' schedules. Enrollment in another institution is limited to one term and is contingent upon available space in the course(s). These courses are regarded as "in house" electives at Duke and, as such, appear on the transcript with the awarded grades. Students involved in this program are assessed the current Duke tuition and fees. Interinstitutional visitors to Duke are charged neither tuition nor student health fees for this type of enrollment.

The amount of credit granted for an interinstitutional course is the same as that awarded for a comparable course at Duke unless the course concerned is 1) a sub-internship, or 2) offered for fewer credits and meets less often than its Duke counterpart. Students can earn a maximum of four credits for sub-internships taken at any school other than Duke or the University of North Carolina at Chapel Hill.

### Registration

Students are expected to register at specified times for each successive term. All students register online via DukeHub. First-year students register for the required first-year classes; second-year students register for their two selectives, the Clinical Skills course, Clinical Assessment, Practice Year 2, and the required clinical core online; third-year students register for their study programs, and other required third-year courses; fourth-year students register for their elective, sub-internship, and capstone courses online. Students who are approved to complete an away rotation should refer to the study away section in the bulletin. Prior to registration, students are sent registration instructions via email. Students completing their scholarly experience (third year of medical school) are currently required to complete the third-year registration form. Students must obtain signature approval of their mentor, study program director, and their advisory dean. Upon receipt of the signature approvals on the registration form, the students submit the completed form to the third year coordinator. The student is provided a permission number to enroll online in the approved study program. The student then enrolls in all required third year course work for the term.

There are designated online drop/add periods for each term for the fourth year. Drop/add dates and instructions are emailed to the students prior to the scheduled drop/add dates. Drop/add requests submitted outside of the online drop/add periods require completion of an electronic drop/add form. Electronic signature approval is required from the impacted course directors and the student's advisory dean.

Students who fail to register during the specified enrollment periods may be subject to the completion of a professionalism notification. Students who have not paid any fees owed to or fines imposed by the university or School of Medicine (such as laboratory fees, library fees, and parking fines) by the date specified for registration may have a registration hold placed by those offices and will be unable to register until such fees and fines have been paid in full. The SoM registrar's office cannot appropriate office(s) to resolve any payment issues or registration/transcript holds.

Students may only take courses for the number of credits as approved by the Curriculum Committee. Refer to the Credit Conformity policy for additional information.

### Late Registration Penalty

Failure to register for all required courses during the prescribed online registration periods offered by the School of Medicine will result in a Professionalism Notification. This will become part of the student's permanent record and may be noted in the student's Medical Student Performance Evaluation (MSPE).

### Satisfactory Academic Progress

Satisfactory academic progress for students in the School of Medicine is defined as the successful completion of all requirements necessary for the advancement from one year to the next. These requirements are as follows:

- **First to Second Year.** Requires satisfactory completion of 45.5 course credits in the approved basic science curriculum in one calendar year.
- **Second to Third Year.** Requires satisfactory completion of 54.5 course credits in the approved clinical science curriculum within fourteen months.
- **Third to Fourth Year.** Requires satisfactory completion of 36 course credits in basic science within ten months (twelve months for master's or scholarship students).
- **Fourth Year to Graduation.** Requires satisfactory completion of 28 course credits in clinical science within one calendar year.

In unusual circumstances (including illness, remediation, or irregular sequence of courses) the determination of satisfactory progress for academic purposes is made by the Vice Dean.



### **Students as Health Service Providers to Peers**

Students in the School of Medicine have the right to decline to be seen by their peers when they receive care in the clinical setting. To protect their privacy, when a SoM student is hospitalized or seen in a clinic, they should be given the option of having other students on their care team and they should be free to decline without penalty.

### **Study Away Policy**

Students in the Doctor of Medicine program at Duke who have maintained a high level of academic performance throughout their first two to three years are eligible to study at another institution and receive academic credit at Duke for this experience. Students must have successfully completed all courses in the first two years at Duke in order to be eligible to study away for credit. It is unlikely that students with any failures or marginal performances at Duke will receive permission. It is strongly discouraged for a student to study away from Duke for credit during the four weeks prior to their graduation. Study away applications are available on the School of Medicine registrar's website, [medschool.duke.edu/education/student-services/office-registrar](https://medschool.duke.edu/education/student-services/office-registrar). The Office of Student Affairs is available to assist the students with questions pertaining to the completion of the study away application.

To obtain approval for work taken away from Duke University, the student must first contact their advisory dean to determine if qualified. Students who apply for an away rotation and obtain approval through the AAMC Visiting Student Learning Opportunities site (VSLO) must also complete the Study Away Application for the School of Medicine. The Duke Study Away application must be submitted and approved prior to the rotation start date in order for the student to be enrolled and receive credit.

Duke student feedback about away rotations are available on the "away rotation student feedback" dashboard. The dashboard is available on the recurring DukeMed Newsletter under Quicklinks for continuous access. The dashboard includes anonymized feedback from fellow Duke students on the away rotations regarding supervision, learning environment, and safety.

Upon approval and receipt of the study away application, students are registered for the appropriate study away course by the School of Medicine registrar's office. With the exception of those at UNC-Chapel Hill, Wake Forest School of Medicine and East Carolina's Brody School of Medicine, subinternships taken extramurally can earn a maximum of four credits at Duke.

Fourth-year students may only study away as visiting students at other institutions for one or two elective periods, or a total of 9 course credits that count towards graduation credits

### **Third Year and Coursework**

The third year requires satisfactory completion of 36 course credits in basic science within 10-12 months. All students must register for 16.5 credits in the fall term, 16.5 in the spring and the required thesis will account for three credits in the summer. The Clinical Skills Continuity course is required in the fall and spring for a total of 3 credits. For those students who are exempted from taking the Clinical Skills Continuity course during their third year, (dual degree, mentor request, research is away from Duke School of Medicine), the number of credits assigned to the Study Program enrollment will increase accordingly. In no case should students register for more or less than a total of 36 credits during the fall, spring and summer terms comprising the third year.

There are several circumstances in which students may integrate electives into their research experience. For example, with mentor approval, students may take one of several pre-approved electives. In general, these are offered in the evenings, and include Effective Teaching, Evidence Based Medicine, and Fluid & Electrolytes. With mentor approval, students may also request to take an elective that is directly related to their research project.

Although it is preferable that full-time clinical electives and subinternships be taken prior to or following the research year to promote continuity of the research experience, it is also recognized that there are unique situations in which it may be advantageous to enroll in a subinternship during the third year. In this circumstance, mentor approval is required, and the duration of the third year will be extended to accommodate the clinical elective.

## **Basic Science Education Policies**

### **Student Workload**

In an effort to promote student well-being and work-life balance while maintaining the rigor of the Duke curriculum, the Duke University School Doctor of Medicine program provides a basic science (MS1) curriculum that requires on average no more than 40 hours per week of required school-related activities including in-class events and required pre-work (ie, required videos and assignments).

## **Clinical Education Policies**

### **Clinical Supervision of Medical Students**

## Duke University

Medical students rotate in clinical settings to learn all aspects of patient care, including obtaining patient histories, performing thorough physical examinations, formulating differential diagnoses, learning to make decisions based on appropriate laboratory and radiological studies and procedures, interpreting results of special studies and treatment, communicating with patients on all aspects of disease and prognosis and communicating with members of the health care team. All patient care provided by medical students is provided under the supervision of a licensed health care provider performing activities within the scope of the health care provider's practice. An on-site licensed health care provider is always immediately available. All students are supervised by Duke faculty. To this end, the medical student may participate in the following activities:

1. Access patients to obtain a medical history and follow the inpatient and /or outpatient course.
2. Perform physical exams with direct and indirect supervision. Any sensitive exams must be performed with direct observation with a health care team member chaperone (ie, breast, genital and anal exams).
3. Access the patient's entire medical record, including laboratory reports, x-ray reports, etc.
4. Perform appropriately supervised procedures as authorized by the patient's health care provider. For procedures such as drawing blood that the student has been trained for and declared competent in, the student may draw blood and perform independent of direct supervision.
5. Perform only CLIA-waived laboratory studies under appropriate supervision
6. When the student is clinically prepared, enter orders for specific patients. All of the orders written by a medical student must be reviewed and signed by the responsible resident or health care provider.
7. Write progress notes under the supervision of the responsible resident or health care provider. All documentation written by students must be signed by the supervising resident or health care provider prior to becoming part of the patient's official medical records.

### Student Assignment to Clinical Sites

Clinical course directors are responsible for assigning students to instructional sites. A medical student in the Doctor of Medicine program may formally request an alternative clinical site for their clerkships. Such requests must be made by email to the relevant clerkship director and clerkship coordinator at least one week prior to the course start date. The email should include the reason for requesting an alternate site. If a student has a preference, it should ideally be communicated before the schedules are made. Alternative site requests may be honored if there is space available at the alternative site and if the alternative site meets the learning objectives for the clinical training assigned for that rotation. Alternative sites must include previously approved clinical sites with Duke faculty and residents who have been trained in the course goals/objectives, required clinical encounters, and orientation to the course. Requests that would fundamentally alter the curriculum will not be honored. Requests that would negatively impact the learning of other students will not be honored. The decision to place the student at the alternative site will be determined by the clerkship director, with support from the assistant dean for clinical education as needed.

Clinical course directors are responsible for assigning students to instructional sites. A medical student in the Doctor of Medicine program may request an alternate training site when circumstances allow for it.

### Withdrawal Policy

If a student withdraws from a program before the end of the first week of classes, including involuntary withdrawal/dismissal for academic or professionalism reasons, all tuition is refunded. A student who withdraws from the program later in the term will have no tuition refunded and the status of the student is indicated on the permanent record with a W (Withdrawn).

Voluntary withdrawal from a program is initiated at the request of the student. Discussion with the student's advisory dean is required. Such requests must be submitted in writing using the "Change" form located on the School of Medicine registrar website. The completed form, with all required signatures, should be submitted to the Office of the Registrar. The registrar will notify course faculty as appropriate, the financial aid office, Office of Curriculum, and Duke bursar's office. It is the student's responsibility to contact the bursar's office regarding fulfillment of financial obligations to the university. It is also the student's responsibility to meet with a financial aid office representative to discuss adjustments to aid and federal exit requirements.

The Promotions Committee is responsible for recommending to the vice dean for education if a student should be involuntarily withdrawn/dismissed for academic or professionalism reasons. The student will be notified in writing with copy to the School of Medicine registrar. A student wishing to appeal a decision may do so to the vice dean of medical education within two weeks of the notification. If there is a reversal in the decision, the vice dean will notify the registrar. The registrar will notify course faculty and as appropriate, the financial aid office, Office of Curriculum, Duke bursar's office, and advisory dean.

### Learning Environment

### Policy on Appropriate Treatment of Learners at Duke University School of Medicine

Duke University School of Medicine (SoM) is committed to creating and maintaining a positive learning environment for learners that is respectful and appropriately attentive to their learning needs and free from conduct by teachers that could be interpreted by learners as mistreatment. Behavior that violates this stated expectation will be investigated, and if found to represent mistreatment, may become the subject of disciplinary action by the SoM.

See the full policy on Appropriate Treatment of Learners at Duke University School of Medicine.

### Clinical Supervision of Medical Students

A medical school ensures that medical students in clinical learning situations involving patient care are appropriately supervised at all times in order to ensure patient and student safety, that the level of responsibility delegated to the student is appropriate to the student's level of training, and that the activities supervised are within the scope of practice of the supervising health professional.

**Clinical Supervision Policy.** Duke University School of Medicine remains committed to ensuring a supportive clinical learning environment for medical students while also maintaining the utmost level of safety for both patients and medical students. Appropriate supervision from faculty, residents, or other members of the patient care team is essential.

#### Definitions

- Direct supervision – the supervisor is physically present with the student and patient (or continually on the call for virtual tele-health visits).
- Indirect supervision – the supervisor is not physically present but is immediately available at the site of patient care to provide direct supervision upon request (or join the call for virtual tele-health visits).

#### Policies

1. Medical students may not independently provide care to patients. Medical students are expected to adhere to their scope of practice when participating in clinical care of patients.
2. Medical students may be supervised in the clinical setting by providers including faculty, fellows, residents, and other inter-professional providers who are acting within their scope of clinical practice (e.g., a nurse supervising a peripheral intravenous catheter placement).
3. Supervisors are required to autonomously authenticate medical student findings, including pertinent documentation, history, physical examination, ancillary data, and assessment/plan.
4. The required clinical encounters list details the minimum patient diagnoses in which all students must receive training; this list is reviewed annually by the Clinical Training Committee with any changes approved by the Curriculum Committee.
5. Students will be equipped with the basic skills necessary to perform general physical exam techniques commensurate with their level of training as they enter the clinical training environment. At the discretion of the healthcare team and in accordance with course-specific guidelines, students may perform general physical exam techniques under indirect supervision, excluding techniques defined as “sensitive” in #6 below.
6. Sensitive exams which include — but are not restricted to — genital exam on any patient, rectal exam on any patient, and breast exam on any person identifying as female – must always be performed under direct supervision.
7. Medical students must perform all procedures with direct supervision.
8. Supervisors and students must be informed of all policies and procedures concerning appropriate supervision requirements. Methods for dissemination include the SOM Bulletin, faculty webpage, and course director notification through faculty and resident orientations.
9. The course director will inform students of standard procedures for reporting concerns relating to lack of appropriate supervision. This may occur through reporting to the course director, assistant dean for clinical education, associate dean for student affairs, adverse events reporting system, or end-of-course evaluations.
10. Clinical course directors must monitor compliance with the supervision policy within their courses. Central monitoring occurs by the assistant dean for clinical education through biannual reviews of the end of course evaluations which include questions regarding appropriate levels of supervision and safety as reported by students. Immediate concerns for supervision and safety are monitored centrally by the associate dean for learning environment and well-being through the adverse events reporting system.

Even under direct supervision, under no circumstance should a medical student perform any clinical care that is NOT part of the clinical experiences agreed upon by the leadership of the course, clerkship, or clinical rotation, nor should a medical student participate in any clinical care outside of the independent scope of practice of their supervising provider. Clinical experiences per the course are defined

## Duke University

as those clinical experiences which are specifically scheduled and/or approved for the students by the course director, with oversight from the Assistant Dean for Clinical Education and reviewed annually by the Curriculum Committee as part of the annual course review. These clinical experiences are scheduled in accordance with the scope of practice and care defined by the supervising physician's licensing and board-certifications, as overseen by Duke University credentialing services.

### Due Process Guidelines

If a student decides to appeal a decision of the Promotions Board, they must submit in writing to the vice dean the reasons for the disagreement with the decisions and any extenuating circumstances they wish to identify within two calendar weeks of receiving notice of the decision. Within a week of receiving the appeal, the vice dean appoints a Promotions Appeal Committee of three senior faculty. The Promotions Appeal Committee reviews the student's request and meets with other Duke SoM Medicine faculty or staff who have pertinent information. The student may present their appeal in person and may bring a friend from the faculty or student body to assist. The Promotions Appeal committee reports its decision to the vice dean who presents this to the student. If the student is still dissatisfied and wishes to appeal further, they may request a review of the whole process by the dean of the School of Medicine, with all pertinent documentation provided to that office. The dean's decision is binding.

### Duty-Hour Policy

1. Students will be expected to be working clinically no more than eighty hours per week, averaged over a four-week period. Duty hours include time in direct patient care in the clinical setting and in required clerkship activities such as didactics; time spent studying should not be included in the reporting.
  2. Students will have one full day (24 hours) completely free of curricular responsibilities or patient care in the hospital/clinic per week, again averaged over a four-week period.
  3. Students may not be expected to be work clinically for more than 28 consecutive hours at any given time, with up to 24 hours in direct patient care and 4 hours to facilitate education and transitions-of-care.
- Proposed course schedules are reviewed at the time of approval by the Curriculum Committee and during course reviews to ensure adherence to the above policy.
  - Students are required to report their duty hours to receive their final grade for the course.
  - Central monitoring of the duty hours by the Assistant Dean for Assessment and Evaluation in conjunction with the Assistant Dean for Clinical Education is performed routinely with aggregate reporting to course directors on a semiannual basis.

### Emergency Management Plan Policy

The following link provides information pertaining to safety and emergency resources, to include disaster preparedness and preparation information for the Trent Semans Center, fire drill information for the Trent Semans Center, Duke Alert, and health and wellness resources: [medschool.duke.edu/education/health-professions-education-programs/learning-environment-well-being/student-wellness](https://medschool.duke.edu/education/health-professions-education-programs/learning-environment-well-being/student-wellness).

### Guidance for the use of Artificial Intelligence Tools for Academic Assignments in MD Program

This guidance serves as policy for MD program courses unless otherwise indicated by specific course faculty and noted in course syllabi. For further reading on artificial intelligence (AI) tools such as ChatGPT, Google Bard, DALL-E2, etc., at Duke, see the Learning Innovations page "AI and Teaching at Duke" at [learninginnovation.duke.edu/ai-and-teaching-at-duke](https://learninginnovation.duke.edu/ai-and-teaching-at-duke).

- **Academic Assignments.** Generative AI tools such as ChatGPT, Google Bard, and other large language models (LLMs) should not be used for generating final text for an academic assignment; some formative and prewriting use of these tools is permitted *with attribution*. Image generators such as DALL-E2 and Midjourney are similarly permitted for pre-assignment submission use but should not be used for generating final images for an academic assignment. Courses may implement variations on this guidance in course syllabi.
  - **Direct use of text and images generated by AI tools in academic assignments constitutes plagiarism.** Plagiarism is prohibited by the School of Medicine Code of Professional Conduct. This includes quoting, paraphrasing, or summarizing from ChatGPT or any other AI tool without attribution.
  - **Direct use of text and images generated by AI in academic assignments could constitute cheating.** Generative AI is not a substitute for students' own critical thinking and writing skills. Use of ChatGPT, DALL-E2 or other generative AI tool may be viewed as cheating if the assignment requires students to use their own critical thinking, to solve problems, or to practice concepts or skills.

## Duke University

- **Use of AI tools requires attribution:** Unless prohibited in a specific course, students may use ChatGPT, DALL-E2 or other AI tool *with attribution* for brainstorming, practice, drafting, or feedback. Students must clearly identify any writing, text, or media generated by AI. Attribution should indicate how the tool was used, including brainstorming, conception, design, feedback, or refining. For example: "This assignment used ChatGPT in brainstorming and conception of my work."
- **Students are responsible for the quality and integrity of the content of their submitted work.** Generative AI tools can generate false information and violate copyright law. Students should verify any information resulting from an AI tool.
- **Examinations.** Students may not use AI tools such as ChatGPT when taking formal examinations unless explicitly given permission by the course instructor.
- **Clinical Use**
  - Students may not enter any protected health information (PHI) such as demographics, medical history, or laboratory results, into ChatGPT, Google Bard, DALL-E2, or other generative AI text or image tool for any purpose.
  - Students must follow current guidance and policies from the Duke University Health System governing any clinical use of ChatGPT or other generative AI tools. At present, clinical use of ChatGPT is not permitted.
- **Research/Scholarly Work**
  - Research products, such as manuscripts, abstracts, and grant proposals, that are submitted for academic credit or as an academic requirement are subject to the same policies as academic assignments:
    - direct use of text generated by AI without attribution constitutes plagiarism,
    - use of AI could constitute cheating if used as a substitute for students' own critical thinking,
    - use of AI tools requires attribution, and
    - students are responsible for the quality and integrity of the content of their submitted work
  - Research products, such as manuscripts, abstracts, and grant proposals that are submitted for publication or presentation must follow journal, publisher, or conference policies regarding the use of AI.
  - Students should discuss any potential use of AI tools with their mentors.

## Background

- **What is Chat GPT or other large language models (LLMs)?**
  - LLM tools are predictive language models, not discovery tools or search engines.
  - They respond to prompts by generating content based on statistical regularities, effectively paraphrasing the source material.
- **Strengths of ChatGPT and other AI tools**
  - LLM tools can stimulate thinking, overcome writer's block, or be used in prewriting activities to generate initial content that you can analyze, adapt, and revise based on your own knowledge, reading, and synthesis.
  - Students and faculty should explore the use of AI tools and reflect critically on their capabilities.
- **Limitations of ChatGPT and other AI tools**
  - The source material from the internet used to train LLM tools has limitations: it is out of date, lacks scholarly information / paywalled content, contains biased information and misinformation, and contains inaccuracies.
  - ChatGPT is known to fabricate references. (1) This is a natural result of predictive text models: it is providing a set of words in an order that makes algorithmic sense, not based on information-seeking and synthesis of authentic source material.
  - LLM tools do not analyze, validate, or assess source material for accuracy.
  - Generative AI image tools such as DALL-E2 and Midjourney may incorporate copyright-protected material and generate images that violate copyright law.
- **Generally, scientific journals have determined that AI tools should not be used to author scientific articles, but in some cases may be used in prewriting activities if documented appropriately. (2)**
  - *Nature* states that "Authorship carries with it accountability for the work, and AI tools cannot take such responsibility." *Nature* allows some usage of LLM tools if documented appropriately. (3)
  - *JAMA* similarly does not allow LLM tools to qualify for authorship. If authors use LLM tools in developing a manuscript, "authors must take full responsibility for the integrity of the content generated by these tools" and acknowledge them appropriately. (4)
  - *Science* prohibits the use of text generated by ChatGPT or other AI tools outright and indicates that violation of this policy constitutes scientific misconduct. (5)

## References:

## Duke University

1. Alkaiissi, H., & McFarlane, S. I. Artificial Hallucinations in ChatGPT: Implications in Scientific Writing. *Cureus*. 2023; 15(2): e35179. doi:10.7759/cureus.35179
2. International Committee of Medical Journal Editors [homepage on the Internet]. Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals Accessed 7/20/2023. Available from: ICMJE.org
3. Tools such as ChatGPT threaten transparent science; here are our ground rules for their use. *Nature*. 2023 Jan;613(7945):612. doi: 10.1038/d41586-023-00191-1.
4. Flanagin A, Bibbins-Domingo K, Berkwits M, Christiansen SL. Nonhuman "Authors" and Implications for the Integrity of Scientific Publication and Medical Knowledge. *JAMA*. 2023 Feb 28;329(8):637-639. doi: 10.1001/jama.2023.1344.
5. Thorp HH. ChatGPT is fun, but not an author. *Science*. 2023 Jan 27;379(6630):313. doi: 10.1126/science.adg7879. Epub 2023 Jan 26.

### Fourth Year Credit for Non-Direct Patient Care

Students are allowed to earn a total of four non-direct patient care course credits that may count toward the 28 required credits for fourth year graduation requirements. These are usually lecture-based or discussion-group based courses that must be approved by the Curriculum Committee prior to the start of the term in which the student enrolls and must be approved School of Medicine course credits. Students may not receive credit retroactively. These courses include approved courses that are offered in the third year that count toward fourth year credit. Credits for the Capstone course are not part of this policy.

### Medical Student Exposure to Infectious and Environmental Hazards

All students at the Duke University School of Medicine must complete online and classroom training activities regarding personal safety and environmental exposures. Students must complete the following safety modules yearly.

In addition, students must attend a mandatory safety training session on preventing needle stick injuries and handling sharps in the Introduction to Clinical Skills Course prior to beginning clinical clerkships, and mandatory scrub training prior to going to the OR. Compliance with these requirements is tracked throughout medical school.

If a student experiences a biological or chemical occupational exposure at Duke or while studying away, s/he must call the Duke Employee Occupational Health and Wellness (EOHW) safety hotline (available 24 hours a day) to report the incident and follow the directions given by the EOHW staff member. All initial costs of laboratory tests for properly reported occupational exposures or injuries are covered by the Student Health Center, and any treatment needed post-exposure or for a clinical condition that develops as a result of the exposure or injury, by the student's health insurance policy. Students who are potentially exposed to a patient with a communicable illness (e.g. meningitis, hepatitis A) are identified by the Infection Prevention Team, offered preventive medication if indicated, and monitored for the development of illness by Student Health. If a student becomes disabled as the result of an occupational exposure or injury, the Duke Medical Student Disability Policy provides coverage. If the student were allowed to be in the clinical setting after the review panel made its decision based on the safety of all involved, but had a disability (e.g. loss of the use of a limb) that could be accommodated, they would apply through the Student Disability Access Office to request appropriate accommodations, and if approved, those would be implemented.

If a student has an infectious disease or is exposed to an infectious disease and must be monitored for a period of time, a review panel is convened that includes an advisory dean, the director or a designee from the SHC, the director of employee/occupational health, an infectious disease expert on the relevant pathogen, and a course director for whose course the student may have restricted activities. If the student has a clinician providing their medical care that the student would like to be involved, that person is also included at the student's request. The panel may decide that the student should not be in the clinical setting due to risk to self/patients/coworkers, can be in the clinical setting with limited activities (e.g., can only observe in the OR, cannot work with pregnant women, etc.), or can be in the clinical setting without restrictions.

Visiting medical students are subject to the same training requirements and have the same support services available in case of an exposure/injury as any enrolled student, and are required to verify that they have medical insurance while studying at Duke.

## Assessment and Evaluation

### Course Evaluations

Course evaluations are an integral element of the assessment process. As such, all students are required to complete a course evaluation for each course. Failure to do so may result in disenrollment from current or subsequent courses. For more information contact the Office of Curricular Affairs.

### Grading/Testing Related Policies

### Grade Appeal Process

A student wishing to appeal an official grade or comment must present their appeal to the course director within two calendar weeks of the grade being posted. If requested as part of the appeals process, a student should have access to the actual checklists or comments that have been compiled as part of the grade, though identity of the evaluators submitting these data may be kept confidential. If a satisfactory resolution cannot be accomplished, the student may appeal the grade to the Grade Review Panel within two weeks of the meeting with the course director by completing the "Request for Grade Review" form and submitting it to the Office of Curricular Affairs. The Grade Review Panel, designated by the vice dean for education will consist of one basic science faculty, one clinical science faculty, and one advisory dean other than the student's dean, and should be convened ad hoc within one month of receiving the notification of appeal. Both the student and the course director will be asked to present information regarding the appeal. The Grade Review Panel will review the data related to the student's performance in the course and the grading criteria for the course and will make a recommendation to the vice dean for education regarding preserving or changing the grade. At this time, the vice dean for education will either uphold the decision of the Grade Review Panel or make their independent decision relative to the documentation submitted.

If the student is not satisfied with the outcome of the grade appeal process, they may appeal to the dean of the School of Medicine within two calendar weeks of receiving the decision of the vice dean for education. An appeal to the dean may be made only upon the grounds of improper procedures in the appeals process rather than continued disagreement about the outcome of the process. The dean will review the data related to the process of the appeal and determine whether the process was valid. If they find the process valid, the decision is final and binding. At this time, the Registrar's office will be notified of the final grade and it will be reflected on the student's permanent record. If the dean finds the process invalid, a new Grade Review Panel will be convened.

### Grading and Timely Submission of Grades

Final course grades are available to students via DukeHub. A grading basis is established for each course with Curriculum Committee approval. Currently there are four grading schemes established: Pass (P)/Fail (F); Honors (H)/High Pass (HP)/Pass (P)/ Fail (F); Satisfactory (S)/Unsatisfactory (U); and Credit (CR)/No Credit (NC). Course directors shall assign a grade to certify the student satisfactorily completed requirements. The Liaison Committee on Education (LCME) requires that grades be submitted to the Office of the Registrar and made available to students within six weeks of the last day of classes. There is a shorter grade submission period for the first section of the fall term and the last section prior to graduation for fourth year medical students. If a student's completion of the course requirements has been delayed beyond the end of the six-week period, the course or clerkship director will enter a grade of Incomplete "I" in the system. Diplomas may be withheld until such time as all grades are submitted for the student.

### Fail/Unsatisfactory Grades

If a grade of "Fail/Unsatisfactory" grade is received in a course, either because of major deficiencies in meeting course requirements or failure to clear an "Incomplete" grade as described, the "Fail/Unsatisfactory" grade will become a permanent part of the student's transcript, and the student will be referred to the Promotions Committee for review. The Promotions Committee may recommend to the vice dean of for education that the student remediate the course prior to starting second year clerkships. Alternatively, when deficiencies in coursework are major or in multiple courses, the Promotions Committee may recommend an immediate delay in further progression in the curriculum and that the student repeats the entire course(s) the following year. Students that fail or receive a grade of unsatisfactory in a course, clerkship, or elective are placed on Academic Probation. See Promotion's Policy for details, including timelines and appeals processes.

### Incomplete Grades

It is recognized that students who encounter difficulty of an academic or personal nature may also find it necessary to delay completion of a course beyond the term of the course. At the course director's discretion, students with deficiencies in completion of course requirements or those who must delay completion due to reasons of illness or other extenuating circumstances may receive a grade of "Incomplete," to be submitted when the final grades for the course are recorded. The student must then initiate a formal request to complete the course requirements by meeting with the course director(s) and their advisory dean.

If a student has an unsatisfied "Incomplete" grade and/or a pending "Request for Remediation" that preclude completion of coursework in a timely manner or if the Promotions Committee in conjunction with the course director(s) determines that, despite an approved "Request for Remediation," the student is not adequately prepared to continue in the curriculum, an immediate delay in further progression may be recommended to the vice dean for education, even though no "Fail" grade has been recorded.

Upon completion of the course requirements a grade is added; however, a note of the Incomplete (I) remains on the official transcript. If the student is unsuccessful in satisfactorily completing course requirements or does not enact the remediation by the agreed upon deadline, a grade of "Fail" is recorded. A grade of Incomplete ("I") is reported while a retake of an exam is pending.

## Withdrawal Grades

A grade of withdrew (W) is available for those students who withdraw from a course due to a leave of absence or if a student withdraws from the School of Medicine.

## Repetition of Courses

Students enrolled in the MD program may not take the same course for credit more than once. The exception is Surgery 401C, as students are assigned different preceptors, depending on the specified surgical specialty. An exception may also be approved in the case of a national pandemic which prevents students from completing specialty rotations at other locations.

## Request for Remediation and Retesting

A student who has a failing score at the conclusion of a School of Medicine course that has a course policy allowing for reassessment by retest may request a retest by meeting with the course director(s) and their advisory dean. The opportunity for reassessment is contingent upon the student taking the remedial steps directed by the course director and advisory dean which may include utilizing academic resource(s) to prepare for the retake, reducing the co-curricular activities, seeking medical/mental health services, and/or taking a leave of absence. See Leaves of Absence Policy.

A grade of "Incomplete" (I) is reported while a retake is pending. The student is eligible for only one retake of a failed exam. If a student fails the re-examination and thereby fails the course, the student will receive a "Fail" grade on the transcript. For first year students, all retesting must occur and all first-year courses must be passed prior to a student starting second year clerkships. For students in clinical clerkships or electives, examination retakes must be taken within a year of the original exam.

This policy is applicable only to students who fail an exam and cannot be utilized for students who want to improve a passing grade. Students who miss an exam and whose absence has been deemed excused by the course director will have the opportunity to take a make-up exam (see Excused Absences, Unexcused Absences, and Testing policies in the School of Medicine Bulletin).

## Testing

Students are expected to take tests, quizzes, examinations, and standardized patient exams, and to turn in assignments at the scheduled time unless they have obtained an excused absence from the course director or are incapacitated to the point of inability to make this contact. Delaying an examination for academic gain (i.e., to improve performance) is a violation of the Code of Professional conduct. A student missing an examination without an excused absence will receive a "0" score and will not be eligible for a make-up exam. If the student has an excused absence from an examination, the student should negotiate a date to take the exam with the course director. It is expected these make-up exams should occur within the time frame of the course or prior to the subsequent Promotion committee meeting if it is a final exam in the first year, or within 12 weeks of the clerkship ending in the second year course.

## Medical Licensure

The Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME) work together to co-sponsor the United States Medical Licensing Examination (USMLE), which comprises Step 1, Step 2, and Step 3. More information can be obtained from the USMLE website at [usmle.org](http://usmle.org).

Step 1 assesses how well a student can apply the knowledge and understanding of basic biomedical science, with an emphasis on principles and mechanisms of health, disease, and modes of therapy. Step 2 Clinical Knowledge (CK), assesses how well a student can apply medical knowledge and understanding of clinical science considered essential for the provision of patient care under supervision, including emphasis on health promotion and disease prevention.

Duke University medical students are required to take Steps 1 and 2CK prior to graduation. Duke School of Medicine considers licensure to be the responsibility of the individual, so passing is not a requirement for progress through the curriculum. However, students must sit for the exam prior to graduation in order to complete graduation requirements and receive their diplomas. The Duke medical education program is not directed to prepare students specifically for licensure examinations; however, satisfactory performance in medical school should provide sufficient information and experience to pass these exams.

Steps 1 and 2CK must be passed to be eligible for Step 3. Step 3 is typically taken in the first year of postgraduate training. It assesses how well a resident can apply the medical knowledge and understanding of biomedical and clinical science considered essential for the unsupervised practice of medicine, with emphasis on patient management in ambulatory settings. More information is available on the USMLE website.

## MSPE Authorship and Content

Every graduating medical student, whether applying for residency or not, will receive a Medical Student Performance Evaluation, an official school document that becomes a part of the permanent file. The MSPE is composed based on information the student has



## Duke University

supplied about their activities and accomplishments, the official transcript and checklist or narrative evaluations in the official record, and knowledge that the letter-writer has about the student's qualifications. MSPEs from Duke do not provide any ranking information or any information from Pass/Fail courses that could be used to rank students.

Typically, the MSPE is composed by the student's advisory dean. If a student believes that their own advisory dean cannot be objective in writing the MSPE, the student can submit to the vice dean for education a request to opt-out of the usual method for assigning authorship of the MSPE. The vice dean will then assign that student's MSPE to another advisory dean on a rotating basis, or, if the student prefers that no advisory dean author their letter, to the director of assessment in the Office of Curricular Affairs. Neither the advisory dean nor the director of assessment have a formal role in assessing student performance or promotion. This request should be made prior to the writing of the MSPE by the student's advisory dean and not in response to the content once written. A survey will be sent to all graduating medical students in the spring prior to assignment of MSPE writers to ensure all students have the option to request another advisory dean than the one assigned.

The student is allowed to read the completed MSPE and to negotiate with the letter-writer over factual content or errors. If a student wishes to further appeal or challenge information that appears in the MSPE, s/he may do so by notifying the vice dean, who will either make a decision about the content in question or convene a panel of two faculty members and the director of assessment to arbitrate a final decision. After graduation from the School of Medicine, copies of the MSPE may be obtained from the registrar's office.

### **Provision of Formative Assessment of Students' Performance**

For required courses or clerkships four weeks or longer, formal formative feedback must be provided at least once midway through the course or clerkship. A course or clerkship less than four weeks in length must provide an alternate means by which a medical student can measure their progress in learning. Formative feedback may include mid-course reviews with the course director, mid-course reviews with the primary clinical preceptor, and/or provision of workplace-based assessments on EPAs available to students on their individual dashboards.

### **Provisioning of Narrative Assessment of Students' Cognitive and Non-Cognitive Performance**

Narrative description of a medical student's performance, including their non-cognitive achievement, must be included as a component of the assessment in each required course and clerkship of the medical education program in which the following apply:

1. The course duration is four weeks or longer.
2. There is sufficient longitudinal and interpersonal interaction of instructors and students such that there is reasonable basis to evaluate the students and provide narrative feedback.
3. Attendance at the learning activities that form the basis of the narrative assessment is required.

### **Students Treating Students in the Clinical Setting**

Students in the School of Medicine have the right to decline to be seen by their peers when they receive care in the clinical setting. In order to protect their privacy, when a SOM student is hospitalized or seen in a clinic, they should be given the option of having other students on their care team and they should be free to decline without penalty.

### **Student Workload**

In an effort to promote student well-being and work-life balance but also maintain the rigor of the Duke curriculum, the Duke University School of Medicine provides a basic science (MS1) curriculum that requires on average no more than 40 hours per week of required school-related activities including in-class events and pre-work.

### **Visiting Medical Students**

The School of Medicine provides opportunities for visiting medical students enrolled at medical schools with whom an approved affiliation agreement is on file, to participate in clinical elective courses for a maximum period of eight weeks. Visiting medical students may not take an elective that is less than 4 credits-4 weeks. Approved visiting students are permitted to enroll in courses only after the registration period for the applicable semester has concluded for Duke medical students, and are required to adhere to the Duke academic calendar. The School of Medicine does not offer long term or extensive clinical experience sufficient to satisfy the clinical educational requirements of other medical schools. If approved and scheduled for an elective(s), applicable registration fees for students from an LCME approved medical school, a COCA approved Osteopathic medical school or international medical schools is required. Payment should be made according to the online bill provided by the Bursar. Registration fees will be refunded in full if the elective is canceled prior to the approved start date. Notice of elective cancellation should be provided via email to the visiting student coordinator. If the student withdraws on or after the first day of the approved elective period, no refund will be provided.

# Duke University

**Participation Requirements.** Information for all visiting medical student applicants who are approved and scheduled for electives: All applicants who are approved and scheduled for an elective(s) will be required to have all participation requirements completed no later than 15 days prior to the approved elective start date via CastleBranch

- Criminal Background Check
- COVID Vaccine and Booster
- 11 Panel Drug Screen
- Duke University Mandatory Immunization Requirements
- Current Influenza Immunization
- Current BLS (Basic Life Support)
- Proof of Health Insurance Coverage

These requirements will also be referenced in the acceptance letter and email provided to approved and scheduled students along with Duke specific information on how to establish your profile with CastleBranch. All costs for these required services via CastleBranch are the responsibility of the approved visiting student. These requirements for participation may only be fulfilled/completed via CastleBranch.

**Mandatory.** Student Health Fee and Student Medical Insurance Program information for visiting international medical students. As of December 15, 2013, all approved and scheduled visiting international medical students participating with an F1, J1, B1/B2 or WB visa will be assessed the mandatory Student Health Fee (SHF) at the prevailing rate for the semester of enrollment. Please note the fee will be assessed for each 4-week period of enrollment based on the start/end date of the approved elective period. Should these dates not fall on the first and/or last day of the month, the assessed SHF will be for a minimum of 2 months for each 4-week elective.

In addition, all approved and scheduled visiting international medical participating with an F1, J1, B1/B2 or WB visa, participation in the Student Medical Insurance Program is mandatory. The student will be assessed the Student Medical Insurance Program premium (SMIP) at the prevailing rate as set by the insurance provider. Please note the fee will be assessed for each 4-week period of enrollment based on the start/end date of the approved elective period. Should these dates not fall on the first and/or last day of the month, the assessed SMIP premium will be for a minimum of 2 months for each 4-week elective. Fees for SMIP and the Student Health Fee will be posted to your student account via DukeHub.

Should these required fees not be paid in full as noted, the student may be withdrawn from the program and forfeit any and all fees paid up to that time. For information, email the visiting student coordinator at [medreg@dm.duke.edu](mailto:medreg@dm.duke.edu) or write Duke University School of Medicine, Office of the Registrar, Visiting Student Coordinator, Box 3878, Durham, NC, 27710. Detailed information about the visiting student program is available online at [medschool.duke.edu/education/health-professions-education-programs/student-services/office-registrar/visiting-students](http://medschool.duke.edu/education/health-professions-education-programs/student-services/office-registrar/visiting-students).

Doctor of Medicine (MD)

## Course Requirements

### First Year

The student studies the principles of all the basic science disciplines. Rather than mastering an encyclopedic array of facts, the purpose is to acquire familiarity with the major principles of each subject. In addition, during the first three years students are required to participate in the Clinical Skills Foundation 1 course, which is designed to expand primary and continuity care experience for Duke medical students. Clinical Skills Foundation 1 is a combined clinical curricular experience which emphasizes progressive knowledge and competencies. Year one requires satisfactory completion of 45.5 course credits in the approved basic science curriculum.

The first year consists of instruction in the following:

#### Semester 1

- INTERDIS 105B (Clinical Skills Foundation 1): zero course credits
- INTERDIS 109B (Clinical Skills Training Immersion): 2 credits—2 weeks
- INTERDIS 112B (Foundations of Patient Care 1): 21 credits—22 weeks

#### Semester 2

- INTERDIS 113B (Foundations of Patient Care 2): 22.5 course credits - 21 weeks

### Year One Courses

## Duke University

Year one consists of two integrated basis science courses, Clinical Skills Training Immersion, and the introduction to the Medical Profession:

- INTERDIS 112B (Foundations of Patient Care 1) (anatomy, biochemistry, cell biology, embryology, genetics, histology, physiology, and the neurosciences)—22 weeks
- INTERDIS 113B (Foundations of Patient Care 2) (integration of microbiology, immunology, pathology, and pharmacology)—21 weeks
- INTERDIS 107B (Introduction to the Medical School Profession) 1 week
- INTERDIS 109B (Clinical Skills Training Immersion) 2 weeks

### Guiding Principles for Year One

- Integrate material within and between courses
- Incorporate small group, active, and interactive learning opportunities including workshops, seminars, and team-based learning
- Include time for independent learning (generally one-half day of unstructured time per week)

Approved calendars are included in this bulletin as well as published on the School of Medicine registrar's website.

## Second Year

Satisfactory completion of the first-year curriculum is a prerequisite to the second year curriculum. The second year provides an exposure to clinical science disciplines. This permits students early in their careers to become participants in the care of patients. The combined experiences of one year of basic science instruction followed immediately by a year of clinical education is designed to assist students in making a meaningful selection of courses for the subsequent two years. Year two requires satisfactory completion of 54.5 course credits in the approved clinical science curriculum.

The second year consists of the clinical skills course, ten core clerkship rotations, two one-week selectives, the Clinical Skills Course, the Clinical Skills Foundation 2 course, the Cultural Determinants of Health and Health Disparities Year 2 course, and the clinical assessment course.

The goals of the core clerkships include developing students' skills in accurate patient-based problem-solving and appropriate use of resources to diagnose and treat patients. The core clerkship rotations include:

Medicine	6 weeks, 6 course credits
Surgery	7 weeks, 7 course credits
Anesthesiology	1 week, 1 course credit
Obstetrics and Gynecology	4 weeks, 4 course credits
Pediatrics	4 weeks, 4 course credits
Family Medicine	4 weeks, 4 course credits
Pioneer	16 weeks, 12 course credits
Psychiatry	4 weeks, 4 course credits
Neurology	2 weeks, 2 course credits
Radiology	2 weeks, 2 course credits
Clinical Skills Foundation 2 - Advanced clinical themes (ethics, professionalism, end-of-life, etc.)	2.5 hours four times during each 8-week rotation, 1 course credit
Clinical Skills Intensive, plus longitudinal (fall)	3 weeks, 3 credits
Clinical Skills Intensive/Clinical Skills Course (longitudinal)	2.5 hours every other week, 1 course credit
Cultural Determinants of Health and Health Disparities Year 2	0.5 course credits: The course meets longitudinally throughout the academic year.
Clinical Skills Assessment	40 hours, 1 credit
Selectives	Two 1-week selectives, 1 course credits each

Students are required to choose two different selective opportunities in specialty or sub-specialty areas in the required clinical skills assessment for career exploration (except those students in the Primary Care Leadership Track). These one-week, credit/no credit courses provide an immersion experience in a particular field without the stresses of exams. All selectives are approved by the Curriculum Committee and meet school standards for student supervision and quality of clinical experience.

## Third and Fourth Years

Satisfactory completion of the second-year curriculum is a prerequisite to the third and fourth years. Students must also complete a clinical skills assessment consisting of an Objective Structured Clinical Examination (OSCE) during the first month of the third academic year. The OSCE cases are selected to sample a variety of dimensions including patient age, gender, organ systems, and specialties represented through the clerkship year. The major purposes of the OSCE are to evaluate, in a more standardized way, each student's approach to common patient complaints, demonstrating the orchestration of history-taking, physical examination, and communication skills that cannot be adequately assessed through written tests. Passing the clinical skills assessment is required for graduation.

Third year medical students are approved to complete ten, eleven, or twelve months of scholarly investigation and must complete at total of 36 credits during the third year. Third-year students must complete Interdis 312B - Research Ethics (0.5 cr), and Interdis 310B - QMDM II - Evidence Based Medicine (1 cr), and Interdis 300B (unless waived) QMDM I - Medical Statistics (1 cr), their research study track, and Thesis 301B (3 credits). The first two semesters the student are enrolled in a total of 16.5 credits, which includes their scholarly research year study program/track; During the third semester, students are enrolled in Thesis 301B (3 credits). Students must also satisfy the Continuity Experience requirement (listed below). Third year students may take one MS4 clinical elective/sub-internship prior to the submission of their thesis/manuscript. However, the time missed for the elective/sub-internship, must be completed before they may take a second MS4 elective. Fourth year medical students must complete a total of 28 clinical credits including a sub-internship, acute care rotation, and Capstone course must be completed as well.

### INTERDIS 305C (Continuity Clinic)

#### Clinical Skills Continuity

All students are required to complete the continuity clinic requirement. A continuity ambulatory (outpatient) care experience, the course is required of third year students and is designed to teach students patient outcomes over time. Study away, dual degree, and scholarship students who may not be able to take the course in their third year must take its equivalent in their fourth year. The outpatient clinic experience is 34 weeks, one-half day a week. Twenty-two weeks are required in an approved continuity ambulatory site. Specialty care sites (medicine or surgery) may be approved, if at least 50 percent of the patients are seen on a continuing basis with typical follow-up in 1-3 months for the 22 weeks. Approval is required by the Course Director prior to beginning clinic and attendance must be documented by the preceptor. Students may arrange to use 12 of the 34 weeks to pursue non-continuity outpatient clinic experiences (e.g., specialty clinics that do not see patients back before three months). A student may choose to do all 34 weeks at the same approved site. Credit: 3.0. Nancy Weigle, MD

Students will delay this requirement to the fourth year as a one-month, four-credit, approved elective if they are exempt (see Number 1 below). Exemptions are posted in CANVAS via a document (Third Year Courses and Requirements), but are usually applicable to HHMI and most Study Away students. This requirement cannot be fulfilled away from Duke.

1. Every Year 3 research student must have approval from their research mentor to take INTERDIS 305C in Year 3. Those not having approval from their mentor are exempt from taking the clinic in Year 3. Written notification from the research mentor must be provided to the registrar's office. In addition, students not required to take it in Year 3 are students doing research out of state, those in another professional degree program, those with scholarships which prohibit course enrollment and MD/PhD (MSTP) students.
2. A Year 3 research student who is not exempted, and not completing 305C in Year 3, will be required to take 4 credits (by electives listed below in #7) in addition to their 28 Year 4 credits.
3. Students make arrangements with a preceptor for this clinic placement prior to registration. This is done by completing the Preceptor Approval Form obtained from the Third Year site in Canvas and having the approval in place prior to first day of clinic.
4. Students may request assignment to a preceptor by the Practice Course.
5. INTERDIS 305C (Clinical Skills Continuity) is a 3-credit course. Students must begin clinic in the first term of their official Scholarly Experience and enroll in one more consecutive term. Students should enroll in the course during the Fall, Spring, and Summer terms. A grade of Credit or No Credit will be entered for each term, but the credit will be awarded in the last term.
6. Exempted students (as defined in #1 above) will meet the requirement by taking an elective in Year 4 that offers full-time outpatient clinical work for 4 course credits. Please refer to Fourth-Year Course Requirements in the Fourth-Year Electives book or the SoM Bulletin publication for a listing of courses that meet this requirement. The credits earned (by exempted students) for these courses will fulfill 305C and the 28 Year 4 credit requirements at the same time.

### Scholarly Experience

## Duke University

The purpose of the scholarly research experience is to provide the student with an opportunity to focus in an area of interest and to pursue, in-depth, scholarly investigation. Two different avenues to satisfying the scholarly experience requirements are available. The first requires the student to select a home base study program for the scholarly experience. With the aid of advisors, the student's research program is devised to include an area of concentration. A combination of a research preceptorship, tutorials, and a thesis comprise the overall scholarly experience.

The second path open to students is participation in a combined MD/PhD program or MD/master's degree program in clinical research, public health, business administration, public policy, law, library science, information science management of clinical informatics or global health at Duke University. During the scholarly experience, students are required to complete 36 course credits including three clinical science credits for the required Clinical Skills Continuity course. Students also must complete a quantitative thesis (or qualitative in the medical humanities study program track) for 3 course credits. Specific requirements related to the thesis and scholarly experience can be found on the third-year website. During the scholarly experience, students also are required to complete research ethics modules and medical statistics, mid-term progress report, an oral presentation and present at Medical Student Research Day (AOA Day). AOA attendance is required. Exemptions must be approved by the vice dean.

Students on the ten- and eleven-month Scholarly Experience tracks (and twelve-month track if allowed by the parameters of their scholarship) are allowed four weeks of Step 1 preparation (independent study) at a time approved by their mentor during their scholarly experience. Students must complete the appropriate Independent Study form and obtain approval from their study program director, mentor, and advisory dean. The Independent Study form is submitted to the Office of the Registrar for processing.

Students are allowed to complete one clinical elective prior to submission of their thesis (unless there are scholarship restrictions concerning clinical work). However, if students request to take more than the allotted one clinical elective, interrupting their third year scholarly experience, they must meet with their Advisory Dean to discuss why they need to interrupt their scholarly experience to take an additional clinical elective. The Advisory Dean will provide an explanation as to the need of the interruption. The student is required to obtain permission from their mentor as well as the scholarship committee, if applicable. The completed form will be reviewed by the Third Year committee for final approval.

### Clinical Electives

Clinical electives should be used to (a) aid in decision-making about the area of choice for postgraduate training, (b) obtain experiences in areas that would not be included in that postgraduate training and, above all, (c) pursue active experiences in patient care sufficient to provide the basic skills necessary for doctor-patient interaction.

Students cannot take for "graduation credit" more than three electives in a given sub-specialty field. For example, a student intending to match in orthopedic surgery can do three orthopaedics electives, one at Duke and two study-away for credit towards graduation. If the student plans a third course, they will receive credit for it, but it will not count toward the 24 elective credits needed for graduation. Advisory deans approve their advisee's elective course selections and encourage students to take a broad range of courses even if they plan to sub-specialize. Exceptions are made for students enrolled in longitudinal integrated clerkship (LIC) experiences.

Students must complete 28 course credits of clinical electives including several required rotations designed to enhance students' preparation for their internships and residencies:

- Sub-internship
- Critical/Acute care
- Clinical Skills Continuity clinic (only if not completed during the third year)

Additionally, students participate in a required capstone (Interdisciplinary 450C) course that includes Match Day. The capstone course provides an opportunity to bring the whole class together to cover topics such as:

- clinical skills for internship;
- ethical issues;
- professionalism;
- doctor/patient communication;
- medical/legal issues;
- health systems;
- patient safety;
- self-care; and
- advanced basic science principles.

### Fourth Year

## Duke University

Fourth-year students who do not satisfy the practice requirement for Year Three, must successfully complete a four-week, 4-course credit course from the approved list of practice electives. The credits earned (by exempted students) for these courses will fulfill Interdisciplinary 305C and the 28-course credit requirement for the fourth year at the same time.

If a student was NOT exempt from the third-year Clinical Skills Continuity course requirement (INTERDIS 305C) but did not complete it, they are required to complete an approved outpatient course during their fourth year but must add an additional 4 course credits to the required 28 course credits. Students will be required to complete a total of 32 fourth-year course credits in order to be cleared for graduation. Fourth year students must be enrolled in a minimum of eight credits per term. (Fourth year students are not eligible to take 200 level second year selective courses).

Eligible courses that satisfy the Clinical Skills Continuity requirement are:

- ANESTH 446C—Acute and Chronic Pain Management
- COMMFAM 435C—Health Promotion and Disease Prevention
- DERMATOL 450C—Clinical Dermatology
- MEDICINE 415C—Clinical Management of Obesity
- MEDICINE 423C—Rheumatology
- MEDICINE 428C—Metabolism and Endocrinology
- MEDICINE 431C—Adult Allergy and Clinical Immunology
- MEDICINE 434C—Outpatient Hematology-Oncology (Duke or Durham VA))
- MEDICINE 442C—Clinical Arrhythmia (outpatient option)
- MEDICINE 446C—Nephrology
- MEDICINE 449C—Geriatric Medicine
- NEUROSUR 404C—Neuro-Oncology
- PEDS 402C—Pediatric Gastroenterology (4 credit option only)
- PEDS 403C—Med-Peds Ambulatory Rotation (4 credit option only)
- PEDS 413C—Peds Pulmonary and Sleep Medicine (4 credit option only)
- PEDS 421C—Pediatric Infectious Disease (4 credit option only)
- PEDS 427C—Pediatric Hematology/Oncology (4 credit option only)
- PEDS 429C - Pediatric Rheumatology (4 credit option only)
- PEDS 430C—Healthy Lifestyles Program: A Clinical, Family-Based Approach to Pediatric Obesity
- PEDS 431C—Clinical Pediatric Cardiology
- PEDS 433C—Allergy and Clinical Immunology
- PEDS 436C—Pediatric Neurology
- PSYCHTRY 443C—Addiction Psychiatry
- RADONC 415C—Radiation Oncology

All fourth year (MS4) students must be enrolled in at least 8 credits per term. All fourth-year students are required to have completed clinical electives that fulfill the following criteria by the time of graduation:

- a four-week, five-credit subinternship experience in the field of their choice, which must be completed at Duke
- a four-week, four- or five-credit critical care elective, which must be taken at Duke. Enrollment in the following courses would meet this requirement. If the student has had a placement in an Intensive Care Unit to meet their subinternship requirement, they should select one of the other course options to meet the critical care requirement. Students must complete a course that satisfies the critical care requirement and a second course to satisfy the subinternship requirement.

All fourth-year students are required to have completed clinical electives that fulfill the following criteria by the time of graduation:

- **Courses that count toward Critical Care requirement**
  - ANESTH 402C
  - ANESTH 430C
  - ANESTH 440C
  - ANESTH 441C
  - EMERGMED 405C
  - MEDICINE 404C
  - MEDICINE 405C
  - MEDICINE 406C

## Duke University

- NEURO 401C
- PEDS 411C
- PEDS 426C
- PEDS 440C
- SURGERY 441C
- SURGERY 443C
- **Courses that count toward Sub-intership requirement**
  - ANESTH 401C
  - ANESTH 441C
  - COMMFAM 401C
  - EMERGMED 401C
  - MEDICINE 401C
  - MEDICINE 402C
  - MEDICINE 404C
  - MEDICINE 405C
  - MEDICINE 406C (not currently offered)
  - MEDICINE 407C
  - NEURO 401C
  - NEUROSUR 401C
  - OBGYN 405C
  - OBGYN 407C
  - OBGYN 409C
  - OBGYN 447C
  - ORTHO 429C
  - OTOLARYN 401C
  - PEDS 401C
  - PEDS 426C
  - PSYCHTRY 401C
  - PSYCHTRY 407C
  - SURGERY 401C
  - SURGERY 403C
  - SURGERY 441C
  - UROLOGY 401C

## Longitudinal Integrated Clerkship Year (LIC)

Director: Poonam Sharma MD; Mentors: Eugene Kovalik MD, Jane Onken MD, and Katherine Peters MD

The Longitudinal Integrated Clerkship (LIC) track is a second year curriculum focused on providing a patient-centered, learner-centered comprehensive clinical-year curriculum with an emphasis on understanding longitudinal patient care in varied clinical settings in the context of health systems. Students will have an opportunity to explore all major subject areas of medicine and will be assigned LIC mentors to assist in directing their educational journey and exploring areas of clinical interest while developing a strong and broad foundation in clinical care of patients.

The clinical year is a longitudinal integrated clerkship year (LIC). Students will do the majority of the clinical training in outpatient setting as well as follow a patient panel over the year.

Note: The LIC track is being phased out, effective fall 2023.

## Overview of the Four Years

- **Year One:** Students will complete the first-year Duke science curriculum and the Clinical Skills Foundation course with traditional students. Interested students will apply for LIC admission during the first year.
- **Year Two:** LIC students have a 12-month experience with a 7-month longitudinal component and focused inpatient experiences. Longitudinal components will include experiences in adult medicine, family medicine and primary care, neurology, pediatrics, obstetrics & gynecology, and surgery and each student will be paired with a primary preceptor for each of these areas. Students will complete 2 electives. Students will also complete a longitudinal mental health seminar. Emergency medicine and acute care

## Duke University

medicine will be offered in urgent care, and standard and high acuity emergency medicine settings. Students will have 4 months of inpatient immersion experiences throughout the areas of psychiatry, neurology, surgery, internal medicine, pediatrics, and obstetrics and gynecology. Radiology consists of longitudinal interactions with patients and Radiology faculty. Students will complete a longitudinal seminar series. Finally, students will complete the clinical skills courses as required for traditional Duke SoM students.

- **Year Three:** Traditional research year followed by all students.
- **Year Four:** LIC students will choose from a variety of electives available to all students. There is a required two-week radiology selective based on student interest.

## Medical Scientist Training Program

Director: Christopher Kontos, MD, Professor in the Department of Medicine

Duke University School of Medicine Medical Scientist Training Program, administered under the auspices of The Graduate School and the School of Medicine, is designed for students who have strong backgrounds in science and who are interested in research careers in the medical sciences and academic medicine. The program, which leads to both the MD and PhD degrees and typically takes seven to eight years to complete, integrates the clinical curriculum of the School of Medicine with graduate education in one of the sciences basic to medicine. Although the emphasis of the program is on basic medical science, the additional clinical component affords program graduates a remarkable range of career opportunities. Graduates typically follow one of two broad paths: Some go directly into careers in teaching and research in one of the basic medical sciences; others enter residency programs before pursuing investigative and teaching careers in clinical medicine.

### Eligibility

An applicant must meet both the PhD degree admission requirements of The Graduate School and the MD degree admission requirements the School of Medicine. Candidates apply for admission to the first year of the MD program, and a small number of students are admitted each year after completing the second or third year of the School of Medicine. In addition to the minimum requirements for acceptance into The Graduate School and the School of Medicine, advanced coursework in science and mathematics and significant prior research experience count heavily in the selection of candidates. Evidence of the potential for serious investigative work as a physician-scientist is essential. Because a significant portion of the program's funding is provided by a National Institutes of Health training grant, program participants must be US citizens or official permanent residents of the United States.

### Financial Support

All students admitted to the program receive a full fellowship award: tuition, fees, health insurance, and a stipend to cover living expenses. The stipend for 2022-2023 was \$33,660 per year. The program provides fellowship funds for three medical school years and the early portion of the PhD study. The student's PhD mentor provides financial support for the student in the upper-level PhD years. Tuition for the third year of medical school is forgiven for MSTP students contingent upon completion of the PhD. Support for the fourth medical school year is contingent upon completion of the PhD, and the PhD degree must be completed within seven years of the end of the second medical school year in order to qualify the student for financial support in the last medical school year. This fellowship support is intended to enable students to devote full-time to their work toward the two degrees. All years of fellowship support are contingent upon enrollment in either the School of Medicine or The Graduate School, satisfactory progress toward the two degrees, and no gainful employment.

### Admissions Procedure

- Applicants to Duke MSTP apply simultaneously to MSTP and Duke University School of Medicine. Applicants not admitted to MSTP remain eligible for admission to the School of Medicine if they choose to be considered for the MD program.
- The Medical College Admission Test should be taken, if possible, in April of the year in which the application is submitted, and the application should be completed and submitted as early as possible to facilitate review by both the MSTP and School of Medicine admissions committees.
- The Duke AMCAS application deadline is October 15 and the supplemental application to MSTP is due no later than November 15.
- Interviews of selected candidates are held from early September through the end of January, and admissions decisions are announced in February.
- Applicants admitted to MSTP will be asked to complete additional paperwork for The Graduate School. The Graduate Record Examination is not required for this purpose.

### The Training Program



## Duke University

Duke University School of Medicine's unique third-year research curriculum fits well with a dual-degree program. The third year of medical school is essentially the first year of the PhD program, thereby shortening the time-to-degree for the dual-degree student by a year. The typical student spends the first two years in medical school, followed by about four years in a PhD program (which serve as the third medical school year) and then returns to a fourth year of medical school. The coursework in the first medical school year provides a solid grounding in the basic medical sciences. The second year is devoted to a clinical sciences curriculum. Following completion of the second year, the trainee enters a graduate program to complete the requirements for the PhD degree. A final academic year of elective clinical study completes the requirements for the MD degree.

While the typical student follows the plan outlined above, students whose research interests are well developed early in the first year may opt to begin the PhD at the beginning of their second year and then complete the clinical sciences curriculum after finishing the PhD. While this is not the typical sequence, much latitude is granted to students interested in early research experiences.

### Withdrawal from the MST program prior to completion of the PhD degree requirements

Students who leave the MST program in their first year of graduate school will be required to complete all of the requirements of the medical school's third year. Research activities performed during this year are not considered sufficient to fulfill the third year study program requirements because:

1. The goal of the graduate rotations is to expose students to the research environment of a laboratory and the mentoring style of the PI, and not necessarily to complete a piece of in-depth research.
2. The short (two to three months), self-contained rotation project is the means by which a student learns about a laboratory and is performed on a part-time basis because the student is concurrently enrolled in courses.
3. The student does not necessarily contribute to research design or the intellectual direction of such projects. In contrast, a third-year study project is designed to require ten to twelve months of full-time research under a single mentor, culminating in a document over which the student is rigorously examined. The student is responsible for the research design and execution, as well as the intellectual and scholarly underpinnings and trajectory of the work.

Students leaving graduate school after completing their first year of graduate school will be eligible for full or partial credit toward their third-year project requirements. Suitability of their research experience in graduate school for fulfilling their third-year medical school requirements will be determined by the third-year program study committee. The student will be required to fulfill the thesis, coursework, and examination requirements of the third year of medical school plus the remainder, if any, of the research experience. If the requirements have been met the recommendation will then be sent to full committee for recommendation to the Vice Dean of Education, who will make the final decision to approve or disapprove.

Any student that leaves the MST program at any time before completing the PhD degree will be responsible for all tuition and fees associated with enrollment in the medical school for the third year and the fourth year. This is applicable regardless of whether full or partial credit is given for the research portion of their graduate work toward fulfilling the third year requirements. Students will be removed from MSTP funding when they dematriculate from the MST program, but may apply for School of Medicine financial aid programs.

### Requirements

**Year One—Core Basic Science Year (45.5 basic science credits).** The student studies the principles of the basic science disciplines. Rather than mastering an encyclopedic array of facts, the purpose is to acquire familiarity with the major principles of each subject. In addition, during the first three years, students are required to participate in the practice course which is designed to expand primary and continuity care experience for Duke medical students. The practice course is a combined clinical curricular experience which emphasizes progressive knowledge and competencies. Year One requires satisfactory completion of 45.5 course credits in the approved basic science curriculum.

Year One consists of four integrated basic science courses, the interprofessional introduction to prevention course, and the practice courses. These courses include:

- INTERDIS 107B—(Introduction to the Medical School Profession) zero credits—one week
- INTERDIS 109B—(Clinical Skills Immersion) 2 credits - two weeks
- INTERDIS 112B—(Foundations of Patient Care 1) 22 credits—twenty-two weeks
- INTERDIS 113B—(Foundations of Patient Care 2) 22.5 credits—twenty-one weeks

**Year Two—Core Clinical Science Year (54.5 clinical science credits).** The second year consists of a Clinical Skills Course, ten core clerkship rotations, two one-week selectives, a Cultural Determinants of Health and Health Disparities course, a Clinical Skills Course, Clinical Skills Foundation 2, and a summative clinical skills assessment. The goals of the core clerkships include developing students'

## Duke University

skills in accurate patient-based problem-solving and appropriate use of resources to diagnose and treat patients.

The core clerkship rotations include:

- MEDICINE 205C, 206C—Medicine: six weeks, six-course credits
- SURGERY 205C, 206C—Surgery: seven weeks, seven-course credits
- ANESTH 205C, 206C - one week, one course credit
- OBGYN 205C, 206C—Obstetrics and Gynecology: four weeks, four-course credits
- PEDS 205C, 206C—Pediatrics: four weeks, four-course credits
- COMMFAM 205C, 206C, or 209C—Family Medicine: four weeks, four-course credits
- INTERDIS 201C - Pioneer Curriculum: sixteen weeks, twelve credits
- PSYCHTRY 205C, 206C, or 209C—Psychiatry: four weeks, four-course credits
- NEURO 205C, 206C, or 209C—Neurology: two weeks, two-course credits
- RADIOL 205C, 206C or 209C—Radiology: two weeks, two-course credits
- INTERDIS 203C—Clinical Skills Assessment: 1 week; 1 credit
- INTERDIS 204C—Clinical Skills Intensive/Clinical Skills Course and INTERDIS 213C— Cultural Determinants of Health and Health Disparities Year 2: longitudinal throughout the year: 4.5 credits
- INTERDIS 205C—Clinical Skills Foundation 2: longitudinal; (four hours every other week for the entire year)—Advanced clinical themes (ethics, professionalism, end-of-life, etc.): 1 credit
- Elective periods include two one-week selectives. These elective periods provide an opportunity before the fourth year for students to learn about clinical sub-specialties that are not covered by clerkships.

**Years Three, Four, Five, (Six)—The Graduate Years.** During the third, fourth, fifth and, if necessary, sixth year of the program, the trainee pursues graduate study to satisfy the requirements for the PhD degree. A student may begin graduate school after the first year of medical school, in which case, the student returns to finish the Core Clinical Science Year and the Elective Year in Clinical Science consecutively. PhD requirements include: (1) completion of necessary coursework, (2) adequate performance in the preliminary examination, (3) original research suitable for a dissertation, and (4) successful defense of the thesis in the final examination. Detailed descriptions of the other general requirements for the PhD degree are stated in the Bulletin of Duke University: The Graduate School.

The graduate curriculum of each trainee is developed in consultation with the director of graduate studies of the department in which the trainee elects to study and requires the approval of the Medical Scientist Training Program Committee. Since most of the ordering ideas and experimental techniques of all the medical sciences derive from mathematics and the physical sciences, it is essential to ensure that all students in the program have an adequate foundation in these subjects. Because of the close working relationship and geographical proximity of the departments of medical and physical sciences at Duke, the setting is unusually favorable for the achievement of that goal.

Descriptions of the graduate courses in the departments of biochemistry, biology, biomedical engineering, cell biology, chemistry, immunology, molecular genetics and microbiology, molecular cancer biology, neurobiology, pathology, pharmacology and cancer biology, population health science, and the Cell and Molecular Biology Program, Computational Biology and Bioinformatics Program and the University Program in Genetics and Genomics are listed in the Bulletin of Duke University: The Graduate School. Trainees are encouraged to select courses which relate to their developing individual interests rather than follow a prescribed curriculum applied to all students in a given discipline. Such range, flexibility, and freedom are the essence of graduate education. The original research and dissertation of each trainee is supervised by a faculty advisor chosen by the trainee in consultation with the director of graduate studies in the appropriate department. The faculty advisor typically is the chair of the trainee's supervisory committee, which consists of at least three members from the major department. This committee generally administers the preliminary examination before the student commences original research and the final examination after the student completes the dissertation.

Students can elect to take one noncredit, continuity clinical preceptorship throughout their graduate years to maintain some clinical contact during their graduate school.

**Final Year—An Elective Year in Clinical Science.** In this year, which is entered only after completion of all requirements for the PhD degree, the student and their medical school advisory dean construct an individualized curriculum which often places major emphasis on one clinical area and minor emphasis on other fields. Students are required to complete a sub-internship, a critical care selective, a continuity clinical preceptorship and capstone course. One aim is to integrate research interests and clinical experience in such a way that the student's research competence is facilitated; therefore, the year is planned with regard to the trainee's proposed career in research, as well. This elective year provides further training in clinical medicine to complement the second (core) clinical year, so that the trainee's total clinical experience is the same as that given in the regular clinical years of medical school (the third and fourth years in the majority of schools). It should be noted that since students in the program receive the MD degree upon completion of the final year,

## Duke University

great care is taken by the faculty to ensure that students are competent and knowledgeable in current concepts of patient care. It is hoped that the final year provides the student with an experience which is not repeated during the residency but serves to complement later phases of training. For example, future surgeons might be exposed to fields other than surgery, since they receive intensive training in that discipline during their residency programs. For more information on fourth-year course requirements, please refer to the Doctor of Medicine section of the bulletin, under "Fourth-Year Course Requirements" Additional information may be obtained by writing Medical Scientist Training Program, Box 102005 Duke University Medical Center, Durham, NC 27710, calling (919) 684-2412, or emailing MSTP@duke.edu.

**MSTP and PhD Students Returning to Medical School.** After successfully completing all required courses, Responsible Conduct for Research (RCR) and examinations for the PhD degree in the Graduate School, the MSTP student may return to the School of Medicine to resume course work on the condition that he or she: (a) provides the MSTP Office with the signed thesis defense exam card and (b) meets with the appropriate advisory dean to discuss educational goals and to obtain that dean's signature prior to web registration. Upon completion of the PhD degree, 36 basic science credits are awarded in transfer by the School of Medicine.

## Primary Care Leadership Track

Director: Fatima Syed, MD, MD; Co-Directors: Naomi Duke, MD, Brian Antono, MD and Anh Tran, PhD. OBGYN Liaison: Jordan Schaumberg, MD. Approved May 2010.

Duke University School of Medicine approved a major curricular overhaul to train a cadre of primary care leaders who can enter residency prepared to engage with communities and practices to help improve health outcomes. This project builds on a long-standing partnership between Duke and the Durham community to understand the causes of health disparities, and create a strong research focus on community engagement for a population health approach to the redesign of clinical programs.

The clinical year is a longitudinal integrated clerkship year (LIC). Students will do the majority of the clinical training in outpatient primary care practices and have the opportunity to follow patients over time.

## Overview of the Four Years

- **Year One:** Students in the PCLT participate in a leadership course that focuses on team skills, risk-taking, service, and self-care/resiliency. They will complete the first-year Duke science curriculum and the Clinical Skills Foundation course with traditional students.
- **Year Two:** PCLT students have a seven-month outpatient experience (LIC). Students will have five months of inpatient immersion experiences. Students will be exposed to population health and community engagement. The Clinical Skills Foundation 2 course continues through Year Two, as well as CDHD Year Two. They have longitudinal clinics in primary care clinics. They also have experience in radiology, anesthesia, and emergency medicine with a primary care focus. Students complete a community engagement project and are exposed to quality improvement.
- **Year Three:** The scholarly focus of the third year will be community-engaged research, population studies, or other forms of investigation of health systems and improvement. The third year will still have a ten-, eleven-, or twelve-month option.
- **Year Four:** PCLT students will choose from a variety of electives available to all students, with emphasis on those that will best prepare them for their careers in primary care. Students in the PCLT track are required to complete an approved four-week, four-credit radiology experience during their fourth year. Students will also complete the required sub-internship, the critical care didactics, and the capstone course.

Doctor of Medicine (MD)

## Courses of Instruction

Contact information for leadership of academic departments, centers, and institutes is available here: [medschool.duke.edu/academic-departments-centers-and-institutes](https://medschool.duke.edu/academic-departments-centers-and-institutes).

## Anesthesiology

### Second Year, One-Week Clinical Selective

ANESTH220C CLINICAL ANESTHESIOLOGY. Clinical Anesthesiology

ANESTH221C PAIN MANAGEMENT. Pain Management

### Clinical Science Electives

ANESTH401C CARDIO INTENSIVE CARE SUB-I. Cardiothoracic Intensive Care Sub-Internship

## Duke University

ANESTH402C CARDIO INTENS CARE ELECTIVE. Cardiothoracic Intensive Care Elective

ANESTH430C DIVING & HYPERBARIC MEDICINE. Diving and Hyperbaric Medicine

ANESTH440C CLINICAL ANESTHESIOLOGY. Clinical Anesthesiology

ANESTH441C SURGICAL INTENSIVE CARE. Sub-internship in SICU

ANESTH445C PHYSIOL & MED OF EXTREME ENVIR. Physiology & Medicine of Extreme Environments

ANESTH446C ACUTE & CHRONIC PAIN MNGMT. Acute and Chronic Pain Management

## Dermatology

### Second Year, One-Week Clinical Selective

DERMATOL220C INTRO TO DERMATOLOGY. Introduction to Dermatology

### Clinical Science Electives

DERMATOL401C DERMATOLOGY INPATIENT CONSULTS. Dermatology Inpatient Consults

DERMATOL450C CLINICAL DERMATOLOGY. Clinical Dermatology

## Emergency Medicine

### Second Year, Two-Week Clinical

EMERGMED220C EMERGENCY MEDICINE.

### Elective (PCLT Students)

EMERGMED240C EMERGENCY MED: LONG. EXP. Emergency Medicine: Longitudinal Experience

### Clinical Electives

EMERGMED401C EMERGENCY MEDICINE SUB-I. Emergency Medicine Sub-internship

EMERGMED405C EMERGENCY MEDICINE. Emergency Medicine

EMERGMED407C IPE STUDENT CLINIC LEADRSHP I. Direct Observation and IPE Student Clinic Leadership Elective I

EMERGMED408C IPE STUDENT CLINIC LEADRSHP II. Direct Observation and IPE Student Clinic Leadership Elective II

## Family Medicine and Community Health

### Required Courses

COMMFAM205C FAMILY MEDICINE. Family Medicine

COMMFAM206C PCLT- FAMILY MEDICINE. Primary Care Leadership Track (PCLT) - Family Medicine

### Second Year, One-Week Clinical Selective

COMMFAM220C OCCUPATIONAL MEDICINE. Occupational Medicine: Prevention and Populations

COMMFAM225C TRAVEL MED AT DUKE STDNT HLTH. Travel Medicine at Duke Student Health

### Clinical Science Electives

0249421 - Missing course. Community Clinic Immersion Elective - Fremont

0274431 - Missing course. Community Clinic Immersion - Holton

COMMFAM401C SUBINTERNSHIP IN FAM MED. Sub-Internship in Family Medicine.

COMMFAM403C Community Clinic Leadership. Community Clinic Leadership Elective - Holton Clinic

COMMFAM404C Community Clinic Leadership. Community Clinic Leadership Elective - Fremont Clinic

COMMFAM410C Travel Med at Duke Stdnt Hlth. Travel Medicine at Duke Student Health

COMMFAM423C OCCUP & ENVIRON MED. Occupational and Environmental Medicine

COMMFAM433C COMMUNITY HEALTH. Community Health

COMMFAM435C HLTH PROM & DISEASE PREVEN. Health Promotion and Disease Prevention

# Duke University

COMMFAM448C INTRO TO INFORMATICS. Introduction to Informatics

## Head and Neck Surgery and Communication Sciences

### Second Year, One-Week Clinical Selective

OTOLARYN220C SURGL TRTMNT HEAD & NECK. Surgical Treatment of Diseases of the Head and Neck, Ears, Nose and Throat

### Clinical Science Electives

OTOLARYN401C SUBI IN OHNS. Sub-Internship in Otolaryngology Head and Neck Surgery

OTOLARYN403C CLINICAL OTOLARYNGOLOGY. Clinical Otolaryngology

### Independent Academic Development

IAD101B INDEPEND ACADEMIC DEVELOPMENT. Year 1 Independent Academic Development

IAD201C INDEPEND ACADEMIC DEVELOPMENT. Year 2 Independent Academic Development

IAD301B INDEPEND ACADEMIC DEVELOPMENT. Year 3 Independent Academic Development

IAD401C INDEPEN ACADEMIC DEVELOPMENT. Year 4 Independent Academic Development

## Interdisciplinary

### Required Courses

INTERDIS107B INTRO MED SCHOOL PROFESSION. Introduction to the Medical School Profession

INTERDIS109B CLIN SKILLS TRAINING IMMERSION. Clinical Skills Training Immersion

INTERDIS112B FOUNDATIONS OF PATIENT CARE 1. Foundations of Patient Care 1

INTERDIS113B FOUNDATIONS OF PATIENT CARE 2. Foundations of Patient Care 2

INTERDIS201C PIONEER. Pioneer Course

INTERDIS203C CLINICAL SKILLS ASSESSMENT. Clinical Skills Assessment

INTERDIS204C CLINICAL SKILLS COURSE. Clinical Skills Course

INTERDIS205C CLINICAL SKILLS FOUNDATION 2. Clinical Skills Foundation 2 (CSF2)

INTERDIS207C Prim Care Ldr Track. (PCLT). Primary Care Leadership Track (PCLT)

INTERDIS208C Prim Care Seminar. Primary Care Seminar

INTERDIS211C LONG. INTEG. CLRKSHIP (LIC). Longitudinal Integrated Clerkships (LIC)

INTERDIS212C LIC SEMINAR. Longitudinal Integrated Clerkships Seminar

INTERDIS213C CDHD Year 2. Cultural Determinants of Health and Health Disparities Course Year 2

INTERDIS300B QMDM - MED STATS. Quantitative Medicine and Decision Making - Medical Statistics

INTERDIS305C CLINICAL SKILLS CONTINUITY. Clinical Skills Continuity Clinic

INTERDIS310C QMDM - EBM. Quantitative Medicine and Decision Making I - Evidence Based Medicine YR3

INTERDIS312B RESEARCH ETHICS. Research Ethics

INTERDIS401C ACUTE CARE CURRICULUM. Acute Care Curriculum

INTERDIS409C. Design Health Research Scholars

INTERDIS410C ACADEMIC ENRICHMENT. Academic Enrichment

INTERDIS450C CAPSTONE. Capstone

### Basic Science Electives

INTERDIS111B MORAL MOMENTS IN MEDICINE. Moral Moments in Medicine: Pandemics, Race, Social Justice

INTERDIS114B ADV CLIN-CENTERED ED SPANISH. Advanced Clinically-Centered Education in Spanish (ACCES)

### Clinical Science Electives

0267591 - Missing course. Clinical Experience - Cancer Care Experience Year 1

## Duke University

INTERDIS301B INDEPENDENT STUDY. Independent Study – Year 3

INTERDIS400C INDEPENDENT STUDY. Independent Study

INTERDIS402C INTRO HLTHCARE MKTS AND POLICY. Introduction to Healthcare Markets and Policy for Practitioners

INTERDIS403C NARRATIVE MEDICINE. Narrative Medicine for Medical Learners

INTERDIS406C PHYSICIAN LEADERSHIP - DAILY. Physician Leadership: From Daily Challenges to Global Crises

INTERDIS407C DUKE DESIGN HEALTH FELLOWS PRG. Duke Design Health Fellows Program

INTERDIS422C EXPLORING MEDICINE. Exploring Medicine: Cross-Cultural Challenges to Medicine in the 21st Century

INTERDIS423C HONDURAS TRIP. Honduras Trip

INTERDIS470C CLINICAL RESEARCH EXPERIENCE. MSTP Clinical Experience

INTERDIS475C CLIN EXPER. Clinical Experience

## Medicine

### Required Courses

MEDICINE205C MEDICINE. Medicine

MEDICINE206C PCLT-MEDICINE. Primary Care Leadership Track (PCLT) - Medicine

MEDICINE209C LIC-MEDICINE. Longitudinal Integrated Curriculum - Medicine

### Second Year, One-Week Clinical Selective

MEDICINE221C A TASTE OF PALLIATIVE CARE. A Taste of Palliative Care

MEDICINE223C GASTROENTEROLOGY. Gastroenterology Selective

MEDICINE225C INTRO HOSPITAL MED QUAL IMPROV. Introduction to Hospital Medicine

MEDICINE229C ADULT NEPHROLOGY. Adult Nephrology

### Clinical Science Electives

MEDICINE226C INTRO TO ENDOCRINOLOGY. Introduction to Endocrinology

MEDICINE227C INTRO TO CONSULTATIVE CARDIO. Introduction to Consultative Cardiology

MEDICINE231C INTRO TO INFECTIOUS DISEASES. Introduction to Infectious Diseases

MEDICINE232C INTRO TO RHEUMATOLOGY. Introduction to Rheumatology

MEDICINE233C INTERVENTIONAL PULMONOLOGY. Interventional Pulmonology

MEDICINE401C INT MD SUBINTERN (DUKE-VA). Internal Medicine Sub-Internship (Duke/VA)

MEDICINE402C MED SUBINTERN IN HEM-ONC. Medical Sub-Internship in Hematology-Oncology

MEDICINE404C CARDIAC CARE UNIT SUBINTERN. Cardiac Care Unit Sub-Internship

MEDICINE405C INTENSIVE CARE MED SUB-I-DUKE. Intensive Care Medicine Sub-Internship (Duke)

0111031 - Missing course. Intensive Care Medicine Sub-Internship (Durham VA Hospital)

MEDICINE407C SUBINTERN - INT MED/PSYCHIATRY. Sub-Internship in Internal Medicine/Psychiatry

MEDICINE412C HOSPITAL MEDICINE. Hospital Medicine

MEDICINE414C INTRO To OUTPAT PRIMARY CARE. Introduction to Outpatient Primary Care Internal Medicine

MEDICINE415C CLINICAL MANAGEMENT OF OBESITY. Clinical Management of Obesity

MEDICINE416C EFFECTIVE CLINICAL TEACHING. Effective Clinical Teaching

MEDICINE423C RHEUMATOLOGY. Rheumatology

MEDICINE424C FLUIDS AND ELECTROLYTES. Fluids and Electrolytes

MEDICINE425C CLINICAL COAGULATION. Clinical Coagulation

MEDICINE427C HOSPICE AND PALLIATIVE MED. Hospice and Palliative Medicine

MEDICINE428C METABOLISM AND ENDOCRIN. Metabolism and Endocrinology

MEDICINE430C PULMONARY MEDICINE. Pulmonary Medicine

## Duke University

MEDICINE431C ADULT ALLERGY & CLIN IMMUNOL. Adult Allergy and Clinical Immunology  
MEDICINE432C INTRO TO DUKE MICU. Introduction to Duke Medical Intensive Care Unit  
MEDICINE434C OUTPATIENT HEM ONC-DUKE OR VA. Outpatient Hematology-Oncology (Duke or Durham VA)  
MEDICINE435C GASTROENTEROLOGY. Gastroenterology  
MEDICINE437C RHEUMATOLOGY. Rheumatology  
MEDICINE438C CLIN HEM/ONC CONSUL-DUKE OR VA. Clinical Hematology and Oncology Consults (Duke or Durham VA)  
MEDICINE439C GRIEF AND BEREAVEMENT 101. Grief and Bereavement 101  
MEDICINE440C CLIN INFECTIOUS DISEASES. Clinical Infectious Diseases  
MEDICINE442C CLIN ARRHYTHMIA SERVICE. Clinical Arrhythmia Service  
MEDICINE444C HEART FAIL & TRANSPLANTATION. Clinical Heart Failure and Cardiac Transplantation  
MEDICINE445C CONSULTATIVE CARDIOLOGY. Consultative Cardiology  
MEDICINE446C NEPHROLOGY. Nephrology  
MEDICINE447C PRAC & PATIENTS :HIST CLIN MED. Practitioners and Patients: The History of Clinical Medicine  
MEDICINE449C GERIATRIC MEDICINE. Geriatric Medicine  
MEDICINE452C WHAT WOULD A GOOD PHYS DO?. Clinical Medical Ethics: What Would a Good Physician Do?  
MEDICINE453C MEDICINE, HUMANITIES & THE ARTS. Medicine, Humanities and the Arts  
MEDICINE454C. Humanities for Health Justice

## Neurology

### Required Courses

NEURO205C NEUROLOGY. Neurology  
NEURO206C PCLT-NEURO. Primary Care Leadership Track (PCLT)-Neurology  
NEURO209C LIC-NEUROLOGY. Longitudinal Integrated Curriculum - Neurology

### Second Year, One-Week Clinical Selective

NEURO220C NEUROCRITICAL CARE. Neurocritical Care

### Clinical Science Electives

NEURO401C NEUROLOGY SUB-INTERNSHIP. Neurology Sub-Internship  
NEURO402C NEUROLOGY CLERKSHIP. Neurology Clerkship  
NEURO403C CLIN NEURO SUBSPECIALTIES. Clinical Neurology Sub-specialties  
NEURO404C CONSULTATIVE NEUROLOGY. Consultative Neurology  
NEURO405C THE NEUROBIOLOGY OF AGING. The Neurobiology of Aging

## Neurosurgery

### Second Year, One-Week Clinical Selective

NEUROSUR220C NEUROSURGICAL INTERVENTION. Neurosurgical Intervention in the Modern Era

### Clinical Science Electives

NEUROSUR401C SUBI IN NEUROSURGERY. Sub-Internship in Neurological Surgery  
NEUROSUR402C INTERMEDIATE CLIN NEUROSURGERY. Intermediate Clinical Neurosurgery  
NEUROSUR404C NEURO-ONCOLOGY. Neuro-Oncology

## Obstetrics and Gynecology

### Required Courses

OBGYN205C OBSTETRICS and GYNECOLOGY. Obstetrics and Gynecology

## Duke University

OBGYN206C PCLT-OBSTETRICS AND GYNECOLOGY. Primary Care Leadership Track (PCLT) - Obstetrics and Gynecology

OBGYN209C LIC-OBGYN. Longitudinal Integrated Curriculum - Obstetrics and Gynecology

### **Second Year, One-Week Clinical Selective**

OBGYN220C PRENATAL DIAGNOSIS. Prenatal Diagnosis

OBGYN221C INTRO REPRODUCTIVE ENDOCRIN. Introduction to Reproductive Endocrinology

### **Clinical Science Electives**

OBGYN404C PREP FOR OB/GYN RESIDENCY. Preparation for ObGyn Residency

OBGYN405C GYNECOLOGIC CANCER SUB-I. Gynecologic Cancer Sub-Internship

OBGYN407C FEM PELV MED & REC SURG SUB-I. Female Pelvic Medicine and Reconstructive Surgery Sub-Internship

OBGYN408C MIN. INVASIVE GYNECOLOGIC SURG. Minimally Invasive Gynecologic Surgery

OBGYN409C BENIGN GYNECOLOGY SUB-I. Benign Gynecology Sub-internship

OBGYN447C MATERNAL-FETAL MED SUB-I. Maternal-Fetal Medicine Sub-Internship

## **Ophthalmology**

### **Second Year, One-Week Clinical Selective**

OPHTHAL220C OPHTHALMOLOGY. Ophthalmology

### **Clinical Science Electives**

OPHTHAL420C MEDICAL OPHTHALMOLOGY. Medical Ophthalmology

OPHTHAL422C GENERAL OPHTHALMOLOGY. General Ophthalmology

OPHTHAL425C PEDIATRIC OPHTHALMOLOGY. Pediatric Ophthalmology

### **Optional Research Studies**

OPTRS101B OPTIONAL RESEARCH STUDIES. Optional Research Studies

OPTRS301B OPTIONAL RESEARCH STUDIES. Optional Research Studies

OPTRS401C OPTIONAL RESEARCH STUDIES. Optional Research Studies

## **Orthopaedics**

### **Second Year, One-Week Clinical Selective**

ORTHO221C PHYS MEDICINE & REHABILITATION. Physical Medicine and Rehabilitation

ORTHO222C ORTHO SURGERY EXPERIENCE. Orthopaedic Surgery Experience

### **Clinical Science Electives**

ORTHO421C FRAC & MUSCULOSKEL TRAUMA. Fractures/Musculoskeletal Trauma

ORTHO429C SUB-I IN ORTHOPAEDIC SURGERY. Sub-Internship in Orthopaedic Surgery

ORTHO430C ORTHO SPORTS MEDICINE. Orthopaedic Sports Medicine

ORTHO431C HAND/UPPER EXTREMITY SURGERY. Hand/Upper Extremity Surgery

ORTHO432C MUSCULOSKELETAL ONCOLOGY. Musculoskeletal Oncology

ORTHO433C PEDIATRIC ORTHOPAEDICS. Pediatric Orthopaedics

## **Pathology**

### **Second Year, One-Week Clinical Selective**

PATHOL220C WHAT PATHOLOGIST REALLY DO?. What Does A Pathologist Really Do?

### **Clinical Science Electives**

PATHOL402C PRIMER OF CLINICAL PATHOLOGY. Primer of Clinical Pathology



# Duke University

PATHOL423C AUTOPSY PATHOL. Autopsy Pathology

PATHOL448C PRACTICAL SURGICAL PATH. Practical Surgical and Cytopathology

## Pediatrics

### Required Courses

PEDS205C PEDIATRICS. Pediatrics

PEDS206C PCLT-PEDS. Primary Care Leadership Track (PCLT) - Pediatrics

PEDS209C LIC-PEDIATRICS. Longitudinal Integrated Curriculum

### Second Year, One-Week Clinical Selective

PEDS220C CLIN GENETICS & METABOLISM. Clinical Genetics and Metabolism

PEDS221C CHILD ABUSE & FAMILY VIOLENCE. Child Abuse and Family Violence

PEDS222C PED HEMATOLOGY-ONCOLOGY. Overview of Pediatric Hematology-Oncology

PEDS224C DVLPMNTL CARE SICK NEWBORNS. Developmental Care of Sick Newborns - A Multidisciplinary Approach

PEDS226C PEDIATRIC NEUROLOGY. Pediatric Neurology

PEDS227C ADOLESCENT MEDICINE. Adolescent Medicine

PEDS228C PEDIATRIC GASTROENTEROLOGY. Pediatric Gastroenterology

PEDS229C PEDS CONGENITAL CARDIOLOGY. Pediatric Congenital Cardiology

PEDS232C PEDIATRIC INFECTIOUS DISEASES. Pediatric Infectious Diseases

### Clinical Science Electives

PEDS401C PEDIATRIC SUBINTERN. Pediatric Sub-Internship

PEDS402C PEDIATRIC GASTROENTEROLOGY. Pediatric Gastroenterology

0248221 - Missing course. Med-Peds Ambulatory Rotation

PEDS404C ADV. ADOLESCENT MEDICINE. Advanced Adolescent Medicine

PEDS408C CHILD ADVOCACY LAB. Child Advocacy Lab

PEDS409C PEDS PALL CARE & QUALITY LIFE. Pediatric Palliative Care and Quality of Life

PEDS411C PEDIATRIC EMER MEDICINE. Pediatric Emergency Medicine

PEDS412C INTRO PED PULMONARY/SLEEP MED. Introduction to Pediatric Pulmonary and Sleep Medicine

PEDS413C PED PULMONARY/SLEEP MEDICINE. Pediatric Pulmonary and Sleep Medicine

PEDS417C PEDIATRIC SUBSPECIALTY ELECTIV. Pediatric Subspecialty Elective

PEDS420C INTRO TO PED INFEC DISEASES. Introduction to Pediatric Infectious Diseases

PEDS421C PEDS INFECTIOUS DIS - COMP. Pediatric Infectious Diseases - Comprehensive

PEDS424C INTRO PEDS ENDOCRN & DIABETES. Introduction to Pediatric Endocrinology and Diabetes

PEDS425C ENDOCRINE DISORDERS CHILDREN. Endocrine Disorders in Children

PEDS426C NEONATOLOGY. Neonatology

PEDS427C PED HEMATOL /ONCOLOGY. Pediatric Hematology/Oncology

PEDS428C INTRO PEDS RHEUMATOLOGY. Introduction to Pediatric Rheumatology

PEDS429C PEDIATRIC RHEUMATOLOGY-COMPHEH. Pediatric Rheumatology - Comprehensive

PEDS430C HEALTHY LIFESTYLES PROGRAM. Healthy Lifestyles Program: A Clinical, Family-Based Approach to Pediatric Obesity

PEDS431C CLIN PED CARDIOLOGY. Clinical Pediatric Cardiology

PEDS433C ALLERGY AND CLIN IMMUNOLOGY. Allergy and Clinical Immunology

PEDS434C CLIN GENETICS/METABOLISM. Clinical Genetics/Metabolism

PEDS436C PEDIATRIC NEUROLOGY. Pediatric Neurology

PEDS440C PED INTENSIVE CARE UNIT. Advanced General Pediatrics-Intensive Care

## Duke University

PEDS441C PEDIATRIC NEPHROLOGY. Pediatric Nephrology

PEDS446C PED STEM CELL TRANSPLANT UNIT. Pediatric Stem Cell Transplant Unit

### Psychiatry

#### Required Courses

PSYCHTRY205C PSYCHIATRY. Psychiatry

PSYCHTRY206C PCLT-PSYCHIATRY. Primary Care Leadership Track (PCLT) - Psychiatry

PSYCHTRY209C LIC-PSYCHTRY. Longitudinal Integrated Curriculum - Psychiatry

#### Second Year, One-Week Clinical Selective

PSYCHTRY221C CLIN INTRO CHILD PSYCHIATRY. Clinical Intro to Child Psychiatry

PSYCHTRY222C GERIATRIC PSYCHIATRY. Geriatric Psychiatry

#### Clinical Science Electives

PSYCHTRY401C SUBINTERN IN PSYCHIATRY. Sub-Internship in Psychiatry

PSYCHTRY402C SUBSTANCE USE DISORDER TREATMT. Cultural Contexts of Substance Use Disorder Treatment

PSYCHTRY407C SUBINTERN-INT MED-PSYCHIATRY. Sub-Internship in Internal Medicine-Psychiatry

PSYCHTRY443C ADDICTION PSYCHIATRY. Addiction Psychiatry

PSYCHTRY445C CONSULT-LIAISON PSYCH. Consultation-Liaison Psychiatry

### Radiation Oncology

#### Second Year, One-Week Clinical Selective

RADONC220C CLINICAL RADIATION/ONCOLOGY. Brief Experience in Clinical Radiation/Oncology

#### Clinical Science Electives

RADONC415C CLIN RADIATION ONCOLOGY. Clinical Radiation Oncology

### Radiology

#### Required Courses

RADIOL205C RADIOLOGY. Radiology

RADIOL206C. PCLT Radiology

RADIOL209C LIC-RADIOLOGY. Longitudinal Integrated Curriculum - Radiology

#### Second Year, One-Week Clinical Selectives

RADIOL222C VASCULAR & INTERVEN. RADIOL. Vascular & Interventional Radiology

#### Clinical Science Electives

RADIOL402C BREAST IMAGING. Breast Imaging

RADIOL403C GENITOURINARY IMAGING. Genitourinary Imaging

RADIOL404C VASCULAR INTERVENT RADIOL. Vascular and Interventional Radiology

RADIOL405C LIC RADIOLOGY SUBSPECIALTY. Fourth Year Subspecialty Radiology Rotation for the Longitudinal Integrated Curriculum

RADIOL406C ADV VASCU & INTERVEN RADIOL. Advanced Vascular and Interventional Radiology

RADIOL420C PEDIATRIC RADIOLOGY. Pediatric Radiology

RADIOL421C CLERKSHIP NEURORADIOLOGY. Clerkship in Neuroradiology

0114261 - Missing course. Basic Radiology Clerkship. Fourth Year Basic Radiology Clerkship for the Primary Care Leadership Track (Summer 2023 only)

RADIOL437C MUSCULOSKELETAL IMAGING. Musculoskeletal Imaging

## Study Away

### Clinical Science Electives

STDYAWAY410C EXTRA-MURAL CLINICAL. Extra-Mural Clinical

STDYAWAY411C STUDY AWAY AT UNC. Study Away at UNC

STDYAWAY421C STUDY AWAY AT WFU. Study Away at Wake Forest University School of Medicine

STDYAWAY431C STUDY AWAY AT ECU. Study Away at East Carolina University School of Medicine

STDYAWAY440C INPATIENT CARE IN SRI LANKA . Externship in Inpatient Care at Teaching Hospital Karapitiya and Mahamodara Galle in Sri Lanka

## Surgery

### Required Courses

SURGERY205C SURGERY. Surgery

SURGERY206C PCLT-SURGERY. Primary Care Leadership Track (PCLT) - Surgery

SURGERY209C LIC-SURGERY. Longitudinal Integrated Curriculum - Surgery

### Second Year, One-Week Clinical Selective

SURGERY223C COSMESIS TO RECONSTRUCTN. From Cosmesis to Reconstruction, from Infants to the Elderly

SURGERY224C SURGICAL CRITICAL CARE. Surgical Critical Care in the Modern Era

SURGERY225C MODERN GEN.THORACIC SURGERY. Modern General Thoracic Surgery: Multidisciplinary Approach to Complex Thoracic Disorders

SURGERY226C MODERN CARDIAC SURGERY. Modern Cardiac Surgery: From CABG to Gene Therapy

SURGERY230C TRAUMA & ACUTE CARE SURGERY. Trauma and Acute Care Surgery

SURGERY231C ESSENTIALS OF PED SURGERY. Essentials of Pediatric Surgery

SURGERY232C Intro to Endocrine Surgery. Introduction to Endocrine Surgery

### Required Second Year Elective (PCLT and LIC tracks)

0250961 - Missing course. Emergency Medicine: Longitudinal Experience

### Clinical Science Electives

SURGERY401C ADV SURGICAL CLERKSHIP. Advanced Surgical Clerkship

SURGERY403C SUB-I PLAS SURG INT PROGRAM. Sub-Internship Plastic Surgery Integrated Program

SURGERY405C INTRO TO POINT CARE ULTRASOUND. Introduction to Point of Care Ultrasound

SURGERY406C ENDOCRINE SURGERY. Endocrine Surgery

SURGERY409C SURG TECH AND REVIEW STAR. Surgical Technique and Review Course (STAR)

SURGERY411C Vascular & Endovascular Surg. Vascular & Endovascular Surgery

SURGERY420C GEN SURGICAL ONCOLOGY. General Surgical Oncology

0115171 - Missing course. Advanced Surgery-Emphasis Cardiovascular/Thoracic

SURGERY426C ADV CLERK PEDIATRIC SUR. Advanced Clerkship in Pediatric Surgery

SURGERY441C SUBI SURGICAL INTENSIVE CARE. Sub-Internship in Surgical Intensive Care

SURGERY443C TRAUMA SERVICE. Trauma Service

SURGERY444C INTRO PLAS REC MAX SUR. Introduction to Plastic, Reconstructive and Maxillofacial Surgery

## UROLOGY

### Second Year, One-Week Clinical Selective

0203071 - Missing course. UROLOGY220C - Urology

Duke University

### **Clinical Science Electives**

SURGERY401C ADV SURGICAL CLERKSHIP. Sub-Internship in Urologic Surgery

### **Thesis**

#### **Basic Science Electives**

THESIS301B THESIS. Thesis

### **Special Interdisciplinary Programs**

#### **Anesthesiology, Surgery & Environmental Physiology**

ASEP301B RESEARCH IN ASEP. Research in ASEP

#### **Behavioral Neurosciences Study Program**

BSP301B RESEARCH IN BSP. Research in BSP

#### **Biomedical Engineering and Surgery Study Program**

BES301B RESEARCH IN BES. Research in BES

#### **Clinical Research Study Program**

CRSP301B RESEARCH IN CRSP. Research in Clinical Research

#### **Cardiovascular Study Program**

CVS301B RESEARCH IN CVS. Research in CVS

#### **Continuation of Research**

CRS301B CONTINUATION OF RESEARCH STUDY. Continuation of Research Study

#### **Global Health Study Program**

GHS301B GLOBAL HEALTH STDY PROG. Global Health Study Program

#### **Human Genetics and Genomics Study Program**

HGP301B RESEARCH IN HGP. Research in HGP

#### **Information Science Program**

MSIS301B INFORMATION SCI STUDY PROG. Master of Science of Information Science Study Program

#### **Library Science Program**

MSLS301B LIBRARY SCIENCE STUDY PROG. Master of Library Science Study Program

#### **Master of Management in Clinical Informatics**

MMCI301B RESEARCH IN MMCI. Research in MMCI

#### **Medical Humanities Study Program**

MEDHUM301B RESEARCH IN MEDHUM. Research in MEDHUM

#### **Medical Education Research Program**

MERP301B RESEARCH IN MERP. Research in Medical Education Study Program

#### **Microbiology, Infectious Disease and Immunology Study Program**

MIDIP301B RESEARCH IN MIDIP. Research in Microbiology and Infectious Disease Study Program

#### **Molecular Medicine**

MOLMED301B RESEARCH IN MOLMED-ONCOLOG SCI. Research in MOLMED - Oncological Sciences

#### **Neurosciences Study Program**

## Duke University

NSS301B RESEARCH IN NSS. Research in NSS

### **Ophthalmology and Visual Sciences Study Program**

OVS301B RESEARCH IN OVS. Research in OVS

### **Pathology Study Program**

PSP301B RESEARCH IN PSP. Research in PSP

### **Primary Care Leadership Track**

PCLT301B RESEARCH IN-PRI LDR TRACK. Research in - Primary Care and Leadership Track

### **Radiology, Radiation Oncology, and Medical Physics**

RROMP301B RADIOL, RADONC, & MED PHYSICS. Radiology, Radiation Oncology & Medical Physics

Doctor of Medicine (MD)

## **Dual-Degree Programs**

### **Basic Science Research Training Program (BSRT) (for Second and Third Year students)**

The Duke Office of Physician-Scientist Development (OPSD) and the Duke Burroughs Wellcome Fund Physician-Scientist Institutional Award (BWF-PSIA) are pleased to announce a request for applications for funding to offset tuition for enrollment in the Basic Science Research Track (BSRT) for the Master of Health Sciences (MHSc) in Clinical Research Program.

These need-based scholarships provide up to \$30,000 (up to \$15,000 per year for 2 years) to cover program tuition. This RFA is open to physician-scientists preparing to enroll in the BSRT program, including medical students intending to pursue a second 3rd year experience; fellows working in basic science laboratories; early career-stage faculty and potential K award applicants.

Proposals should include:

- Applicant's CV
- Research Summary (1- 2 pages)
- Statement of need including a description of the impact the BSRT degree program is expected to have on the applicant's ability to move their research forward
- An overview of the applicant's research and career plans
- Letter of support from Mentor (for students and trainees) or Division Chief/Department Chair (for faculty) (1 page)

Applications should be emailed directly to Holly Hough.

## **Medical Scientist Training Program**

Director: Christopher Kontos, MD, Professor in the Department of Medicine

Duke University School of Medicine Medical Scientist Training Program, administered under the auspices of The Graduate School and the School of Medicine, is designed for students who have strong backgrounds in science and who are interested in research careers in the medical sciences and academic medicine. The program, which leads to both the MD and PhD degrees and typically takes seven to eight years to complete, integrates the clinical curriculum of the School of Medicine with graduate education in one of the sciences basic to medicine. Although the emphasis of the program is on basic medical science, the additional clinical component affords program graduates a remarkable range of career opportunities. Graduates typically follow one of two broad paths: Some go directly into careers in teaching and research in one of the basic medical sciences; others enter residency programs before pursuing investigative and teaching careers in clinical medicine.

## **MD/Master of Arts in Liberal Studies—MD/MALS**

This joint degree program of the Duke University Graduate Liberal Studies program and the School of Medicine would begin in the third year of a student's medical degree. It would be a two-year program in its first implementation.

The Master of Arts in Liberal Studies (MALS) program offers the rigor of a graduate-level liberal arts education within an interdisciplinary context. For medical students, the value of this degree is substantial. The program enables students to expand their intellectual capacity in diverse areas of study (e.g., social sciences, history, policy, ethics, etc.) while exploring these subjects from many

## Duke University

perspectives. MALS students hone their abilities to view issues and problems from a variety of points-of-view, gaining both intellectual and practical skills that make them thinkers that are more comprehensive and more effective problem solvers.

The objectives of a MALS degree are to extend students' intellectual resources and range, promote openness to new ideas and ways of thinking, and facilitate the ability to identify connections and inter-relationships among seemingly disparate subject areas. To meet these objectives, liberal studies seminars are designed specifically for this program and are open to MALS students only. In addition, MALS students may take other courses of interest in Duke's Graduate School.

**Requirements:** Students design an individual course of study that brings together their intellectual interests and professional goals. Requirements include nine courses and a master's thesis (approved by both the Graduate Liberal Studies program and the School of Medicine).

Apply to the Graduate Liberal Studies program online through The Graduate School. The application deadline for fall is May 15. All MD/MALS theses proposals also will require School of Medicine approval.

**For more information:** Contact Donna Zapf, PhD, Director, [dzapf@duke.edu](mailto:dzapf@duke.edu); or Margaret Humphreys, MD, PhD, [meh@duke.edu](mailto:meh@duke.edu).

## MD/MA in Bioethics & Science Policy

**Name of Degree:** Master of Arts in Bioethics & Science Policy

**Program Description:** The Duke Master in Bioethics & Science Policy program teaches students how to identify, analyze, and propose solutions to myriad complex issues at the intersection of science, technology, ethics, and policy. Our curriculum is distinct from other bioethics degrees in its focus on bioethics and science policy, rather than bioethics or medical ethics alone. [scienceandsociety.duke.edu/learn/ma](http://scienceandsociety.duke.edu/learn/ma)

**Length of Program:** Three semesters. The program is completed typically by undertaking the course work during the fall and spring semesters, followed by a practicum or thesis during the following summer term. The program is, however, highly flexible in the scheduling of degree requirements, especially in the case of joint degree students.

**Tuition:** Tuition for the MA degree, as set by Duke Graduate School. All Duke Medical School students will be eligible for a 50% merit scholarship from Science & Society, reducing the tuition to \$38,610. In addition, MD students will be eligible to receive a \$10-15,000 tuition subsidy from the Medical School for third year studies.

Science & Society also grants substantial scholarships as Leadership Awards to applicants who demonstrate the greatest potential to become leaders in making scientific advancements more accessible, just and better integrated into society. Applications for the Leadership Awards are due January 9.

**Eligibility:** All Duke third year medical students are eligible to apply.

### Deadlines:

- January 9 – Application for Leadership Award
- January 31 – Priority consideration for financial aid
- May 31 – Final deadline for fall admission

**Application Procedure/Requirements:** [scienceandsociety.duke.edu/learn/ma/admissions/application-requirements](http://scienceandsociety.duke.edu/learn/ma/admissions/application-requirements)

- Duke Graduate School Online Form
- MA Supplemental essays
- Three letters of reference
- College and medical school transcripts
- GRE or MCAT (may submit MCAT used for admission to Duke Medical School)

### Curriculum:

- Required core courses (12 credits): Science Law & Policy; Clinical Bioethics and Policy; Law Research and Bioethics; Contemporary Issues: Colloquium.
- Electives (15 credits): courses selected from across Duke schools and departments
- Practicum or Master's Thesis (9 credits) – Students have the option to either spend 10 weeks with a host organization engaged in work related to bioethics or science policy or to write a master's thesis

### Contact/Study Program Director:

Michael B. Waitzkin, JD, LL.M. – MA Director of Graduate Studies, [michael.waitzkin@duke.edu](mailto:michael.waitzkin@duke.edu), (202) 528-1684

Margaret Humphreys, MD PhD - Study Program Director for the Medical Humanities Track, [meh@duke.edu](mailto:meh@duke.edu), (919) 684-2285

## MD/MHS in Clinical Research (CTSA)

**Name of Degree:** Master of Health Sciences in Clinical Research (two years)

**Options/tracks within the degree program:** Clinical Research, Genomic Research

**Course of study:** 4 semesters of coursework, plus a thesis is required. A one year, non-degree option may be available.

**Location:** Duke Clinical Research Training Program (CRTP).

**Length of Program:** Masters' Degree takes 2 years and requires a thesis.

**Total time to graduation:** Masters' program typically five years (the first or second year is congruent with your third year program).

**Tuition arrangements:** Full tuition for both programs is paid independently to the two schools. Scholarship funding is available for the entire Masters tuition; please apply for the CTSA scholarship by April 1

**Financial Aid:** Eligible and can apply for financial aid at each program for each year enrolled in that program.

**For more information:** Contact David Edelman, MD, Director, CTSA TL1 Scholarship.

## MD/MEng in Engineering

**Name of Degree:** Master of Engineering

This five-year program is designed for MD candidates who wish to also obtain a Master of Engineering (MEng) degree with a focus on healthcare innovation in any Engineering major, but typically either in Biomedical Engineering or in Electrical and Computer Engineering. In brief, students spend four years (Years 1, 2, 4 and 5) in medical school to fulfill the MD curriculum requirements, and one year (Year 3) to take the required MEng courses detailed below, and focus on innovations in healthcare, such as medical device design or data analytics that encompasses artificial intelligence, machine learning, optimization/systems analysis, feasibility analysis, etc. In the fourth year, students continue working on development of new technologies or data analytics for improving healthcare, improving public health, or reducing health hazards. The final work product is a quantitative thesis, for which they will receive School of Medicine credit in fulfillment of their Third Year thesis requirement.

**Tuition Arrangements:** Students will pay the Pratt School of Engineering tuition for one year after the MS2 year and the School of Medicine tuition for four years (MS1, MS2, MS3 [year 4], and MS4 [year 5]). The typical MEng degree is three semesters and so this concurrent degree is two-thirds the cost of a stand-alone MEng degree.

**Location:** Pratt School of Engineering

**School of Medicine Requirements:** The MD curriculum requirements for typical Years 1, 2, and 4 (Year 5 for these students) will remain unchanged by this program.

School of Medicine Third Year thesis credit will be based on submission of a document whose rigor is consistent with current Third Year theses. As with all current Third Year theses, the thesis proposals will require Third Year School of Medicine approval. The thesis would consist of a detailed Business Plan, complete with extended Introduction (similar to the extended Introduction currently required of Third Year students who choose the manuscript or grant alternative theses) stating more thoroughly the healthcare, public health, or health hazard need being addressed. The scope, subject, and outcomes of the thesis will be determined by the Engineering program of specialization in collaboration with the School of Medicine. Examples could include: Development of a new technology and working prototype to improve healthcare; Evaluation of technologies for improving public health; Optimization of engineered systems to minimize exposure to environmental health hazards, etc. A thesis alternative can be submitted in the form of a SBIR/STTR grant application since the grant thesis alternative is already an approved option offered to all Third Year medical students. At the discretion of and selected by the Third Year Committee, the thesis may be reviewed by faculty or other experts well versed in the specific technology field who are not on the Committee. These external reviews would be used by members of the Third Year Committee to grade the theses in order to ensure that the grading standards, rigor and criteria are consistent with current theses. The thesis may also be used to fulfill requirements for the MENG 550/551 courses.

**Pratt School Requirements:** Master of Engineering students in all majors must complete 30 credits comprised of key program elements as follows:

- Core industry preparatory courses (6 credits)
- Departmental or interdisciplinary core courses (15-18 credits, varies by major)
- Technical electives in a concentrated area (6-9 credits, varies by major)
- Internship, Project, or Equivalent

Additionally, some majors have a seminar participation requirement.

## Duke University

The MD/MEng student will fulfill all of the requirements of the MEng degree. To accomplish this, the following accommodation has been made for those seeking a dual degree:

- 6-9 credits (depends on MEng major) required for the MEng degree may be fulfilled based on satisfactory completion of the MS 1 Basic Sciences curriculum

MAJOR	MD CREDITS APPLIED TO MENG DEGREE	DESCRIPTION
Biomedical Engineering	9	3 credits - Life Science Requirement 6 credits - Technical Electives
Civil Engineering	6	6 credits - Technical Electives
Electrical and Computer Engineering	9	9 credits - Technical Electives
Environmental Engineering	9	9 credits - Technical Electives
Materials Science and Engineering	6	6 credits - Technical Electives
Mechanical Engineering	6	6 credits - Technical Electives
Photonics and Optical Systems	6	6 credits - Technical Electives

- Internship, project, or equivalent requirement may be fulfilled as described below.

In the fourth year, each MEng student is required to undertake a practical internship, which must encompass at least 320 person hours of effort (as documented in their detailed laboratory notebook). These internships are by nature focused on engineering applications and technology development. To achieve this, each MD/MEng student may work under the auspices of Faculty in the School of Medicine, MedBlue Program, the Pratt School of Engineering, or other similar program to be reviewed and approved by representatives from the MEng and SOM faculty. Specifically, each MD/MEng candidate will:

1. work under the guidance of one or two attending physicians and engineers during their fourth year ("second third year") to identify and complete at least one comprehensive Confidential Need Specification with the sponsorship of one of the clinical faculty;
2. develop new technologies or engineering approaches (including optimization/system analysis or feasibility analysis, etc.) for improving healthcare, improving public health, or reducing health hazards based on Need Specification;
3. present their proposed technology or engineering approach to a select group of prospective investors and/or end users (clinicians);
4. complete an Invention Disclosure Form approved by faculty advisor for the project and the faculty who teach the internship course, MEng 551;
5. (optional) submit the IDF, which requires review and signature of appropriate SOM Department Chair; review and signature by appropriate Engineering Department Chair; and
6. (optional) provide required information and support to OLV to assist in their review and action.

**Example Curriculum:** Master of Engineering in Biomedical Engineering with emphasis on Healthcare Innovation and Entrepreneurship

The MD/MEng dual degree is most closely aligned with the Biomedical Engineering major. Additionally, it is believed that the appeal in this program will be for medical students with an interest in innovation and entrepreneurship. Therefore, as an example, the Pratt course work requirements for a major in Biomedical Engineering with an emphasis in Healthcare Innovation and Entrepreneurship are outlined below.



## Duke University

REQUIREMENT	MD/MENG FULFILLMENT OF REQUIREMENT
Core Industry Preparation Courses (6 credits)	MENG 540 Management of High Tech Industries (3 credits) MENG 570 Business Fundamentals for Engineers (3 credits)
Life Science (3 credit)	Satisfactory completion of MS 1 Basis Sciences
Advanced mathematics (3 credit)	See MEng website for approved math courses
BME courses (9 credits)	BME 590.01 Biomedical Device Innovation (3 credits) Select from BME offerings and constrained by BME curricular notes listed on MEng BME website (6 credits)
Engineering Elective (3 credits)	BME 490 Special Topics in BME Design (3 credits)
Other technical electives (6 credits)	Completion of MS1 Basic Sciences fulfills this requirement)
Internship, Project or Equivalent (zero credits)	MENG 550 Internship or Applied Research Project MENG 551 Internship/Project Assessment
BME seminar (zero credits)	EGRMGMT 501 Engineering Management Seminar

\*Students perform internship as described in this proposal.

**Application Requirements and Process:** All applications should be submitted using the online application to the Pratt School of Engineering. The current application requirement are

- a bachelor's degree in engineering or science from an accredited institution (transcripts required, including an estimated GPA)
- Statement of Purpose
- Résumé
- Three letters of recommendation
- Graduate Record Exam (GRE) results
- Test of English as a Foreign Language (TOEFL) results (international applicants only)
- A nonrefundable application fee of \$75 US, to be paid via check made out to Duke University or via credit card if using our online application

MD/MEng students should also indicate on their application that they will be pursuing MEng as a concurrent degree. Although the application deadline is June 15, students interested in this program should apply before April 1 of the MS2 year.

**Additional Requirements:** The MS2 applicant must be in good standing with the School of Medicine.

**Graduation:** Since this is a concurrent degree and Medical School courses are being used to fulfill MEng degree requirements, the MEng degree will be granted simultaneous to the granting of the MD degree, typically at the end of the 5th year. If a MD/MEng student leaves the MD program before completing both degrees, a case-by-case analysis may be performed to determine if the MEng degree may be granted independently or if additional coursework is required to independently fulfill the MEng degree requirements. Since no accommodation has been made to the MD requirements, students withdrawing from the MEng degree will not impact MD degree requirements.

## MD/MSc in Global Health

**Name of Degree:** Master of Science in Global Health (two years)

**Options/tracks within the degree program:** Elective options in Disease Causation and Prevention, global Environmental Health, Global Health Policy and Management, and Population Sciences

**Course of study:** 2-3 semesters of coursework, a field experience to apply learned research methods, and a research-based thesis are required

**Location:** Duke Global Health Institute (DGHI) and a variety of international sites/institutions

**Length of Program:** Typically 4 semesters

**Total time to graduation:** Typically five years, could be accomplished in 4.5 years

**Tuition Arrangements:** Full tuition for both programs and is paid independently to the two schools.

**Financial Aid:** Eligible and can apply for financial aid at each program for each year enrolled in that program

**Director:** Megan Huchko, MD, MPH

**For more information:** Contact Lysa MacKeen or visit [globalhealth.duke.edu/education/mscgh-prospective-students](http://globalhealth.duke.edu/education/mscgh-prospective-students)

## Master of Management in Clinical Informatics: MD/MMCi (Duke or UNC)

**Director:** Schroeder, Rebecca, MD, MMCi

Innovation in health care is being shaped by a digital transformation that is already underway. This effort was catalyzed by the Federal government's investment in electronic health records, and is now expanded beyond health records to analytics, data visualization, connectivity, and patient engagement. While the infrastructure is in place, the Duke MMCi program is designed to develop a cadre of leaders who understand the critical organizational skills needed to understand, assess and implement technology solutions that can transform the clinical environment for our patients.

The MMCi program leverages Duke's world-renowned expertise in medicine, business, and health informatics. MMCi is an exceptional opportunity for dual-degree students. The one-year program offers the academic training that is needed to be successful in the innovation space while its unique Friday/Saturday class schedule offers time to complete the third-year practicum requirement concurrently with the program (most students leverage the program for their third-year research efforts but this is not required). Through access to the finest faculty and resources across health care, IT, and management education, students will acquire the knowledge and skills to merge technology with research and patient care and help improve human health.

Classes begin in August each year, meeting for four 12-week terms. During each term, classes meet on campus every other Friday and Saturday (a total of six week-ends per term) for the full day, with a short break between quarters. Students take three courses and an Ethics seminar each term. In addition, there are career seminars and industry networking events offered on Thursday evenings prior to class weekends.

**Student Profile:** MMCi alumni, students, and applicants represent diverse educational, professional and cultural backgrounds. While two-thirds of applicants have science or technology backgrounds, others have education and/or work experience in public health, public policy, business, and economics.

Approximately 40% of MMCi students have clinical experience. Professional experiences also include IT, business development, health administration, clinical trial management, consulting, and other business functions. International students add to the diversity of perspective in the MMCi program. Like domestic students, International students also come from a wide variety of IT, Medicine, and business backgrounds.

A key learning component of the MMCi experience is the study team, which is created to draw upon the diversity of experience and perspective within the class. A typical study team might include an IT professional, a clinician and/or a dual-degree student, an International student, someone with 20+ years of work experience and someone who has just a few years work experience. On a study team, each student brings a different perspective and has something unique to contribute, allowing a study team to see and learn about problems and solutions through other points of view.

Visit [dukemmci.org](http://dukemmci.org) for more information.

An additional opportunity available for our students in Informatics is the UNC Carolina Health Informatics Program (CHIP).

## Master of Science in Information Science (MD/MSIS), Master of Library Master of Science in Information Science

### Master of Science in Information Science

This study program provides students with an opportunity to pursue a dual degree in informatics or information and library science, or a third-year research experience with Duke faculty members involved in informatics research and applications within Duke's clinical and research settings.

### Master of Science in Library Science

MD/MSLS The degree in library science is offered by the University of North Carolina Chapel Hill and is designed to develop knowledge and skills around the development, management, and organization of information.

For more information, go to Program Descriptions.

## Master of Professional Science in Biomedical and Health Informatics (UNC) - CHIP (Carolina Health Informatics Program)

Focus on implementation science MPS are designed to be terminal degrees – i.e. a PhD is not required as in other Medical Informatics programs

## Duke University

**Program:** Carolina Health Informatics Program (CHIP) – coordinates with Library School, Computer Sciences, Nursing, Public Health, School of Medicine, and Kenan Business School

**CHIP coordinator:** Larisa Rodgers

**Director:** Javed Mostafa, PhD, Professor School of Information and Library Science, joint appointment Biomedical Research Imaging Center. He is also adjunct faculty in Duke CFM

**Application process:** Follow normal process applying through Graduate School and CHIP. Physicians/medical students can use their MCAT scores instead of GREs

**Length:** 12 to 18 months with a practicum (12-months can be done by our Duke students if they take a full load), starts at end of August.

**Two tracks:** Clinical and Public Health. CHIP can customize the degree program if several MDs/students are going through it at same time. Clinical track grew out of a certificate program developed in conjunction with Duke (Ed Hammond) for creating a subspecialty for physicians interested in informatics and the new informatics board

**Focus:**

- Data – from acquisition to analysis – health data, statistics, validity, quality, etc.
- Systems – deploy and create systems, systems design, usability, systems analysis
- Human/societal – how health care works and the systems within it

Residential as opposed to commuter: very hands-on, work closely with faculty throughout program.

**Assigned mentors:** Work with students on practicum, as well as faculty advisors. Begin identifying mentor and project in first semester. Mentors can be from UNC, industry or other relevant settings, including Duke – others have been SASS, RTI, Quintiles, and BCBS.

**Requirements/products:** Project paper that could become a thesis. Presentations and posters (online) are required

**Compared to Duke MMCI degree:** MMCI is 50% business school courses and 50% informatics; the UNC MSP degree is more focused on informatics with business related electives and has more focus on healthcare as a system than business skills.

## Master of Science in Population Health Sciences

The Master of Science in Population Health Sciences prepares students to integrate knowledge, theory, and tools from multiple disciplines to find solutions that improve health.

**What is Population Health?** Population health is the science of improving health and health care for all.

Population health addresses the social influences on health with a shared goal of a healthier population by:

- Reducing *disparities*
- *Measuring* true health needs
- Improving the *implementation* of effective health interventions
- Linking communities and health care systems

Population health combines implementation science, health policy, data analysis, measurement science, epidemiology, and public health to find innovative solutions for better health.

**Who should apply?** The MS in Population Health Sciences is for current or recent undergraduates looking to build quantitative expertise plus current professionals – including clinicians – who want to develop their research skills. Prospective students can have a strong interest in social sciences, analytics, or health care, given the multidisciplinary nature of the field.

Successful applicants generally will demonstrate a passion for improving population health, an aptitude for learning high-level analytic research methods, and academic or professional achievements that show leadership skills, ethics, determination, resilience, and creativity. The admissions process considers both past accomplishments and future potential.

Each applicant is considered on the merit of their entire application, and no single factor (e.g., GRE scores) will automatically eliminate a candidate from consideration.

**What kind of careers will the MS in Population Health Sciences prepare you for?** The MS in Population Health Sciences prepares graduates for careers in community settings, health care systems, or industry. Example jobs could be:

- Program management in community nonprofits
- Policy evaluation in government agencies
- Quality improvement in health care systems

## Duke University

- Project development in health industry

Graduates will also be prepared for careers in academic or contract research, with positions in research coordination or project management.

**Curriculum & Typical Schedule.** In their first year, students take classes in population health, statistical methods and programming, research methods, and professional development. The program's second year mixes electives and experiential learning.

**Capstone Project.** The Capstone Project is a key feature of the MS program, and includes an internship and a final paper or thesis. The internship is a supervised experience in either a professional or research setting that's relevant to population health, structured throughout year 2 of the program. All students will complete either a master's paper or a thesis, based on their internship work.

**Mentorship.** All students in the MS program are paired with a faculty mentor from the very beginning of the program. Through regular 1-on-1 meetings, mentors provide support and guidance as students develop education goals and career plans, along with helping them identify research experiences and capstone projects.

**Contact:** Asheley Skinner, PhD, Director of Graduate Studies/Director of MS Program at [asheley.skinner@duke.edu](mailto:asheley.skinner@duke.edu) or (919) 668-6360  
[populationhealth.duke.edu/master-science](http://populationhealth.duke.edu/master-science)

## MD/MBA

**Name of Degree:** Master of Business Administration (two years)

**Options/Tracks within the Degree Program:** Many; health sector management may be most relevant to medical students.

**Course of Study:** Four semesters of coursework, and the summer between the two years is often devoted to practical work in business as well.

**Location/s:** Duke Fuqua School of Business or a Business School at another University - Must be approved by the Third Year Committee prior to beginning any away program. Leave of absence required for first year at non-Duke institutions.

**Length of Program:** Usually two years, with requirements of third-year medical school accomplished in second year of degree

**Total Time to Graduation:** Typically five years

**Tuition Arrangements:** Full tuition for both programs is paid independently to the two schools. Currently there is a blended tuition for Fuqua through an agreement with the Duke School of Medicine but there is no guarantee it will continue in consecutive years. There is no reduction or blended rate if you attend another university for the MBA.

**Financial Aid:** Eligible and can apply for financial aid at each program for each year enrolled in that program

**Note:** Students completing a second degree at another institution are placed on leave of absence from Duke School of Medicine. They pay tuition and expenses and receive financial aid at the other institution. Upon completion of their second degree, students return from leave of absence status and complete all third year scholarly experience requirements. Students completing their third year scholarly experience are charged three terms of tuition and expenses and are eligible to apply for financial aid through the Duke School of Medicine Financial Aid Office.

**For more information:** Contact Kevin Shah, MD, MBA Study Program Director.

## MD/JD

**Options/tracks within the degree program:** Varies across law schools

**Course of study:** Six semesters of coursework

**Location:** Duke University School of Law or at another University - (must be approved by the third year committee)

**Length of Program:** Usually three years, with requirements of third year medical school accomplished in third of degree program

**Total time to graduation:** Typically six years

**Tuition Arrangements:** Full tuition for both programs is paid independently to the two schools

**Financial Aid:** Eligible and can apply for financial aid at each program for each year enrolled in that program

**Note:** Students completing a second degree at another institution are placed on leave of absence from Duke School of Medicine. They pay tuition and expenses and receive financial aid at the other institution. Upon completion of their second degree, students return from leave of absence status and complete all third year scholarly experience requirements. Students completing their third year scholarly experience are charged three terms of tuition and expenses and are eligible to apply for financial aid through the Duke School of Medicine Financial Aid Office

# Duke University

**For more information:** Contact David Edelman, MD

## MD/MPH

**Program Director:** Kathryn M. Andolsek, MD, MPH

The Epidemiology and Public Health Study Program is designed for students pursuing third year opportunities in public health through obtaining a Masters of Public Health degree as part of their Duke third year medical school requirements. Students interested in this track should consult with Dr. Kathryn Andolsek as early as possible, ideally in their first year or very early in their second year.

This study track combines formal coursework in epidemiology, social drivers of health, and population health, allowing students an opportunity to participate in the quantitative research design and/or analysis of a research study. Participants will practice skills related to research design, statistical analyses, assessment, health policy, and comparative effectiveness so that they can be effective contributors to improve health and the system of health care. The focus may be on improved health of the patient or a discrete population but should be transferable to local, state, national and/or global health issues.

It is strongly recommended that students select an appropriate Duke Faculty mentor in consultation with the study track director. If they wish to work with an external mentor, confirm the individual is approved and if not arrange to have them approved as an acceptable mentor by Dr. Andolsek and the third-year committee. For most students who obtain their MPH at the University of North Carolina, having a Duke mentor is strongly encouraged especially if students are enrolled in a one year master's degree.

**Eligibility:** Students enrolled in the School of Medicine, after satisfactory completion of the first two years of the regular curriculum, may seek a Master of Public Health degree at the University of North Carolina Gillings School of Global Public Health (Chapel Hill) or an alternate accredited school of public health. These two pathways differ. Please see below for the two pathways.

### Pathway 1

University of North Carolina Gillings School of Global Public Health: For students seeking a Master of Public Health at the University of North Carolina Gillings School of Global Public Health (Chapel Hill): More information is listed through the departments which sponsor one or more "concentrations."

[sph.unc.edu/resource-pages/sph-departments](http://sph.unc.edu/resource-pages/sph-departments)

Several concentrations at the UNC Gillings School of Global Public Health have been "pre-approved" by the Third-Year committee. Some of these may be able to be completed within a calendar year; HOWEVER, THE THIRD YEAR COMMITTEE STRONGLY RECOMMENDS STUDENTS TAKE THESE DEGREES OVER A TWO-YEAR TIME PERIOD. This two-year time period gives adequate time for Step 1 study, taking full advantage of the MPH curriculum, having a robust research experience, decompressing re-entry into the fourth year of Duke SoM and taking time to explore other interests, travel, have personal time. In general, these curricula include: 12 credits in a core curriculum; 15 credits in a concentration curriculum, and 3 credits in a practicum. The pre-approved concentrations include:

- Master of Public Health with Leadership in Practice Concentration (Public Health Leadership Program)
- Master of Public Health in Applied Epidemiology
- Master of Public Health in Health Policy
- Master of Public Health in Maternal, Child, and Family Health
- Master of Public Health in Nutrition

In addition, there are several other concentrations that could probably easily be "pre-approved" if a student were interested and worked with Dr. Andolsek to bring to the committee (Masters of Public Health in Global Health; Master of Public Health in Population Health; Master of Public Health in Health Equity/Social Justice/Human Rights). Students should consult the UNC Gillings School of Global Public Health website carefully to make certain of the most up to date information, including application deadlines which often differ among concentrations.

UNC also offers Master of Science degrees in several concentrations which require additional credit hours for those interested in a more comprehensive degree. In the past, only a few Duke students have pursued this option.

Students (ideally) should identify a Duke approved mentor and research topics by January-March of the year in which they begin their third year. Most students have been able to use that project for some of UNC's requirements, should they desire. Ideally, Duke IRB approval is obtained at the same time recognizing that IRB approval is usually necessary through both Duke UNC and when relevant, other pertinent institutions. Coursework continuously informs their research project. If their desired Duke mentor is not already approved, students should describe their project and send the project, and the potential mentor's NIH biosketch to Dr. Andolsek to present to the Third Year Committee for approval as soon as possible. Mentor expectations can be found at the Third Year website but usually includes a faculty member at the associate professor rank (or higher), track record of successful mentoring, and research funding (sufficient that they will have protected time to mentor).

## Duke University

The UNC MPH tuition will depend on whether a student is determined to meet UNC's "in-state for tuition purposes" criteria and applies accordingly. Interested students should do what they can to maximize their ability to meet these criteria as soon as they believe that have an interest (as early as their entry to Duke Med). Each student is required to complete their MPH Requirements and fulfill Duke's third year requirements (submitting to Duke a completed thesis, grant, or manuscript consistent with Duke Third Year requirements, and a poster for AOA day).

UNC makes the determination of whether a student is considered "in-state" for tuition purposes. For details, see [sph.unc.edu/mch/mch-student-information](http://sph.unc.edu/mch/mch-student-information). This determination can be made on a semester by semester basis. A student who is turned down, may wish to appeal. If turned down for the first semester can apply for subsequent semester(s).

UNC School of Global Public Health has their own programs of scholarship and other support; students should apply as interested. Some students have served as TAs for courses or done work study activities.

### Pathway 2 Seeking a Master of Public at Other Institutions

Students may also pursue an MPH at other institutions and some Duke students have done so, including some international schools. Student prepare an away packet as any other third year student with an identified mentor and project. The project and the mentor must be approved by the Third Year committee.

UNC is a much more common choice, because 1) it is currently the #1 School of Public Health in the US, and 2) its out of state tuition is still a fraction of the cost of other private institutions 3) the cost of living in Triangle is frequently less 4) it avoids need to leave and return for 4th year.

Contact Dr. Andolsek for details.

## MD/MPP

**Name of degree:** Master of Public Policy (2 years)

**Options/tracks within the degree program:** Varies across schools of Public Policy

**Course of study:** Three-four semesters of coursework; Masters' Thesis is required

**Location:** Duke Sanford School of Public Policy or a Public Policy School at another University (must be approved by the third year committee prior to the start of the program).

**Length of Program:** Two years, with requirements of third year of medical school accomplished in second year of degree program; under carefully considered circumstances and with special permission/effort can be completed in 16 months (see 'Note' below)

**Total time to graduation:** Typically five years, but can be four (see above)

**Tuition arrangements:** Full tuition for both programs is paid independently to the two schools.

**Financial Aid:** Eligible and can apply for financial aid at each program for each year enrolled in that program

**Note:** Students completing a second degree at another institution are placed on leave of absence from Duke School of Medicine. They pay tuition and expenses and receive financial aid at the other institution. Upon completion of their second degree, students return from leave of absence status and complete all third year scholarly experience requirements. Students completing their third year scholarly experience are charged three terms of tuition and expenses and are eligible to apply for financial aid through the Duke School of Medicine Financial Aid Office.

**For more information:** Contact David Edelman, MD, MHS, Study Program Director.

## MD/MTS

**Name of Degree:** Master of Theological Studies (MTS). Must be organized and discussed early in the second year to allow time for applications and approvals.

**Options/Tracks within the Degree Program:** Masters of Theological Studies. If a student elects to complete the one-year certificate, they must be approved to do so during their third year scholarly research year. The certificate option is not considered a dual degree.

**Course of Study: Year one:** enrolled solely at Divinity and taking a full-time graduate course load (typically 8 courses, (may overload). Identify a third year mentor and propose third year project. Year Two: Student is dually enrolled in third year scholarly research program and at the Divinity School; take remaining courses to complete Master of Theological Studies (MTS); Complete mentored third year project leading to medical school thesis. Complete 3rd year required courses on data analysis (fall) and EBM (spring); Take the USMLE exams (timing at the students' discretion). Master's Thesis required at both schools.

## Duke University

**Location:** Duke Divinity School (must be approved by Third Year Committee prior to the start of the program)

**Length of the program:** Two Years. The student enrolls during the first year of the dual degree program at the Divinity School only. During the second year of the MD/MTS program, the student is dually enrolled at Divinity and the School of Medicine. Since this is a Duke dual degree, the student is not placed on leave of absence during the first year. They are not active in the School of Medicine.

**Total time to Graduate:** Typically, five years

**Tuition Arrangements:** Full tuition for both programs is paid independently to the two schools

**Financial Aid:** Eligible and can apply for financial aid at each program for each year. For more information, [thirdyear@dm.duke.edu](mailto:thirdyear@dm.duke.edu) or Warren Kinghorn ([warren.kinghorn@duke.edu](mailto:warren.kinghorn@duke.edu))

The Certificate in Theology and Health Care is not considered a dual degree. For more information, contact [thirdyear@duke.edu](mailto:thirdyear@duke.edu), or Dr. Warren Kinghorn in the Divinity School.

## Doctor of Occupational Therapy

**Division Chief and Program Director:** Barb Hooper, PhD, OTR/L, FAOTA

**Capstone Coordinator:** Cambey Mikush, OTD, OTR/L

**Faculty:** Antoine Bailliard, PhD, MS, OTR/L, Sarah Jean Barton, ThD, MS, OTR/L, BCP, Emily M. D'Agostino, DPH, MS, MEd, MA, Tomeico Faison, OTD, OTR/L, MaryBeth Gallagher PhD, OTR/L, BCMH, Kimberly Hreha, EdD, OTR/L, Michael Iwama, PhD, MSc, BScOT, Denise Nepveux, PhD, OTR/L

**Website:** [medschool.duke.edu/education/health-professions-education-programs/occupational-therapy-doctorate](https://medschool.duke.edu/education/health-professions-education-programs/occupational-therapy-doctorate)

## The Profession of Occupational Therapy

Occupational therapy improves the ability of individuals, communities and populations to access and participate in the activities they want, need, and are expected to do each day. In contemporary occupational therapy, the activities with which people occupy time referred to as occupations. Examples of occupations include obtaining food; preparing, eating and sharing meals; bathing, grooming, obtaining clothing, and getting dressed; taking care of others; preparing for and engaging in work; socializing; participating in education; participating in recreation, leisure, and hobbies; meditating; engaging in religious activities; volunteering; and sleeping.

Through doing occupations, people meet survival needs, use and develop their capacities, engage with others, discover and express their identities, contribute to their families and communities, and shape the world physically, aesthetically, socially, culturally, and politically. In other words, the occupations people do each day contribute to their health, well-being, and development. When everyday activities of living are disrupted or not available, even temporarily, people are separated from a key source of health and flourishing and thus can experience ill or poor health and diminishment of quality of life.

## Vision Statement for the Occupational Therapy Doctorate Division (OTD)

We envision an inclusive world where all people flourish through access to and participation in meaningful, health-supporting occupations, the activities of everyday life.

## Mission Statement of the Occupational Therapy Doctorate Division

Duke OTD affirms the vital role of occupation in human flourishing and health through innovative education, research, and collaborations.

## Program Objectives

To be a learning community whose members (students, graduates, staff, faculty, working partners, and community collaborators)

- authentically integrate who they are as persons with what they do as professionals.
- collaboratively address, through skillful practice and scholarship, the complex transactions that limit and enable peoples' access to and participation in everyday, health-supporting occupations.
- serve as compassionate, ethical, visionary leaders who anticipate the evolving occupational needs of diverse populations, communities, and individuals, who proactively and creatively address those needs through collaboration, innovation, and scholarship.
- contribute in diverse ways to the growth of occupational therapy locally and globally.
- advocate with marginalized populations for inclusive, equitable systems that promote access to occupation.

## Accreditation

## Duke University

The entry-level occupational therapy doctoral degree program has been granted Candidacy Status by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-AOTA and its web address is [acoteonline.org](http://acoteonline.org).

Doctor of Occupational Therapy (OT-D)

### Academic Calendar

<b>FALL 2023</b>
August 14 (M) Classes begin for 1st and 2nd year August 21 (M) Fieldwork for 3rd year December 8 (F) Classes end for 1st, 2nd and 3rd year
<b>SPRING 2024</b>
January 3 (W) Classes begin for 1st, 2nd and 3rd year April 26 (F) Classes end for 3rd year May 3 (F) Classes end for 2nd year May 17 (F) Classes end for 1st year
<b>SUMMER 2024</b>
May 28 (Tu) Classes begin for 1st year June 6 (M) Classes begin for 2nd year July 26 (F) Classes end for 1st year August 23 (F) Classes end for 2nd year

Doctor of Occupational Therapy (OT-D)

### Admissions

#### Application Requirements

Requirements for admission to the OTD Program include

1. A bachelor's degree in any field.
2. Transcripts from all colleges and universities attended.
3. Cumulative average GPA of B or above.
4. Evidence of mastery in eight prerequisite knowledge domains.
5. Three letters of recommendation.
6. Two essays.

#### Application and Admission Procedures

Applicants must file their application with the Occupational Therapy Centralized Application System (OTCAS). The application is available from July-November and must be completed by February 1. OTCAS charges an application fee.

Once completed on OTCAS, the OTD admissions committee evaluates applications. A processing fee is required. Qualified applicants are invited to interview. Admission decisions are made as soon as possible after the interviews conclude. Decisions to admit are based on applicants' match to the OTD vision, mission, and core commitments. The program values diversity in the broadest sense and aims to admit cohorts from all occupations, geographic locations, and disciplinary backgrounds.

#### Technical Standards for Admission

The OTD program follows the Duke University School of Medicine Technical Standards outlined in this bulletin.

Doctor of Occupational Therapy (OT-D)

### Financial Information

#### Tuition and Expenses

Fees set by the Occupational Therapy Doctorate program are specified on the Occupational Therapy Website.



## Duke University

First-year tuition	\$42,000
First-year fees	\$5,993
Second-year tuition	\$42,000
Second-year fees	\$2,988
Third-year tuition	\$42,000
Third-year fees	\$1,368

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

### Financial Aid

It is anticipated that most OTD students will finance their education through a combination of loans, grants, and other sources. All financial aid is administered through the School of Medicine Office of Financial Aid. To be eligible for federal education loans, students must complete and submit the Free Application for Student Federal Aid (FAFSA) to Duke School of Medicine Office of Financial Aid. Additional sources of financial support are listed on the Occupational Therapy Doctorate website.

### Graduate Assistants

Students in good standing who have completed the FAFSA are eligible to apply for Graduate Assistant positions and Graduate Teaching Assistant positions in the OTD.

### Health Insurance

All OTD students are required to carry full major medical health insurance throughout their enrollment in the Occupational Therapy Doctorate program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, evidence of other comparable health insurance coverage must be provided. The Student Health Fee is mandatory for all students.

Doctor of Occupational Therapy (OT-D)

### Program Policies

This program follows all School of Medicine policies in addition to the policies below.

#### Criminal Background Check Policy

##### Prior to Enrollment in the Program

A criminal background check (CBC) is not a component of the application, interview, or the admission decision-making process. However, it is a mandatory component of the post-acceptance matriculation process. All admitted students will undergo a criminal background check (CBC) involving federal, state, and local records that extend back a minimum of five years. Matriculation into the program is contingent upon review and acceptance of the applicant's CBC report. Final decisions about matriculation are based on:

- the nature, circumstances, and frequency of any offense(s)
- the length of time since the offense(s)
- documented successful rehabilitation
- the accuracy of the information provided by the applicant in their application materials; and
- the accuracy of the CBC report
- whether or not the violation disqualifies the applicant from taking the national certification exam to become a registered occupational therapist.

All reports are considered confidential. Information obtained from the CBC will only be used in accordance with state and federal laws, and will be destroyed upon a student's graduation from the OTD Division.

##### For Enrolled Students

Students enrolled in the OTD Division will be required to undergo an annual CBC. The student is aware that the results of the CBC are automatically released to the Duke OTD Program. If required by a fieldwork site, results may be shared with the specific site where the student is assigned. Some fieldwork education sites may require additional or expanded background checks prior to beginning the fieldwork experience. The student, if not borne by the fieldwork site, will incur the cost for additional requested background checks.

## Duke University

Additionally, all students are required to disclose to the Program Director any misdemeanor or felony convictions other than minimal traffic violations, including deferred adjudication, within three business days of occurrence. These instances will be reviewed on a case-by-case basis following guidelines outlined by the Duke School of Medicine Code of Professional Conduct.

### Drug Screen Policy

Students enrolled in the OTD program will undergo an annual drug screen from a program-approved facility. Results from any other facility will not be recognized. The student is aware that, when applying for the drug screen, results are automatically released to the Duke OTD Program. If required by a fieldwork site, results may be shared with the specific site where the student is assigned. Some fieldwork sites may require students to complete additional or expanded drug screens; if screens are not clear, a fieldwork site may decline to take a student or cancel the student's placement.

Failure to undergo a required drug test will result in dismissal from the program. If the drug screen results are positive, diluted or adulterated the student will be allowed one retest. The sample for the retest must be submitted within 48 hours of when Duke is notified of the initial results. If the second test is positive, diluted, or adulterated, the student will be dismissed from the program.

### Computer and Technology

Laptops are provided to students that matriculate into the Doctor of Medicine, Pathologist Assistant, Doctor of Physical Therapy, Doctor of Occupational Therapy, and Master of Biomedical Science programs. Duke required software is installed on each laptop depending Duke Health System and on the program requirements. Students are expected to use the Duke issued laptop during their time at Duke. Devices must be kept regularly up to date with all security updates provided by Apple or Microsoft to keep the Duke Health systems secure.

Students that go on an approved personal or medical leave of absence, that will be on a leave six months or longer, are required to meet with Medical School Education Information Technology (MedEdIT) staff to have their computers erased and returned to factory settings. This will remove Duke installed software from the computer. Students will continue to have access to their Duke email and most web-based applications during this time. Students should contact the MedEdIT staff once they have been approved to return from leave of absence to have their laptops reconfigured and Duke software re-installed.

Students charged the technology fee that withdraw from the program or go on a leave of absence cannot return the equipment for the technology fee to be waived. The only exception would be a student that receives a laptop and then withdraw prior to the first day of classes. Students that withdraw before the first day of classes and return the laptop (and iPad if one was issued) and accessories to the MedEdIT department in good condition within 20 days of the withdrawal, may have the technology fee waived.

### Satisfactory Academic Progress

The OTD Division has a Promotions Committee that is responsible for reviewing academic and professional conduct records at the end of each semester, and more frequently if needed. Satisfactory academic progress consists of the successful completion of all requirements necessary for the advancement of one semester to the next, including demonstration of satisfactory professional conduct outlined in the School of Medicine Code of Conduct and the OTD Student Handbook. Successful completion of requirements is defined as the completion of all year one required courses and fieldwork experiences within one year of matriculation, the completion of all second year courses before starting Level II Fieldwork, the completion of all Level II Fieldwork requirements within two years and before starting the capstone experience, completion of the capstone experience within nine months.

### Program of Study

The curriculum is composed of 106 course credits of academic work that is completed over eight academic semesters requiring thirty-three months of full-time attendance. Coursework includes didactic courses in basic sciences, clinical sciences, patient management, evidence-based practice, health policy and field work.

### Progression and Promotion

**Progression** refers to moving successfully from the beginning of a course and semester to the end of that course and semester, and from one semester to the next until completing the program.

**Successful progression** is defined as the completion of all year one and year two required courses and all year one and year two required APEx experiences before starting Level II Fieldwork, the completion of all Level II Fieldwork requirements before starting the Capstone Experience, and completion of both Level II Fieldwork requirements and the Capstone Experience within two years of ending didactic coursework.

## Duke University

Minimum grade and professionalism standards are determined by the Occupational Therapy Doctorate division faculty in consultation with standards upheld by the School of Medicine. These standards are communicated to you at the beginning of each course.

**Promotion** refers to the process by which the OTD Division Promotion Committee assesses your standing in the program, based on your academic achievement and professionalism, and decides your readiness to move to the next phase of the curriculum.

Academic progress, academic standing, and promotion are determined by The OTD Division Promotion Committee in collaboration with instructors and advisors. The process that guides the committee is outlined below.

### Grading Standards

All didactic, simulation, practice, fieldwork, and capstone courses will use the following grading scale:

Honors ≥ 95	Exemplary performance. Extraordinarily high level of understanding of the course concepts and ability to integrate & apply learning to multiple contexts. Consistently and independently employs thoughtful analysis, critical evaluation, & synthesis. Quality of work is above formal requirements and demonstrates originality as appropriate. Consistently meets professionalism standards.
High Pass 91-94	Exceptionally good performance. Demonstrates a superior understanding of the course concepts, possesses a foundation of extensive knowledge, and a skillful use of concepts, materials, and skills.
Pass 80-90	Good performance. Demonstrates capacity to use the appropriate concepts, a good understanding of the subject matter, and an ability to handle problems and materials encountered in the course.
Low Pass 70-79	Minimally acceptable performance. Demonstrates at least partial familiarity with the course concepts and some capacity to apply knowledge to limited contexts. In addition, demonstrated deficiencies are serious enough to make remediation work advisable.
Fail < 70	Unacceptable performance. Work is clearly below standards and indicates serious challenges in understanding and applying course concepts. Course must be repeated.

### The Progression Review

Your academic achievement and professionalism records are reviewed on a regular basis by the OTD Division Promotion Committee. Records may also be reviewed at any time if there are repeated low grades in a course or repeated instances of professionalism lapses as outlined in the School of Medicine Code of Conduct and in this handbook. The Committee uses the following guidelines for their determination related to your promotion:

#### Grades on Assignments in Didactic Courses (all courses except APEx)

Progression reviews begin at the assignment level by the course instructor. We are committed to supporting your success in the program. If you receive a failing grade on any assignment, the course instructor may meet with you to understand the circumstances of the grade, explain the deficient areas, and in special circumstances, may provide an opportunity to remediate the assignment. If offered, it is your responsibility to follow the remediation plan and review your progress with the instructor. The instructor will decide how to factor the remediated grade with the original assignment grade. If remediation is not an option, the failing grade will be calculated into your course grade. If you receive a failing grade on subsequent assignments, the instructor will notify your advisor and it is expected you will meet with the advisor to seek additional support.

Policies for receiving failing grades during the APEx courses are outlined in the Fieldwork Handbook.

#### Didactic Course Grades

The Progression Review also includes reviewing course grades. A failing grade (F) in any course may suspend progression in the program or may result in dismissal from the program. Regardless, a failing grade is likely to delay your graduation. Upon receiving a failing grade, you may withdraw from the program, appeal the failing grade, or remediate the course when it is next offered if agreed upon by the Promotion Committee and Program Director. Should you successfully remediate a failed course, the new passing grade will be placed next to the failing grade on your transcript. If you fail a remediation attempt, the failing grade will be placed next to the original failing grade and remain on your permanent record. Two final course grades of F will result in dismissal.

Policies for failing an APEx course are outlined in the Fieldwork Handbook.

#### Incomplete Grades

## Duke University

The Progression Review also considers any courses assigned a grade of incomplete. An Incomplete (I) grade is given when, at the time the grades are reported, some portion of coursework is missing due to unforeseen life situations, such as illness or bereavement. The assignment of an Incomplete grade will depend on how much of the course was completed and the extent of the incomplete work and how realistic it will be to finish in the allotted time. Incomplete grades may be given at the instructor's or Program Director's discretion, for the following reasons:

1. You have a documented illness that prevents you from completing the required work in the semester in which the course is offered.
2. There is an illness of your immediate family member(s), which prevents you from completing the required work in the semester in which the course is offered.
3. You require family leave or time to provide emergent care to a family member.

Incomplete (I) grades may impact your progression in the program if subsequent courses depend on content from the incomplete course. Work related to an Incomplete grade should be completed at the earliest opportunity following the end of the course. Coursework must, however, be completed within the year and submitted to the course director. If the course director certifies that the incomplete has been satisfied, a passing grade replaces the incomplete on the permanent and official transcript. If your coursework is not completed within one year, a grade of I automatically is converted to an F. An extension to this one-year time limit can be requested in writing to the Program Director prior to expiration of the incomplete grade. But the conversion of an I to an F may result in dismissal. You may carry into succeeding semesters no more than one (incomplete) course grade unless the Program Director approves additional incomplete grades. You may not carry incomplete grades into Level II fieldwork courses. Under extraordinary circumstances, you may apply in writing to the Program Director prior to expiration of the incomplete grade for an exception to the typical pattern of progress towards degree requirements.

An Incomplete may impact your financial aid distribution if the coursework is not completed within one semester. See the Satisfactory Academic Policy for Financial Aid that you signed upon entering the program.

Policies for Incomplete grades for an APEx course are outlined in the Fieldwork Handbook.

## Code of Professional Conduct

The OTD program follows the School of Medicine Code of Professional Conduct. Reviews of academic standing includes reviews of both scholastic performance and professional conduct.

## Determination of Academic Standing and Promotion Following the Review

The promotions committee takes the data from the above review and makes corresponding decisions about supporting student progression. The following table provides an overview of the decisions and recommendations the OTD Division Promotion Committee can make about your academic standing and progression and the resulting actions from these decisions. Specific definitions of each category follow. These are not necessarily sequential and represent the range of possible actions.

Academic Standing (includes Professionalism Standing)	Promotion-related Determinations
In good academic standing	<ul style="list-style-type: none"> <li>● Promote</li> <li>● May receive written or verbal feedback to support continued success in academics and professionalism.</li> </ul>
Academic Warning Period with initiation of Individual Learning Plan	<ul style="list-style-type: none"> <li>● Issue written notice and approve summary of conditions of individual learning plan and specified timeline for completing learning plan objectives.</li> <li>● May lose extracurricular positions, program employment and other privileges.</li> </ul>
Sufficient Progress with Academic Warning Period	<ul style="list-style-type: none"> <li>● Receive written acknowledgment of progress on individual learning plan</li> <li>● Continue following individual learning plan and timeline created in consultation with advisor until all conditions met and you are restored to good academic standing.</li> </ul>
Academic Probation	<ul style="list-style-type: none"> <li>● Receive written notice of Academic Probation from School of Medicine including a summary of conditions for return to in Good Standing.</li> <li>● May or may not continue progression in academic coursework</li> <li>● May or may not participate in APEx.</li> <li>● May or may not lose on-campus employment.</li> <li>● Academic Probation remains on your transcript.</li> </ul>
Academic Suspension	<ul style="list-style-type: none"> <li>● Progression in the OTD program is halted.</li> <li>● Receive written notice of suspension from School of Medicine including a summary of conditions for the resumption of progression in the program.</li> <li>● Resignation may be advised in certain cases.☒</li> </ul>
Dismissed	Receive written notice of dismissal from School of Medicine.

## Occupational Therapy Doctorate Division Academic Standings

### In Good Standing

You are in Good Standing if upon review of your grades you have earned no failing grade and no more than one LP final course grade in all didactic or APEx courses across the curriculum AND your professionalism is consistently congruent with the expectations of didactic instruction, fieldwork education, and Duke University learning contexts. If the Promotion Committee determines you to be in good standing, they will decide to Promote, which means you continue to the following semester. You may still receive written or verbal feedback noting areas that would optimize your success. You are required to be in good standing in order to serve on any Division, Department, or School of Medicine committees.

### Initiating Academic Warning

You may enter an academic warning period if upon review of your grades your academic success or professionalism is at risk because of any of these issues:

1. You have more than one final grade of LP across the curriculum.
2. A professionalism issue of concern has been documented.
3. You do not pass an APEx course.

The purpose of an Individual Learning Plan is to identify action steps to support your success in academics and professionalism. You will be an active collaborator with your home group advisor in establishing and evaluating the conditions that will support your success in coursework and professionalism.

## Duke University

The OTD Division Promotion Committee may continue to assign you the status of Academic Warning if you are still completing the conditions of the individual learning plan from the previous semester and if your progress toward the conditions of remediation is satisfactory.

### Sufficient Progress with Academic Warning Period

The OTD Division Promotion Committee, in collaboration with your advisor, will review the progress of your status in relation to the Individual Learning Plan. If you are making good progress on the goals and action plan, the Committee will assign you the status of Sufficient Progress with academic warning period. This status assumes you will continue to work toward Good Standing.

### Restored to Good Standing

If you have satisfied the conditions of the Individual Learning Plan, the OTD Division Promotion Committee, in collaboration with your advisor, can recommend that you be restored to good academic standing.

## School of Medicine Academic Standings

The School of Medicine has additional academic standings (outlined below) that may be recommended based on insufficient progress through OTD division standings.

### Academic Probation

You may be placed on academic probation if there is a significant breach of academic or professional standards or if you entered the academic warning period and have not satisfied the conditions of the individual learning plan or demonstrated sufficient progress according to the established timeline. Academic probation is recognized and recorded as a disciplinary status in the School of Medicine and remains on your transcript. The Program Director consults with the Vice Dean for Education, who is responsible for placing on academic probation, on suspension, or dismissing you upon finding unsatisfactory academic, professionalism, or fieldwork remediation. The conditions to return to good standing will be determined on an individual basis.

### Academic Suspension

You may be placed on academic suspension if there is a severe breach of academic or professional standards or if you entered the SOM probationary period and have not satisfied the conditions of academic probation or demonstrated sufficient progress by the established timeline. Academic suspension means you do not progress in the curriculum until the conditions of a probationary period have been satisfied. The Program Director consults with the Vice Dean for Education, who is responsible for placing you on suspension or dismissing you upon finding unsatisfactory remediation of academic, professionalism, or fieldwork concerns.

### Dismissal from the Program

Duke OTD's faculty and staff are strongly committed to helping you succeed; however, some circumstances warrant dismissal. The OTD Division Promotion Committee and Division Program Director, in collaboration with your advisor and the Vice Dean for Education, will use the following standards for recommending that a student be dismissed from the program.

1. Failure to meet the conditions of suspension.
2. Failure of two didactic courses or failure of two attempts at a Level II fieldwork course.
3. Failure of the same course twice.
4. A serious violation of professionalism as outlined in the School of Medicine Code of Professional Conduct or the AOTA Code of Ethics (see Section 2).

You are determined to be dismissed from the OTD program when you receive a decision of dismissal. If you are dismissed from the program, the Vice Dean for Education will notify you in writing.

### Appeals of Academic Status

If you are dismissed from the program, you will be notified in writing by the Vice Dean for Education. You may appeal this decision by indicating in writing to the Vice Dean for Education: (a) reasons why you did not achieve minimum academic standards, and (b) reasons why your academic standing should be changed. Each appeal will be considered on its merit. Individual cases will not be considered as precedent. All appeals must be mailed to the Vice Dean for Education via United States Postal Service Certified Mail and by email, within three weeks of notification of academic status.

Upon receipt of the appeal, the Vice Dean for Education will review the appeal with consultation from the SOM Appeals Committee, your advisor, and the appropriate course directors. Refer to The Academic Sanctions Appeals Process for further information. The Vice Dean for Education will determine if the appeal of dismissal should be granted. If your appeal of your dismissal is approved, the Vice Dean for

## Duke University

Education will document your change in status and communicate in writing the conditions and plans for your reinstatement. If your appeal of your academic status is not approved, the dismissal will be upheld. The Vice Dean for Education will notify you of the decision on the appeal in writing within three weeks of receipt of the appeal.

### Requirements for Sitting for the NBCOT Registration Exam

To sit for the national certification exam administered by the National Board for Certification in Occupational Therapy (NBCOT) ([nbcot.org](http://nbcot.org)), you must:

- Successfully complete the academic and fieldwork portions of the program including 24 weeks of Level II fieldwork.
- Receive clearance to graduate from the Duke School of Medicine and Registrar.
- Apply to take the certification examination through NBCOT. Follow all directions provided on the NBCOT web site ([nbcot.org](http://nbcot.org)) and pay applicable fees. As requested by NBCOT, provide additional documentation (e.g., character references).

Please note that the NBCOT has security policies related to its certification examination that restrict disclosure of confidential examination material content to a third party. NBCOT strictly monitors compliance with these policies.

### Requirements for Graduation

#### Academic Standards for Graduation

Students must meet the following criteria to successfully complete the OTD program, earn the Occupational Therapy Doctorate degree, and participate in all OTD graduation events: register for and complete all required courses during each semester of the curriculum, complete 106 course credits with a passing grade, including all required didactic and fieldwork education courses, demonstrate satisfactory professional conduct, or the remediation of unsatisfactory conduct, throughout the program.

#### Time Limits on Meeting Requirements for Graduation

The standard required length of study to complete the above-listed academic standards is nine continuous academic semesters of full-time work (including two summer terms), completed in 33 calendar months. Under extraordinary conditions, students may be permitted additional time of two semesters of full- or part-time enrollment. A request for additional time must be submitted in writing to the Program Director. Under extraordinary circumstances, students may apply for an exception to the typical pattern of progress toward degree requirements.

#### Requirements to Participate in the OTD Graduation Ceremony

Only students who are on track to have their degree conferred in May will be able to participate in the OTD Graduation Ceremony. OTD leadership will consider exceptions if a student's graduation is delayed due to documented health-related concerns or extenuating personal circumstances.

#### OTD Exit Requirements for Graduation

In order to graduate, students must return all OTD property.

### Voluntary Withdrawal and Leave of Absence Policy

#### Leave of Absence

Students may request a leave of absence (LOA) from the OTD Division for personal, medical or academic reasons for a period not to exceed one calendar year. To initiate the request, students must submit a written request to the Division Program Director. Once a Leave of Absence is finalized, the Program Director will notify the Offices of the Registrar and Financial Aid in the School of Medicine. Students are responsible for contacting appropriate offices to discuss the impact of their LOA on their finances, scholarships, health insurance, etc. Students must have computers reimaged by MedIT.

A LOA extension beyond one calendar year, may have implications for coursework completion and may require readmission to the OTD Program. When a leave of absence is taken, the Program Director may require the student to repeat some or all of the courses completed prior to the leave of absence. Students requesting a medical leave of absence may be required to provide documentation from a healthcare provider that they are medically cleared to return to the OTD program and can meet the program required technical and code of professional conduct standards. In all cases of a leave of absence, the student is required to complete the full OTD curriculum to be eligible to earn the Doctorate degree. In all cases of a leave of absence, students are required to complete the full OTD curriculum to be eligible to earn the Doctorate degree.

## Voluntary Withdrawal Policy

Voluntary withdrawals are initiated at your written request. Working with the Program Director, a mutual decision is reached about the effective date of the withdrawal and associated implications. The Program Director will notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove you from enrollment. The Office of Financial Aid may require reimbursement of financial aid that has been disbursed. You should also contact these offices to ensure that all responsibilities regarding this process have been fulfilled. Your permanent academic record will reflect that you were enrolled for the term and that you withdrew on the specific effective date. You must take your computer to MedIT for reimaging.

## Grades

Assignment of grades, if you have voluntarily withdrawn or taken a leave of absence, is made based on current grading policies. If you leave the program before 70 percent of the completed semester, you will receive a W (withdraw) for all courses you are enrolled in. If you leave after 70 percent of the completed semester, you will receive a WP (withdraw passing) or a WF (withdraw failing) depending on your current performance for all courses in which you are enrolled.

## Withdrawal Refunds

Refunds are credited to a student's account according to the policy according to the following schedule:

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

## Financial Aid During a Leave of Absence

Recipients of financial aid, scholarships, or short-term loans for payment of fees or expenses for the semester that students leave the OTD must be approved by the Financial Aid Office before students will be allowed to complete the exit process. Students will be required to participate in an exit interview.

## Returning to the Division Following an Absence

To conclude a LOA, students must notify the Program Director in writing of their wish to return to the OTD Program or to extend the personal leave at least two weeks prior to the anticipated date of return. If a student withdraws voluntarily from the program and desires to return to the OTD Division, the student will need to apply for readmission.

Doctor of Occupational Therapy (OT-D)

## Program Requirements

The Duke OTD program of study is organized according to enduring ideas of the profession, meaning the ideas that undergird most, if not all, practice areas. The course schedule is configured with an expectation that students spend 2-3 hours in outside work for every one hour in class. Each semester caps off with a two week Applied Practice Experience, consisting of one week of simulation and one week in settings where occupational therapy service is or could be provided.

## Year 1

Students will learn why occupation is considered a mechanism of health and various models that guide expert thinking about occupation. Learning will range from the geopolitical factors that influence occupation all the way down to specific body functions that can influence occupation. Then students will learn ways that occupation can be disrupted by events such as acquired disability, stigma, bullying, life transitions, natural disasters, and poorly designed environments. Throughout the entire program of study, students will learn how expert occupational therapists think about, talk to people about, and observe people doing occupations, how they analyze what they hear and see, and how they collaborate with clients to create goals. Students learn the skills expert occupational therapists use to enable access to and participation in occupation. These skills include coaching, adapting, consulting, educating, and designing. Taken together, the skills students learn in Year One constitute the occupational therapy process.

## Session 1 FALL: 18 weeks



<b>16 credits</b>	
<b>1 orientation, 14 didactics, 2 practice, 1 break</b>	
OTD 500 Occupation as a Mechanism of Health	3
OTD 501 Occupation, OT & Care Systems I (7 weeks)	2
OTD 502 Occupational Science (7 weeks)	2
OTD 504 Enabling Occupation Skills I	3
OTD 506 Formation for Service I	2
OTD 505 Assembling, Creating, Translating Knowledge I	3
OTD 507 Applied Practice Experience (APEX) IA	1

**Session 2 SPRING: 20 weeks**

<b>18 credits</b>	
<b>16 didactic, 1 scholarship, 2 practice, 1 break</b>	
OTD 508 Occupational Transitions I	3
OTD 509 Occupational Transitions II	3
OTD 510 Occupational Transitions III	3
OTD 511 Enabling Occupation Skills II	3
OTD 513 Formation for Service II	2
OTD 512 Assembling, Creating, Translating Knowledge II	3
OTD 514 Applied Practice Experience (APEX) IB	1

**Session 3 SUMMER: 9 weeks**

<b>8 credits</b>	
<b>7 didactic, 2 practice</b>	
OTD 515 Innovation & Everyday Leadership	2
OTD 516 Teaching, Learning and Change	2
OTD 517 Enabling Occupation Skills III	2
OTD 518 Formation for Service III	1
OTD 519 Applied Practice Experience (APEX) IC	1

**Year 2**

In year two, students will learn how expert occupational therapists use the occupational therapy process to impact occupation through interventions targeting groups, organizations, and communities. These skills include creating education programs, conducting program evaluations, designing programs, consulting, and providing direct service. Also, in Year Two, students have the opportunity to customize their program of study through Electives. Electives require the enrollment of a minimum of five students unless special consideration is granted by the Program Director. Students finish year two in the first of two culminating practice experiences.

**Session 4 FALL: 18 weeks**

<b>1 orientation, 14 didactics, 2 practice, 1 break</b>	
<b>17 credits</b>	
OTD 600 Needs Assessment and Programming to Support Occupation	3
OTD 601 Occupation and Technology	3
OTD 602 Occupation, OT, & Care Systems II	3
OTD 603 Enabling Occupation Skills IV	3
OTD 604 Formation for Service IV	2
OTD 606 Capstone Project I	2
OTD 619 Applied Practice Experience (APEX) ID	1

**Session 5 SPRING: 18 weeks**

<b>17 didactic, 1 scholarship</b>	
<b>11 credits</b>	
OTD 607 Advanced Practice Course (APC) I	1
OTD 608 Advanced Practice Course (APC) II	1
OTD 609 Advanced Practice Course (APC) III	1
OTD 612 Comprehensive Assessment & Management of Practice (CAMP)	3
OTD 616 Formation for Service V	2
OTD 617 Capstone Project II	3

**Session 6 SUMMER: 12 weeks**

OTD 618 Fieldwork IIA 12	12
--------------------------	----

**Year 3**

**Year three** includes two culminating practice experiences; a 12-week Level II Fieldwork experience and one 14-week Capstone experience.

24 credits

**Session 7 FALL: 14 weeks**

<b>12 practice, 2 didactic</b>	
OTD 701 Fieldwork IIB	12

**Session 8 SPRING: 14 weeks**

OTD 700 Capstone Experience	12
-----------------------------	----

Doctor of Occupational Therapy (OT-D)

**Courses of Instruction**

CODE	NAME	DESCRIPTION
<b>OT-D500</b>	Occupation as a Mechanism of Health	In this course, students study what it means to understand humans and health from an occupational perspective. Students practice identifying and analyzing what people, do and why. The focus is on how multiple factors transact to influence how people...
<b>OT-D501</b>	Occupation, Occupational Therapy, & Care Systems I	OTD 501 is the first course in a three-part series of courses focused on how societal and practice-based contexts have influenced the practices of occupational therapists over time.

## Duke University

CODE	NAME	DESCRIPTION
OT-D502	Occupational Science	Students explore the science that is dedicated to generating knowledge about occupation, including how occupational science evolved from occupational therapy over the 20th century and its formalization in the late 20th century.
OT-D504	Enabling Occupational Skills I	This is the first course in a of 4-part series of Team-based Learning courses. The series focuses on the skills and processes involved in enabling occupation. In Part I, students learn and develop ten essential skills for enabling occupation paired w...
OT-D505	Assembling, Creating, & Translating Knowledge I	Part one of a two-part research series, this course involves an overview of epidemiology as the foundation of public health and as a set of tools that support occupational research that is community-based, community-engaged, and community-empowering....
OT-D506	Formation for Service I	This course is Part I of a series that occurs across the curriculum. Formation refers to developing the groundwork for professional identity as an occupational therapist. Developing a professional identity means intentionally forming in oneself the w...
OT-D507	Applied Practice Experience (APEX) IA	In this two-week experiential, students apply content from first semester coursework to simulated practice scenarios, followed by application to practice setting.
OT-D508	Occupational Transitions I	This course is one in a four-part, co-occurring series focused on applying the occupational therapy process to situations in which occupations are disrupted. Here, students assess and create interventions for situations where occupation is disrupted...
OT-D509	Occupational Transitions II	This course is one in a four-part, co-occurring series focused on applying the occupational therapy process to situations in which occupations are disrupted by issues in physical, social, cultural, and political environments. Attention is given to th...
OT-D510	Occupational Transitions III	Also part of the four-course series on occupational transitions, students in this course become proficient in administering the OT process with clients whose occupations are disrupted or in transition due to the impacts of health conditions such as m...
OT-D511	Enabling Occupation Skills II	Students use the Kawa Model and other models to integrate their learning occurring in the transition series courses addressing occupational transitions due to human development, environments, and health conditions. Students explore client narratives...
OT-D512	Assembling, Creating, & Translating Knowledge II	In the second course in the two-part research series, students continue to develop and implement research at the intersection of occupation, diversity, and health through a community-engaged research project. Students design and conduct a qualitative...
OT-D513	Formation for Service II	This course is Part II of a series that occurs across the curriculum. Students consider the formation of a professional identity in relation to service with and alongside others – colleagues, clients, and neighbors. Students explore how frameworks fo...
OT-D514	Applied Practice Experience (APEX) IB	In this two-week experiential, students apply content from second semester coursework to simulated practice scenarios, followed by application to practice settings.
OT-D515	Innovation & Everyday Leadership	Students analyze the informal ways people innovate and exert leadership on behalf of individuals, communities, populations, and the profession. Students examine their actions through an innovation and leadership lens to identify the ways in which the...
OT-D516	Teaching, Learning and Change	Students discover learning theory and change theory at the foundation of occupational therapy's longstanding use of education as an intervention. Students create theory- and research-driven education plans that are centered on occupation for patients...
OT-D517	Enabling Occupation Skills III	Students integrate content from each co-occurring course through team-based learning. They demonstrate enabling occupation skills that are related to each co-occurring course and continue to conduct the occupational therapy process with individuals a...
OT-D518	Formation for Service III	This course is Part III of a series that occurs across the curriculum. Students are formed for service by becoming aware of systemic issues that promote health disparities and occupational disruptions and injustices. Students explore issues of power...
OT-D519	Applied Practice Experience (APEX) IC	In this two-week experiential, students apply content from third-semester coursework to simulated practice scenarios, followed by application to practice settings.

# Duke University

CODE	NAME	DESCRIPTION
OT-D600	Needs Assessment and Programming to Support Occupation	Students conduct a comprehensive needs assessment, design a program aimed at improving access to and participation in occupation, and write a grant proposal for the proposed program. Students demonstrate and explain occupational therapy's value and...
OT-D601	Occupation and Technology	Students develop practice skills to assess, select, and advocate for assistive technologies that can improve the alignment between the occupations someone needs to do, the context with which they do them, and their capacities.
OT-D602	Occupation, Occupational Therapy, & Care Systems II	Students develop understanding of the systems that influence occupational therapy practice in diverse settings. These systems include service delivery models, policy, regulatory bodies, reimbursement systems, credentialing requirements, ethics, liability...
OT-D603	Enabling Occupation Skills IV	This is the fourth course in the four-part EOS courses. Students address skills and processes involved in enabling occupation with attention to personal factors related to motor function, motor control, sensation, and cognition.
OT-D604	Formation for Service IV	This course is Part IV of a series that occurs across the curriculum. Students focus on skills related to lifelong professional development, including the scope of professional responsibilities and accountabilities to entities such as Review Boards,...
OT-D606	Capstone I	The Duke OTD Capstone is a two-course series followed by a 14-week, in-person capstone experience (after level II fieldwork placements). Throughout the two capstone courses, students start their capstone project and prepare for their capstone experie...
OT-D607	Advanced Practice Course I	In this 5-week course, students use the occupational therapy process to analyze and adapt occupations to optimize performance and promote health and well-being. The course deepens understanding of activity analysis and the person-environment-occupa...
OT-D608	Advanced Practice Course II	In this 5-week course, students use the occupational therapy process to address UE function and improve participation in occupation through remediation and compensatory approaches. The course reviews assessments and occupational performance analysis...
OT-D609	Advanced Practice Course III	In this 5-week course, students use the occupational therapy process to assess cognition and reduce/increase cognitive load through remediation and compensatory approaches. The course reviews activity analysis and occupational performance analysis, w...
OT-D610	Advanced Practice Course IV	This series of modules allows students to go deeper into an area of interest. They must enroll in 3 of the 4 modules. These will change based on the expertise of the faculty or practitioners offering an APC. Students have the option of substituting a...
OT-D611	Customized Learning Project	This course is a seminar-style discussion to frame customized learning projects (CLP) within an occupational perspective. Students can complete a chosen project in line with their interests anytime across their didactic course work and receive credit...
OT-D612	Comprehensive Assessment and Management of Practice (CAMP) I	In this course, students begin the transition to the responsibilities of a practicing occupational therapist. Through a supervised team approach, students complete the full OT process with community volunteer clients. Students assess volunteers' occu...
OT-D613	Comprehensive Assessment and Management of Practice (CAMP) II	These experiences offer students the opportunity to work with a specific population for 4-5 weeks. Students complete assessments, collaborate with community members as clients to determine their goals and challenges, generate an intervention plan, an...
OT-D614	Comprehensive Assessment and Management of Practice (CAMP) III	These experiences offer students the opportunity to work with a specific population for 4-5 weeks. Students complete assessments, collaborate with community members as clients to determine their goals and challenges, generate an intervention plan, an...
OT-D615	Comprehensive Assessment and Management of Practice (CAMP) IV	These experiences offer students the opportunity to work with a specific population for 4-5 weeks. Students complete assessments, collaborate with community members as clients to determine their goals and challenges, generate an intervention plan, an...

CODE	NAME	DESCRIPTION
OT-D616	Formation for Service V	This course is Part V of a series that occurs across the curriculum. In this final course, students explore tools to support their resiliency as emerging occupational therapists. Students consider stewardship as a framework for serving clients facing...
OT-D617	Capstone II	The Duke OTD Capstone is a two-course series followed by a 14-week, in-person capstone experience. Students synthesize knowledge, skills, and dispositions gained across the curriculum to design a self-selected project implemented after Level II field...
OT-D618	OTD Level II Fieldwork IIA	Students complete a 12-week full-time fieldwork experience.
OT-D619	Applied Practice Experience (APEX) ID	In this two-week experiential, students apply content from fourth-semester coursework to simulated practice scenarios, followed by application to practice settings.
OT-D620	Occupational Justice and Social Entrepreneurship	Students explore the synergies between occupational justice and social entrepreneurship in response to state and local occupational injustices and challenges. They generate strategies and occupation-centered options to mitigate and eliminate social i...
OT-D621	Becoming an OT Social Entrepreneur	Students explore personal and professional prosocial concerns, values, and priorities and examine the relationship between these factors and social entrepreneurship as a career path. Students design a strategic plan for pursuing occupation-centered so...
OT-D622	Introduction to Low Vision Rehab	This course focuses on occupational therapy's role in vision rehabilitation services. Students study the history of low vision rehabilitation, basic anatomy and diseases of the eye that are associated with low vision, evaluation tools, and therapeuti...
OT-D623	Occupational Therapy in Acute Care	Acute and Critical Care occupational therapists enable clients to engage in chosen and meaningful occupations in preparation for the next level of care. In this course, students learn a systems-based approach to addressing occupations impacted by med...
OT-D624	Spirituality and Religion in Occupational Therapy	This course examines spirituality and religion in health care and occupational therapy practice. Students acquire methods of assessing spiritual strengths and needs as well as approaches that consider spirituality as a person's relationship with them...
OT-D700	Capstone Experience	Students complete a 14-week Capstone Experience.
OT-D701	OTD Level II Fieldwork IIB	Students complete a 12-week full-time fieldwork experience.

## Doctor of Physical Therapy

**Division Chief:** W. Todd Cade, PT, PhD, and **Program Director:** Tiffany Hilton, PT, PhD

Tiffany N. Adams, PT, DPT, MBA; Rosalinda C. Canizares, PT, DPT; Laura Case, PT, DPT, PhD; Richard Clendaniel, PT, PhD; Derek Clewley, DPT, PhD; Chad E. Cook, PT, PhD, MBA, FAPTA; J. Kyle Covington, PT, DPT, PhD; Timothy D. Faw, PT, DPT, PhD; Jody Feld, PT, DPT, PhD; Steven Z. George, PT, PhD; Adam Goode, PT, DPT, PhD; Jamie Greco, PT, DPT, EdD; Jeffrey M. Hoder, PT, DPT; Maggie Horn, DPT, MPH, PhD; Gary E. Johnson, PT, DPT, ATC/L; Katie Myers, PT, DPT; Amy Pastva, PT, MA, PhD; Laura Pietrosimone, PT, DPT, PhD; Ashley Poole, PT, DPT; Michael Reiman, PT, DPT, PhD; Kelly Reynolds, PT, DPT; Marcus Roll, PT, DPT; Corey Simon, DPT, PhD

**Website:** [medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program](https://medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program)

## The Profession of Physical Therapy

Doctors of physical therapy apply knowledge of the basic sciences to the prevention and treatment of movement dysfunction resulting from disease or injury. The physical therapist screens, examines, evaluates, diagnoses, prognoses, and provides interventions across the lifespan. Patient interventions are focused on the prevention of dysfunction, the relief of pain, and the improvement of strength, endurance, flexibility, coordination, and joint range-of-motion to maximize functional potential. The variety of settings in which a physical therapist may work includes hospitals, outpatient clinics, schools, skilled nursing facilities, rehabilitation centers, sports facilities, home care agencies, and corporate businesses. With experience, additional education, and board certification, the physical therapist may choose to specialize in orthopedics, pediatrics, neurology, cardiopulmonary, sports physical therapy, clinical electrophysiology, women's health, or geriatrics. Beyond clinical practice, physical therapists may also pursue roles in education, research, and administration.

## Vision, Mission, and Values of the Doctor of Physical Therapy Division

**Vision:** To transform physical therapy through innovative education, research, and practice.

**Mission:** Duke DPT is committed to foster learning through a community that embraces equity and inspires discovery.

We will accomplish these by embracing our core values that drive and inform all things that we as an organization aim to accomplish. These values include:

1. Belonging: Creating an inclusive environment that supports, respects, and values authenticity;
2. Equity: A commitment to supporting diverse needs to ensure success;
3. Education: Fostering growth in the process of learning;
4. Innovation: Bringing bold novel, and forward-thinking ideas to transform education, research, advocacy, service, and leadership;
5. Respect: Building a community of trust, humility, critical consciousness, and collaboration that values unique perspectives to achieve mutual goals; and
6. Collaboration: Pursuing relationships, experiences, and diverse perspectives to strengthen our work towards a common goal.

## Doctor of Physical Therapy Program

The Duke DPT is a graduate professional degree program for entry into the profession of physical therapy. Upon successful completion of the didactic and clinical components of the curriculum, the student is awarded the DPT degree. The three-year full-time program, part of the Duke University School of Medicine, provides a comprehensive foundation in the art and science of physical therapy, and prepares graduates to serve as primary clinical care practitioners in the prevention and rehabilitation of movement related dysfunction in patients with neurologic, musculoskeletal, cardiovascular, urologic and metabolic abnormalities, throughout the continuum of care. The Doctor of Physical Therapy Program at Duke University is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, VA 22305-3085; telephone: (703) 706-3245; email: accreditation@apta.org; website: capteonline.org.

Doctor of Physical Therapy (PT-D)

## Academic Calendar

All calendars are subject to change.

**ACADEMIC YEAR 2023-24**

**Doctor of Physical Therapy**

**Duke University School of Medicine**

### YEAR ONE – Class of 2026

#### **SESSION 1 (Fall 2023) - 18 weeks (16 didactic, 1 clinical, 1 vacation)**

<i>August 8 – 11</i>	<i>Orientation</i>
<i>August 14</i>	<i>Session 1 Begins</i>
<i>September 4</i>	<i>Labor Day Holiday</i>
<i>October 9 – 10</i>	<i>Fall Break</i>
<i>October 21 – October 29</i>	<i>STEPS® I</i>
<i>November 20 - 24</i>	<i>Thanksgiving Break</i>
<i>December 15</i>	<i>Session 1 Ends</i>
	<b><i>2-week Intersession Break</i></b>

#### **SESSION 2 (Spring 2024) - 21 weeks (18 didactic, 2 clinical, 1 vacation)**

<i>January 2</i>	<i>Session 2 Begins</i>
<i>January 15</i>	<i>Dr. Martin Luther King Jr. Holiday</i>

January 25	Dr. Martin Luther King Jr. Holiday
March 9 - 24	STEPS® II
March 25 - 29	Spring Break
May 24	Session 2 Ends
	<b>1-week Intersession Break</b>

**SESSION 3 (Summer 2024) - 9 weeks (8 didactic, 1 clinical)**

June 1	Session 3 Begins
June 1 - 9	STEPS® III
June 19	Juneteenth Holiday
July 4	Independence Day Holiday
August 2	Session 3 Ends
	<b>1-week Intersession Break</b>

**YEAR TWO – Class of 2025**

**SESSION 4 (Fall 2023) - 18 weeks (15 didactic, 2 clinical, 1 vacation)**

August 14	Session 4 Begins
September 4	Labor Day Holiday
September 23 – October 8	STEPS® IV
October 9 – 10	Fall Break
November 20 – 24	Thanksgiving Break
December 15	Session 4 Ends
	<b>2-week Intersession Break</b>

**SESSION 5 (Spring 2024) - 21 weeks (19 didactic, 2 vacation)**

January 2	Session 5 Begins
January 15	Dr. Martin Luther King Jr. Holiday
February 12-16	CSM Break
April 1-5	Spring Break
May 24	Session 5 Ends
May 27	Memorial Day
May 28-June 7	Comprehensive Practical
	<b>3-week Intersession Break</b>

**YEAR THREE – Class of 2024**

**SESSION 6 (Summer-2 2023) - 12 weeks (12 clinical)**

July 3	Session 6 Begins
September 22	Session 6 Ends
	<b>1-week Intersession Break</b>

**SESSION 7 (Fall 2023) - 14 weeks (12 clinical, 2 didactic)**

October 2	Session 7 Begins
January 5	Session 7 Ends

**SESSION 8 (Spring 2024) – 14 weeks (12 clinical, 2 didactic)**

January 8	Session 8 Begins
April 12	Session 8 Ends
	<b>3-week Break</b>
May 8	Graduation Week Activities Begin

View the PDF of this academic calendar at [medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program/dpt-academics-0](https://medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program/dpt-academics-0).

Doctor of Physical Therapy (PT-D)

## Admissions

Requirements for admission to the DPT Program include a baccalaureate degree, completion of prerequisite courses, 100 verified observations hours of a licensed Physical Therapist at the time of application, three recommendation letters (A professor who has taught the applicant in a collegiate academic course and can attest to the applicant's academic abilities. Letters from teaching assistants, lab instructors, academic advisors, and similar positions will NOT fulfill this requirement. A licensed physical therapist the applicant has observed and/or worked with. A person of the applicant's choice. This can be a professor, physical therapist, academic advisor, teaching assistant, lab instructor, mentor, and similar positions. Letters from family members will not be accepted.), Graduate Record Examination (GRE) Aptitude Test scores within the past five years, the filing of an application (including essays and reference letters), and upon invitation, a personal interview, and a \$50 application fee. There is no early-decision option for admission.

For the 2023-2024 application cycle candidates are expected to have some observation hours but not required to have 100. Candidates should report any verified completed hours at the time of application. If observation hours are completed once the application is submitted, candidates should update the PT Observation Hours in PTCAS.

## Prerequisite Coursework

Six semester credits of biological sciences, three semester credits of human anatomy (within five years of application), three semester credits of human physiology (within five years of application), six semester credits of chemistry, six semester credits of physics (including principles of light, heat, electricity, mechanics, and sound), three semester credits of statistics, and six semester credits of psychology. All prerequisite courses must be completed with a grade of C or better.

No prerequisite credit can be given to courses showing a Pass/Fail grade. Advance Placement (AP) credit will be given if the course is listed on the applicant's official transcript. A baccalaureate degree in the natural sciences is not a requirement for admission; however, a background of coursework in the natural sciences is strongly recommended.

## Application Procedures

Information about the Duke DPT application process can be found on the DPT website at [medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program/dpt-admissions](https://medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program/dpt-admissions).

The admissions process involves submitting a completed application through the Physical Therapy Central Application System (PTCAS) and submitting all required documentation to PTCAS. Upon evaluating these materials, the Admissions Committee may offer the applicant an interview. Following the interview, the Admissions Committee may offer the applicant acceptance into the Duke DPT Program.

Applications received after October 17 will be reviewed on a space-available basis. Only students for full-time study are accepted. State residence does not influence the admissions policies or tuition costs.

## Technical Standards for Admission

The study of medical sciences is not a pure intellectual exercise. Candidates for all degree programs within the School of Medicine (SOM) must possess the ability to learn, integrate, analyze, and synthesize data. This document is a general guidance document; individual programs may have more rigorous motor, sensory, or other requirements in their individual technical standards. In general students should have certain minimum physical, emotional, cognitive and social capacities to complete all requirements of their individual school either directly or through reasonable accommodations.

Students must possess all of the abilities described in the five categories below, with or without reasonable accommodations as determined by the Student Disability Access Office ([access.duke.edu/students](https://access.duke.edu/students)). Fulfillment of the technical standards of an individual program with reasonable accommodation does not guarantee a graduate of the program will be able to fulfill the technical standards for employment, residency or certifying board. Candidates with disabilities are encouraged to contact the program and/or the Student Disability Access Office early in the application process to discuss accommodation needs.



## Duke University

**Observation:** Candidate must acquire information as presented through demonstrations and experiences in lectures and laboratories. Candidates must be able to evaluate patients accurately and assess their relevant health, behavioral, and medical information. Candidates must be able to obtain and interpret information through a comprehensive assessment of patients, correctly interpret clinical data, accurately evaluate patients' conditions and responses, as well as develop a diagnostic and treatment plan. Vision, hearing and touch or the functional equivalent is required.

**Communication:** Candidates must exhibit interpersonal skills to enable effective caregiving of patients, including the ability to communicate effectively and sensitively in English, with all members of a multidisciplinary health care team, patients, and those supporting patients, in person and in writing. Candidates must be able to clearly and accurately record information and accurately interpret verbal and nonverbal communications.

**Motor & Sensory Functions:** Candidates must have adequate physical endurance, motor function and sensory ability to be able to provide and/or direct the

- provision of general care and emergency treatment to patients
- performance of routine physical examination and diagnostic maneuvers
- performance of treatment maneuvers, which may include lifting, transferring of patients, and assisting during ambulation while assuring their own safety as well as the safety of the patient
- elicitation of information from patients by palpation, auscultation, percussion, and movement of limbs

Candidates must meet applicable relevant safety standards for the environment and follow universal precaution procedures.

**Intellectual-Conceptual, Integrative, and Quantitative-Abilities:** Candidates must effectively interpret, assimilate, and understand the complex information required to function within the health professional programs of the SOM. Problem solving is a critical skill that requires conceptual integrative, and quantitative thinking abilities. The candidates must also be able to comprehend three-dimensional relationships, the spatial and functional relationships of structures and to analyze and apply this information for problem solving and decision - making. Candidates must be able to effectively participate in educational activities either online or in person in individual and small groups in all learning environments. They must have the ability to organize, prioritize, analyze and evaluate detailed and complex information individually, in small groups, in clinical setting and within a limited time frame both in person and via remote technology. Candidates must be able to learn, participate, collaborate, and contribute as part of a team.

**Behavioral and Social Skills:** Candidates must exercise good judgement and promptly complete all responsibilities attendant to the diagnosis and care of patients. A candidate must have the emotional health to fully use their intellectual ability, exercise good judgement, and to complete all responsibilities attendant to the evaluation and treatment of patients. They must be honest, able to self-assess own mistakes, respond constructively to feedback and assume responsibility for maintaining professional behavior. The skills required include the ability to effectively handle and manage heavy workloads, function-effectively under stress, adapt to changing environments, display flexibility, and learn to function in the face of the uncertainties inherent in the practice of their profession.

A candidate must be able to develop mature, sensitive, and effective relationships with faculty, patients, families, caregivers and colleagues. A candidate must be able to tolerate physical and emotional stress, maintain alertness and wakefulness, and continue to function effectively. They must have a high level of compassion for others, motivation to serve and integrity. They must behave in an ethical and moral manner consistent with professional values and standards. A candidate must possess sufficient interpersonal skills to interact positively and sensitively with all people.

Candidates must be able to satisfy the above requirements with or without reasonable accommodations. For questions about reasonable accommodations, see the Duke Accessibility website.

Doctor of Physical Therapy (PT-D)

## Financial Information

### Tuition and Expenses

The DPT Program practices a "need-blind admissions process."

### 2023-2024 Estimated Cost of Education

## Duke University

First-year tuition	\$41,000
First-year fees	\$7,243
Second-year tuition	\$41,000
Second-year fees	\$2,664
Third-year tuition	\$41,000
Third-year fees	\$1,530

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

## Financial Aid

Qualified applicants may be eligible for federal educational loan programs or institution-based loans. A small amount of need-based scholarship awards is available for selected matriculated students. Financial aid information is available for all interested applicants by contacting the Office of Financial Aid, Box 3067, Duke University Medical Center, Durham, NC, 27710; (919) 684-6649; [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu) or at the Duke University SOM Office of Financial Aid website at [medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student](http://medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student).

## Health Insurance

All students are required to carry full major medical health insurance throughout their enrollment in the program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, evidence of other comparable health insurance coverage must be provided. The Student Health Fee is mandatory for all students.

Doctor of Physical Therapy (PT-D)

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

## Academic Performance

### Non-APC Didactic and STEPs® Course Grades

For all 1st phase didactic and STEPs® courses in the curriculum, the following grading system is used:

P	Pass
LP	Low Pass
F	Fail
I	Incomplete

### APC and Terminal Clinical Experience Course Grades

For all 2nd phase APC/CAMP and 3rd year TCE courses in the curriculum, the following grading system is used:

P	Pass
F	Fail
I	Incomplete

### Pass-Low Pass-Fail Grades

The rounded raw score range for establishing passing or failing grades will range from 0 to 100 with a score of 70 to 79 as a Low Pass and 80 and above established as a Pass grade. A raw score of less than 70 will result in a Fail grade. The raw scores earned for all courses are recorded and maintained by the DPT program and are for internal use (for program evaluation, monitoring student progress and consideration of awards) and individual student-use only. Students must demonstrate satisfactory performance of course content and pass the appropriate courses in order to progress in the curriculum. For clinical education courses, the Director of Clinical Education, who serves as course director, will assign a grade based upon documented student performance.

A failing grade (F) is recorded on the permanent record of the student by the Registrar. Failures will not be erased from the student's permanent record. A student may appeal a failing grade and withdrawal from the program (see section E below). Should a student successfully pass a previously failed course, the passing grade will be placed next to the failing grade on the student's transcript. If the student fails a second time, the failing grade will be placed next to the original failing grade.

## Incomplete Grades

An incomplete grade is given when, at the time the grades are reported, some portion of the student's work in a course is lacking for an acceptable reason, such as illness, bereavement, or impairment. Incomplete grades may be given at the instructor's or Program Director's discretion, for the following reasons:

1. Documented student illness that prevents the student from completing the required work in the semester in which the course is offered.
2. Illness of the student's immediate family member(s), which prevents the student from completing the required work in the semester in which the course is offered.
3. A student who selects alternative or additional unplanned learning experiences that will impede his or her ability to complete coursework in the semester in which the course is offered. Examples of such opportunities include: acceptance of a scholarship opportunity or participation in competitive sporting events.
4. A student who requires maternity or paternity leave or time to provide elder care.

A grade of incomplete may not be given to a student for the primary purpose of providing additional time so the student may elevate a course grade. Instructors who elect to give a student an incomplete grade for an acceptable reason are committing themselves to perform the additional instruction/evaluation required for the student to complete the course within one calendar year. Incomplete grades remain on the transcript with the earned grade added later.

The course director will determine the manner in which the incomplete grade will be converted to an earned grade. The course director specifies the date by which the student must have made up the incomplete, but in no case will this exceed more than one calendar year from the date the course ended or prior to matriculation into a TCE.

Incomplete grades that are not satisfied within one calendar year automatically become failing grades. If an extension to this time limit is required, an appeal in writing must be made to the Division Chief just prior to expiration of the calendar year in which the incomplete grade must be completed. When the course director certifies that an incomplete has been satisfied, a passing grade is placed alongside the incomplete on the permanent and official transcript.

## Grade Appeal Process

A student wishing to appeal a final course grade or comment must present a written appeal to the course director within five business days of the grade being posted. If not previously available to the student, the student may request access to graded material that have been compiled as part of the grade. Identity of the evaluators submitting these data may be kept confidential. If a satisfactory resolution cannot be accomplished directly with the course director, the student may appeal the grade to the DPT Promotions Committee within two weeks of the meeting with the course director. The student will submit the written appeal and associated documentation to the Chair of the Promotions Committee. The Promotions Committee will review the data related to the student's performance in the course and the grading criteria for the course and will make a recommendation to the Program Director within one month of receiving the notification of the appeal. The Program Director will either uphold the decision of the Promotions Committee or make their independent decision relative to the documentation submitted.

## Professional Performance

Education in professional behavior is an explicit component of the professional DPT curriculum. Students must show mastery of professional behavior in all didactic and clinical education learning environments, and at all times as enrolled students in the program. Students must also commit to complying with all regulations regarding conduct established by Duke University, the School of Medicine, and the DPT program.

The Duke DPT program utilizes abilities-based assessment throughout the curriculum to ensure the acquisition of entry-level skills and promote the development of professional behaviors. Basic knowledge provides the framework for physical therapy education; however, to cultivate successful practitioners the didactic delivery must bear responsibility for instilling characteristics that promote personal responsibility and the development of professional behaviors. Ability-based assessment is a dynamic process that focuses on behavior to complement knowledge-acquisition and skill building.

See Code of Ethics for the Physical Therapist and Professional Behaviors for the 21st Century.

Students are expected to demonstrate appropriate professional behaviors in all interactions with faculty, staff, TAs, peers, volunteers, and patients. DPT Program faculty and staff may submit professional behavior concerns (and accolades) through the Duke DPT Professional Behavior Reporting system. Additionally, professionalism concerns can be submitted by faculty, staff, and students through the School of Medicine Adverse Event Reporting Systems (AERS).

## Duke University

The Promotions Committee is responsible for monitoring and reviewing any reports submitted through the DPT Professional Behavior Reporting System. Reports submitted to AERS are reviewed first by the SOM Committee for Appropriate Treatment of Learners and then may be submitted to the DPT Promotions Committee for review. The Promotions Committee will review reports and determine appropriate next steps based on the nature of the report as compared to expected behaviors outlined in the School of Medicine Code of Conduct, PT Code of Ethics, and Professional Behaviors for the 21st Century. The Promotions Committee can recommend coaching and guidance by appropriate faculty, verbal warning, or written warnings with or without associated academic probation. When a verbal or written warning is recommended, the Promotions Committee is responsible for making the recommendation to the Division Chief.

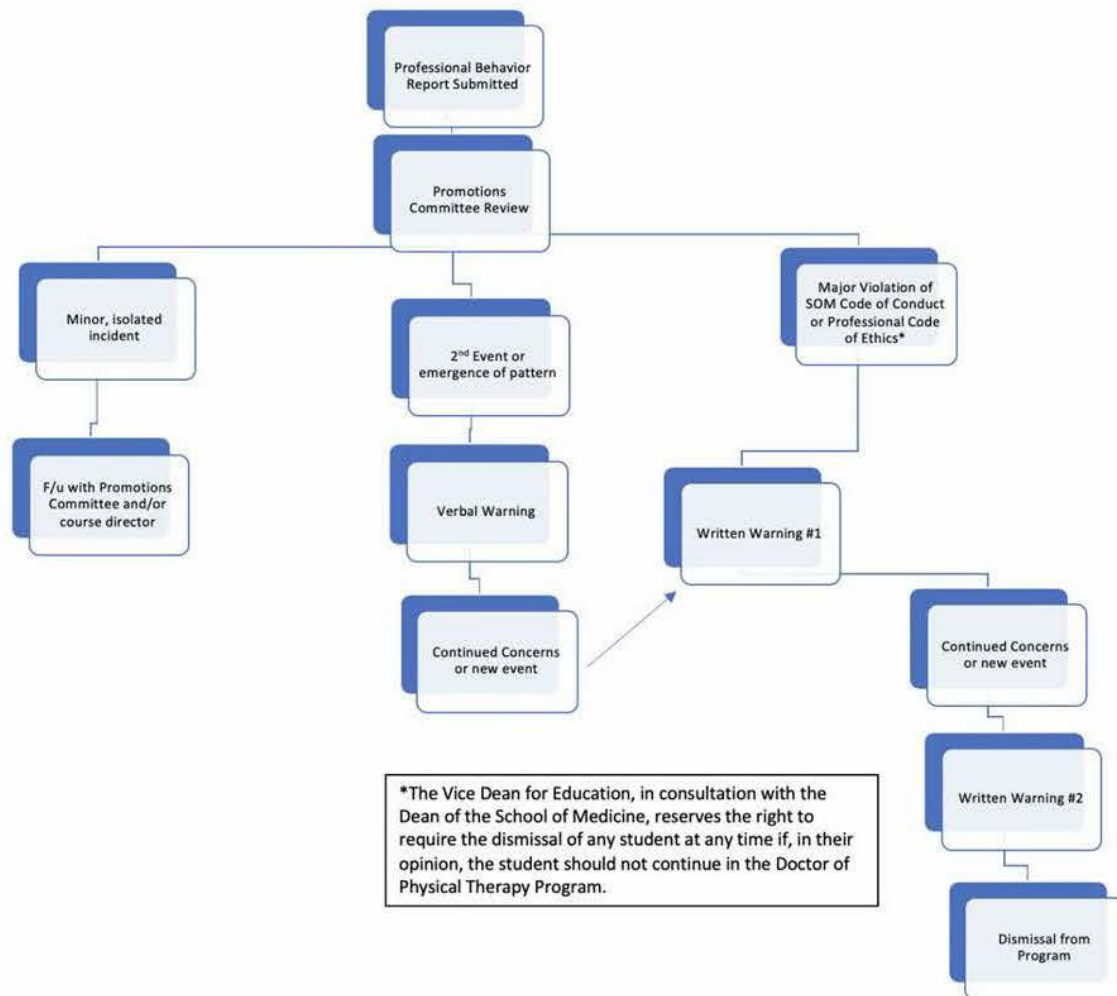
The flowsheet provides a visual representation of responses to submitted reports. If the reported behavior is minor or a first-time event, the student will meet with a member of the Promotions Committee or their academic advisor for appropriate coaching and guidance; or, if the report involves behavior within a course, the student will be directed to meet with the course director for coaching with potential follow up with the Promotions Committee as needed.

**Verbal Warnings:** A second minor professional behavior event or the emergence of a pattern of concerning professional behavior typically results in a verbal warning. The verbal warning will indicate the reason for the warning and include the specific Behavioral Criteria and/or Professional Core Values that require improvement.

**Written Warnings:**

- In the event of a major violation of the Code of Conduct or Professional Code of Ethics, a recommendation may be made to bypass the verbal warning and for the student to immediately receive a written warning, even if it was a first-time event.
- Once a student has received a verbal warning, any additional professional behavior reports or reports that the original reported behavior is continuing will result in a review by the Promotions Committee to determine if a formal written warning will be recommended to the Division Chief. If dispensed, the written warning will indicate the reason for the warning and will include the Behavioral Criteria and/or Professional Core Values that require improvement.
- When a student receives the first written warning, the DPT Division Chief will notify the student that their behavioral performance will be monitored and that future poor performance may result in withdrawal from the program. Written warnings may also be accompanied by academic probation. Continued professional behavior concerns can result in a second written warning. The issuing of two written warnings is grounds for suspension from the program.

A student who demonstrates unprofessional behavior will receive specific feedback and instruction from faculty to assist with correction of their behavior. Professional behavior that is not corrected by the student following this policy may result in suspension from the program.



## Determination of Academic Standing

All students' records are reviewed at the midpoint and conclusion of the semester, and more frequently if needed by the Student Promotions Committee. Based on their academic and professional performance, the Student Promotions Committee will recommend one of the following for each student:

### Good Academic Standing

A student is considered to be in Good Academic Standing if they have earned no more than one LP grade in all courses and if there are no academic or professional behavior issues in a student's progression in the program.

### Written Notice of Academic Concern

A student will receive a written notice of academic concern when their academic performance or professional behavior has created considerable cause for concern and requires critical ongoing evaluation for a period of time. The following standards are used by the Student Promotions Committee for recommending a student receive a written notice:

1. A student who has earned two LP grades in any didactic courses.
2. A student who earns a grade of LP in any STEPs® course.
3. A student who is at risk for four LP grades in didactic courses.

## Duke University

4. A student who, during any one session, is at risk for failure of a course or who is at risk for accumulation of four LP grades in didactic courses. (The student will return to Good Academic Standing at the end of the session if the student does not meet any of the above warning criteria).
5. A student has received one written professional behavior warning.

The Student Promotions Committee will make a recommendation for written notice to the Program Director. If accepted, the Program Director will issue the notice of academic concern as a warning to the student. A notice of concern initiates opportunities for the student to seek resources and support to promote future success in the program. The student will meet with their Academic Advisor and the Student Promotions Committee to discuss strategies for success. The student will also be required to engage in an academic intervention which may include meeting with an Educational Support Specialist and accessing tutoring services. The academic concern is not noted on the student's academic transcript.

Academic concerns may affect positions of student leadership or employment within the division such as class officer, SIG leader, or graduate assistant. Division leadership will review any situation to determine student eligibility.

### **Returning to Good Academic Standing following Academic Concern**

Students may return to good academic standing under the following conditions:

- Successful completion (i.e. receives "Pass" in all coursework) of two full semesters.
- A student only receives one LP in STEPs I and II, or STEPs III and IV.
- A student has met all requirements designated by the warning letter if placed on probation due to a professional behavior warning.

While a student may return to Good Academic Standing, accumulated LPs remain on the academic record. Any future LP grades will be added to the previous LPs and will result in another academic concern notification. After a fourth LP, the Promotions Committee may recommend to the Division Chief that the student be placed on Academic Suspension.

If a student receives a notice of academic concern and has not satisfied all the conditions to return to Good Academic Standing specified by the Program Director, the Promotions Committee may recommend to the Program Director that the student be placed on Academic Suspension. A suspension is noted on the student's Academic transcript.

### **Academic Probation**

A student may be placed on Academic Probation at the recommendation of the Student Promotions Committee when academic or professional behavior concerns are egregious and/or if the student has previously been suspended for academic or behavioral concerns. Academic Probation status is noted on the student's academic transcript. A student will be placed on Academic Probation at the recommendation of the Student Promotions Committee for the following reasons:

1. A student who has returned from Academic Suspension. The student will remain on Academic Probation for the first semester upon return to the program.
2. A student who has had an egregious lapse in professional behavior as defined and recommended by the Student Promotions Committee.

### **Returning to Academic Standing following Academic Probation**

Any student placed on Academic Probation will be notified in writing by the Program Director. The written notification will include a timeframe and criteria that the student must meet to return to Good Academic Standing. A student may return to good Academic Standing once they have met the criteria outlined in the written notification. If a student has not satisfied all the conditions to return to Good Academic Standing specified by the Program Director, the Promotions Committee may recommend to the Program Director that the student be placed on Academic Suspension. A suspension is also noted on the student's Academic transcript.

### **Academic Suspension**

The DPT Division will use the following standards for recommending that a student be placed on Academic Suspension.

1. A student who fails any one course in the curriculum;
2. A student who earns two LP grades in STEPs® I and II courses; or two LP grades STEPs® III and IV courses;
3. A student who earns four LP grades in any didactic courses;
4. A student has received two written professional behavior warnings, or demonstrates egregious violation of professional behavior as defined by the Promotions Committee.

## Duke University

A learning plan will be developed for the time period that the student is suspended from the DPT Program. This may include re-taking a course that the student failed or re-taking the courses that the student received a grade of LP.

### Dismissal

The DPT Division will use the following standards for recommending that a student be dismissed from the program.

1. Failure of any combination of two didactic courses/clinical setting-based courses.
2. Failure of the same course twice.
3. A student may be dismissed for a serious violation of professional behavior as outlined in the School of Medicine Code of Professional Conduct or the APTA Standards of Ethical Conduct.

## Academic Progression

### Progression and Academic Standing

All first-phase courses and the first comprehensive exam must be completed before a student may enroll in the second-phase courses, and all second-phase courses and the second comprehensive exam must be satisfactorily completed before a student may enroll in the third-year courses. Advanced Practice Courses require the enrollment of a minimum of five students unless special consideration is granted from the Division Chief. Altered sequences for students who require remediation may be considered for approval by the Division Chief.

Earned grades and professional behavior are considered in determination of the student's academic standing.

### Promotion

All students' records are reviewed as needed and at the conclusion of each semester by the Doctor of Physical Therapy Division Promotions Committee. The Promotions Committee will interpret the policies of the Doctor of Physical Therapy Division related to academic progression and will recommend to the Division Chief:

- Promoting students whose work and professional behavior are satisfactory.
- Developing a comprehensive remediation plan as a result of poor performance on program competencies, comprehensive exams, and/or any other academic or behavioral performance concern.
- Placing on Written Notice of Academic Concern any student whose academic performance or behavior has created considerable cause for concern and requires critical ongoing evaluation for a period of time.
- Warning (verbal or written) any student who has demonstrated professional behavior lapses as reported through the Professional Behavior Reporting system.
- Placing on suspension any student who fails to demonstrate successful progress in academics or professional behavior
- Removing a student on Academic Concern or Academic Probation that has satisfactorily demonstrated scholastic requirements or professional behavior either through repeating coursework or demonstration of corrected professional behavior.
- Suspension or dismissal from the program

The promotions committee will report to the core faculty on a semester basis the students' readiness to progress. The core faculty will affirm progression.

The Vice Dean for Education, in consultation with the Dean of the School of Medicine, reserves the right to require the dismissal of any student at any time if, in their opinion, the student should not continue in the Doctor of Physical Therapy Program.

### Comprehensive Exams

There are two comprehensive exams that all students must pass in order to progress in the curriculum.

The first comprehensive exam is a written exam that is administered at the end of Phase One, the foundations for the practice phase of the curriculum. In order to pass the written comprehensive exam, a student must achieve an adjusted minimum score of 70%. If a student scores below an adjusted score of 70%, the student will be required to re-take the exam in order to demonstrate competency. If the student scores below an adjusted score of 70% a second time, an APC will be required as part of a comprehensive remediation plan developed for the student under the oversight of the Promotions Committee.

The second comprehensive exam is a practical exam that is administered prior to students beginning their Terminal Clinical Experiences. To pass the comprehensive practical exam, a student must achieve a minimum score of 80%. If the student scores below 80%, the student will be required to retake the assessment within two weeks of the exam in order to demonstrate competency. If the student scores below 80% a second time, a comprehensive remediation plan will be developed for the student under the oversight of the Promotions Committee to address areas of deficiency before the start of Terminal Clinical

## Duke University

Experiences (TCEs), as well as during TCEs. In instances where student performance on the practical exam raises concerns for the safety or well-being of patients, the Program Director will require a student to complete a remediation plan prior to the start of Terminal Clinical Experiences. This may delay the start of TCEs.

### Competencies

The Duke DPT program seeks to produce physical therapists that have the foundation to practice in any setting, along with the additional skills to launch an early career in self-selected focus areas. Throughout the curriculum, success will be measured across five domains, selected by the faculty as hallmarks of a Duke Doctor of Physical Therapy:

1. Professionalism in Action - Graduates of the Duke DPT program will be recognized as engaged and committed practitioners who embody high standards of professionalism. They will be influential leaders, advocates, and change-agents for their patients, community, and the profession.
2. Integration of Evidence into Practice - Graduates of the Duke Doctor of Physical Therapy Program integrate the aspects of evidence into practice as a part of clinical decision making. These aspects include: 1) identifying, analyzing, and making appropriate inferences based on best scientific evidence, 2) integrating cumulative clinical skills and experiences, and 3) understanding and respecting patient values and circumstances in making clinical decisions. In addition, our graduates cultivate a spirit of inquiry and contribute to the wider body of evidence.
3. Commitment to Health Equity - Graduates of Duke DPT serve local, regional, national, and global societies comprised of people and communities who represent a complex network of backgrounds and characteristics. Graduates identify the causes and effects of inequity and are committed to providing comprehensive care that recognizes the social, cultural, and political landscapes influencing each client's health status. Graduates of Duke DPT respect and value the richness of diversity inherent in all communities and populations.
4. Management of Function and Quality of Life - Graduates of Duke DPT provide the highest quality care for individuals, with the goal of optimizing function and quality of life across the lifespan. Central to our graduates' philosophy of care is comprehensive and scientifically-guided clinical decision-making that incorporates the individual's biological, psychological, social, cultural, and environmental influences and processes.
5. Patient Management in the Health System - Graduates of our Duke DPT team-based program are flexible, collaborative, and provide focused care that is patient-centered and specific to the healthcare practice setting. As a result, our graduates excel in delivering care in a dynamic and inter-professional healthcare system.

By integrating these domains across all courses in the three phases of the curriculum, our program seeks to ensure that Duke DPTs are prepared to lead the profession. Each domain is further defined by a series of objectives that are measured during the first, second, and third phases of the curriculum. Each objective is assessed by faculty during an assigned course. The student's competency is assessed as: met, met with additional attempt, or not met. If a student fails to meet any competencies assessed in each semester, a comprehensive remediation plan will be developed for the student under the oversight of the Promotions Committee.

## Requirements for Graduation

### Academic Standards for Graduation

The following standard must be met by the student to successfully complete the DPT program, earn the Doctor of Physical Therapy degree, and participate in all DPT graduation events: Completion of 129 course credits with a passing grade, including all required didactic and clinical education courses with satisfactory professional behavior.

### Time Limits on Meeting Requirements for Graduation

The standard required length of study to complete the above-listed academic standards is eight continuous academic semesters of full-time work (including two summer terms), completed in 33 calendar months. Under extraordinary conditions, a student may be permitted a time limit of two semesters of full- or part-time enrollment beyond the standard required length of study to complete the program. The student must apply in writing for such consideration to the Division Chief who will review each case.

The student is expected to make continuous and successful progress towards the requirements for graduation throughout the curriculum. The student must register for all required courses during each semester of the curriculum, and may carry into succeeding semesters no more than one I (incomplete) course grade, except when the succeeding semester is a clinical education course. Under extraordinary circumstances, a student may apply for an exception to the typical pattern of progress towards degree requirements.

### Requirements to Participate in the DPT Hooding and Recognition Ceremony



## Duke University

Only students on track to have their degree conferred in May will be able to participate in the DPT Hooding and Recognition Ceremony. The DPT Division Chief in consultation with the DPT Directors will consider exceptions for students whose graduation is delayed due to documented health-related concerns.

### DPT Exit Requirements for Graduation

In order to graduate, all DPT property distributed to the student must be returned to the DPT Division.

### Early Testing for the National PT Exam (NPTE)

Presently, the State of North Carolina permits early testing of the NPTE if the physical therapy educational program certifies that graduation is assured. This information is subject to change based on jurisdiction. The Duke Doctor of Physical Therapy Division criteria for student eligibility to take the NPTE before graduation (i.e. early) are as follows:

- Has completed the Scorebuilders course by January 15th of the graduation year. Completion of the Scorebuilders course prior to taking the NPTE is a requirement of the Duke DPT program. Students who do not complete the course offered at Duke will need to take the course online or at an alternate location at their expense and provide documentation to the DPT program.
- Is in Good Academic Standing per academic progression policies.
- Is assured to successfully complete all Terminal Clinical Experiences on time. Evidence that student meets this requirement will be determined by the Director of Clinical Education. The student will not be eligible if:
  - There is evidence of significant performance challenges as per midterm assessment.
  - A learning contract or individualized learning plan is created due to performance and/or behavior challenges in the TCE experience.
- Has submitted proof of a score of 600 or above on FSBPT's Practice Exam and Assessment Tool (PEAT). Proof must be submitted in a manner and by a deadline determined by the program.

## Voluntary Withdrawal / Leave of Absence

### Submission

Voluntary withdrawals are initiated at the request of the student via written request to the Division Chief of the division. Working with the Division Chief, a mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. Per letter, the Division Chief will notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The Office of Financial Aid may revoke any financial aid that has been disbursed. The student should also contact these offices to ensure that they have fulfilled any responsibilities with regard to this process. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew on the specific effective date.

### Grades

Assignment of grades for students who have voluntarily withdrawn or taken a leave of absence is made on the basis of current grading policies. Students leaving the program prior to 70 percent of the completed semester will receive a W (withdraw) for all courses in which they are enrolled. Students leaving after 70 percent of the completed semester will receive a WP (withdraw passing) or a WF (withdraw failing) depending on current performance for all courses in which they are enrolled.

### Refunds

Refunds are credited to a student's account according to the policy according to the following schedule:

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin. Student laptops are the property of the student only after the last technology fee has been paid at the end of the first year. Students who go on leave prior to that must return their laptop to the division. Students who take their computer must make an appointment with MedEdIT to have it re-imaged before leaving.

### Financial Aid

## Duke University

Recipients of financial aid, scholarships, or short-term loans for payment of fees or expenses for the semester that the student leaves DPT must be approved by the Financial Aid Office before they will be allowed to complete the exit process. Such students will be required to participate in an exit interview.

### Returning to the Division

With the exception of students who have taken a leave of absence, any students who have voluntarily withdrawn from the program and desire to return to the DPT Division will need to apply for readmission.

### Academic Accommodations Policy

The Duke DPT program recognizes the individual needs of students in our program with disabilities and is committed to ensuring all students are afforded the accommodations granted through the Duke University Student Disability Access Office per ADA guidelines. The DPT program appoints a faculty member who serves as the DPT program's Disability Service Liaison (DSL) to communicate and liaise with the university's SDAO. The current DSL is the Duke DPT Director of Student Affairs. The DSL works with students in the DPT program and the SDAO to ensure the following procedures are followed whenever a student requests accommodations for the classroom or clinic.

1. DSL is notified of an inquiry about accommodations from either student or another faculty/staff member.
  1. A meeting is set up with the student by the Student Affairs team to review the accommodation request process.
  2. The student submits an accommodation request through the portal. The Student Disability Access Office reviews the student's documentation and records and determines which requested accommodations are supported for purposes of the ADA and ADA Amendments Act.
  3. Duke's SDAO Accessibility Coordinator for Graduate and Professional Students will reach out to the students for an individual meeting and discuss if additional documentation and paperwork are warranted.
  4. The SDAO Director or Coordinator, Program DSL, and/or Academic Dean, determines if the accommodations are reasonable in the context of the student's academic program.
2. The SDAO staff meets with the student to discuss the accommodations approved in the context of the student's academic program. **NOTE:** When accommodations are approved in areas such as transportation, those offices are notified.
3. The SDAO provides the DPT program with a formal letter of accommodation. Once the letter is received, the DSL sends out an email to course directors with the approved accommodations.
4. After the DSL notifies course directors, the Student Affairs team schedules a follow-up meeting with the student to discuss their accommodations.
  1. During the meeting with the DSL, arrangements are made for the implementation of approved accommodations for the current semester. Procedures for the implementation of accommodations in future semesters is discussed.
  2. **NOTE:** Should a student wish to discuss receiving an accommodation not listed on the Accommodations Agreement, the student should make an appointment to meet with the SDAO coordinator to discuss the student request. Additional documentation may be needed.
  3. Students are expected to notify course directors or the DSL if they are not intending to utilize an approved accommodation.
5. If a student disagrees with accommodation decisions made by the Student Disability Access Office, they have the right to file a grievance/complaint. Information regarding the filing of a grievance and/or complaint is available by contacting the Office of Institutional Equity at (919) 668-6214.

### Standards of Academic Conduct and Examinations

Students will maintain the highest standards of academic integrity and conduct in accordance with the Duke University School of Medicine Code of Professional Conduct.

1. An honor system is employed during the administration of all written and academic integrity practical examinations and for specified assignments that are completed in other locations. By signing their name to their work, students are indicating that they have neither been given nor have received assistance during the examination or assessment and that their work represents the student's effort. Misrepresenting work as their own, including the use of artificial intelligence technologies, would represent a violation of the Code of Professional unless explicitly permitted by the course director. All examinations administered by the department are confidential communications between the student and the instructor.

## Duke University

2. Unless expressly permitted by a course instructor, students may not utilize previous forms of written examinations to assist in their preparation. Written examinations that are returned to the student are provided for the specific purpose of enhancing that individual's learning and are not to be shared with any other students.
3. Students should report any witnessed violations of the Code of Professional conduct or concerns of learner mistreatment through the School of Medicine Adverse Events Reporting System (AERS). All reports submitted through AERS are reviewed by the School of Medicine's Committee for Appropriate Treatment of Learners.

## Attendance Policy

Students are expected to model professional behavior by attending, being on time, and being prepared for classes, labs, tutorials, meetings, and clinical experiences. Students should view their courses in a manner similar to the way they would view a professional career. In the workplace, on-time attendance is mandatory, and absences or lateness require reasonable notification and approval. Likewise, student attendance throughout the Duke DPT curriculum is an expectation.

The Duke DPT program is a team-based learning curriculum. Absence of team members from class discussions and activities negatively impacts the peer-learning model. Students receive semester schedules prior to the beginning of each semester, and students should refrain from making other commitments during scheduled class hours.

Attendance is expected for all program classes and labs. Attendance is considered mandatory for the following program activities:

1. **All class sessions where assessments are given.** Assessment: Any activity (formative or summative) within a course for purposes of evaluating participation, performance, knowledge, and/or skills. This includes quizzes, written examinations (i.e., midterm, final), practical examinations, Readiness Assessments, graded simulations, and Team Applications, and participation-based activities.
2. **Designated program events, including by not limited to**
  - Comprehensive Written Exam
  - Comprehensive Practical Exam
  - Scorebuilders
  - White Coat Ceremony
  - Branch Lecture
  - IPE Activities
3. **Clinical education experiences** (e.g. STEPs, TCEs)
  - All clinical education experiences are mandatory
  - Students should expect to be assigned to schedules that require being in the clinic on any day of the week, including weekends and holidays.
  - Refer to the Clinical Education Manual for further details on clinical education time-in clinic policies.

Medical/dental appointments should be scheduled, when possible, at times when classes, clinical experiences, or scheduled activities are not in session. It is the responsibility of the student to review the semester schedule and to avoid conflicts where possible. Students are expected to make every effort to modify their schedule conflicts to avoid absence from class. Schedules for sessions are subject to reasonable change and students are expected to keep themselves informed of changes and to adjust their attendance accordingly.

The DPT Program faculty acknowledge there are a variety of legitimate reasons students may need to be absent or miss mandatory activities.

**Excused absences from mandatory activities may be granted under the following six reasons:**

1. Religious or holiday observances
2. Illness of the student, student's dependent, or someone for whom the student is a caregiver (medical provider documentation is required)
3. Court and legal appointments
4. Bereavement, including travel related to bereavement
5. Personal or family crises
6. Healthcare appointments (medical provider documentation is required)

## Procedures

**For an excused absence from a mandatory activity,** a student should use the following process to submit a request:

1. A student will submit request for approval of a planned absence via the Student Absence Request Form on the Student Portal.
2. Planned absence requests should be submitted no later than the first week of the semester in which the absence will occur.

## Duke University

3. In absences related to illness or crisis on the day of a mandatory activity, a student should use the link on the Student Portal to communicate the absence prior to the start of the class/activity.
  - Each student is personally responsible for contacting the Course Director(s) as a follow up to the absence as expediently as possible.
  - The DPT Division encourages students to seek any necessary medical attention. Any student who becomes ill with a fever (e.g. influenza) should only return to the class/clinic after they have been fever-free for 24 hours.
4. The student is notified in writing of the outcome of the absence request. If approved, the student is responsible to make up the work from all missed classes and activities.
  - Students are expected to communicate with classmates to obtain course information.
  - Students should contact Course Directors to discuss make-up work and missed assignments, if applicable. The onus is on the student to make up missed material and the student should contact the course director to establish a plan prior to the excused absence.
  - Students who are dissatisfied with the outcome of an Excused Absence Request may submit a written appeal to the Duke DPT leadership group. Appeals must be submitted within 1 week of student receiving the outcome of initial request. The DPT Directors will submit a recommendation to the Program Director (or in their absence, the Division Chief). The Program Director will make the final determination of the outcome and communicate with the student.

The following policies will prevail when an absence is deemed unexcused:

1. Course Directors are not responsible for providing additional make-up opportunities, supplying materials, or offering alternative methods for meeting session objectives.
2. Unexcused absences in clinical education courses may impact course grades.
3. Missed practical exams and unit exams must be completed in concordance with Program requirements for safe practice. The practical exam or unit exam must be completed within 1 week of the missed class. When completed, a student can achieve a maximum of 69% on the missed practical exam or unit exam resulting in a failing grade. Missing any other type of assessment due to an unexcused absence will result in zero credit.
4. The student will receive zero credit for assessments that miss the deadline for a retake and for breaches to the Duke Community Standard and Student Conduct (ie. academic dishonesty, plagiarism).
5. Instances of unexcused absences, whether resulting from a failure to submit a request or denial of a request, may subject a student to academic repercussions, including course failure(s), professional behavior report, placement on academic warning, and/or referral to the Student Promotions Committee.

### Tardiness

1. Punctuality is an expected professional behavior. Students are expected to be in the designated class area and prepared at the start of all class sessions, assessments, required program activities, and clinical experiences, and to return promptly following breaks.
2. Unexpected lateness due to poor planning or organization (i.e., oversleeping) will not be considered valid reasons and students arriving late, irrespective of reason, will not be given additional time to complete classroom activities or assessments.

### Professional Attire

Wearing professional attire is one means of identifying yourself as a professional in physical therapy and as a representative of Duke University's DPT Division. Students are expected to wear professional attire for all activities including clinical education. You may be instructed by academic or clinical faculty to adapt your style of dress for particular occasions.

### Classroom

Required: ID badge that identifies student as a "student" must be worn at all times and readily visible to others.

Appropriate attire: Attire should be appropriate for bending and stooping. Shoes must be worn at all times for basic hygiene and personal safety.

Only religious headwear is permitted during exams.

### Laboratory

The purpose of laboratory attire is to provide a positive learning experience for you and your partner. Some lab experiences require students to practice techniques that require access to a particular body part or region. If a class is labeled a laboratory that involves bringing patient volunteers into the classroom, then regular classroom attire is required. Appropriate: Shorts, t-shirts, tank tops, sports

## Duke University

bras, and other casual attire may be permitted to allow free movement and adequate coverage. If the student comes to laboratory improperly attired, the student will be expected to change into appropriate clothing prior to participating in the laboratory session. If students have concerns regarding attire that is suggested or permitted, they should consult with the course instructor.

### Clinic

Required: ID badge that identifies student as a "student" or "intern" must be worn at all times and readily visible to others. Students with long hair should be prepared to fasten hair up and away from the neck and back. No jewelry other than a watch, small rings, and earrings. A watch with a second hand is helpful.

Appropriate attire: Attire should be appropriate for bending and stooping. Shoes must be worn at all times for basic hygiene and personal safety. Students may be expected to follow the dress code of their assigned clinic.

### Email Policy

Electronic mail (email) is the official medium by which Duke University communicates policies, procedures, and items related to course work or degree requirements to students enrolled at the university. All students matriculated at the School of Medicine are assigned a Duke University e-mail account upon acceptance of an offer of admission. It is the student's responsibility to check this e-mail account regularly and to respond promptly to requests made by e-mail. No other e-mail account may be used for official communication with the school. Failure to respond promptly to email indicates a lapse in professional behavior and will trigger a professional behavior report.

### Social Media Policy

The Duke Doctor of Physical Therapy Division recognizes that electronic forms of communication and social media have assumed a larger role in education, clinical practice, and research. However, an increasingly widespread use of social media also means that distinctions between private personal matters and public information can become blurred. Students, staff, faculty, and administrators with affiliations to the Division and Duke brands should ensure their social profiles are privatized and accessible only to trusted "friends." It should also be recognized that it is illegal to post some protected information or activities. In these cases, violations can be subject to civil and criminal penalties, which may include fines and/or imprisonment. In addition, violators may face administrative actions by the Division, School of Medicine and/or the Duke Health System, which could range from a letter of reprimand to course failure and/or dismissal from clinical internships or the University.

Duke School of Medicine is a component of the Duke Health brand. Duke Doctor of Physical Therapy is a Division of the Duke School of Medicine. All students within the Duke School of Medicine must follow the Duke Health Social Media Policy.

In addition to the policies detailed within the Duke Health Social Media Policy it is important for students to recognize that clinical education courses occur at clinical sites external to Duke Health. Students must still abide by the Duke Health Social Media Policy even when participating in clinical education experiences and should be aware of the specific policies their assigned clinical site may have in place. Students will be accountable to additional rules and regulations specified by their clinical education sites. Failure to comply with the social media policies of the clinical institution will result in disciplinary action and potential removal from or failure of their clinical education experience. Students may not use electronic media in a manner that interferes with the responsibilities as a student or hinders with the learning atmosphere of other students. This includes the use of non-class websites and applications during class or lab time that are distracting to other students. However, specific courses within the Duke DPT program may have additional or specific social media guidelines assigned by the course director. Individual faculty will determine which, if any, electronic media students may use during a class or lab. Students may not take or post photos, audio or video recordings of lectures, labs or review sessions, or any course materials or exams without the authorization of the instructor. Unauthorized use may provide students with an advantage in academic or clinical assessments in this program, and this is considered a Code of Professional Conduct violation. Students should always obtain permission directly from the course instructor before taking or disseminating information.

## Safety/Compliance Requirements

### Student Professional Liability Insurance

The University provides professional liability insurance for physical therapist students assigned to clinical sites as part of their training. This coverage is in effect as long as the student is participating in the clinical environment as part of a required course.

### Student Health Insurance

Students are required to carry health insurance while participating in clinical education coursework, and at all times as a matriculated student of Duke University. Students may purchase the student health insurance policy made available through the University or show evidence of their coverage under a private policy. Students may be required to show evidence of in-force health insurance while on

## Duke University

clinical education assignments.

### Compliance Modules

All students enrolled in the DPT program are required to complete annual online compliance and safety training modules. These modules are found on the Occupational and Environmental Safety Office (OESO) website at [safety.duke.edu](http://safety.duke.edu). Students will be required to complete some modules through the Learning Management System (LMS). Some modules are only required once every two or three years, which is indicated online. Compliance with these modules is a graduation requirement. Failure to complete the modules by the set due date may result in the placement of a transcript hold and/or a registration block on the student's account. Requirements are subject to change based on OESO compliance requirements.

### Blood and Body Fluid Exposure

Students who have parenteral or mucous membrane exposure to blood or other body fluids at Duke should report immediately to the Duke Employee Occupational Health & Wellness (EOHW) office by using the BBF Exposure 24-hour Hotline at (919) 684-8115. The exposure will be assessed and managed accordingly to standard protocols. Students who have paid the student health fee will not be billed for protocols or services provided by Duke EOHW.

Students exposed at clinical sites outside Duke should notify their clinical instructor immediately and follow the recommended protocol. Any charges incurred for these services will not be covered by Duke Student Health Center and will be the responsibility of the student.

### CPR Certification

Students enrolled in the DPT Division must maintain current certification in Cardiopulmonary Resuscitation (CPR) throughout the didactic and clinical education experiences. A CPR certification course will be held during orientation and a re-certification course will be offered at the end of the second year.

Certification must be at the Health Care Provider's level of basic life support and must include infant and adult CPR, obstructed airway management, and use of an automated external defibrillator (AED). Each student is responsible for providing the Division and their assigned clinical sites with a copy of their current CPR card.

Any student who does not have valid CPR Certification will not be permitted to attend classes or laboratories or participate in clinical experiences until they present a copy of their current CPR card.

## Criminal Background Check Policy

### Admissions

All applicants to the Duke Doctor of Physical Therapy (DPT) program are required to disclose any misdemeanors or felony convictions, other than minimal traffic violations including deferred adjudication. Non-disclosure/falsification may lead to revocation of an offer of acceptance into the DPT program or dismissal from the program.

A criminal background check (CBC) will be initiated at the time an applicant is accepted and matriculates to the DPT program, or at the request of the chair of the Admissions Committee regarding anyone who is wait-listed for admission. The CBC will report on federal, state, and local records that extend back a minimum of five years. Results of the CBC will be valid for one year.

A CBC is not a component of the application, interview, or the admission decision-making process for the DPT Division. However, it is a mandatory component of the post-acceptance matriculation process. There shall be an explicitly stated contingency that the final decision about matriculation into the DPT program will be made after the Admissions Committee review of the accepted applicant's CBC report. Final decisions about the matriculation of an accepted applicant whose CBC reveals information of concern will be made by the Division Executive Committee in consultation with the chair of the Admissions Committee.

Appropriate authorization will be received from each accepted applicant prior to initiating a CBC. This authorization will inform the accepted applicant that they may have access to CBC data about themselves to ensure the accuracy of the report.

No information derived from a CBC will automatically disqualify any accepted applicant from matriculation into the program. A final decision about matriculation will be made only after a careful review of factors including:

- the nature, circumstances, and frequency of any offense(s);
- the length of time since the offense(s);
- documented successful rehabilitation;
- the accuracy of the information provided by the applicant in their application materials; and
- the accuracy of the CBC report.

Information from the CBC that is unrelated to decisions about admissions and continued enrollment will be maintained in a separate,

## Duke University

non-admission file and will not become part of the students' permanent file. All reports are considered confidential. Information obtained from the CBC will only be used in accordance with state and federal laws. The CBC reports will be kept in a locked file for the duration of the student's enrollment. This information will be destroyed upon a student's graduation from the DPT Division.

### Enrolled Students

Following enrollment in the Duke DPT program, students are required to disclose any misdemeanor or felony convictions other than minimal traffic violations, including deferred adjudication, within thirty days of occurrence to the Division Chief. Nondisclosure or falsification may be grounds for dismissal or degree revocation.

Students enrolled in the DPT Division will be required per clinical education policy to undergo an annual CBC. In addition, sites conducting clinical education may require students to undergo additional background checks prior to undertaking their TCE. The cost for such requested background checks, if not borne by the clinical site, will be incurred by the student.

The student is aware that, when applying for the CBC, they automatically release the results to the Duke DPT program and that the results will be shared with affiliating agencies that provide clinical experiences in the program. The Division Chief will evaluate all background checks and will make the determination if the individual student can participate in clinical experiences.

### Drug Screen Policy

Students enrolled in the DPT Division will be required to undergo annual drug screens.

Failure to undergo a required drug test will result in dismissal from the program. If the drug screen comes back diluted or adulterated the student will be allowed one retest. If the student fails the second test, the student will be dismissed from the program.

The student is aware that, when applying for the drug screen, they automatically release the results to the Duke DPT program and that the results will be shared with the appropriate agencies that provide clinical experiences for the program.

### Technical Standards for Admission and Matriculation

All candidates for the Doctor of Physical Therapy (DPT) degree must possess the intellectual ability to learn, integrate, analyze, and synthesize data. They must have functional use of the senses of vision, hearing, equilibrium, and smell. Their exteroceptive (touch, movement, stereognosis, and vibratory) senses must be sufficiently intact to enable them to carry out all activities required for a complete physical therapy education. Candidates must have motor-function capabilities, physical endurance and the emotional health to meet the demands of entry-level physical therapy education and the demands of total patient care, which may include extended hours of instruction and time in clinic, evenings, nights and weekends.

The candidate for the DPT degree must possess the abilities and skills outlined in the Duke School of Medicine Technical Standards document.

The faculty of the Duke University DPT Division recognizes its responsibility to present candidates for the DPT degree with knowledge, skills and behaviors to function in a broad variety of clinical situations and to render a wide spectrum of patient care. The responsibility for monitoring the compliance of applicants with these technical standards is primarily placed with the Admissions Committee to select entering physical therapy students and with DPT faculty who advance those students who will become candidates for the DPT degree.

### Professional Development

The DPT program faculty is committed to developing in our students a strong value for life-long learning and excellence in practice. To facilitate these values in our students, we commit to the following professional development opportunities for all enrolled students.

Each enrolled DPT student who becomes a student member of the American Physical Therapy Association will be reimbursed for 50% of their national membership fee. The student is eligible for this professional development support each year they are enrolled as a student in the program. Reimbursement to the student will be made upon presentation of an original receipt and current membership card. Note: this policy does not apply to APTA Section membership fees, to state membership fees, to membership in any other organization, nor to Active APTA membership fees (those charged when transferring from student to PT member of APTA).

Each enrolled DPT student is eligible for a one-time, non-transferrable reimbursement up to \$200 to attend a national or state meeting of the APTA. This one-time reimbursement could also be utilized toward a course if it is a requirement of the student's assigned Terminal Clinical Experience site. Reimbursement to the student will be made upon presentation of an original receipt for the meeting/course attended.

All documentation/receipts must be submitted no later than 90 days after payment of APTA dues and/or following the attendance of a conference in order to be eligible for reimbursement.

## Complaint Procedures for Students, Family, and the General Public

The Complaint Procedures for Students, Family, and the General Public is intended to enable students, family members of students, and the general public to bring matters of concern about the DPT Division to the attention of the University and enable investigation of those concerns with the goal of satisfactory resolution.

### Definition

A complaint is defined as a written expression of dissatisfaction regarding an aspect of the DPT Division.

### Procedure

The complaint procedure is divided into two parts, Informal and Formal Procedures. The Informal Procedure emphasizes resolution of the complaint at the local, DPT Division, level. The Formal Procedure directs the complaint from the DPT Division onto the Department of Orthopaedic Surgery.

**Informal Procedure.** It is anticipated that most complaints will be resolved at the DPT Division level. Therefore, individuals with a complaint should first present their complaint to the Division Chief. The Division Chief will respond to the complaint in writing within three weeks after receiving the complaint. The Division Chief may choose to include senior faculty as a consultative resource when a complaint has been received. A course of action will be recommended and the complaint resolved.

If the complaint is not resolved to the satisfaction of the individual making the complaint, an appeal can be made to the Division Chief to reconsider the outcome of the complaint, or the complaint can be made Chair of the Department of Orthopaedic Surgery.

**Formal Procedure.** If the response to the complaint is not considered to be satisfactory, then, the individual making the complaint may submit the complaint in writing to the Chair of the Department of Orthopaedic Surgery. The Chair will then respond in writing within three weeks after receiving the complaint. All complaints regarding the Division Chief of the DPT Division should be directed to the Chair of the Department of Orthopaedic Surgery.

Complaints should be directed as appropriate to the following individual:

W. Todd Cade PT, PhD  
Professor  
Division Chief, Doctor of Physical Therapy Division  
Department of Orthopaedic Surgery  
Duke University School of Medicine  
DUMC Box 104002  
Durham, NC 27710

### Records and Confidentiality

A record of all complaints and resolutions will be confidentially maintained in perpetuity by the Division Chief. Complaints and related information will be made available as required by law and to University personnel requiring such information as may be required to fulfill their official duties.

If a complaint is not resolved at the Department level, due process will provide for the complaint to be forwarded to the Vice Dean and, ultimately, to the Dean of the School of Medicine.

### Filing Formal Complaints with CAPTE

CAPTE has a mechanism to consider formal complaints about physical therapy education programs (PT or PTA) that allege a program is not in compliance with one or more of CAPTE's Evaluative Criteria or has violated any of CAPTE's expectations related to academic integrity.

CAPTE will consider two types of complaints: those that involve situations subject to institutional due process policies and procedures and those that involve situations not subject to due process procedures.

### Due Process

If the complainant is involved with an institution/program grievance subject to due process and procedure, CAPTE requires that the process be completed prior to initiating CAPTE's formal complaint process, unless the complaint includes an allegation that the institution/program process has not been handled in a timely manner as defined in the institution/program policy, in which case CAPTE will consider the complaint prior to completion of the grievance process. Evidence of completion of the institutional process or of the untimely handling of such must be included in the complaint materials.



# Duke University

## Outside Due Process

If the complaint is related to situations that fall outside of due process policies and procedures, the complaint may be filed at any time. CAPTE will not consider complaints that fall outside its jurisdiction/authority as expressed in the Evaluative Criteria and the academic integrity statements. When appropriate, complainants will be referred to other organizations to pursue their concern(s).

## Procedure

In order for CAPTE to consider a formal complaint, several conditions must be met:

1. The complaint must be specifically linked to the relevant Evaluative Criteria (PT or PTA) or to the integrity statements.
2. The complainant must have exhausted all remedies available through the institution, if appropriate.
3. The complaint must be submitted in writing, using the format prescribed by CAPTE, and must be signed by the complainant.
4. The event(s) being complained about must have occurred at least in part within three (3) years of the date the complaint is filed.

In reviewing and acting on a complaint, CAPTE cannot and does not function as an arbiter between the complaint and the institution. Should CAPTE find that a complaint has merit and that the program is out of compliance with the Evaluative Criteria or the integrity statement(s), CAPTE can only require the program to come into compliance with the Evaluative Criteria. CAPTE cannot force a program into any specific resolution of the situation that resulted in the complaint.

To obtain the materials necessary for submitting a complaint, contact the APTA Accreditation Department at 703/706-3245 or at [accreditation@apta.org](mailto:accreditation@apta.org).

CAPTE acts on formal complaints twice a year, in April and October/November. The timelines involved in the complaint process are such that complaints received between January 1 and June 30 will be considered at the October/November meeting and complaints received between July 1 and December 31 will be considered at the April meeting.

Complaints that are submitted anonymously are not considered to be formal complaints and will not be reviewed by CAPTE. Depending on the circumstances and severity of the complaint, it may or may not be forwarded to the program for information purposes only. The decision to forward is made by the Director of the Accreditation Department. A record of anonymous complaints will be maintained by the Department of Accreditation.

## Complaints about CAPTE

Anyone may file a signed complaint about the agency with CAPTE. Complaints about the agency's criteria, its procedures or other aspects of the agency's work, including its staff and volunteers, will be considered by CAPTE. To be considered as a formal complaint against CAPTE, however, a complaint must involve issues other than concern about a specific program action.

Complaints must be submitted in writing. The event(s) being complained about must have occurred at least in part within one (1) year of the date the complaint is filed. The complaint must be identified as a complaint and submitted independent of any other documentation submitted to CAPTE. The complaint must 1) set forth and clearly describe the specific nature of the complaint, 2) provide supporting data for the charge, 3) specify the changes sought by the complainant, and 4) identify the person making the complaint.

Complaints are submitted to the Department of Accreditation,

APTA

3030 Potomac Avenue, Suite 100

Alexandria, Virginia, 22305-3085

CAPTE acts on these types of complaints at its next regularly scheduled meeting following receipt of the complaint.

[capteonline.org/Complaints](http://capteonline.org/Complaints)

## Building and Facility Policies

### Building Access

You will have badge access to the DPT buildings. At Erwin Square, this includes access to Wing A and the First Floor Classroom from 7am to 10pm, 7 days a week. In the Duke Health IPE building (311 Trent Drive) your badge will allow access to the student lounge, classrooms and study spaces on floors one and two.

For security purposes, there should be no students at either building after 10 PM. You may not bring non-Duke DPT students into any DPT space without permission.

### Building Use

## Duke University

- Approved DPT student organization published materials may be placed only on bulletin boards in the student lounge.
- Posting of materials is prohibited on the doors, windows, or walls of any DPT facility.
- For student's safety and to ensure the life of our equipment, use of exercise equipment at any DPT facility is not permitted by students. Students are expected to report malfunctioning equipment to staff and to label unsafe equipment to ensure the safety of all students, staff and faculty.

### **Parking**

You have 24/7 access with your ADT badge to the Erwin Square parking garage. The ADT card will also give you access to the Erwin Square entry door to Wing A during off hours – 7 days a week. The Duke H2 and H5 buses run from Erwin Square starting at 6am.

### **MedIT – Computers, Copying, and Printing**

Copying and printing services are available on the first floor of the IPE Building at the Genius Bar. If for any reason you have a problem with a copier or printer located in this area, please do not attempt to “fix” it – report the problem immediately to the Genius Bar support staff.

### **Computer Needs**

Students enrolled in the physical therapy curriculum at Duke University are provided support service of any issued computing devices from the Medical Education IT Department- DPT Division (MedIT - DPT). The MedIT provides administrative, professional and technical expertise to the students of the School of Medicine. We value an open, collaborative, and congenial environment where safety is paramount. Efficient and dependable service to support state-of-the-art medical education is our goal.

Medical Education IT Office DPT – Division

Hours: Monday – Friday; 8:00am – 5:00pm

Office Phone: (919) 660-0227

Email: mededithelpdesk@duke.edu

Location: IPE Building; 1st floor lobby Genius Bar

Doctor of Physical Therapy (PT-D)

## **Program Requirements**

The curriculum is presented in an integrated format, such that successful completion of all courses in each semester is required prior to progressing on to the next semester.

## Duke University Doctor of Physical Therapy Division Curriculum Outline

<b>YEAR ONE</b>	
<b>Session 1: 17 weeks total (1 STEPs®) <span style="float: right;">FALL</span></b>	
PT 601 Clinical STEPs® I	1
PT 631 PT Professional Practice I	1
PT 632 Structure and Function of the Human Body	7
PT 633 Movement Science	4
PT 634 Introduction to the Patient Examination	5
PT 650 Cultural Determs of Hlth & Hlth Disparities I	1
<b>Total Credits</b>	<b>19</b>
<b>Session 2: 21 weeks total (2 STEPs®) <span style="float: right;">SPRING</span></b>	
PT 611 Clinical STEPs® II	2
PT 635 PT Professional Practice II	1.5
PT 651 Cultural Determs of Hlth & Hlth Disparities II	2
<u>Block 1</u>	
PT 636 Healthcare Systems	2
PT 638 Exercise Prescription in the Continuum of Care	2
PT 647 Structure and Function of the Human Brain	3
<u>Block 2</u>	
PT 639 Foundational Cardiopulmonary Practice	4
PT 642 Physical Therapy for the Older Adult	2
PT 643 Evidence Based Practice	2
<u>Block 3</u>	
PT 637 Foundational Integumentary Practice	1
PT 640 Pain Science	2
PT 644 Adaptive Technologies	2
<b>Total Credits</b>	<b>25.5</b>
<b>Session 3: 9 weeks total (1 STEPs®) <span style="float: right;">SUMMER</span></b>	
PT 621 Clinical STEPs® III	1
PT 641 PT Professional Practice III	1
PT 645 Foundational Musculoskeletal Practice I	8
PT 646 Foundational Neurologic Practice I	5
<b>Total Credits</b>	<b>15</b>

<b>YEAR TWO</b>	
<b>Session 4: 17 weeks total (2 STEPs®) <span style="float: right;">FALL</span></b>	
PT 701 Clinical STEPs® IV	2
PT 731 PT Professional Practice IV	2
PT 732 Foundational Pediatrics Practice	4
PT 733 Management of the Complex Patient	2
PT 751 Foundational Musculoskeletal Practice II	4
PT 752 Foundational Neurologic Practice II	3
<b>Total Credits</b>	<b>17</b>
<b>Session 5: 21 weeks total <span style="float: right;">SPRING</span></b>	
PT 734 PT Professional Practice V	2
PT 735 PT Professional Practice VI	2
PT 750 Cultural Determs of Hlth & Hlth Disparities III	0.5
<b>Total Credits</b>	<b>4.5</b>
<b>Session 4 – 5* <span style="float: right;">FALL, SPRING, SUMMER</span></b>	
PT 736 Practice Management (CAMP) I	1.5
PT 737 Practice Management (CAMP) II	1.5
PT 738 - PT 749 Advanced Practice Course (APC)	9
<u>(9 courses selected for 1 credit each)</u>	
<b>Total Credits</b>	<b>12</b>
* Students are required to take 9 APC's in Session 5 and CAMP I & II over Sessions 4-5.	

<b>YEAR THREE</b>	
<b>Session 7: 12 weeks total <span style="float: right;">SUMMER-2</span></b>	
PT 801 Terminal Clinical Experience I	12
<b>Session 8: 14 weeks total <span style="float: right;">FALL</span></b>	
PT 802 Terminal Clinical Experience II	12
<b>Session 9: 14 weeks total <span style="float: right;">SPRING</span></b>	
PT 803 Terminal Clinical Experience III	12

**Total Credits - 129**

View a PDF version of these academic requirements at [medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program/dpt-academics/dpt-4](https://medschool.duke.edu/education/health-professions-education-programs/doctor-physical-therapy-program/dpt-academics/dpt-4).

Doctor of Physical Therapy (PT-D)

### Courses of Instruction

CODE	NAME	DESCRIPTION
PT-D601	Clinical Steps I	Clinical Student Team Experience in Practice (STEPS®) is the first in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clini...
PT-D611	Clinical Steps II	Clinical Student Team Experience in Practice (STEPS®) is the second in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clin...
PT-D621	Clinical Steps III	Clinical Student Team Experience in Practice (STEPS®) is the third in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clini...
PT-D631	Professional Practice I	The Professional Practice series threads throughout the curriculum. In this course, learners focus on the history of our profession and the legal and ethical aspects that align with the roles and responsibilities of being a physical therapist. Learn...
PT-D632	Structure and Function of the Human Body	Structure and Function of the Human Body provides the anatomic and basic science foundation necessary for physical therapists' understanding of the human body. The course emphasis is on the gross anatomy of the body. We will explore the relationshi...
PT-D633	Movement Science	This course is an introduction to the elements and principles fundamental to the study of human movement. Included are: a foundation of kinesiology and biomechanics, biomechanics of biological tissues, joint structure and function, typical and pathol...
PT-D634	Introduction to The Patient Examination	Introduction to the Patient Examination will cover foundational concepts of the physical therapy patient examination. This course exposes students to the initial steps in the patient/client professional relationship. It will focus on the following sk...
PT-D635	Professional Practice II	The Professional Practice series threads throughout the curriculum. In this course, learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through an understanding of the in...
PT-D636	Healthcare Systems	Healthcare Systems will provide the student with an understanding of the components of the health system that the physical therapist must integrate and facilitate. Included in this course will be a focus on interpreting health systems research includ...
PT-D637	Foundational Integumentary Practice	This course will introduce the practice management model for patients with pathology or impairments to their integumentary system. The histology of the skin and pathologies of the integument are the foundation from which the assessment and management...
PT-D638	Exercise Prescription in the Continuum of Care	Exercise prescription is an integral part of the rehabilitation process and physical therapists are qualified to appropriately prescribe and dose exercise interventions for a variety of populations, including individuals with injuries, impairments, c...
PT-D639	Foundational Cardiovascular and Pulmonary Practice	Physical therapists commonly encounter clients with cardiovascular and/or pulmonary systems dysfunction, either as a primary problem or co-morbidity. This course gives an overview of cardiovascular and pulmonary-related pathologies, examination proce...
PT-D640	Pain Science	Persistent pain affects 100 million Americans each year, and accounts for hundreds of billions of dollars in health care costs. Despite its profound impact, persistent pain is poorly understood and poorly managed across medical disciplines. In 2016,...
PT-D641	Professional Practice III	The Professional Practice series threads throughout the curriculum. In this course, learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through interactive case conferenc...
PT-D642	Physical Therapy for the Older Adult	The number of Americans 65 years and older is projected to double within the next 40 years which will result in more older adults seeking medical care. The goal of this course is to provide students with the foundational knowledge and skills for opti...
PT-D643	Evidence Based Practice	In this course, students will be introduced to the science of clinical reasoning in health care and physical therapy. The integration of clinical reasoning and evidence-based practice will be developed. Students will learn how to access knowledge for...

CODE	NAME	DESCRIPTION
PT-D644	Adaptive Technologies	This course covers foundational content related to assistive and adaptive technology used in improving functional capabilities of patients/clients. Learners are introduced to orthoses and orthotic prescription based on clinical exam findings. Clinica...
PT-D645	Foundational Musculoskeletal Practice I	This course introduces the student to musculoskeletal examination, evaluation, diagnosis, prognosis, and intervention for impairments, functional limitations, and disability in clients with pathologies of the cervical, thoracic and lumbar spine, as w...
PT-D646	Foundational Neurologic Practice I	The Foundational Neurologic Practice course series includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply examination procedures to iden...
PT-D647	Structure and Function of the Human Brain	This course completes the two-session exploration of the human body and brain through a variety of learning experiences. This course provides the anatomic and basic science foundation necessary for physical therapists' understanding the human nervous...
PT-D650	Cultural Determinants of Health and Health Disparities in PT I	Cultural Determinants of Health and Health Disparities (CDHD) I is the first in a series of two courses embedded in the first year of the DPT curriculum. Students will be equipped with a deeper understanding of implicit and explicit bias, race, racis...
PT-D651	Cultural Determinants of Health and Health Disparities in PT II	Cultural Determinants of Health and Health Disparities (CDHD) II is the second in a series of two courses embedded in the first year of the DPT curriculum. Students will be equipped with a deeper understanding of implicit and explicit bias, race, rac...
PT-D701	Clinical Steps IV	Clinical Student Team Experience in Practice (STEPS®) is the fourth in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clin...
PT-D731	PT Professional Practice IV	The Professional Practice series threads throughout the curriculum. In this course, learners will delve deeper into the topics of leadership development, clinical leadership, outcomes management, and higher-level ethics and legal implications on prac...
PT-D732	Foundational Pediatrics Practice	Foundational Pediatrics introduces the practice management model for pediatric patients. The theoretical basis of pediatric development, typical and atypical development, movement, and function, along with compassion and high stan...
PT-D733	Management of the Complex Patient	Management of the Complex Patient will introduce the student to the assessment and management of complex patient cases across the lifespan and the continuum of care. An emphasis will be placed on clinical decision-making related to the physical thera...
PT-D734	Professional Practice V	The Professional Practice series threads throughout the curriculum. In this course, learners engage with job roles and clinicians that impact practice broadly, including data management, legislative and regulatory advocacy, and population health. Fur...
PT-D735	Professional Practice VI	Professional Development and Leadership threads throughout the entire DPT curriculum. In this course, learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through and under...
PT-D736	CAMP I	The Comprehensive Assessment and Management of Practice (CAMP) I course will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of adult musculoskeletal conditio...
PT-D737	Practice Management (CAMP) II	The Comprehensive Assessment and Management of Practice (CAMP) II course will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of adult complex and neurologicala...
PT-D738	Advanced Practice Course (APC) I	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D739	Advanced Practice Course (APC) II	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...

CODE	NAME	DESCRIPTION
PT-D740	Advanced Practice Course (APC) III	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D741	Advanced Practice Course (APC) IV	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D742	Advanced Practice Course (APC) V	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D743	Advanced Practice Course (APC) VI	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D744	Advanced Practice Course (APC) VII	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D745	Advanced Practice Course (APC) VIII	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D746	Advanced Practice Course (APC) IX	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D747	Advanced Practice Course (APC) X	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D748	Advanced Practice Course (APC) XI	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D749	Advanced Practice Course (APC) XII	Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neuroreha...
PT-D750	Cultural Determinants of Health and Health Disparities in PT III	The CDHD III experience is provided during the students' second year to align with the professional practice course focus on advocacy and to contribute to meeting our divisional objective for our learners to 'be influential leaders, advocates, and ch...
PT-D751	Foundational MSK Practice II	This course introduces the student to musculoskeletal examination, evaluation, diagnosis, prognosis, and intervention for impairments, functional limitations, and disability in clients with pathologies of the lower extremities. The course series will...
PT-D752	Foundational Neurologic Practice II	The Foundational Neurologic Practice course series includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply examination procedures to ident...
PT-D801	Terminal Clinical Experience I	The Terminal Clinical Experience (TCE) course series includes three, 12-week full-time supervised clinical experiences with emphasis on student management of patients across the lifespan and continuum of care. In addition, students engage in online l...
PT-D802	Terminal Clinical Experience II	The Terminal Clinical Experience (TCE) course series includes three, 12-week full-time supervised clinical experiences with emphasis on student management of patients across the lifespan and continuum of care. In addition, students engage in online l...
PT-D803	Terminal Clinical Experience III	The Terminal Clinical Experience (TCE) course series includes three, 12-week full-time supervised clinical experiences with emphasis on student management of patients across the lifespan and continuum of care. In addition, students engage in online l...

## Duke University

CODE	NAME	DESCRIPTION
PT-D810	Continuation	This course is designed for students who need additional time to satisfactorily complete coursework to progress in the DPT curriculum. This course is designed to provide a customized learning plan to address students' deficiencies in didactic or cli...
PT-D901	Foreign Educated PT Course (FEPT-C): Healthcare Policy, Practice and Regulation in the United States	The US has been an attractive and desirable destination for many internationally educated physical therapists for decades, and although internationally trained physical therapists are often well trained and skilled, they frequently do not have the ba...

## Master of Science in Biomedical Sciences

**Assistant Dean for Premedical Education and Executive Director:** Kathryn M. Andolsek, MD, MPH

**Associate Directors:** Cerrone Cohen, MD; Leonor A. Corsino, MD, MHS; Maureen D. Cullins, AM; MScGH; Judith C. Holder, PhD; Christian Mauro, PhD; Alexa K. Namba, DO, MPH; Leonard E. White, PhD

**Program Manager:** Christie T. McCray, MEd

**Program Coordinator:** TBD

**Staff Assistant:** Kaylyn Parker

**Website:** [medschool.duke.edu/education/health-professions-education-programs/master-biomedical-sciences](https://medschool.duke.edu/education/health-professions-education-programs/master-biomedical-sciences)

The Master of Science in Biomedical Sciences is a Duke University School of Medicine professional master's degree program.

Our **mission** is to prepare a diverse group of learners for careers in science, healthcare, and related interdisciplinary professions through respectful and inclusive team-based learning and professional development. Our **vision** is to contribute to a diverse workforce to

- reduce inequities
- advance practice and the art of care in the biomedical sciences
- improve societal well-being through enhanced individual self-efficacy and well-being

We aspire to foster a positive culture and success in our mission through or values of

- Justice, Diversity, Equity and Inclusion
- Excellence
- Self-Reflection
- Interprofessional Collaboration and Service
- Integrity

The MBS Program is administered by the Duke University School of Medicine. It is offered by faculty from the basic and clinical sciences departments of the Schools of Medicine and Nursing, The Graduate School, and Trinity College of Arts & Sciences who have extensive experience with pre-health learners, e.g. students in the MD, nursing, physician assistant, physical therapist, occupational therapy programs, and other members of the university community who have expertise in relevant scientific disciplines and/or areas of professional practice. Upon successful completion of all requirements for graduation, the Master of Science in Biomedical sciences degree is conferred upon the graduate of the Duke MBS Program.

Master of Science in Biomedical Sciences (A-MSBS)

## Academic Calendar

## Duke University

<b>FALL 2023</b>
<b>July</b> July 3 (M) Orientation July 5 (W) Fall semester classes begin
<b>August</b> August 26-September 9 (F-F) Fall recess and EMT Training
<b>September</b> September 4 (M) Labor Day. No classes
<b>October</b> October 5 (Th-M) Fall Break; No Classes October 10 (Tu) Classes Resume
<b>November</b> November 22-24 (W-F) Thanksgiving recess. No classes
<b>December</b> December 18 (M) Fall Classes End
<b>SPRING 2024</b>
<b>January</b> January 8 (M) Spring semester classes begin January 15 (M) Martin Luther King, Jr. Day holiday. No classes
<b>March</b> March 11-15 (Sa-Su) Spring recess. No classes March 18 (M) Martin Luther King, Jr. Day holiday. No classes
<b>May</b> May 3 (F) Spring Semester end May 10 (F) Duke University Commencement Weekend May 11 (Sa) MBS Graduation Exercises May 12 (Su) University Graduation Exercises; Conferring of Degrees

Master of Science in Biomedical Sciences (A-MSBS)

## Admissions

To be considered for admission, applicants must have earned a minimum UGPA (undergraduate GPA) of 3.2. Grades earned through completion of post-baccalaureate studies are considered on an individual, case-by-case basis. An upper division course in biochemistry is required for admission to the Duke MBS Program. Upper-level division courses in cell biology, molecular biology, and/or genetics are strongly recommended. Students who intend to apply to health professions schools (e.g., MD, DO, DDS, DDM, DPT, PA, OT, PharmD, nursing) or graduate schools (e.g., PhD, DPhil, MPH, MBA, other MS) are strongly encouraged to complete prematriculation requirements specified by the relevant professional associations (e.g., Association of American Medical Colleges) or graduate schools, prior to applying to the Duke MBS programs.

Applicants are not required to take the GRE, MCAT, or any other standardized test to be considered for admission. The application does not have a place to record such scores. applications for certain pathways within the MBS program, such as those with conditional acceptance to a future professional school may provide a place on the application to record such scores. Students who matriculate into the program are expected to provide all test scores as part of the advising process.

A complete application for admission consists of the online application including essay question responses, submission of the \$50 application fee, and the following supporting documents: (1) a resume or curriculum vitae (uploaded within online application); (2) an unofficial transcript from each post-secondary institution attended (uploaded within online application); and (3) two letters of evaluation written by persons qualified to testify to the applicant's capacity for graduate work on official letterhead (solicited and submitted through the online application system). Please note that review of an application cannot commence nor can an admission decision be made until all the above materials are received and the application is considered complete.

Detailed application instructions can be obtained by sending an email to [dukembs@duke.edu](mailto:dukembs@duke.edu) or by calling (919) 684-6351. Additional information may be found on the program's website at [medschool.duke.edu/education/health-professions-education-programs/master-biomedical-sciences](http://medschool.duke.edu/education/health-professions-education-programs/master-biomedical-sciences).



## Program Technical Standards

All candidates for the MBS degree must possess the ability to learn, integrate, analyze, and synthesize data. Candidates must have the use of senses, and motor-function capabilities, physical endurance, and the emotional health to meet the program's demands, including training, certification, and service as an Emergency Medical Technician-Basic, which may include extended hours of instruction and time in clinical settings, evenings, nights, and weekends.

The study of medical sciences is not a pure intellectual exercise. Rather, a specific set of minimal physical, mental, emotional and social abilities are needed to be a successful student. Students must possess all of the abilities described in the five categories below, with or without reasonable accommodations as determined by the Student Disability Access Office ([access.duke.edu/students](http://access.duke.edu/students)). To achieve the optimal educational experience, students are required to participate in all phases of the training program. Candidates with disabilities are encouraged to contact the Program and/or the Student Disability Access Office early in the application process to discuss accommodation needs.

The candidate for the MBS degree must possess the following abilities and skills necessary to successfully complete the curriculum. Some clinical rotations are required to be completed in non-Duke Settings, such as Emergency Medical Services (EMS) settings. The inability to adhere to EMS standards may make it prohibitive for a student to successfully complete the MBS program.

**Observation:** Candidate must acquire information as presented through demonstrations and experiences in lectures and laboratories. Candidates must be able to evaluate patients accurately and assess their relevant health, behavioral, and medical information. Candidates must be able to obtain and interpret information through a comprehensive assessment of patients, correctly interpret diagnostic representations of patients' physiologic data, and accurately evaluate patients' conditions and responses. Vision, hearing, touch, smell, stereognosis, vibratory sense or the functional equivalent is required.

**Communication:** Candidates must exhibit interpersonal skills to enable effective caregiving of patients, including the ability to communicate effectively and sensitively in English, with all members of a multidisciplinary health care team, patients, and those supporting patients, in person and in writing. Candidates must be able to record information clearly and accurately and accurately interpret verbal and nonverbal communication.

**Motor Function:** Candidates must perform routine physical examination and diagnostic maneuvers. Candidate must be able to provide general care and emergency treatment for patients and respond to emergency situations in a timely manner. A candidate should have sufficient motor function to elicit information from patients by palpation, auscultation, percussion, and movement of limbs, as well as carry out treatment maneuvers, which may include lifting, transferring of patients, and assisting during ambulation while assuring their own safety as well as the safety of the patient and their team members. A candidate should have motor function sufficient to execute movements reasonably required to provide general care and emergency treatment to patients. Such skills require coordination of gross and fine muscular movements, equilibrium, and sensation. Candidates must meet applicable safety standards for the environment and follow university precaution procedures required by the clinical site(s), which may include masking.

**Intellectual-Conceptual, Integrative, and Quantitative Abilities:** Candidate must effectively interpret, assimilate, and understand the complex information required to function within the MBS curriculum. Problem solving is a critical skill that requires conceptual, integrative, and quantitative thinking abilities. The candidate must also be able to comprehend three-dimensional relationships, the spatial and functional relationships of structures and to analyze and apply this information for problem solving and decision-making. Candidate must be able to effectively participate in individual, small-group, and lecture learning modalities in the classroom, clinical, and community settings. Candidates must be able to learn, participate, collaborate, and contribute as part of a team. They must have the ability to organize, prioritize, analyze, and evaluate detailed and complex information individually, in small groups, in clinical settings, and within a limited time frame both in person and via remote technology.

**Behavioral and Social Skills:** Candidates must exercise good judgment and promptly complete all responsibilities attendant to the diagnosis and care of patients. A candidate must have the emotional health to fully use their intellectual ability, exercise good judgment, and to complete all responsibilities attendant to the evaluation and treatment of patients. They must be honest, able to self-assess own mistakes, accept criticism, and assume responsibility for maintaining professional behavior. The skills required include the ability to effectively handle and manage heavy workloads, function effectively under stress, adapt to changing environments, display flexibility, and learn to function in the face of the uncertainties inherent in the clinical problems of patients.

A candidate must be able to develop mature, sensitive, and effective relationships with faculty, patients, families, caregivers, and colleagues. A candidate must be able to tolerate physical and emotional stress and continue to function effectively. A candidate must possess qualities of adaptability and flexibility and be able to function in the presence of uncertainty. They must have a high level of compassion for others, motivation to serve, integrity, and a consciousness of social values. A candidate must possess sufficient interpersonal skills to interact positively with ALL people.

## Duke University

Candidates must be able to satisfy the above requirements with or without reasonable accommodations. For questions, see the Duke Accessibility website at [accessibility.duke.edu](https://accessibility.duke.edu).

Given the requirement for students to become licensed as Emergency Medical Technicians-Basic, students will need to fulfill requirements of the course, currently given through Durham Technical College, and practice clinically, in order to fulfill graduation requirements.

Master of Science in Biomedical Sciences (A-MSBS)

## Financial Information

The MBS Program practices a need-blind admissions process. Applicants to the MBS Program are evaluated for admission without regard to their, or their family's ability to pay.

### Tuition and Fees

Tuition for the 2023-2024 academic year is \$49,963 for full-time study. On notification of acceptance, prospective MBS students are required to pay a nonrefundable program deposit of \$250. For those who do matriculate, the program deposit is applied to the cost of tuition.

First-year tuition	\$49,963
First-year fees	\$4,213

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

### Health Insurance

All students are required to carry full major medical health insurance throughout their enrollment in the Duke MBS program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, evidence of other comparable health insurance coverage must be provided. The Student Health Fee is mandatory for all students. Additional information regarding the services provided by Student Health may be found on the Student Health website at [studentaffairs.duke.edu/studenthealth](https://studentaffairs.duke.edu/studenthealth).

## Financial Aid

### Federal Financial Aid

Qualified students may be eligible for unsubsidized Federal Stafford Loans up to \$20,500, and the Grad PLUS Loan up to the cost of attendance per academic year.

To be considered for federal financial aid, eligible students must complete the Free Application for Federal Student Aid (FAFSA). The School of Medicine's federal school code for the FAFSA is 002920. More information, including specific eligibility requirements, about federal need-based financial aid can be found on the FAFSA website.

Financial aid information is available for all interested applicants by contacting the School of Medicine's Office of Financial Aid: Box 3067, Duke University School of Medicine, Durham, NC 27710, by calling (919) 684-6649, emailing to [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu), or by visiting the Duke University SOM Office of Financial Aid website at [medschool.duke.edu/education/student-services/office-financial-aid](https://medschool.duke.edu/education/student-services/office-financial-aid).

### Scholarships

All applicants accepted for full-time study in the MBS Program are automatically considered for limited tuition scholarships from the program. Limited merit awards are determined by the Program on a competitive basis; an applicant's completed application materials serve as the scholarship application. Need-based scholarship awards are determined by the Office of Financial Aid; each student's completed FAFSA serves as the basis for these limited awards.

### Bridges to Excellence Scholar

Applicants may wish to be considered a Bridges to Excellence (BTE) Scholar. Designed in 2019, The BTE Scholars Program is an innovative educational opportunity developed with the support of the Fullerton Foundation and in collaboration between Duke University School of Medicine and the University of South Carolina School of Medicine Greenville. BTE Scholars are residents of either the state of North Carolina or South Carolina. They will fully participate in the Duke Master of Biomedical Sciences (MBS) Program and will be linked to a mentor at the University of South Carolina School of Medicine. In collaboration with their University of South Carolina School of Medicine mentors, they may be offered enhanced opportunities during MBS Fall, Winter, and Spring Breaks and/or be able to fulfill 1-4 MBS selective credits.

**Eligibility:** In addition to fulfilling all other MBS eligibility requirements, BTE Scholars will be

## Duke University

1. residents of North or South Carolina; and
2. willing to apply only to the University of South Carolina School of Medicine, and accept an admission to this school (if offered).

BTE scholars will

1. have MBS application fee waived;
2. be offered and accept conditional acceptance to Duke MBS based on successful completion of their undergraduate degree;
3. successfully participate in and complete the Duke Master of Biomedical Sciences Program;
4. be offered and accept the opportunity to earn conditional acceptance to the University of South Carolina School of Medicine if satisfactory completion of MBS and fulfillment of the other criteria developed by the Admissions Committees of the University of South Carolina School of Medicine;
5. participate in additional mentoring provided by the partner medical school;
6. fulfill all other conditions of medical school acceptance (i.e. MCAT target score by date determined by the medical school, MBS performance, and interviews)

Priority will be given to students interested in primary care, psychiatry, and general surgery, with an intent to serve underserved communities of the Carolinas. It is expected that BTE Scholars will apply to a single medical school the University of South Carolina School of Medicine, and if offered acceptance, will matriculate there.

More information about the Bridges to Excellence Scholar program can be found at [medschool.duke.edu/education/health-professions-education-programs/master-biomedical-sciences/about-mbs-program/mbs](https://medschool.duke.edu/education/health-professions-education-programs/master-biomedical-sciences/about-mbs-program/mbs).

Master of Science in Biomedical Sciences (A-MSBS)

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

### Attendance Policy

Students are expected to be punctual and to attend all Duke MBS program educational activities, including but not limited to lectures, laboratories, seminars, virtual synchronous sessions, as well as clinical, research and service learning assignments. Much of the programmed course time involves discussion and team-based learning activities; individual attendance and participation affects group performance and development of individual competence. Service learning assignments require accountability to the individuals, communities and organizations served. Students are expected to attend regular clinical and service learning activities even when scheduled on non-class days (e.g., holidays, breaks, and weekends). If a student believes they will be late or miss an activity, they should email the course instructor in advance and inform the faculty of the situation and/or request an excused absence. Excused absences are defined in relevant course syllabi. Absences and tardiness may result in academic penalties, as detailed in relevant course syllabi.

Students who are unable to complete a class assignment/assessment due to being out of compliance with a program requirement will receive a score of zero (0) for that assignment/assessment.

### Dress Code

In keeping with MBS's core values of Justice, Diversity, Equity and Inclusion, Excellence, Interprofessional Collaboration and Service, and Integrity we wish to recognize student autonomy in their choice of attire within certain MBS settings, such as the classroom environment. As future professionals we wish for learners to be comfortable within the learning environment but also thoughtful in their clothing choices, recognizing there may be instances in which more casual or more formal attire may be preferable and prioritizing respect for self and for others in the classroom above all.

Regardless of an individual's choice, attire should always:

1. Prioritize respect for ourselves and respect for others over personal style or convenience
2. Support the comfort of "self" and others while learning/studying
3. Avoid language/symbols that are offensive, obscene, or suggestive
4. Model self-reflection and receptivity to feedback, change, and growth in one's own professional development

Students must adhere to the policies of others when in clinical spaces such as EMS, urgent care, and the emergency department and when we are "guests" of other units/entities such as electives or community-based course work.

## Duke University

Specific attire may also be required on occasion at the programs discretion when interacting with prospective students, invited speakers, and/or standardized patients among other instances.

### Leaves of Absence

Leaves of absence with anticipated readmission may be granted to students in good standing who demonstrate a compelling nonacademic reason for a leave. They may be granted a leave of up to one academic year. If a leave expires without the student re-entering the program, the student will be withdrawn from the program. Enrolled students should refer to the Duke MBS Program for detailed information regarding leave requests, program re-entry, requirements for repeating and/or completing degree requirements, and eligibility to earn the degree.

### Time Limitations to Degree

A degree candidate is expected to complete all requirements within one calendar year of matriculation. Degree credit for a course expires three years after the course is completed by the student; in this case, degree credit can be obtained only by retaking the course. Students granted a leave of absence would be expected to complete all requirements within two calendar years of their original matriculation. Exceptions to this expected time to degree may be granted to students who fail one MBS course; they may be allowed a second attempt at the failed course the following year, according to Academic Progression policies.

### Activities Outside of the MBS

Due to the rigors of the Duke MBS curriculum, most students will find it difficult or impossible to be employed during the program. Part-time employment over breaks and holidays is at the discretion of the student; however, students may not perform any medical tasks or procedures under the auspices of their role as Duke MBS students beyond those required for completion of their academic program. The following policies apply to students who wish to be employed during their training:

- Any student working while attending the program should notify their advisor.
- Working students must comply with the program's academic schedule and are strongly discouraged from working more than twenty hours per week.
- Part-time employment must never interfere with class or clinical schedules and assignments and will not be a reason for a "make-up" of a required activity, examination, quiz, or assignment.
- Students cannot receive salary/stipend and academic credit for the same activity.
- Any student who is unable to maintain satisfactory academic standing as outlined in this bulletin will be strongly advised to terminate their employment.

### Transfer of Credit

Course work taken outside of Duke University is not transferable to the Master of Biomedical Sciences Program.

### Grading

Courses in the MBS program will be graded according to one of the following two grading schemes: (1) a conventional graduate letter grade scheme with grades of A, A-, B+, B, B-, C+, C, C-, or F (Fail); or a P (Pass)/F (Fail) grading scheme. See "Courses of Instruction" for which courses apply one or the other grading scheme.

For actively enrolled students, an "I" (incomplete) indicates that some portion of the student's work is lacking for a reason acceptable to the instructor at the time grades are reported. An "I" may not be used as a substitute for a final grade of "F." Students will not be permitted to enroll in any course for which they have an unresolved "I" in a prerequisite course. A grade of "I" must be resolved by the date specified by the course director to make up the deficiency, and no later than the end of the following academic semester. For students on an approved leave, an Incomplete that is not resolved within the designated period may be extended for a specified period with the written approval of the course director and the Executive Director. If an Incomplete is not resolved within the approved period, the grade of "I" becomes permanent and will not be removed from the student's record.

### Grade Appeal Policy

Within 48 hours of the posting of final course grades, a student may appeal a grade awarded in a course, ideally after discussing the concern with the course director(s). The MBS program will confirm when grades are posted and visible to students with an email to students. The MBS Program will accept requests for appeals during the next 48 hours.

The only grounds for changing a grade after submission to the Office of the Registrar are (1) a clerical error in grade submission, or (2) demonstrable deviation from the grading rubric published in the relevant course syllabus. Students appealing a course grade should do so by submitting an email to the Executive Director justifying the appeal and requesting redetermination of a final course grade.

## Duke University

Redetermination of the course grade will be made by the course director, with oversight and final approval by the Executive Director and Associate Directors.

This policy only covers appeal of a final grade for a course, not scores on assessed work within courses. Course directors are responsible for creating assessments within their courses and adhering to well-designed rubrics for scoring student work. Any student concern regarding a score on an assessment should be communicated directly to the relevant course director(s).

### Academic Progression

Graduate students in the MBS Program are participants in a health professions educational program. Accordingly, students are evaluated on their academic and clinical performance, their interpersonal communication abilities, teamwork, professionalism including trustworthiness, adherence of their appearance to the program's dress code, and their professional conduct. Deficiencies in any of these areas are brought to the student's attention and failure to correct these performance issues may result in lower course grades, as adjudicated by relevant course syllabi, probation, or dismissal from the program.

A student's enrollment as a degree candidate is dismissed if they receive a second grade of F. For these purposes, both a WF (see below) and a permanent I are considered failing grades (equivalent to a grade of F). Thus, a student may progress from the fall semester to the spring semester with one grade of F. For such a student, completion of the Duke MBS program will require successful completion of the failed course. A student who receives a second failing grade will not complete the Duke MBS program.

Students who receive a single F will be allowed to retake a failed course and earn their MS degree in the following academic year or, if available, in the summer following conclusion of the spring term, provided that they fulfill expectations defined above (first paragraph of this section).

### Withdrawal from a Course

**Withdrawal from a required or selective course:** In the event that a student withdraws from a required or selective course, the grade of the student at the time of withdrawal from the course is indicated on the permanent record (e.g., WP for withdrew while passing or WF for withdraw while failing).

There are no drop-add options for required courses.

**Dropping a selective course:** All selective enrollment has been carefully approved by the student and their advisor prior to registration for the spring semester. Only with specific justification and approval of their advisor will a student request to drop a selective course be considered for approval. The student will have 5 days after the first day of the spring semester to submit a course drop consideration. The drop request should be approved by the student's advisor and the selective coordinator. Approval for dropping from a selective course will be considered on an individual basis by the coordinator of MBS Selectives. In the event that the course drop is approved, it is the student's responsibility to contact the registrar's office and the course director of the course they are dropping to inform them of the change. The student must also indicate the course(s) they intend to add if dropping the course would cause them to fall below the required 38 credits.

**Adding a selective course:** Approval to enroll in another course, to achieve their mandatory 4 selective credits for graduation, must be provided by the student's advisor, the selective coordinator, and the new course director.

Additional coursework (i.e., "overloading") is not usually recommended as the spring semester is busy with clinical experiences, MBS required course work, selectives, and at times studying for a standardized test, preparing an application and job hunting for a gap year. Auditing of MBS specific selectives for up to an extra 2 credits only may be considered if approved by the advisor, the relevant course director, and the MBS Executive Director, and the student registers at the same time as registration for the other spring courses. Courses audited will be indicated as such on a student's transcript and no grade provided.

### Withdrawal from the Program

If a student withdraws, including involuntary withdrawal for academic reasons, tuition is pro-rated according to the following schedule relative to the start of the MBS Program:

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

The status of the student in all in-progress courses at the time of withdrawal from the program is indicated on the transcript as WP

## Duke University

(Withdrew Passing) or WF (Withdrew Failing).

Voluntary withdrawal from the program is initiated at the request of the student. Such requests must be submitted in writing to the Program Director. The Program Director will notify the Office of the Registrar and course faculty as appropriate given the student's enrollment status at the time of withdrawal. It is the student's responsibility to contact the bursar's office regarding fulfillment of financial obligations to the university. [subpage content](#)

### Computer Technology

All matriculating students in the School of Medicine are assessed a mandatory technology fee. This includes students enrolled in the Duke MBS program. The fee covers hardware, software, technical service and technical updates to comply with all Duke Health System compliance guidelines. The Duke School of Medicine's Medical Education IT unit distributes and supports a dedicated laptop to each MBS student for their education. Students receive the laptop, configured and secured for use in the Duke MBS program, during orientation.

### Criminal Background Check/Drug Screening/Judicial Disclosure Policy

Incoming students must consent to and undergo a mandatory criminal background check (CBC) and mandatory drug screening prior to matriculation. Both the criminal background check and the drug screening are conducted by a Duke University School of Medicine approved agency and the results of both are kept strictly confidential. Results from any other agency will not be recognized. A clear drug screen may also be required of students by EMT, community, research, and/or clinical sites.

An incoming student will not be permitted to begin orientation and/or classes without consenting to a CBC and drug screening and negatives results.

Following enrollment in the Duke MBS Program, students are required to disclose any misdemeanor or felony convictions other than minimal traffic violations, including deferred adjudication, within one week (seven days) of occurrence to the Program Director. Nondisclosure or falsification may be grounds for dismissal or degree revocation.

Students already enrolled in the MBS Program may, for good cause, be required at the request of the Program Director to undergo an additional CBC or drug screening test. In addition, sites providing experiential learning experiences may require students to undergo additional background checks or drug screenings prior to undertaking their experiences. The cost for such requested background checks and screening tests, if not borne by the site, will be incurred by the student.

The student is aware that, when applying for the CBC and the drug screening tests they automatically release the results to the Duke MBS Program. The Program Director will evaluate all background checks and will make the determination if the individual student can participate in the program and its clinical experiences.

Failure to undergo a required drug test will result in dismissal from the program. If the drug screen comes back diluted the student will be allowed one retest. A student with a positive test or diluted second test, may be dismissed from the program.

### Immunization and Health Record

North Carolina State law and the Infection Control Committee of Duke University Hospital and Health System require all new students to provide prior to matriculation, evidence of immunity to certain vaccine-preventable illnesses. Upon acceptance, students receive the Student Health Immunization Form and Report of Medical History which should be completed and returned prior to the first day of Fall Semester to the Student Health Center, Box 2899, DUMC, Durham, NC 27710.

Duke University and the School of Medicine hold the health and welfare of their students, patients, and faculty in the highest regard. Students' failure to comply with North Carolina state immunization requirements and those of the School of Medicine may result in the student not being allowed to begin their coursework until all immunization requirements are met. Any annual vaccination that may be required (e.g. influenza, COVID-19) or an approved medical or religious exemption is required. For questions or concerns about immunization requirements, please contact Student Health at [immunizations@duke.edu](mailto:immunizations@duke.edu) or by phone at (919) 681-WELL.

Students are encouraged to review and update their records as soon as possible. Failure to meet requirements may result in matriculation and/or participation delays. Since most courses are only offered once per academic year, such delays may result in a delay of graduation by an entire year. Please refer to [studentaffairs.duke.edu/studenthealth/immunization-compliance](http://studentaffairs.duke.edu/studenthealth/immunization-compliance) for the most current immunization information.

An immunization and additional health records may be required for the EMT-B course and clinical sites.

### Academic Regulations

## Registration

Registration in the Duke MBS program is processed in accordance with instructions distributed by the Office of the Registrar of the School of Medicine prior to official registration periods. Please note that courses taken outside the program must be approved by the student's advisor (and, in some cases, by the Executive Director) prior to enrollment.

## Optimizing Team-Based Learning (TBL) Success through Teamwork

All students enrolling in the MBS program are assigned to teams of five to six members based on characteristics identified from their applications to maximize cognitive and social diversity in teams. During their MBS year, students/teams move through four stages:

- 1. Teamwork Orientation.** Students participate in workshops on understanding self and others in teams, becoming familiar with effective and ineffective interpersonal teamwork behaviors and dynamics.
- 2. Individual Team Coaching.** Each team meets for a coaching session with the Associate Director for Team Enhancements focused on personal and interpersonal teamwork dynamics.
- 3. Interdisciplinary Faculty Facilitation.** During each Fall and Spring semester, individual teams meet with assigned faculty facilitators (not the students' advisor) to share, as an example, 360-peer assessment perceptions around progress working as a team to accomplish their class projects and assignments.
- 4. Team Closure Sessions.** Students discuss progress, learnings, and reflections as a team and with their advisors and/or faculty facilitator.

Students are with the same team for the entire year in the program. For many students, this is a new growth opportunity in their thinking and orientating toward teamwork. It requires transitioning from an individual-only focus to a team-focused contributor in completing assignments, managing differences, and flexing interpersonal and communication style(s).

## Code of Professional Conduct

Students enrolled in the Duke MBS program are expected to adhere to the Duke Community Standards and the Duke University School of Medicine Code of Professional Conduct as detailed in the policies for all School of Medicine programs found elsewhere in this bulletin.

## Standards of Academic Conduct and Academic Assessments

The faculty of the Duke MBS program expects and will require of all its students cooperation in maintaining high standards of scholarship and conduct in accordance with the professional expectations of the Duke University School of Medicine.

An honor system is employed during administration of all written and practical examinations and for specified assignments that are completed in other locations. In signing their name to work, students are indicating that they neither gave nor received inappropriate assistance during the examination and/or that all work is their own, or in the instance of groups assignments, their group's work product. This includes the exclusion of authoring software. All examinations are confidential communications between the student and the instructor.

Unless expressly permitted by a course instructor, students may not utilize previous forms of written examinations to assist in their preparation. Written examinations that are returned to the student are provided for the specific purpose of enhancing that individual's learning, and are not to be shared with any other current or future students of the Duke MBS program. Similar, students may not share publicly or privately any examination; to do so would be considered a violation of this Code of Professional Conduct.

Examinations are to be taken during scheduled examination times. However, in extenuating circumstances, such as the acute illness of the student or a family member, a student may seek permission from the instructor to postpone an examination. A request to change an examination date for other reasons should be made to the Executive Director, who will consult with the instructor involved and the student's advisor before the student is given permission. If an instructor determines a need to change the date of a scheduled examination for an entire class, the Executive Director should be informed of this decision by the faculty member.

The Duke MBS program and the Duke School of Medicine recognize their professional responsibility to maintain the learning environment. Student concerns of actions such as harassment and mistreatment can be communicated anonymously to the Assistant Dean of Learning Environment using the link [duke.qualtrics.com/SE/?SID=SV\\_0xINCG6gxBow5Rr](https://duke.qualtrics.com/SE/?SID=SV_0xINCG6gxBow5Rr). These are reviewed by a School-wide community of faculty and learners.

## Professionalism Council (PC)

## Duke University

**Background:** The Professionalism Council (PC) will consist of faculty, students and staff of the Duke MBS program. The PC is designed to promote professionalism and to assist with addressing allegations of professionalism lapses, which include, but are not limited to, plagiarism, cheating, dress code violation, inadequate electronic communication, disorderly conduct, and absenteeism. The PC will not address professionalism lapses which are criminal or governed by other institutional entities and processes, such as for Title IX complaints.

**Composition:** The council will include student, faculty, and staff members. Student representatives will be selected by class vote to serve a yearlong term. The council will also include faculty representatives and members from the Executive Board. The council will be led by a faculty chairperson and convene regular meetings to review and discuss issues related to professionalism amongst students in the Duke MBS program. The chair of the professionalism council, in consultation with its members, will lead administrative hearings to address allegations of minor professionalism lapses. Any student under review may request a formal Professional Hearing Committee process rather than an administrative hearing.

**Aims:**

- To serve as a consulting body for professionalism matters involving students enrolled in the Duke MBS Program.
- To facilitate hearings, surveys, and reports related to professionalism matters within the academic community.
- To acknowledge and promote exemplary behavior, service, and other professional conduct.

### Professionalism Hearing Committee (PHC)

**Background:** The Professionalism Hearing Committee (PHC) is a committee of the Professionalism Council (PC) tasked with advising Duke MBS executive leadership regarding allegations of serious breaches in professionalism or the Duke University Code of Conduct that may result in official sanctions from the program. The PHC will be convened at the request of the Professionalism Council Chair in the event that a hearing is needed. This committee will include a minimum of 5 voting members identified from existing PC membership, and must include student and faculty representation. The PHC will also include the given student's faculty advisor (nonvoting member) and up to two additional faculty selected by the student undergoing review. The PHC will be chaired by the chair of the professionalism council.

**Process:** In the event that a professionalism concern is reported, the student's advisor and/or member of the professionalism council will speak directly with the identified student(s). If the advisor, a member of the professionalism council, or Executive Director deems it necessary, then a request to convene a hearing by the Professionalism Hearing Committee can be shared with the chair of the professionalism council. When deemed appropriate, the PHC will meet with involved parties to discuss, question, and clarify details of the case. Persons appearing in front of the committee may include individuals with knowledge of key details of the incident and any others whom the student of concern wishes to speak on their behalf. Once the hearing is complete, it is the duty of this committee to create a written report regarding the alleged breach of professionalism and any associated action plan. The report will include a vote as to whether the PHC believes a lapse of professionalism has occurred. The final recommendations of the PHC will be forwarded to the PC Chair and Executive Director. All decisions by the PHC are subject to appeal (described below).

**Confidentiality:** The minutes of the PC will be considered confidential and not released without written permission except as applicable by law. If a student is found to have a professionalism violation, the resulting sanctions can be included in any performance assessment or letter of evaluation requested by the student or an outside entity. Professionalism violations and sanctions may also be reported to other agencies, such as the military, the federal government, licensing boards, and others if requested.

**Hearing Procedures:** The Executive Director may require any student, faculty, or staff member of the program to attend and/or testify at any hearing or meeting regarding a professionalism matter of concern. Whenever a hearing is to be held regarding an alleged incident of unprofessional behavior, the accused student and the complainant, if any, shall be given at least seven (7) calendar days' written notice of the charges alleged against the accused student and of the date, time, and place of the hearing. The Committee may require witnesses to testify at the hearing who are students, faculty, or staff of the School of Medicine and who are available to attend. Rules of evidence that apply in courts of law shall not apply in such hearings. The hearing shall be closed to everyone except the hearing body (PHC) appropriate staff, the accused student, the complainant, and involved academic advisors.

**Hearing Decisions:** The committee (PHC) shall deliberate and decide whether the accused student has violated the Duke University School of Medicine Code of Professional Conduct. The hearing body may decide that the student is in violation of a less serious offense than that originally charged. A written decision will be issued from the PHC to the Executive Director of the MBS within seven (7) days of the date of the hearing. The accused shall receive written notice of the outcome of the hearing which includes: (1) a statement of charges; (2) a summary of the facts in the case; (3) the decision; (4) a brief statement of the hearing body's reasoning; and, if a violation is found, (5) recommended sanction(s). The accused student will also receive information on the rights and process of appeal.

### Sanctions



## Duke University

The following sanctions, singularly or in combination, may be imposed upon any student found to have violated the Duke University School of Medicine Code of Professional Conduct:

- **None:** The PHC may conclude that there is insufficient documentation to conclude a professionalism lapse has occurred. No written documentation will be placed in the student's permanent file.
- **Warning:** A notice in writing to the student that the student has violated institutional regulations and must cease and not repeat the inappropriate action. A professionalism notification form will be placed in the permanent file.
- **Probation:** A written reprimand for violation of specific regulations. Probation is for a designated period of time and includes the probability of more severe disciplinary sanctions if the student is found to be violating any institutional regulation(s) during the probationary period.
- **Discretionary Sanctions:** Work assignments or service to the School of Medicine, the University or the community.
- **Suspension:** Separation of the student from the School of Medicine for a definite period of time, after which the student may be eligible to return. Conditions for readmission may be specified.
- **Expulsion:** Permanent separation of the student from the Duke University School of Medicine.

Any sanction may include referral to university-based resources for medical or mental health evaluation and treatment if necessary.

If a student is recommended for dismissal, that recommendation will be forwarded to the Executive Director who will refer the decision to the Vice Dean of Education. The processes of the PHC and the PC do not preclude the Executive Director from making an independent recommendation to the Vice Dean.

### Appeals

All decisions by the PHC are subject to appeal. An appeal is not a re-hearing of the issue; it is a written statement to the Executive Director stating grounds for the appeal and any supporting information. Grounds for appeals are limited to:

- New information, the nature of which may have changed the outcome of the PHC;
- Procedural error within the hearing process;
- The finding was inconsistent with the weight of the information.

The accused student may appeal decisions rendered by the ad hoc PHC to the Executive Director of the program. To initiate an appeal, the accused student must submit a signed, written statement of the specific reason(s) to Executive Director within seven (7) days of receipt of the hearing decision.

The Executive Director will either:

- Affirm the hearing decision;
- Affirm the findings of the hearing decision but recommend a different sanction; or
- Forward the case to the Vice Dean of Education for a new hearing.

### Program of Study

The degree requires a total of 38 credits; of these, ten courses comprise a required core curriculum of 34 credits. The remaining four credits are earned by completing one of two options for an individualized concentration: four credits of approved selective coursework or a mentored research/focused study or practicum project for which four credits are awarded. Selective opportunities vary from year to year and are contingent upon faculty availability, approval from other Duke University programs, departments, schools, and institutes. Students are able to complete the selective concentration by selecting courses within the MBS Program.

### Satisfactory Academic Progress

The MBS faculty accepts responsibility for monitoring the academic progress of each student enrolled in the program. Students are required to meet with their academic advisors at least once each semester and encouraged to meet more frequently.

The Academic Success Committee meets monthly to review students' performance in all coursework and provide feedback to the advisors. When performance issues are identified, the student will be contacted regarding development and implementation of an appropriate remediation plan.

Satisfactory academic progress for full-time students in the MBS Program consists of the successful completion of all requirements necessary to advance toward completion of degree requirements one year from the time of matriculation.

### Graduation

To graduate, students must complete with a passing grade the 38 credits required for the Master of Science in Biomedical Sciences degree, which includes credits associated with all required courses, and required clinical and other experiential learning activities.

## Duke University

Candidates for the Master of Science in Biomedical Sciences degree must apply to graduate through DukeHub in keeping with the instructions and deadlines announced by the Office of the Registrar in the School of Medicine. Failure to do so may delay conferral of the degree and issuance of the diploma, even if all degree requirements have been met.

Students must meet all supplemental graduation requirements, which include, but are not limited to, returning Duke-issued photo identification and Duke Information Technology requirements.

Master of Science in Biomedical Sciences (A-MSBS)

### Program Requirements

The degree requires a total of 38 credits; of these, ten courses comprise a required core curriculum of 34 credits. The remaining four credits are earned by completing one of two options for an individualized concentration: four credits of approved selective coursework or a mentored research/focused study or practicum project for which four credits are awarded. Selective opportunities vary from year to year and are contingent upon faculty availability, approval from other Duke University programs, departments, schools, and institutes. Students are able to complete the selective concentration by selecting courses within the MBS Program.

#### 10 required courses (34 credits)

- HLTHSCI 501 – Human Structure (5)
- HLTHSCI 502 – Cellular Sciences (5)
- HLTHSCI 503 – Organ Systems (5)
- HLTHSCI 504, 505 – Essentials of Health Practice and Professional Development I, II (2 each for 1 semester; 4 total)
- HLTHSCI 518 – Evidence Based Clinical Practice (4)
- HLTHSCI 509 – Medical Statistics (4)
- HLTHSCI 510 – Health Systems (3)
- HLTHSCI 511 – Enhanced EMT Training Course (2)
- HLTHSCI 516 – EMT Clinicals (2 total)

#### Selective concentration (4 credits)

- **Option 1:** Research (including basic science, translational science, clinical, or community-engaged research)/ directed study (4)
- **Option 2:** Selected coursework (“selectives”). With permission of instructor/department and advisor approval (4)

Selective opportunities vary each academic year and are contingent upon faculty availability. Students will complete the selective concentration by selecting courses within the Duke MBS Program. Some selectives will have a minimum or maximum number of students. Students are encouraged to discuss their selective selection with their advisor and enroll early to secure their selective preference.

Students are strongly encouraged to consider completing the following two selectives to complete their 4 selective credits: HLTHSCI 533 and 535 (see course descriptions). Students cannot enroll in more than 4 credits of selective coursework. Though, students can audit HLTHSCI 533 and HLTHSCI 535 while taking other coursework for the 4 credits of selective work.

All selective courses are graded P(pass)/F(fail).

#### Approved Elective Courses in Other Programs and Departments

Selective availability, course directors/faculty and credit hours subject to change without notice.

For up to date course, descriptions, schedules, and grading scheme students should refer to the Duke University Course Catalog, which can be accessed at [registrar.duke.edu/courses-classrooms/courses](http://registrar.duke.edu/courses-classrooms/courses).

- Bioethics and Science Policy Master of Arts Degree Program. Contact Dr. Corsino first.
  - BIOETHIC 603S – Clinical Bioethics and Policy
  - BIOETHIC 701 – FDA Law and Policy
  - BIOETHIC 706 – Science Regulation Lab
- Clinical Research Training Program. Contact Dr. Corsino first.
  - CRP 253 – Research Ethics and Responsible Conduct of Research
- Family Medicine and Community Health. Contact Dr. Andolsek first.
  - COMMFAM 423C – Occupational and Environmental Medicine
  - COMMFAM-448C – Introduction to Medical Informatics
- Global Health (MSc in Global Health Degree Program). Contact Dr. Corsino first.

- GLHLTH 773 – Deconstructing Global Injury Control and Prevention through Systematic Review Methods
- GLHLTH 777 – Infectious Disease Epidemiology
- Interdisciplinary MD Program Courses
  - INTERDIS 422C – Exploring Medicine: Cross-Cultural Challenges to Medicine in the 21st Century
  - INTERDIS 423C – Honduras Trip
  - INTERDIS 403C – Narrative Medicine for Medical Learners

Master of Science in Biomedical Sciences (A-MSBS)

## Courses of Instruction

CODE	NAME	DESCRIPTION
HLTHSCI501	Human Structure	The fundamental goal of this course is to provide an anatomical framework for understanding the form and function of the normal human body. In pursuing that goal, this course will expose students to principles that define critical thinking within the...
HLTHSCI502	Cellular Sciences	Cellular Sciences is a 13-week course that surveys the foundational cellular and molecular mechanisms underlying human health and disease. This course integrates multiple disciplines: biochemistry, genetics, cell and molecular biology, immunology, an...
HLTHSCI503	Organ Systems	Organ Systems is a 16-week course during which students will understand how the physiology of every major organ system contributes to the regulation of overall homeostasis in the human body. The course develops a conceptual model for understanding th...
HLTHSCI504	Essentials of Health Practice and Professional Development	This two course sequence is designed to enhance understanding of the meaning of illness, and the development of personal identity and professional formation in the aspiring health professional. Through regular small group seminars with mentoring fac...
HLTHSCI505	Essentials of Health Practice and Professional Development	This two course sequence is designed to enhance understanding of the meaning of illness, and the development of personal identity and professional formation in the aspiring health professional. Through regular small group seminars with mentoring fac...
HLTHSCI506	Medical Arts and Sciences Seminar III	This 3-semester longitudinal course is designed to enhance understanding of the meaning of illness, and the development of personal identity and professional formation in the aspiring health professional. Through training and practice as EMTs and re...
HLTHSCI507	Discovery / Special Topics Journal Club I	The two course sequence will consist of introductory skills in searching, critically reading and interpreting the medical literature. Students will learn how to construct appropriate clinical questions to discover answers to challenging patient situ...
HLTHSCI508	Discovery / Special Topics Journal Club II	The two course sequence will consist of introductory skills in searching, critically reading and interpreting the medical literature. Students will learn how to construct appropriate clinical questions to discover answers to challenging patient situ...
HLTHSCI509	Medical Statistics	This course covers statistical concepts that enable understanding of the medical literature including study design; summarizing and presenting data; relationships between two variables; probability and probability distributions; analysis of means, an...
HLTHSCI510	Health Systems	The US healthcare system is in the midst of a tumultuous transformation. The goals of this course are to understand the key principles on which the US healthcare system was established, how it functions today, and how to help it work successfully in...
HLTHSCI511	Enhanced EMT-Basic Training Course	This course is designed to instruct a student to the level of Emergency Medical Technician-Basic (EMT-B), and will be concurrent with and supplemented by correlated content in the Human Structure and Cellular Sciences courses. The EMT-B serves as a v...
HLTHSCI512	EMT Clinicals I	This course builds on HLTHSCI511 and will ensure readiness to enter the clinical environment to practice at the level of an EMT-B. Students will be expected to demonstrate mastery of the EMT-B course material by passing the NC state EMT examination a...

CODE	NAME	DESCRIPTION
HLTHSCI513	EMT Clinicals II	This course continues the required clinical experiences through which students will demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with a...
HLTHSCI514	EMT Clinicals III	This elective course enables selected students to continue to refine and demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with an ambulance...
HLTHSCI516	EMT Clinicals	This course builds on HLTHSCI 511 and consists of required clinical experiences through which students will demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic l...
HLTHSCI517	EMT Selective	This selective course enables selected students to continue to refine and demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with an ambulanc...
HLTHSCI518	Evidence Based Clinical Practice	This course consists of introductory skills in searching, critically reading and interpreting the medical literature. Students learn how to construct appropriate clinical questions to discover answers to challenging patient situations. The course fea...
HLTHSCI519	Rural Primary Care Selective	This course offers an immersive experience into rural family medicine, exploring the complexities of longitudinal patient care at Duke Primary Care Oxford. Students will gain insight into the breadth of ambulatory family medicine, participating in pr...
HLTHSCI521	Community Health Engagement Practicum	This course provides students with a foundation in the principles and practices of population health improvement within the framework of community engagement. Participants are expected to first complete required readings and instructional modules tha...
HLTHSCI522	Nutrition Selective	The major focus of this course is to develop a foundation of understanding of basic nutrition and the treatment of various medical diagnoses. This course reviews the nutrition therapy associated with various disease processes in an effort to manage o...
HLTHSCI523	DOCR Research Immersion	An unpaid short-term (1 semester) apprenticeship in an academic laboratory or clinical research setting. In general, students will be expected to dedicate approximately 10-12 hours per week to a mentored research project and submit weekly journals, a...
HLTHSCI524	Directed Study	Directed Studies are variable credit selective pass/fail offerings that respond directly to students' expressed interests and needs and/or to the opportunistic availability of a resource, event, or activity of a timely or transient nature. Examples o...
HLTHSCI525	Fundamentals of Ultrasound	Ultrasound has been used in medical education since the mid-1990s, initially focusing on anatomy and more recently to enhance training in physical diagnosis. This selective course aims to educate students in the basic principles (including physics) a...
HLTHSCI526	Pediatrics and Child Health	This course is designed for pre-health profession students eager to explore the health and well-being of pediatric populations. This course will address the key introductory principles of pediatric health by highlighting disease prevention, health...
HLTHSCI527	Patient Care in the Ambulatory Environment	This course offers in-depth exposure to patient care within the Duke Primary Care network (DPC). Throughout the semester, students will develop clinical competencies by participating in observational experiences, attending lecture-based sessions, and...
HLTHSCI528	Basic Science Selective	An unpaid short-term (1 semester) apprenticeship in an academic laboratory. The goal of this selective is to understand the essentials of laboratory-based research through hands-on 'bench' experience. In general, students will be expected to dedicat...
HLTHSCI529	COVID-19 Case Investigation and Contact Tracing (CICT)	COVID-19 Case Investigation and Contact Tracing (CICT): the course is a collaboration with Duke Employee Health. This is a longitudinal experiential course. The course will be offered July-September; September-January; January-May on infectious disea...
HLTHSCI533	Planning for Health Professions Education	The journey to the health professions requires intentionality, planning, and strategy. This selective provides the participant with a 'deep dive' into the creation of a competitive application for health professions education. Workshops include: the a...

CODE	NAME	DESCRIPTION
HLTHSCI534	Advanced Nutrition Selective	This Medical Nutrition Therapy course is designed for nutrition students wishing to obtain a comprehensive review and understanding of various disease states and medical conditions as well as assist students in applying this knowledge to conduct nutr...
HLTHSCI535	Fundamentals of Learning: Theory and Practice	Success in the health professions requires good habits including time management, insight into learning styles, efficient study habits, and self-care. This selective provides exposure to evidence-based approaches to learning and memory from cognitive...
HLTHSCI536	Health Systems Selective	This selective will allow selected students an opportunity to individualize and focus on an area of health systems such as health policy, health law, and/or intersectional population-based health issues. Interested students will work one-on-one with...

## Master of Biostatistics

**Department Chair:** C. David Page, PhD

**Director of Graduate Studies:** Gregory P. Samsa, PhD

**Associate Director of Graduate Studies:** Jesse D. Troy, PhD

**Senior Program Coordinator:** Kendall Mincey

**Website:** [biostat.duke.edu/education-and-training/master-biostatistics](http://biostat.duke.edu/education-and-training/master-biostatistics)

As biomedical research becomes increasingly quantitative and complex, a need exists for individuals who possess exceptional analytic skills, a strong foundation in human biology, and the ability to effectively communicate statistical principles to multi-disciplinary research teams. Demand is particularly high for individuals formally trained in biostatistics.

Duke University School of Medicine is a world-class medical research institution that provides an ideal setting for training biostatisticians to gain exposure to state-of-the-art biostatistical methodology in the context of cutting-edge science research. Duke's Master of Biostatistics Program is unique in its balanced focus on three core competencies: analysis, biology, and communication. All faculty members in the Department of Biostatistics and Bioinformatics at Duke are actively engaged in research, with projects collectively spanning a broad array of biomedical research areas. Faculty members actively practice what they teach and are dedicated to ensuring students develop the skills and knowledge necessary to succeed as biostatisticians.

To allow students to tailor their education to their post-graduation goals, Duke's Master of Biostatistics Program offers 3 tracks: Clinical and Translation Research (CTR) Track for students who plan to gain employment as a collaborative biostatistician in an academic or industry setting; Biomedical Data Science (BDS) Track for students who would like to blend statistics and computer science; and Mathematical Statistics (MS) Track for students who plan to enroll in a doctoral program in biostatistics or similar field.

Master of Biostatistics

## Academic Calendar

The Master of Biostatistics program follows the academic calendar of The Graduate School.

<b>FALL 2023</b>
<p><b>August</b>              August 23 (W) New graduate student orientation begins              August 28 (M, 8:30 am) Fall semester classes begin</p>
<p><b>September</b>              September 4 (M) Labor Day. Classes in session              September 8 (F) Drop/Add ends for fall              September 28-October 1 (Th-Su) Founders' Weekend</p>
<p><b>October</b>              October 14-17 (Sa-Tu) Fall break              October 24 (T) Shopping carts open for Spring 2024</p>
<p><b>November</b>              November 1 (W) Registration begins for Spring 2024              November 22-26 (W-Su) Thanksgiving recess</p>
<p><b>December</b>              December 1 (F) Graduate classes end              December 2-12 (Sa-Tu) Graduate reading period              December 13-18 (W-M) Final exams</p>
<b>SPRING 2024</b>
<p><b>January</b>              January 10 (W) Spring semester classes begin (Monday class meeting schedule is in effect on this day)              January 15 (M) Martin Luther King, Jr. Day holiday. No classes are held.              January 24 (W) Drop/Add ends for spring</p>
<p><b>February</b>              February 19 (M) Registration begins for Summer 2024</p>
<p><b>March</b>              March 9-17 (Sa-Su) Spring recess              March 25 (M) Shopping carts open for Fall 2024</p>
<p><b>April</b>              April 3 (W) Registration begins for Fall 2024              April 17 (W) Graduate classes end              April 18-28 (Th-Su) Graduate reading period              April 29 (M) Final exams begin</p>
<p><b>May</b>              May 4 (Sa, 10:00 pm) Final exams end              May 10 (F) Commencement begins              May 12 (Su) Graduation exercises; conferring of degrees</p>

Master of Biostatistics

## Admissions

All persons seeking a degree in the Master of Biostatistics Program must be admitted to the program through the admissions process. The information outlined here in the School of Medicine Bulletin is a brief summary of the information available on the program website at [biostat.duke.edu/education/master-biostatistics/overview](http://biostat.duke.edu/education/master-biostatistics/overview). This website should be consulted for the most up-to-date and comprehensive information about the application process and requirements. Questions can be directed to Kendall Mincey at [kendall.mincey@duke.edu](mailto:kendall.mincey@duke.edu). The minimum requirements for admission to the Master of Biostatistics Program include:

- a bachelor's degree (or the equivalent to a US bachelor's degree) from an accredited institution; and
- mathematics coursework through multivariable calculus and a strong interest in biological science. Linear algebra and statistics coursework is strongly recommended.

Incoming students must be well-prepared in terms of general mathematical and scientific background. Strength in mathematics is assumed. Prior coursework or other relevant experience in the biological sciences will be advantageous and viewed favorably in admissions decisions.

## Duke University

All parts of the online application must be filled out completely and submitted to the Master of Biostatistics Program with the application fee by the application deadline. The necessary supporting documents must also be included as part of the submission of the online application. The application fee is \$80. The required supporting documents are: (1) one copy of a transcript from each undergraduate and graduate institution attended; (2) three letters of recommendation; and (3) official Test of English as a Foreign Language (TOEFL) or International English Language Testing Service (IELTS) scores (for all applicants whose first language is not English unless the applicant qualifies for a waiver of this requirement). Please note that an admission decision cannot be made until all the above materials are received and the application is considered complete.

If an applicant accepts an offer of admission, she or he must send an official, confidential transcript to the Program for each institution listed in the online application. The Master of Biostatistics Program reserves the right to revoke any offer of admission in the case of a discrepancy between the transcript included in the online application and the official transcript.

Materials submitted in support of an application are not released for other purposes and cannot be returned to the applicant.

Applicants for fall admission are not required to take or submit General Record Examination (GRE) scores, although the scores may be submitted.

**TOEFL/IELTS Policy for International Applicants.** If an applicant's first language is not English, the applicant must submit certification of English proficiency demonstrated by official test scores from the Test of English as a Foreign Language (TOEFL) ([ets.org/toefl](https://ets.org/toefl)) or the International English Language Testing Service (IELTS) ([ielts.org](https://ielts.org)).

International students who will have completed at least two full years of academic study at an institution that is located in an English-speaking country and where English is the primary language prior to the beginning of the program are not required to take the TOEFL test.

**English Language Requirements for International Students.** In addition to submitting a TOEFL or IELTS score, international students whose first language is not English must demonstrate proficiency in academic English by taking oral and written exams upon their arrival at Duke. Depending on their exam results, students are either exempted from or placed into one or more English for International Students (EIS) courses. Students with EIS requirements must begin these courses in their first year of study.

**Nondegree Study.** Nondegree study is granted at the discretion of the director of graduate studies, requires the permission of the appropriate course instructor(s), and is subject to constraints imposed by course prerequisites and class size limitations.

Master of Biostatistics

## Financial Information

### Tuition and Fees (2023-2024)

First-year tuition	\$40,553
First-year fees	\$1,488
Second-year tuition	\$40,553
Second-year fees	\$1,368

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

### Financial Support

Students are responsible for ensuring they have the means to support themselves and the ability to pay tuition and fees due to the university. Financial assistance for the Master of Biostatistics Program can take the form of program scholarships and federal need-based financial aid packages. More information about these options can be found on the program website and [biostat.duke.edu/education-and-training/master-biostatistics/tuition-and-fees](https://biostat.duke.edu/education-and-training/master-biostatistics/tuition-and-fees).

General financial aid information is available for all interested applicants by contacting the Office of Financial Aid: Box 3067, Duke University School of Medicine, Durham, NC 27710; Phone: (919) 684-6649; Email: [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu); Website: [medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student](https://medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student).

Master of Biostatistics

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

### Attendance Policy

## Duke University

Students are required to attend and participate in all class sessions according to the expectations set forth by individual course instructors. In the absence of a specific course attendance policy, students should assume attendance is expected and absences require prior consultation with the instructors regarding arrangements for missed work.

### Registration and Drop/Add Policy

Registration in the Master of Biostatistics program is processed in accordance with instructions distributed by the Office of the Registrar in the School of Medicine prior to official registration periods.

As the Master of Biostatistics program is designed for full-time study, dropping and adding courses is at the discretion of the director of graduate studies. Please note that courses taken outside the department must be approved by the director of graduate studies prior to enrollment.

### Audits

The Master of Biostatistics program does not permit students to audit the Master of Biostatistics program courses.

### Grades

All courses will be graded on a five-letter grade scale (A, B, C, D, F) with +/- grades assigned at the course instructor's discretion.

The only exceptions are BIOSTAT 720, 801, and 802 which are graded on a Pass/Fail scale.

An I (Incomplete) indicates that some portion of the student's work is lacking for a reason acceptable to the instructor at the time grades are reported. Students will not be permitted to enroll in any course for which they have an unresolved I in a prerequisite course. A grade of I must be resolved no later than the end of the following academic semester unless the course director specifies an earlier date by which the student must make up for the deficiency. In exceptional circumstances, an Incomplete that is not resolved within the designated period may be extended for a specified period with the approval of the course instructor and the director of graduate studies. If an Incomplete is not resolved within the approved period, the grade of I becomes permanent and may not be removed from the student's record. If an Incomplete is resolved within the specified period, the I is removed from the transcript.

A student's enrollment as a degree candidate can be terminated if she or he receives a single grade of D or F or two grades of C or C- in the program. For these purposes, a permanent I is considered a failing grade. The decision to terminate the student's enrollment is the responsibility of the director of graduate studies.

In the case of a student withdrawing from a course after the drop/add period, the student will receive a grade of W, WP (withdraw passing), or WF (withdraw failing), as determined by the director of graduate studies and the course instructor.

Should a student wish to appeal their assigned grade, the following process is required.

1. A student wishing to appeal the grade should discuss this with the course instructor within two weeks of the grade posting in Duke Hub.
2. If the student is not satisfied with the instructor's decision, then the student may contact the director of graduate studies within two weeks of the grade posting in Duke Hub.
3. If the student is not satisfied with the director's decision, then the student can appeal the grade within two weeks after the director of graduate studies meeting.
4. The student is to submit a formal written appeal to the director of graduate studies. The appeal is to be addressed to the B&B Academic Honor Committee.
5. Within one month of receiving the student's formal appeal, the B&B Academic Honor Committee is to meet and render a decision.
6. If the student is not satisfied with the B&B Academic Honor Committee's decision, the student may submit an appeal to the Vice Dean for Education (Dr. Ed Buckley) for a ruling.
7. If the student is not satisfied with Dr. Buckley's ruling, the student may appeal to the Dean but only on grounds of improper procedure.

### Graduation Requirements

To receive the Master of Biostatistics degree, students must successfully complete 44 credits of coursework as outlined in this bulletin, a practicum experience, a proficiency examination, plus a master's project for which 6-course credits are given. Candidates for the Master of Biostatistics degree must apply to graduate through Duke Hub in keeping with the instructions and deadlines announced by the Office of the Registrar in the School of Medicine. Failure to do so may delay the conferral of the degree and issuance of the diploma, even if all degree requirements have been met.



## Satisfactory Academic Progress

Satisfactory academic progress for full-time students in the Master of Biostatistics program consists of the successful completion of all requirements necessary to advance toward completion of degree requirements within the six-year time limitation. This includes successful completion of the proficiency examination (see above) as well as meeting the requirements and standards for completion of the practicum and the master's project as described in program guidelines. Students must also maintain a cumulative grade point average of 2.70 in order to maintain satisfactory academic progress.

For non-degree students, satisfactory academic progress consists of successful completion toward the attainment of individual training goals, within the constraints imposed by course prerequisites.

## Academic Probation Policy

A student who receives two grades of C+ or lower or one grade of D+ or lower in any course(s) may automatically be placed on academic probation. When a student is placed on academic probation, an individualized remediation plan will be developed and approved by the standing committee on academic reviews. Input from the faculty, the student, and the director of graduate studies will be considered. The student will sign the remediation plan. The remediation plan will specify conditions that will lead to either removal of academic probation or dismissal from the program. The terms of the remediation plan will be based on the academic needs of the student. If the terms of the remediation plan are not met, there will be multiple layers of review. First, the standing committee on academic reviews will assess the situation: for example, considering possible extenuating circumstances. If the recommendation is to suspend or to dismiss, it will be reviewed by the director of graduate studies. If the director of graduate studies concurs, the recommendation will be forwarded to the Vice Dean of Education. Appeals may be submitted to the director of graduate studies and then to the Vice Dean of Academic Affairs. The School of Medicine registrar will be notified of the student's academic status and it may be noted on the student's transcript at the completion of the semester(s) during which the status is assigned. Once the student has been removed from probationary status, the notation on the student's transcript will be removed.

## Leave of Absence Policy

A Master of Biostatistics student, after presenting a written request to the director of graduate studies, may be granted an official leave of absence for personal, medical, or academic reasons for a period not to exceed one calendar year. If the leave of absence is approved, the director of graduate studies provides written notification including applicable beginning and ending dates to the student and the Office of the Registrar and the Office of Financial Aid in the School of Medicine. The student must notify the director of graduate studies in writing of their wish to return to the Master of Biostatistics program or to extend the personal leave at least sixty calendar days prior to the anticipated date of re-entry. The student desiring an extension beyond one calendar year may be required to apply for readmission to the program. When a leave of absence is taken, the director of graduate studies may require the student to repeat some or all of the courses completed prior to the leave of absence. In all cases of leaves of absence, the student is required to complete the full curriculum to be eligible to earn the Master of Biostatistics degree.

## Withdrawal

If a student withdraws, including involuntary withdrawal for academic reasons, tuition is prorated according to the following schedule:

Before classes begin:	100%
During the first or second week:	80%
During the third to fifth week:	60%
During the sixth week:	20%
After the sixth week:	None

Student fees are nonrefundable after classes begin.

Voluntary withdrawals are typically initiated at the request of the student. Working with the director of graduate studies, a mutual decision is reached regarding the effective date of the withdrawal and any academic penalty to be assessed. The director of graduate studies will notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The Office of Financial Aid may revoke any financial aid that has been disbursed. The student should also contact these offices to ensure that they have fulfilled any responsibilities regarding this process.

## Readmission after Program Withdrawal

## Duke University

Students who wish to re-enter the Master of Biostatistics program after withdrawing must provide a statement detailing the following to the director of graduate studies:

- how the issues relating to the withdrawal have been addressed; and
- why the student is re-applying to the program, including information concerning changes in the situation and an explanation as to the chosen time for return.

Students must also provide an updated curriculum vitae and a transcript of any academic courses taken since the withdrawal.

The applicant will then be scheduled for an interview with the director of graduate studies. After this meeting takes place, the director of graduate studies will make a final decision.

### Time Limitations

A degree candidate is expected to complete all requirements within six calendar years of matriculation. Degree credit for a course expires six years after the course is completed by the student; in this case, degree credit can be obtained only by retaking the course.

### Reporting of Inappropriate Treatment in the Teacher-Learner Relationship

Perceived inappropriate treatment of a learner, either experienced or witnessed, should be reported by using one or more of the following methods:

- verbally or in writing to the course director of the learner's course
- verbally or in writing to the advisory dean or personal advisor of the learner
- in a mandatory end-of-course evaluation
- in other internal surveys done by the learner's program
- on the Adverse Events website for the SOM (can be anonymous)
- to a member of the Committee on Appropriate Treatment of Learners (CAT)
- to the SOM or University Ombuds person
- to the Duke University Office of Institutional Equity

### Computer Technology

All students are expected to have access to a laptop computer during class with the following capabilities:

- Running an internet browser (e.g., Safari, Google Chrome, Firefox, etc.)
- Running Microsoft Word (or another typesetting software that is compatible with .docx files)
- Running the R software ([r-project.org](http://r-project.org))
- Running the SAS software ([support.sas.com/en/documentation/system-requirements.html](http://support.sas.com/en/documentation/system-requirements.html))

Master of Biostatistics

## Program Requirements

### Core Courses

Foundational courses are required of all degree-seeking students.

## Duke University

BIOSTAT 701	Introduction to Statistical Theory and Methods I (3 course credits)
BIOSTAT 701A	Advanced Introduction to Statistical Theory and Methods I (3 course credits)
BIOSTAT 702	Applied Biostatistics Methods I (3 course credits)
BIOSTAT 702A	Advanced Applied Biostatistics Methods I (3 course credits)
BIOSTAT 703	Introduction to the Practice of Biostatistics I (3 course credits)
BIOSTAT 703A	Advanced Introduction to the Practice of Biostatistics I (3 course credits)
BIOSTAT 703L	Introduction to the Practice of Biostatistics I Lab (0 course credits)
BIOSTAT 704*	Introduction to Statistical Theory and Methods II (3 course credits)
BIOSTAT 704A*	Advanced Introduction to Statistical Theory and Methods II (3 course credits)
BIOSTAT 705	Applied Biostatistical Methods II (3 course credits)
BIOSTAT 705A	Advanced Applied Biostatistical Methods II (3 course credits)
BIOSTAT 706	Introduction to the Practice of Biostatistics II (3 course credits)
BIOSTAT 706A	Advanced Introduction to the Practice of Biostatistics II (3 course credits)
BIOSTAT 709*	Observational Studies (3 course credits)
BIOSTAT 721	Introduction to Statistical Programming I (3 course credits)
BIOSTAT 721A	Advanced Introduction to Statistical Programming I (3 course credits)
BIOSTAT 722**	Introduction to Statistical Programming II (3 course credits)
BIOSTAT 722A**	Advanced Introduction to Statistical Programming II (3 course credits)
BIOSTAT 801	Biostatistics Career Preparation and Development I (1 course credit)
BIOSTAT 802	Biostatistics Career Preparation and Development II (1 course credit)
BIOSTAT 821**	Software Tools for Data Science (3 course credits)

\*To meet program requirements, students must take either BIOSTAT 704/704A or BIOSTAT 709.

\*\*To meet program requirements, students must take either BIOSTAT 722/722A or BIOSTAT 821. By permission of the director of graduate studies, students may request to take BIOSTAT 821 instead of BIOSTAT 722.

## Practicum

All candidates for the Master of Biostatistics degree are required to complete a practicum. The practicum is an experiential learning opportunity. The main goal of the practicum is to allow students to develop their analytic ability, biological knowledge, and communication skills. The practicum is typically completed during the summer after the first year but can be completed during the second year.

## Proficiency Examination

All candidates for the Master of Biostatistics degree are required to pass a written Proficiency Examination demonstrating their mastery of fundamental concepts acquired through completion of the first-year core courses (BIOSTAT 701-706 inclusive). Students are expected to take the Proficiency Examination after completing the first year of study in the program and prior to beginning their elective coursework. Students receive two attempts to successfully pass the Proficiency Examination. The Proficiency Examination is offered twice each summer.

## Master's Project

All candidates for the Master of Biostatistics degree are required to complete a Master's Project—BIOSTAT 720 (Master's Project - 6 course credits). Completed in the second year, the Master's Project serves to demonstrate the student's mastery of core statistical concepts and the practice of biostatistics.

## Second-Year Courses

Full-time Master of Biostatistics students are required to select six elective courses during the second year of study from among the courses listed below. The director of graduate studies will meet with each student to customize their individual curriculum and determine which track is appropriate. The choice of second-year courses depends on the student's interests and their approved educational track (CTR vs. BDS vs. MS). With the approval of the director of graduate studies and the course instructor, students may enroll in courses outside the Biostatistics and Bioinformatics Department.

# Duke University

BIOSTAT 707	Statistical Methods for Learning and Discovery (3 course credits)
BIOSTAT 708	Clinical Trial Design and Analysis (3 course credits)
BIOSTAT 709	Observational Studies (3 course credits)
BIOSTAT 710	Statistical Genetics and Genetic Epidemiology (3 course credits)
BIOSTAT 713	Survival Analysis (3 course credits)
BIOSTAT 718	Analysis of Correlated and Longitudinal Data (3 course credits)
BIOSTAT 719	Generalized Linear Models (3 course credits)
BIOSTAT 724	Introduction to Applied Bayesian Analysis (3 course credits)
BIOSTAT 732	Independent Study (1-3 course credits)
BIOSTAT 822	R for Data Science (3 course credits)
BIOSTAT 823	Statistical Programming for Big Data (3 course credits)
BIOSTAT 824	Case Studies in Biomedical Data Science (3 course credits)
BIOSTAT 825	Foundation of Reinforcement Learning (3 course credits)
BIOSTAT 900	Current Problems in Biostatistics (1 course credit)
BIOSTAT 905	Linear Models and Inference (3 course credits)
BIOSTAT 906	Statistical Inference (3 course credits)
BIOSTAT 911	Inferential Techniques/Theory (3 course credits)
BIOSTAT 914	Graphical Models for Biological Data (3 course credits)
BIOSTAT 915	High-Dimensional Statistics and Machine Learning (3 course credits)
BIOLOGY 790S	Graphic Design for Biologists (3 course credits)
ENVIRON 537	Environmental Health and Epidemiology (3 course credits)
GLHLTH 562	Data Science and Data Visualization (3 course credits)
STA 602L	Bayesian and Modern Statistical Analysis (3 course credits)
STA 611	Introduction to Statistical Methods (3 course credits)
STA 663L	Computational Statistics and Statistical Computing (3 course credits)
STA 671D	Machine Learning (3 course credits)
STA 711	Probability and Measure Theory (3 course credits)
MATH 531	Real Analysis I (3 course credits)
MATH 590	Quantitative Methods for Biomedical Data (3 course credits)
MATH 721	Linear Algebra and Application (3 course credits)
MATH 731	Introduction to Real Analysis (3 course credits)
<b>Fall</b>	<b>Spring</b>
<b>Biology (3 course credits):</b>	<b>Biology (3 course credits):</b>
BIOLOGY 790S	BIOLOGY 790S
<b>Computational Biology (3 course credits):</b>	<b>Computational Biology (3 course credits):</b>
Any 500 and 600 level except 510S, 511, or 591	Any 500 and 600 level except 510S, 511, or 591
<b>Computer Science (3 course credits):</b>	<b>Computer Science (3 course credits):</b>
Any 500 and 600 level	Any 500 and 600 level
<b>Environmental (3 course credits):</b>	<b>Environmental (3 course credits):</b>
ENVIRON 537	ENVIRON 537
<b>Global Health (3 course credits):</b>	<b>Global Health (3 course credits):</b>
Global Health 562	Global Health 562
<b>Statistical Science (3 course credits):</b>	<b>Statistical Science (3 course credits):</b>
Any 500 level except 501S	Any 500 level except 501S

Any 600 level except for 693	Any 600 level except for 693
Any 700 level except for 701S, 790, and 791	Any 700 level except for 701S, 790, and 791
Any 800 level except for 851	Any 800 level except for 851
Any 900 level except for 993, 994, and 995	Any 900 level except for 993, 994, and 995

## Professional Development Courses

All students are required to enroll and pass two career development and preparation courses.

BIOSTAT 801	Biostatistics Career Preparation and Development I (1 course credit)
BIOSTAT 802	Biostatistics Career Preparation and Development II (1 course credit)

## Course Planning

There are three academic tracks available to students in the Master of Biostatistics Program: (1) Clinical and Translational Research Track; (2) Biomedical Data Science Track; and (3) Mathematical Statistics Track (assessment required before track entry). Students will automatically be enrolled in the Clinical and Translational Research Track at the start of their first year. In consultation with the director of graduate studies, students may choose to differentiate after their first year of study. The course planning below describes courses from which to choose. Other course requests will be reviewed on a case-by-case basis.

### First Year - 26 graded coursework credit hours

Fall	Spring	Summer
BIOSTAT 701 (3)	BIOSTAT 704 or BIOSTAT 709 (3)	Proficiency Examination (covers content from BIOSTAT 701-706)
BIOSTAT 702 (3)	BIOSTAT 705 (3)	Practicum (may be completed at any point after the first year)
BIOSTAT 703 (3)	BIOSTAT 706 (3)	
BIOSTAT 703L (0)	BIOSTAT 722 or BIOSTAT 821 (3)	
BIOSTAT 721 (3)	BIOSTAT 802 (1)	
BIOSTAT 801 (1)	-	
<b>Total: 13 credit hours</b>	<b>Total: 13 credit hours</b>	

In the first year, students will take all the required courses listed with any exceptions approved by the director of graduate studies.

### Second Year - 24 credit hours – master’s project (6) plus graded coursework credit hours (18)

Fall	Spring
BIOSTAT 720 (3)	BIOSTAT 720 (3)

<p>+ 3 of the following:</p> <ul style="list-style-type: none"> <li>● BIOSTAT 707 (3)</li> <li>● BIOSTAT 710 (3)</li> <li>● BIOSTAT 713 (3)</li> <li>● BIOSTAT 719 (3)</li> <li>● BIOSTAT 732 (1-3)</li> <li>● BIOSTAT 823 (3)</li> <li>● BIOSTAT 825 (3)</li> <li>● BIOSTAT 900 (1)</li> <li>● BIOSTAT 906 (3)</li> <li>● BIOSTAT 914 (3)</li> <li>● BIOSTAT 915 (3)</li> <li>● MATH 531 (3)</li> <li>● MATH 590 (3)</li> <li>● MATH 721 (3)</li> <li>● MATH 731 (3)</li> </ul>	<p>+ 3 of the following:</p> <ul style="list-style-type: none"> <li>● BIOSTAT 708 (3)</li> <li>● BIOSTAT 709 (3)</li> <li>● BIOSTAT 718 (3)</li> <li>● BIOSTAT 724 (3)</li> <li>● BIOSTAT 732 (1-3)</li> <li>● BIOSTAT 821 (3)</li> <li>● BIOSTAT 822 (3)</li> <li>● BIOSTAT 824 (3)</li> <li>● BIOSTAT 900 (1)</li> <li>● BIOSTAT 905 (3)</li> <li>● BIOSTAT 911 (3)</li> <li>● MATH 531 (3)</li> <li>● MATH 721 (3)</li> <li>● MATH 731 (3)</li> </ul>
<b>Fall</b>	<b>Spring</b>
<b>Biology (3 course credits):</b>	<b>Biology (3 course credits):</b>
BIOLOGY 790S	BIOLOGY 790S
<b>Computational Biology (3 course credits):</b>	<b>Computational Biology (3 course credits):</b>
Any 500 and 600 level except 510S, 511, or 591	Any 500 and 600 level except 510S, 511, or 591
<b>Computer Science (3 course credits):</b>	<b>Computer Science (3 course credits):</b>
Any 500 and 600 level	Any 500 and 600 level
<b>Environmental (3 course credits):</b>	<b>Environmental (3 course credits):</b>
ENVIRON 537	ENVIRON 537
<b>Global Health (3 course credits):</b>	<b>Global Health (3 course credits):</b>
GLHLTH 562	GLHLTH 562
<b>Statistical Science (3 course credits):</b>	<b>Statistical Science (3 course credits):</b>
Any 500 level except 501s	Any 500 level except 501s
Any 600 level except for 693	Any 600 level except for 693
Any 700 level except for 701S, 790, and 791	Any 700 level except for 701S, 790, and 791
Any 800 level except for 851	Any 800 level except for 851
Any 900 level except for 993, 994, and 995	Any 900 level except for 993, 994, and 995
<b>Total: 3 required credit hours plus 9 elective credit hours</b>	<b>Total: 3 required credit hours plus 9 elective credit hours</b>

In the second year, students may choose from a variety of courses listed. In addition, second-year students may request and be approved to substitute listed courses with other program and non-program courses. Director of graduate studies (DGS) permission is required. Each of the courses in the list may potentially be taken by students in any of the three tracks. The tracks are instead differentiated by content emphasis. The second-year curriculum is personalized and approved by the director of graduate studies. The director of graduate studies chooses the mechanism by which the appropriate emphasis of the student's proposed curriculum is assessed.

- The **Mathematical Statistics Track** emphasizes preparation for doctoral study in mathematically sophisticated programs and will typically include methodologically oriented statistical electives and demonstrated proficiency (either in coursework or by placing out) in real analysis.
- The **Biomedical Data Science Track** emphasizes computation and will typically include statistical electives and additional coursework selected from topics such as workflow best practices, software tools for large biomedical data sets, and data structures and algorithms for data-intensive applications.
- The **Clinical and Translational Research Track** emphasizes collaborative science and will typically include statistical electives and the application of statistical methods.

Master of Biostatistics

## Courses of Instruction

CODE	NAME	DESCRIPTION
<b>BIOSTAT701</b>	Introduction to Statistical Theory and Methods I	This course provides a formal introduction to the basic theory and methods of probability and statistics. It covers topics in probability theory with an emphasis on those needed in statistics, including probability and sample spaces, independence, co...
<b>BIOSTAT701A</b>	Advanced Introduction to Statistical Theory and Methods I	This course provides an advanced formal introduction to the basic theory and methods of probability and statistics. It covers topics in probability theory with an emphasis on those needed in statistics, including probability and sample spaces, indepe...
<b>BIOSTAT701L</b>	Advanced Statistical Theory and Method I Lab	Students who enroll in BIOS 701 may opt to enroll in this advanced lab designed to extend the material presented in BIOS 701. This course will be run as a mixture of lecture and recitation. Each session will start with a short presentation by the ins...
<b>BIOSTAT702</b>	Applied Biostatistical Methods I	This course provides an introduction to study design, descriptive statistics, and analysis of statistical models with one or two predictor variables. Topics include principles of study design, basic study designs, descriptive statistics, sampling, co...
<b>BIOSTAT702A</b>	Advanced Applied Biostatistical Methods I	This course provides an advanced introduction to study design, descriptive statistics, and analysis of statistical models with one or two predictor variables. Topics include principles of study design, basic study designs, descriptive statistics, sam...
<b>BIOSTAT703</b>	Introduction to the Practice of Biostatistics I	This course provides an introduction to biology at a level suitable for practicing biostatisticians and directed practice in techniques of statistical collaboration and communication. With an emphasis on the connection between biomedical content and...
<b>BIOSTAT703A</b>	Advanced Introduction to the Practice of Biostatistics I	This course provides an advanced introduction to biology at a level suitable for practicing biostatisticians and directed practice in techniques of statistical collaboration and communication. With an emphasis on the connection between biomedical con...
<b>BIOSTAT703L</b>	Introduction to the Practice of Biostatistics I Lab	The lab is an extension of the course and operates like a seminar in which journal articles are used as a basis for discussion. The primary focus is on teaching students how to dissect a research article from a statistical and scientific perspective....
<b>BIOSTAT704</b>	Introduction to Statistical Theory and Methods II	This course provides formal introduction to the basic theory and methods of probability and statistics. It covers topics in statistical inference, including classical and Bayesian methods, and statistical models for discrete, continuous and categoric...
<b>BIOSTAT704A</b>	Advanced Introduction to Statistical Theory and Methods II	This course provides formal introduction to the basic theory and methods of probability and statistics. It covers topics in statistical inference, including classical and Bayesian methods, and statistical models for discrete, continuous, and categori...
<b>BIOSTAT705</b>	Applied Biostatistical Methods II	This course provides an introduction to general linear models and the concept of experimental designs. Topics include linear regression models, analysis of variance, mixed-effects models, generalized linear models (GLM) including binary, multinomial...
<b>BIOSTAT705A</b>	Advanced Applied Biostatistical Methods II	This course provides an advanced introduction to general linear models and the concept of experimental designs. Topics include linear regression models, analysis of variance, mixed-effects models, generalized linear models (GLM) including binary, mul...

CODE	NAME	DESCRIPTION
<b>BIOSTAT706</b>	Introduction to the Practice of Biostatistics II	This course revisits the topics covered in BIOSTAT 703 in the context of high-throughput, high-dimensional studies such as genomics and transcriptomics. The course will be based on the reading of both the textbook and research papers. Students will...
<b>BIOSTAT706A</b>	Advanced Introduction to the Practice of Biostatistics II	This course revisits the advanced topics covered in BIOSTAT 703 in the context of high-throughput, high-dimensional studies such as genomics and transcriptomics. The course will be based on reading of both the textbook and research papers. Students...
<b>BIOSTAT707</b>	Statistical Methods for Learning and Discovery	This course surveys machine learning methods for biological applications, with emphasis on probabilistic approaches and applications in genetics and genomics. Topics include neural networks, probabilistic graphical models, Bayes' nets, Markov models...
<b>BIOSTAT708</b>	Clinical Trial Design and Analysis	Topics include history/background and process for clinical trial, key concepts for good statistics practice (GSP)/good clinical practice (GCP), regulatory requirement for pharmaceutical/clinical development, basic considerations for cl...
<b>BIOSTAT709</b>	Observational Studies	Methods for causal inference, including confounding and selection bias in observational or quasi-experimental research designs, propensity score methodology, instrumental variables, and methods for non-compliance in randomized clinical trials. Prereq...
<b>BIOSTAT710</b>	Statistical Genetics and Genetics Epidemiology	Topics from current and classical methods for assessing familiarity and heritability, linkage analysis of Mendelian and complex traits, family-based and population-based association studies, genetic heterogeneity, epistasis, and gene-environmental in...
<b>BIOSTAT712</b>	Clustered Data Designs and Applications	Data collected within clusters are not generally independent and analysis strategies are needed to accommodate this construct. Focus will be on identifying clustered design structures, such as: patients within clinics and measurements over time on th...
<b>BIOSTAT713</b>	Survival Analysis	Introduction to concepts and techniques used in the analysis of time-to-event data, including censoring, hazard rates, estimation of survival curves, regression techniques, and applications to clinical trials. Interval censoring, informative censorin...
<b>BIOSTAT714</b>	Categorical Data Analysis	Topics in categorical modeling and data analysis/contingency tables; measures of association and testing; logistic regression; log-linear models; computational methods including iterative proportional fitting; models for sparse data; Poisson regressi...
<b>BIOSTAT718</b>	Analysis of Correlated and Longitudinal Data	Topics include linear and nonlinear mixed models; generalized estimating equations; subject-specific versus population average interpretation; and hierarchical models. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studie...
<b>BIOSTAT719</b>	Generalized Linear Models	The class introduces the concept of the exponential family of distributions and link functions, and their use in generalizing the standard linear regression to accommodate various outcome types. The theoretical framework will be presented but detaile...
<b>BIOSTAT720</b>	Master's Project	Completed during a student's final year of study, the master's project is performed under the direction of a faculty mentor and is intended to demonstrate general mastery of biostatistical practice. Prerequisite(s): BIOSTAT 706/706A. Credits: 3 in Fa...
<b>BIOSTAT721</b>	Introduction to Statistical Programming I (R)	This class is an introduction to programming in R, targeted at those with minimal programming knowledge. Students will learn the core ideas of programming (functions, objects, data structures, input and output, debugging, and logical design) throug...
<b>BIOSTAT721A</b>	Advanced Introduction to Statistical Programming I (R)	This class is an advanced introduction to programming in R, targeted at those with minimal programming knowledge. Students will learn the core ideas of programming (functions, objects, data structures, input and output, debugging, and logical desig...
<b>BIOSTAT722</b>	Introduction to Statistical Programming II (SAS)	This class is an introduction to programming in SAS, targeted at those with minimal programming knowledge. Topics build from data management programming to statistical programming. Algorithms and data structures are emphasized. Prerequisite(s): No...



CODE	NAME	DESCRIPTION
<b>BIOSTAT722A</b>	Advanced Introduction to Statistical Programming (SAS)	This class is an advanced introduction to programming in SAS, targeted at those with minimal programming knowledge. Topics build from data management programming to statistical programming. Algorithms and data structures are emphasized. Prerequisi...
<b>BIOSTAT732</b>	Independent Study	Independent Study is a semester-long course focused on mentored research in the practice of biostatistics. Students work with an assigned mentor. This course is only open to students by permission of the director of graduate studies. Credits: 1, 2, o...
<b>BIOSTAT740</b>	Continuation	Continuation is a semester-based, noncredit-bearing enrollment status used when a student is continuing scholarly activities with the same mentor. This course is only open to students by permission of the director of graduate studies. Credits: 0
<b>BIOSTAT801</b>	Biostatistics Career Preparation and Development I	The purpose of this course is to give the student a holistic view of career choices and development and the tools they will need to succeed as professionals in the world of work. The fall semester will focus on resume development, creating a professi...
<b>BIOSTAT802</b>	Biostatistics and Career Preparation and Development II	The purpose of this course is to further develop the student's job seeking ability and the practical aspects of job/internship search or interviewing for a PhD program. The goal is to learn these skills once and use them for a lifetime. Modules that...
<b>BIOSTAT821</b>	Software Tools for Data Science	A data scientist needs to master several different tools to obtain, process, analyze, visualize and interpret large biomedical data sets such as electronic health records, medical images, and genomic sequences. It is also critical that the data scien...
<b>BIOSTAT822</b>	R for Data Science	This course will build on the foundation laid in software tools for data science. The course will explore the flow of a typical data science project from importing, cleaning, transforming and visualizing datasets to modeling and communicating results...
<b>BIOSTAT823</b>	Statistical Program for Big Data	This course describes the challenges faced by analysts with the increasing importance of large data sets, and the strategies that have been developed in response to these challenges. The core topics are how to manage data and how to make computation...
<b>BIOSTAT824</b>	Case Studies in Biomedical Data Science	This course will highlight how biomedical data science blends the field of biostatistics with the field of computer science through the introduction of 3 to 5 case studies. Students will be introduced to analytic programs typically encountered in bio...
<b>BIOSTAT825</b>	Foundation of Reinforcement Learning	This course focuses on theoretical and algorithmic foundations of bandits and reinforcement learning, involving topics including upper confidence bound methods, Thompson sampling, linear and deep contextual bandits, Markov decision process, Q-learnin...

## Master of Management in Clinical Informatics

**Department Chair:** C. David Page, PhD

**Program Director:** Ed Hammond, PhD

**Operations Director:** Randy Sears, MBA

**Website:** [mmci.duke.edu](http://mmci.duke.edu)

The Master of Management in Clinical Informatics Program is intended to prepare graduates to work in the health care industry as informatics professionals. The curriculum provides a blending of informatics and business principles, preparing graduates to apply business principles to strategic decisions regarding evaluation, implementation, and use of informatics in the health care industry. Graduates will work in health care provider, payer, and vendor organizations.

The curriculum for the Master of Management in Clinical Informatics Program involves thirteen required courses that carry 2-3 course credits per course and one ethics seminar course that carries no course credit but is required to graduate. There are no elective courses and no course exemptions. Course substitutions are not permitted, and students progress through the program as a single cohort. This structure reflects the importance of the following issues: (1) the need to ensure the appropriate balance between the breadth and depth required to successfully prepare for a work role in health informatics; (2) the need to ensure that students have uniform quality with respect to depth of exposure to concepts and frameworks in a given area; and (3) the value of intact cohorts which

# Duke University

will allow us to enhance teaming skills in repeated contexts. The curriculum capstone is the practicum which students complete over the Summer term. The practicum provides students with a hands-on, real work project in which brings to bear the multidiscipline approach of the MMCi Program.

The Master of Management in Clinical Informatics Program meets one Friday and Saturday every month; another Saturday in the month is remote, plus online education. Students interested in the program should contact MMCi Admissions, Duke University School of Medicine, DUMC 2734, Durham, NC 27710; email: mmci@duke.edu; website: mmci.duke.edu.

## Certificate in Clinical Informatics

A certificate may be earned by students in the approved department at Duke or the VA. This is with the approval of the Program Directors of MMCi. This is a one-year program. Graduates may return for the full Master of Management in Clinical Informatics degree within three years of earning the certificate. Tuition for returning students within that time frame are charged the same as when they earned the certificate.

Students interested in the program should contact MMCi Admissions, Duke University School of Medicine, DUMC 2734, Durham, NC 27710; email: mmci@duke.edu; website: mmci.duke.edu.

Master of Management in Clinical Informatics (A-MCI-MMCI)

## Academic Calendar

Dates for the Academic Terms			
July 27 - July 30, 2023		Boot Camp and Orientation	
August 2 - October 21, 2023		Fall Term 01	
October 25 - January 30, 2024		Fall Term 02	
February 1 - April 30, 2024		Fall Term 03	
May 1 - July 27, 2024		Fall Term 04	
July 29 - August 1, 2024		Finals Week	
Class Weekend Dates			
August 12	November 4	February 10	May 11
August 25-26	November 17-18	February 23-24	May 24-25
September 9	December 2	March 9	June 15
September 22-23	December 15-16	March 22-23	June 28-29
October 7	January 6	April 3	July 3
October 20-21	January 19-20	April 26-27	July 26-27
<b>Exams:</b> October 23-27	<b>Exams:</b> January 22-26	<b>Exams:</b> April 29-May 3	<b>Exams:</b> July 29 - August 3

Master of Management in Clinical Informatics (A-MCI-MMCI)

## Admissions

All students seeking admission to the Master of Management in Clinical Informatics Program must have a bachelor's degree (or the equivalent to a US bachelor's degree) from an accredited institution. It is recommended students have a background that includes college-level calculus and statistics courses, as well as computer skills.

The minimum requirements for admission to the MMCi Program include:

- academic and graduate transcripts, as relevant
- two essays written by the applicant to assess readiness and interest
- GMAT or GRE is not required for application; education and experience are assessed. Admissions committee determines if required for admission.
- two letters of recommendation:
  - one addressing work or educational experience and conveying ability to work at the level of a master's program
  - one addressing interpersonal skills, values, or character
- interview with the director of faculty affairs by phone or in person

## Duke University

- international students—TOEFL test scores required. May be waived for international students graduating from colleges or universities which provide instruction in English.

There is no application fee.

Master of Management in Clinical Informatics (A-MCI-MMCI)

## Financial Information

### Tuition and Fees

Tuition	\$65,312
Domestic student fees	\$1,320
International student fees	\$6,295

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

## Financial Aid

### MMCI Merit Scholarship

Every admitted applicant is considered for a merit scholarship based on their profile. Criteria for selection includes prior academic achievement, demonstrated leadership qualities, extracurricular activities, and employment background. Contact an admissions counselor for more information.

### Federal Financial Aid

A US student may be eligible to borrow up to the full cost of attendance through a combination of Federal Direct Stafford and Federal Direct PLUS loans.

To be considered for federal financial aid, eligible students must complete the Free Application for Federal Student Aid (FAFSA). The School of Medicine's federal school code for the FAFSA is 002920. More information, including specific eligibility requirements, about federal need-based financial aid can be found on the FAFSA website.

Full cost of attendance budgets may be found on the Office of Financial Aid website at [medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student](https://medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student).

### Refund Policies

The following policies apply to withdrawal from school during fall, spring and summer semesters. In the event of death, refund of full tuition and fees for the term will be granted. In all other cases of withdrawal from the university, students may have tuition prorated according to the following schedule:

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

Master of Management in Clinical Informatics (A-MCI-MMCI)

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

### Registration

Registration in the Master of Management of Clinical Informatics Program is processed in accordance with instructions distributed by the Office of the Registrar of the School of Medicine prior to official registration periods. As the program is only offered full-time, and all courses are mandatory, dropping and adding of courses is not permitted.

### Attendance Policy

## Duke University

Students are required to attend class on site for 12 class weekends, Friday and Saturday, or online for Saturday-only classes. The program may deem a student to have missed an excessive amount of onsite classes and, after a warning, place the student on a leave of absence until they are available to participate on site. Remote attendance must be approved by program administration.

### Leaves of Absence

Leaves of absence with anticipated readmission may be granted to students in good standing who demonstrate a compelling nonacademic reason for a leave. They may be granted a leave of up to one academic year. If a leave expires without the student re-entering the program, the student will be withdrawn from the program.

### Transfer of Credit

Coursework taken outside of Duke University is not transferable to the Master of Management of Clinical Informatics Program.

### Grading

Grades in the Master of Management of Clinical Informatics Program consist of H (honors), HP (high pass), P (pass), L (low pass), F (fail), WP (withdraw passing) and WF (withdraw failing).

An I (incomplete) indicates that some portion of the student's work is lacking for a reason acceptable to the instructor at the time grades are reported. Students will not be permitted to enroll in any course for which they have an unresolved I in a prerequisite course. A grade of I must be resolved no later than the end of the following academic semester, unless the course director specifies an earlier date by which the student must make up the deficiency. In exceptional circumstances, an incomplete that is not resolved within the designated period may be extended for a specified period with the written approval of the course director and the program director. If an incomplete is not resolved within the approved period, the grade of I becomes permanent and may not be removed from the student's record.

A WP (withdraw passing) means the student was passing all classes at the time of withdrawal. Students with a WP have a limited time to return to the program. The Program and Operations Director determine this time period.

Students earning an L will receive an academic warning. In most cases, a student's enrollment as a degree candidate is terminated if they receive a single grade of F or two grades of L in the program. Both WF (see below) and a permanent I are considered failing grades.

### Reinstatement

Students receiving two L's are not eligible for graduation until one of the classes in which an L was earned is repeated; a P or higher must be earned. The student has one academic year from original graduation date to retake the course.

Students who are dismissed from the program may appeal their dismissal to the Faculty Committee. The Faculty Committee will review the appeal. Appeals must be submitted in writing within two weeks of notification of dismissal. Students who earn an F in a required course must retake and pass that course with MMCI. Per university policy, Fs remain on the student's transcript and figure into the GPA even after retaking the course. They also continue to count in the strike total.

### Code of Professional Conduct

Students enrolled in the Master of Management in Clinical Informatics Program are expected to adhere to the Duke University School of Medicine Code of Professional conduct as detailed in the policies for all School of Medicine programs found elsewhere in this bulletin. Failure to meet the Code of Professional conduct of the School of Medicine will be considered an academic violation and could lead to dismissal from the program and lead to grade of F in a course should the violation be associated with academic performance as required by each course.

### Satisfactory Academic Progress

Satisfactory academic progress for students in the Master of Management in Clinical Informatics Program consists of the successful completion of all requirements necessary to advance toward completion of degree requirements within the twelve month, three-semester program calendar. Satisfactory progress also includes working successfully in a group or individual setting throughout the year.

### Graduation

## Duke University

To graduate, students must complete at least 36 course credits in the Master of Management in Clinical Informatics Program and complete all required courses. Candidates for the MMCI degree must apply to graduate through DukeHub in keeping with the instructions and deadlines announced by the Office of the Registrar in the School of Medicine. Failure to do so may delay conferral of the degree and issuance of the diploma, even if all degree requirements have been met.

Degrees for the Master of Management in Clinical Informatics Program will be conferred September 1 by the university and diplomas will be mailed to students in mid-October.

Master of Management in Clinical Informatics (A-MCI-MMCI)

### Program Requirements

The curriculum is made up of thirteen required courses. Each course represents 2-3 course credits, for a total of 36 course credits. Each course requires twenty-seven contact or teaching hours which is met through the weekend schedule. All students will be required to complete a noncredit ethics seminar that meets four times throughout the year. There are no elective courses, and no exemptions or substitutions are permitted.

Upon approval by the School of Medicine, a certificate of informatics may be earned by students in the approved department at Duke or the VA. This is with the approval of the Program Directors of MMCI.

### Management Courses

- **MMCI 511 - Principles of Cost and Managerial Accounting.** This course focuses on the design of management accounting systems for analyzing costs in the context of a firm's business model, as well as the use of managerial accounting data in planning and controlling operations. Credit: 2
- **MMCI 525 - Healthcare Finance.** This course examines important issues in healthcare finance from the perspective of payers and providers. The concept of net present value, suitably adapted to account for taxes, uncertainty, and strategic concerns is used to analyze how investment and financing decisions interact to affect the value of a firm. Credit: 3
- **MMCI 544 - Foundations of Management and Organizations.** Using information strategically to transform the delivery of care requires an understanding of the relationship between organizational design and processes. Explore how technology can be a catalyst for organizational change and transformation. Credit: 3
- **MMCI 550 - Introduction to Marketing Analysis.** This course introduces the principles, processes, and tools necessary to analyze markets, including customers, competitors, and companies (the 3 Cs) and to design optimal marketing programs via strategies for pricing, promotion, place, and product (the 4 P's). Credit: 3
- **MMCI 554 - Introduction to Operations and Supply Chain Management.** Learn the basic facts and principles comprising the processes and activities involved with product delivery – from the extraction of raw materials, through transportation and processing, to the delivery of finished products to the customer. Credit: 2
- **MMCI 557 - Principles of Strategy.** This course explores business opportunities in dynamic competitive environments to develop the skills necessary to become an effective strategy analyst. You will explore the complexity of analyzing competition and assessing strategy in an era of globalization and increasing uncertainty. Credit: 3

### Clinical Informatics Courses

- **MMCI 512 – Foundations of Data Analysis.** In health care, data comes from many sources including electronic health records, government agencies and clinical research organizations. This course covers the types of analyses that are required to make informed decisions with data. It also demonstrates the tools available to process data. This course prepares students to turn data into knowledge. Credit: 2
- **MMCI 517 – Applied Data Science.** Data science and machine learning are now beginning to impact clinical medicine, with performance on some tasks (e.g. detection of skin cancer) exceeding that of experienced clinicians. This course is designed to introduce students to the data science techniques poised to disrupt clinical practice through foundational material and clinical case studies. It will emphasize current methods for analyzing medical images, processing text data (e.g. patient notes), modeling clinical time series, and making sequential decisions based on clinical data. Course content will provide students with an intuitive, applications-oriented foundation in these techniques while highlighting both their capabilities and current limitations. Students will be introduced to pitfalls commonly encountered when developing models for clinical data as well as relevant practical and ethical considerations. Credit: 3
- **MMCI 533, 534, 535 and 536 - Clinical Informatics Ethics & Equity Seminar.** Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational responses, and health literacy and access to

electronic medical records. No credit awarded.

- **MMCI 537 - Health IT Business Solutions.** Healthcare is highly regulated and associated with special needs and risks not present in other sectors. The health information system industry echoes this specialization. This course provides an overview of principles and concepts of information technology with a focus on healthcare systems used in the healthcare setting and the industry seeking to serve these uses. Identify the critical needs of the current health information systems including vendor and healthcare organization perspectives. The course includes an examination of electronic health records, current and emerging use of clinical information systems and applications in clinical health information systems, technologies that support health care information systems, and system design, implementation, maintenance and overview and their impact on organizational resources and efficiency. Credit: 3
- **MMCI 538 - Data, Information and Knowledge Representation.** This course addresses different strategies for representing data, information and knowledge including description logic, information models, data elements, terminologies and ontologies. Emphasis is placed on the data, information, and knowledge framework for solving problems in health informatics. Declarative and procedural knowledge acquisition, modeling, representation and use will be explored. Credit: 3
- **MMCI 539 - Digital Informatics Strategy.** Health IT (HIT) solutions have been promoted as a means to reduce the cost and increase the quality of health care delivery in the US and globally. The question assessed in this course is how can HIT technology be deployed to achieve its promise? This question is addressed from a strategic rather than technical perspective. Students develop exploratory frameworks to help analyze potential for impact of IT implementation efforts: scale economics, network economics, and organizational innovation. Students assess the adoption of technology within existing organizations as well as barriers to adoption.  
Additionally, there is exploration of the development of killer apps — how are health IT firms financed and what are successful business models and concepts. Overall, students grasp the potential for the technology to achieve the cost and quality goals that have been proposed, and the barriers to achieving this success. Credit: 3
- **MMCI 540 - Managerial Analysis.** Organizational decisions, including accreditation, quality management, and reimbursement would be improved by relevant, timely, accurate, and complete analyses of available data for decision support. This course is designed to introduce theoretical knowledge and practical skills to evaluate and conduct analysis for secondary data available in health care settings. Using epidemiology methods as a framework, you will learn how one can evaluate or conduct secondary data analysis. Students recognize the principles of epidemiology methods applicable to health services and outcome analyses, and understand the terminology and methods for research using secondary data. Threats to validity including selection bias, confounding, information bias, and methods for their control will be discussed in a variety of settings emphasizing practical considerations. Credit: 3
- **MMCI 541 - Clinical Informatics Practicum.** Through a team-based project approach, this capstone course applies the core concepts of the informatics and management courses to a “real world” situation at Duke Health or in a similar clinical environment. Students explore the relationship between organizational strategy, implementation, and technical applications of health informatics. The practicum usually entails joining an ongoing real-world health IT project and project team, and requires a written, publication quality report of the practicum and related results. Credit: 3

## Certificate Program Requirements

Certificate students are required to take six courses:

- **MMCI 517 – Applied Data Science.** Data science and machine learning are now beginning to impact clinical medicine, with performance on some tasks (e.g. detection of skin cancer) exceeding that of experienced clinicians. This course is designed to introduce students to the data science techniques poised to disrupt clinical practice through foundational material and clinical case studies. It will emphasize current methods for analyzing medical images, processing text data (e.g. patient notes), modeling clinical time series, and making sequential decisions based on clinical data. Course content will provide students with an intuitive, applications-oriented foundation in these techniques while highlighting both their capabilities and current limitations. Students will be introduced to pitfalls commonly encountered when developing models for clinical data as well as relevant practical and ethical considerations. Credit: 3
- **MMCI 533, 534, 535 and 536 - Clinical Informatics Ethics & Equity Seminar.** Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational responses, and health literacy and access to electronic medical records. No credit awarded.
- **MMCI 537 - Health IT Business Solutions.** Healthcare is highly regulated and associated with special needs and risks not present in other sectors. The health information system industry echoes this specialization. This course provides an overview of principles and concepts of information technology with a focus on healthcare systems used in the healthcare setting and the

industry seeking to serve these uses. Identify the critical needs of the current health information systems including vendor and healthcare organization perspectives. The course includes an examination of electronic health records, current and emerging use of clinical information systems and applications in clinical health information systems, technologies that support health care information systems, and system design, implementation, maintenance and overview and their impact on organizational resources and efficiency. Credit: 3

- **MMCI 538 - Data, Information and Knowledge Representation.** This course addresses different strategies for representing data, information and knowledge including description logic, information models, data elements, terminologies and ontologies. Emphasis is placed on the data, information, and knowledge framework for solving problems in health informatics. Declarative and procedural knowledge acquisition, modeling, representation and use will be explored. Credit: 3
- **MMCI 540 - Managerial Analysis.** Organizational decisions, including accreditation, quality management, and reimbursement would be improved by relevant, timely, accurate, and complete analyses of available data for decision support. This course is designed to introduce theoretical knowledge and practical skills to evaluate and conduct analysis for secondary data available in health care settings. Using epidemiology methods as a framework, you will learn how one can evaluate or conduct secondary data analysis. Students recognize the principles of epidemiology methods applicable to health services and outcome analyses, and understand the terminology and methods for research using secondary data. Threats to validity including selection bias, confounding, information bias, and methods for their control will be discussed in a variety of settings emphasizing practical considerations. Credit: 3
- **MMCI 541 - Clinical Informatics Practicum.** Through a team-based project approach, this capstone course applies the core concepts of the informatics and management courses to a “real world” situation at Duke Health or in a similar clinical environment. Students explore the relationship between organizational strategy, implementation, and technical applications of health informatics. The practicum usually entails joining an ongoing real-world health IT project and project team, and requires a written, publication quality report of the practicum and related results. Credit: 3

Master of Management in Clinical Informatics (A-MCI-MMCI)

## Courses of Instruction

CODE	NAME	DESCRIPTION
MMCI511	Principles of Cost and Managerial Accounting	Managerial accounting is concerned with the internal use of accounting information by managers to plan, control, and evaluate operations and personnel of the firm. The course covers two broad topics: (i) cost management systems and their use in decis...
MMCI512	Foundations of Data Analysis	In health care, data comes from many sources including electronic health records, government agencies and clinical research organizations. This course covers the types of analyses that are required to make informed decisions with data. It also demons...
MMCI517	Applied Data Science	Practical Data Science in Healthcare. This course is designed to introduce students to the tools and technologies of 'data science' as they are applied to healthcare. Bill Cleveland, the famous computer scientist wrote 'Knowledge among computer scien...
MMCI525	Healthcare Finance	This course examines important issues in healthcare finance from the perspective of payers and providers. The concept of net present value, suitably adapted to account for taxes, uncertainty, and strategic concerns is used to analyze how investment a...
MMCI533	Clinical Informatics Ethics & Equity Seminar 1	Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational respons...
MMCI534	Clinical Informatics Ethics and Equity Seminar 2	Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational respons...
MMCI535	Clinical Informatics Ethics & Equity Seminar 3	Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational respons...
MMCI536	Clinical Informatics Ethics & Equity Seminar 4	Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational respons...

CODE	NAME	DESCRIPTION
MMCI537	Health IT Business Solutions	Healthcare is highly regulated and associated with special needs and risks not present in other sectors. This course will assist the student in identifying the critical needs of the current health information systems including vendor, stakeholders, a...
MMCI538	Data, Information and Knowledge Representation	This course addresses different strategies for representing data, information and knowledge including description logic, information models, data elements, terminologies and ontologies. Emphasis is placed on the data, information, and knowledge frame...
MMCI539	Digital Health Informatics Strategy	Health IT (HIT) solutions have been promoted as a means to reduce the cost and increase the quality of health care delivery in the US and globally. The question we try to assess in this course is how we can deploy HIT technology to achieve its promi...
MMCI540	Data, Information, and Health Care Transformation	Organizational decisions, including accreditation, quality management, and reimbursement would be improved by relevant, timely, accurate, and complete analyses of available data for decision support. This course is designed to introduce theoretical k...
MMCI541	Clinical Informatics Practicum	Through a team-based project approach, this capstone course applies the core concepts of the informatics and management courses to a 'real world' situation at Duke Health or in a similar clinical environment. Students explore the relationship between...
MMCI544	Foundations of Management and Organizations	The goal of this course prepares you to be an effective leader and manager of others whatever your level in the organization. We will examine practices that make teams more efficient and adaptable and that help harness diversity and enhance innovatio...
MMCI550	Introduction to Marketing Analysis	Modern marketing philosophy holds that only those firms that provide high customer value can succeed in the long run. Creating this value requires that managers must effectively: (i) assess marketing opportunities by analyzing customers, competitors...
MMCI554	Introduction to Operations and Supply Chain Management	A supply chain comprises all the processes and activities involved with product delivery, from the extraction of raw materials, through transportation and processing, to the delivery of finished products to the customer. These activities typically in...
MMCI557	Principles of Strategy	This course helps you learn to identify business opportunities in dynamic competitive environments and, in turn, develops skills necessary to be an effective strategy analyst as part of any business position. We will tackle the complexity of analyzin...

## Master of Health Sciences in Clinical Leadership

**Chairman:** Anthony J. Viera, MD, MPH

**Program Director:** Anh N. Tran, PhD, MPH

**Clinical Leadership Program Advisory Committee:** Kyle Cavanaugh, MBA; Mary T. Champagne, PhD, RN; William Kane, MD; Michelle J. Lyn, MBA, MHA; J. Lloyd; Michener, MD; Barak D. Richman, JD, PhD; Diane M. Uzarski, DNP, MPH, RN; Duncan Yaggy, PhD

**Website:** [clinical-leadership.mc.duke.edu](http://clinical-leadership.mc.duke.edu)

The Master of Health Sciences in Clinical Leadership (MHS-CL) Program provides clinicians and other health care professionals with the training necessary to be adept and versatile leaders who can address the complexities of today's changing health care environment with innovative solutions. The MHS-CL was developed by the School of Medicine's Department of Family Medicine and Community Health, Fuqua School of Business, Duke Law School, the Sanford School of Public Policy, and School of Nursing. This program provides a comprehensive interdisciplinary core curriculum that challenges participants to view health care issues from the perspective of business, finance, informatics, law, policy, population health, quality management, and strategic planning.

### Curriculum

The Clinical Leadership Program offers participants an unparalleled educational experience that addresses the many disciplines effective leaders must master and practice in health care administration: population-based health care, financial management, health economics, health law and policy, operational management, organizational behavior, clinical informatics, quality improvement, strategic planning, and performance management. Whether it is by leading a service-oriented integrated health system, rural practice, or community clinic, the factors for study and research (such as clinical integration, community engagement, and consumer empowerment) are a constant.



# Duke University

Clinical Leadership students move through the program as an integrated team or cohort. The cohort creates an exceptional peer learning experience which results in relationships that continue throughout one's professional and personal life. Shared experiences through team problem-solving and project collaboration form lasting professional and personal relationships. The structure of the cohort enables classmates to start the program together and continue through the curriculum together. Because the class size is limited, students receive individual attention from faculty members.

Master of Health Sciences in Clinical Leadership (A-CLP-MHS)

## Academic Calendar

Summer 2023 – Term 2	July 3, 2023-August 10, 2023
Fall 2023	August 28, 2023-December 8, 2023
Spring 2024	January 10, 2024-April 17, 2024
Summer 2024 – Term 1	May 15, 2024-June 24, 2024

Master of Health Sciences in Clinical Leadership (A-CLP-MHS)

## Admissions

### Prerequisites for Admission

The prerequisites for admission to the MHS in Clinical Leadership curriculum include a baccalaureate degree (or the equivalent) in a health care or public health discipline from an accredited institution. Many individuals have advanced degrees such as, but not limited to, DO, NP, MD, PA, and PT.

### Admissions Procedures

Applicants seeking admission either as a degree candidate or as a nondegree participant should submit the application form and supporting documents. Applicants residing outside the United States must consult the Duke Visa Services Office about visiting the United States as a Duke student before applying.

All persons taking courses in the Master of Health Sciences in Clinical Leadership Program must be formally admitted to the program. Admission decisions are based upon a candidate's academic qualifications combined with their professional experience. The Admissions Committee reviews completed applications three times per year. Contact the program office for information on application submission deadlines.

### Application for Admission—Degree Candidates

The completed application and letters of evaluation and transcripts (sent directly to the program from the evaluator or issuing institution) may be emailed to [ClinicalLeadership@mc.duke.edu](mailto:ClinicalLeadership@mc.duke.edu) or faxed to (919) 613-6899, Attn: Clinical Leadership Program, Division of Community Health. The \$100 application fee should be sent to:

Clinical Leadership Program  
Department of Family Medicine and Community Health DUMC Box 104652  
Durham, NC 27710

Materials submitted in support of an application will not be released for other purposes and cannot be returned to the applicant.

The Degree Student Application for Admission and other document forms can be downloaded from the program website at [medschool.duke.edu/education/health-professions-education/master-health-sciences-clinical-leadership](https://medschool.duke.edu/education/health-professions-education/master-health-sciences-clinical-leadership).

- **Transcripts.** An official transcript from each post-secondary institution attended should be sent directly to the Clinical Leadership Program by the institution. Personal or unofficial copies cannot be accepted. The requirement to provide transcripts is waived for applicants currently enrolled in another Duke University educational program.
- **Letters of Evaluation.** Three letters of evaluation are required as part of the application's supporting documents. They are the General Letter of Evaluation, the Administrative Experience Letter of Evaluation, and the Clinical Experience Letter of Evaluation. These letters should speak to the general, clinical and administrative experiences of the applicant. All letters are to be written by people who are qualified to testify to the candidate's capacity for graduate work and preferably not all letters are from the same organization. Evaluation letter forms can be downloaded at the program website. These should be completed by each evaluator and emailed or faxed directly to the Program.
- **Test Scores**

## Duke University

- **The Graduate Record Examination (GRE) General (Aptitude) Test.** The GRE will be waived for applicants who have an undergraduate cumulative grade point average of 3.25 or higher. Applicants with a conferred graduate or professional advanced degree (certificates do not qualify) at the time of the application deadline are also exempt from the GRE requirement. Scores submitted must be no more than five years old. Scores must be sent to the Duke University Master of Health Sciences in Clinical Leadership Program from the Educational Testing Service.
- **Test of English as a Foreign Language (TOEFL).** Applicants whose first language is not English and who do not hold a bachelors or higher degree from an English speaking Institution must submit scores from the Test of English as a Foreign Language (TOEFL) or International English Language Testing Service (IELTS). Official copy of test scores must be sent to Duke University.
- **Licensure.** Candidates must present proof of current practice licensure (if applicable to profession).
- **Admissions Interview.** Applicant finalists will be required to complete an admissions interview.

### Application for Admission—Nondegree Students

The courses in the program are available to qualified individuals who want to acquire specific skills but who do not want to pursue the master's degree. Such individuals include health professionals, Duke faculty and staff, post-doctoral fellows, and undergraduate/graduate degree students. This option allows the flexibility of taking various combinations of courses subject only to constraints imposed by course prerequisites. For each course, due to class size, a limited number of non-degree students will be allowed to enroll.

Applicants seeking admission must submit the Nondegree Student application. All program applications and forms can be downloaded from the program website at [clinical-leadership.mc.duke.edu](http://clinical-leadership.mc.duke.edu). The completed application may be emailed to [ClinicalLeadership@mc.duke.edu](mailto:ClinicalLeadership@mc.duke.edu) or faxed to (919) 613-6899, Attn: Clinical Leadership Program, Division of Community Health.

Clinical Leadership Program courses taken for nondegree credit can be transferred to apply towards the master's degree program requirements as long as: 1) the course is still being offered in the program; 2) the course was taken within the past 3 years; 3) the grade received for the course is Pass or higher; and 4) the total number of course credits to be applied towards the master's degree program does not exceed one third of the total number of MHS-CL program course credits required.

### Application Deadline

The MHS in Clinical Leadership Program accepts applications on a rolling basis. Contact the program office for spring, summer and fall admission dates. Applicants are encouraged to submit all application materials well in advance of the admission dates for the semester they wish to be considered for enrollment. Late applications cannot be guaranteed consideration.

Master of Health Sciences in Clinical Leadership (A-CLP-MHS)

## Financial Information

### Tuition and Fees

Tuition	\$1500/credit
Fees	\$120

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

Duke employees may be eligible for the University's Employee Tuition Assistance Program ([hr.duke.edu/benefits/educational/employee-tuition-assistance](http://hr.duke.edu/benefits/educational/employee-tuition-assistance)) and other sources of support may exist in clinical departments. Prospective applicants should consult with their program directors and division chiefs regarding other potential funding sources.

All students are charged a one-time transcript fee of \$120 in their first year. This fee gives current and former students access to an unlimited number of academic transcripts.

### Financial Aid

Qualified students may be eligible for unsubsidized Federal Stafford Student Loans. Limited scholarship funds are also available. All financial aid awards are made on the basis of documented financial need. Additional information is available from the Office of Financial Aid at (919) 684-6649, [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu), or online at [medschool.duke.edu/education/student-services/office-financial-aid](http://medschool.duke.edu/education/student-services/office-financial-aid).

Master of Health Sciences in Clinical Leadership (A-CLP-MHS)

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

## Attendance and Excused Absences

Students are expected to attend all scheduled class sessions. Absences are excused only for unexpected illness, personal emergency, or emergency clinical schedule conflict. Students must notify program faculty in advance of an expected absence. An unexcused absence will have a negative impact on the student's grade or evaluation. Individual distance course participation policies are set by the course instructors.

## Registration and Drop/Add Policy

Registration in the Clinical Leadership Program is offered on a part-time basis as it is assumed the student will continue to work in a clinical capacity during the program. All required course registrations are processed in the Office of the Registrar. As all courses are mandatory, dropping and adding courses is at the discretion of the program director.

## Grading Policies

Grades for all courses within the Clinical Leadership Program curriculum are assigned based on the following: H (honors), P (pass), L (low pass), and F (fail).

A grade of I (incomplete) may remain on a student's transcript for one year only. After one year, a grade of incomplete is automatically converted to an F if the course instructor does not submit a follow-up grade, based on the student's additional coursework completed. A request must be submitted in writing by the student to the program director no later than thirty days prior to the expiration of the one year time limit in order to be considered for an extension of the one-year limit. Based on each individual student's circumstance, the program director has the discretion to grant or deny an extension.

## Grade Appeal Process

A student wishing to appeal an official grade must present their appeal to the program director in writing within two weeks of the grade being posted. If requested as part of the appeals process, a student should have access to the actual checklists or comments that have been compiled as part of the grade, though identity of the evaluators submitting these data may be kept confidential. Within two weeks the program director will review the data related to the student's performance in the course and the grading criteria for the course and will make a determination regarding preserving or changing the grade. At this time, the program director will either uphold the decision of the instructor or make their independent decision relative to the documentation submitted.

If the student is not satisfied with the outcome of the grade appeal process, they may appeal to the chair of the Department of Family Medicine and Community Health within two weeks of receiving the decision of the program director. An appeal to the chair may be made only upon the grounds of improper procedures in the appeals process rather than continued disagreement about the outcome of the process. The chair will review the data related to the process of the appeal and determine whether the process was valid. If they find the process valid, the decision is final and binding. At this time, the registrar's office will be notified of the final grade and it will be reflected on the student's permanent record. If the chair finds the process invalid, a new review will be conducted by an independent observer who is also a member of the program steering committee.

## Satisfactory Academic Progress

Satisfactory academic progress for students in the Clinical Leadership Program consists of the successful completion of all requirements necessary for the advancement from one semester to the next. This includes successful completion of the clinical leadership seminar and at least one core course each semester. During the clinical leadership longitudinal project period the student must maintain consistent progress in meeting designated project deadlines. In unusual circumstances (including illness, academic remediation, or irregular sequencing of courses) the determination of satisfactory progress for academic purposes is made by the program director of the Clinical Leadership Program.

For financial aid purposes, federal regulations establish the maximum time frame for completion of the program at 150 percent of the minimum time required to complete the program. Any student exceeding the 150 percent maximum time frame is ineligible for Title IV (Stafford and Perkins loans) student financial aid funds.

## Academic Status—(Probation, Withdrawal, Dismissal) Policy

A student who receives a low pass grade in any two of the required courses will be placed on academic probation. An academic status of probation is noted on the transcript at the end of the semester in which it occurs. If a student receives at least a pass grade for all courses during the following probationary semester, they will be removed from academic probation. The academic status of probation is removed from the transcript once the student returns to a good academic standing.

## Dismissal

The failure of any required course prevents a student from continuing in the program. Also, a student who receives a low pass grade in three of the required courses will be dismissed from the program. Students dismissed for academic reasons cannot be readmitted.

## Appeal of Academic Status Policy

A student wishing to appeal an academic status must begin the process within two weeks of receiving a status change notification. A written request for appeal should be sent to the program director. Within two weeks, the program director will gather the data related to the student's performance in the program. A three-member committee of faculty and steering committee members will be convened to review the documentation and make a determination regarding preserving or changing the status. The appeals committee's decision will be communicated to the student within six weeks of the initial application for appeal. The appeal committee's decision is final.

## Leave of Absence

A leave of absence will be granted upon request at the discretion of the program director.

## Withdrawal

If a student withdraws, including involuntary withdrawal for academic reasons, tuition is refunded according to the following schedule:

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

Historically, voluntary withdrawals are initiated at the request of the student. Working with the program director, the student confirms the request to withdraw. A mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. The program director will notify the Office of the Registrar in the School of Medicine via letter or attrition notice as appropriate. The student should also contact the Office of the Registrar to ensure that they have fulfilled any responsibilities with regard to this process. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The student is responsible for notifying the Office of Financial Aid in the School of Medicine, and the Office of Financial Aid may revoke any financial aid that has been disbursed. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew (W-Withdrawal) on the specific effective date.

**Reenrollment after Course Withdrawal.** To meet the credit hour requirement for program completion, students may enroll again in the same course from which they previously withdrew when it is offered again or with the program director's approval, enroll in another course with credit hours equal to that of the course from which the student previously withdrew.

**Readmission after Program Withdrawal.** Students who wish to re-enter the Clinical Leadership Program after withdrawing must provide the following to the program director:

- a statement detailing:
  - the reason(s) for withdrawing from the program, including relevant history leading up to the decision;
  - how the issues relating to those reasons have been addressed;
  - why the student is re-applying to the program, including information concerning changes in situation and an explanation as to the chosen time for return; and
  - a chronological list and brief description of actions since withdrawing from the Clinical Leadership Program;
- an updated curriculum vitae;
- a transcript of any academic courses taken since the withdrawal; and
- a letter of reference from a person with whom the student worked during the withdrawal period.

The applicant then will be scheduled for two interviews with either administrative staff or program faculty. After these meetings take place, a committee composed of the program director, division chief, and one steering committee member convenes to review the information submitted by the applicant, the interview reports, and the student's previous academic file and to determine if readmission is appropriate. The decision of the committee, which is final, is provided in writing to the applicant and to the financial aid and registrar's offices.

## Code of Professional Conduct

## Duke University

Students enrolled in the Clinical Leadership Program are expected to adhere to the Duke University School of Medicine Code of Professional Conduct, found elsewhere in this bulletin.

### Program Statement of Professionalism

1. Commitment to Learning
  - Actively seeks learning opportunities and feedback and uses them to improve knowledge and skills
  - Makes significant contributions to team learning
2. Respect for Others
  - Consistently respectful of others and able to adjust to differences in personal or cultural style
  - Shares learning materials and information appropriately with team and fellow students
3. Honesty, Reliability, and Integrity
  - Provides a standard of integrity that inspires others; meets expectations for reliability
4. Conscientiousness
  - Meets deadlines for reports, assignments, and exams and appropriately seeks excused absences when necessary
  - Completes nonacademic compliance requirements by deadlines and does not need reminders (e.g., course registration, course evaluations)
5. Professional Boundaries
  - Consistently exhibits sensitivity and appropriate social interaction with faculty, staff, and peers
  - Meticulous about safe-guarding confidential information

### Computer and Technology Policy

All students should possess computer skills that include proficiency with word processing, email, spreadsheets, internet research, and presentation programs. All students in the Master of Health Sciences in Clinical Leadership Program are required to have access to a desktop or laptop computer with reliable high-speed internet access. Mobile devices such as tablets or phones can be used for some areas of the program but should be considered a backup or secondary device. A camera equipped computer and headset with microphone are required for online class meetings.

Minimum system requirements of a Windows-based system are that the operating system be no older than Windows XP. Computing devices should have file space available to install and run apps and computer programs used for course work and communications. Current versions of internet browsers (i.e., Google Chrome, Internet Explorer, Microsoft Edge, Mozilla Firefox, and Safari) are required for access to Sakai, Duke University's online learning management system, and WebEx, the conferencing system used to facilitate live class sessions.

### Graduation Requirements

The Master of Health Sciences in Clinical Leadership is a professional degree awarded by the Duke University School of Medicine. The three-year degree program requires completion of 42 course credits as follows: 26 course credits of graded coursework; five seminars for which 10 course credits are earned; and a project for which 6 course credits are earned.

### Commencement Information

Graduation exercises are held once a year in May when degrees are conferred, and diplomas are issued to those who have completed program requirements by the end of the spring semester. Those who complete degree requirements at the end of the summer or fall terms receive diplomas dated September 1 or December 30, respectively. September and December diplomas are mailed within 30 days of the graduation date, as diplomas are issued after approval by the Academic Council and the Board of Trustees.

Since university graduation ceremonies are held only at the end of the spring term, graduates with a degree date of September or December are invited to participate in the May commencement program immediately following their actual graduation date.

Master of Health Sciences in Clinical Leadership (A-CLP-MHS)

### Program Requirements

This 42 credit-hour, three-year professional degree program awarded by the Duke University School of Medicine allows participants to continue practicing in their profession while attending courses in onsite sessions on the Duke University campus combined with distance-based technology-supported learning.

## Duke University

Students are enrolled for 5-8 course credits, on average, during the fall, spring and summer semesters. Throughout the program, master's program students participate in a targeted leadership coaching component intended to enhance a specific skill set or emotional intelligence competency, as determined by the student and executive leadership coach. Master's program students also complete a longitudinal intervention or policy project for an actual client, experience seminars that give students the opportunity to explore topics in more depth outside the classroom setting and engage in personalized executive coaching sessions focused on the student's leadership development and enhancement objectives. These experiences all allow the student to customize the program to meet individual needs.

Master of Health Sciences in Clinical Leadership (A-CLP-MHS)

### Courses of Instruction

CODE	NAME	DESCRIPTION
CLP200	Perspectives on Health Care	Students will explore the principles behind the forces affecting the dynamic health care environment. Building upon topics covered in other core courses, students will be exposed to current issues and strategies regarding population health analysis...
CLP201	Management Leadership and Team Development	The course focuses on leading and managing within complex healthcare systems, specifically through the process of developing and managing teams. Within the context of team management leadership, students will learn about changing and/or implementing...
CLP202	Use of Data to Support Change in Organizational Structure	Through interaction with leaders from the private and public health care sectors, students will analyze the current state of health care delivery in the United States with a focus on the impact of changing organizational structures and rapidly advanc...
CLP203	Management of Self	Students will be challenged to apply the skills and knowledge they have acquired through the program to develop a strategic career management plan. More specifically, the course is intended to expose the students to strategies to delineate a personal...
CLP204	Leading in a Chaotic Environment	Students will meet with industry leaders to learn perspectives on crisis management in turbulent and complex environments. Students will learn how to anticipate and plan for crises by analyzing examples of successful crisis management. Leadership the...
CLP205	Clinical Leadership Project	The Clinical Leadership Project helps a real client decide what to do about a problem in health policy, financial planning, or administration. Its purpose is to recommend and defend a specific course of action. Students work as part of a team to co...
CLP206	Quality Measure and Management	The course provides a survey of all related aspects of quality management including a review of HEDIS, NCQA, JCAHO structures and guidelines. Special emphasis is placed on outcomes, clinical guidelines, evidence-based medicine, disease management, in...
CLP207	Contemporary Human Capital Management	Human Capital has been identified as the primary driver across successful organizations. This course will overview the core components of Human Capital Management including workforce planning, total compensation, workforce development, and overall en...
CLP210	The Successful Clinical Leader	Primarily taught in a case-based format, this course offers a review and application of the fundamentals of leadership, management, strategy, and finance as they apply to decision making in administrative medicine. Credit: 3. Sangvai
CLP211	Fundamentals of Healthcare Finance	This course provides a background to healthcare finance including basic corporate finance, financial and cost accounting, and investment. Students will develop sound financial management and budget planning skills. Credit: 4. Sangvai
CLP212	Informatics for Clinicians	Clinical overview of electronic medical records with a focus on the emergent clinical topics of registry development to facilitate disease management, clinical decision support and design strategies to improve clinician acceptance and utilization. C...
CLP213	Health Care Organization and Policy	This course considers the interplay of various elements of the US health care delivery system: finance, reimbursement, legislation, health professional workforce, individual consumers, population and public health. The history, sociology, current t...

CODE	NAME	DESCRIPTION
CLP214	Population Health Management Approaches	Provides an overview of working successfully in the area of population health management and care coordination. Gives health care professionals an understanding of the systems and tools necessary to work successfully with population health models, pr...
CLP215	Health Care Operations: Perspectives for Continuous Improvement	Students develop a toolkit for continuous improvement within health care organizations and systems and explore selected quality, ethical, and human resources issues in health care management. Students will apply concepts to practice using quality imp...
CLP216	Fundamentals of Social Media	Students will learn about internet based, electronic communications and how Social Media can be used in a business environment. Students will explore how to use Google Analytics, Blogging, Email, Linked-In, Webinars, Twitter and other media as a part...
CLP217	Community Engaged Approaches to Health Improvement	This course will provide an introduction to community engagement (CE), particularly community-engaged research (CenR), as a tool for health improvement. Through course content, learners will gain an appreciation for the value of CE and its challenges....
CLP299	Continuation	The course is intended for students who need additional time to complete requirements for their Master's Project. Program Director permission is required. Credit: 0.

## Master of Health Sciences in Clinical Research Training

**Department Chair:** David C. Page, PhD

**Program Director:** Steven C. Grambow, PhD

**Co-Directors:** Kevin P. Weinfurt, PhD; John W. Williams, MD, MHSc

**Senior Program Coordinator:** Gail D. Ladd

**Website:** [biostat.duke.edu/education-and-training/clinical-research-training-program](http://biostat.duke.edu/education-and-training/clinical-research-training-program)

This Duke University School of Medicine program provides formal academic training in the quantitative and methodological principles of clinical research. In contrast to a public health degree which focuses on epidemiology, this program is designed primarily for clinical fellows who are training for academic careers. The program offers formal courses in research design, statistical analysis, medical genomics, research management, scientific communication, research project development, and responsible conduct of research. Students who complete a prescribed course of study in the training program are awarded a Master of Health Sciences in Clinical Research degree by the School of Medicine.

The Clinical Research Training Program is offered by core faculty from the Department of Biostatistics and Bioinformatics and other clinical and basic science departments within the School of Medicine.

### Basic Science Research Track (BSRT) Degree Option

The Basic Science Research Track (BSRT) is an optional customized curriculum for degree candidates designed specifically for physician-scientists. The track prepares individuals for careers as physician-scientists across a range of discovery sciences. The curriculum includes coursework that prepares researchers to perform rigorous basic science; manage, analyze, and present data; oversee a laboratory; and successfully compete for research funding.

This track requires eighteen (18) credits of graded coursework and eighteen (18) credits for an approved research project. Five (5) courses (241, 253, 275, 245/276, and 279) are required for all BSRT candidates. Students may choose from other offered courses for the remaining required credits. Trainees begin work on the required research project during their first year to provide a deep immersion in basic and laboratory research methods. The second year includes electives and a required course on scientific communications to lay the foundation for a successful career in basic research. The second year incorporates a successful defense of the research project.

### Certificate (Academic Core in Clinical Research Certificate)

The certificate option leads to the Academic Core in Clinical Research Certificate awarded by the Duke University School of Medicine. Applicants must successfully complete the five (5) required core courses which constitute the foundation of the full degree program (CRP 241, 242, 245, 253, and 254). Students who complete the certificate may convert their status to degree-seeking and apply completed coursework toward degree requirements. Students must change status prior to receiving their certificate in order to

## Duke University

become a degree candidate. If a student elects to pursue a degree program, a certificate will not be awarded. If a student is awarded a certificate and later decides to seek the degree, they are required to re-apply to the program and contact Gail Ladd (gail.ladd@duke.edu).

### Nondegree

The courses in the program are also available to qualified individuals who want to acquire specific skills but who may not want to pursue a master's degree. In addition to clinical fellows, such individuals include faculty members, post-doctoral fellows, other trainees, and health professionals at Duke and NIH. This option allows the flexibility of taking various combinations of courses subject only to constraints imposed by course prerequisites. Students who are interested in seeking a certificate or degree may contact Gail Ladd (gail.ladd@duke.edu) for additional information.

### Non-program

The courses in the program are also available to qualified individuals who are enrolled in other Duke credit-bearing degree programs. To register for CRTP courses, please contact Gail Ladd (gail.ladd@duke.edu) for permission and to verify eligibility.

CRTP does not permit auditing.

Master of Health Sciences in Clinical Research Training

## Academic Calendar

FALL 2023	
Wednesday, June 7	Fall course registration begins.
Monday, August 28	First day of class. New student orientation.
Monday, September 4	Labor Day Holiday. No class.
Friday, September 8	Drop/Add ends.
Wednesday, November 1	Registration begins for Spring Semester 2024.
Tuesday, November 21	Thanksgiving recess begins.
Monday, November 27	Classes resume.
Monday, December 18	Last day of class.
SPRING 2024	
Monday, January 8	Spring Semester begins. First day of Drop/Add.
Monday, January 15	Martin Luther King Jr. Day. No class.
Friday, January 19	Drop/Add ends.
Monday, April 25	Last day of class.
Sunday, May 12	Graduation exercises; conferring of degrees.

Master of Health Sciences in Clinical Research Training

## Admissions

Applicants may apply to the program as degree candidates, certificate candidates or nondegree students. An advanced degree in a basic or clinical health science, two years of medical school, or the equivalent from an accredited institution is a prerequisite for admission. This program is only available to qualifying applicants from Duke and the National Institutes of Health. Detailed instructions and the online application can be found on the program's website at [crtp.duke.edu](http://crtp.duke.edu).

Applicants seeking admission as a degree candidate must submit the online application form and the following documents:

- **CV.** A current curriculum vitae (CV).
- **Transcripts.** An official transcript from each graduate school, including medical school transcripts, must be sent to the Clinical Research Training Program directly by the institution. Personal copies of your records are not acceptable.
- **Letter of Recommendation.** One letter of recommendation is required. It should be written by someone qualified to attest to your capacity for graduate work. The form is generated from the online application. The reference letter is uploaded to the Clinical Research Training Program application directly by the evaluators.
- **Test of English as a Foreign Language (TOEFL).** CRTP requires that any applicant whose first language is not English and who does not hold a bachelor's or higher degree from an English-speaking institution must submit scores from the Test of English as a Foreign Language (TOEFL). Test scores must not be more than two years old, and an official copy must be sent to Duke



## Duke University

University. Personal attested, or notarized, copies are not acceptable. In lieu of TOEFL scores, applicants may submit their scores for another English language proficiency test, the International English Language Testing System (IELTS) test. Applicants who have earned a bachelor's degree or higher from a regionally accredited institution in the United States, or from an accredited university where English is the verified sole language of instruction, are exempt from submitting English language proficiency results.

- **NIH Applicants.** NIH applicants are required to submit the NIH Scholarship Form prior to submitting their application. The program requires the applicant to receive funding approval and a signature from their funding provider prior to program admission.

Any applicant who is admitted to an academic program at Duke University and who is not a US citizen or national must provide documentation to verify their immigration status with Duke Visa Services prior to enrolling in coursework. This includes Lawful Permanent Residents (Green Card), Conditional Residents, and Refugees.

## Certificate (Academic Core in Clinical Research Certificate)

Applicants seeking admission as certificate candidates must submit the online application form, CV, transcripts, and TOEFL requirements as outlined above.

## Nondegree

Nondegree applicants must submit the online application form and satisfy TOEFL requirements as outlined above under the degree option.

Master of Health Sciences in Clinical Research Training

## Financial Information

Tuition for the 2023-2024 academic year is \$844 per credit hour. Faculty may be eligible for the university's Educational Assistance Program. Other sources of support exist in some clinical departments; prospective students should consult with program directors and division chiefs regarding potential funding sources.

Tuition	\$844/credit
NIH CRP 270N	\$563/credit
Fees	\$120

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

Master of Health Sciences in Clinical Research Training

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

## Conversion of Status for Certificate and Degree

If a student enters CRTP as a certificate or degree candidate, they may convert their status to another designation later, if they choose. If a degree candidate decides to leave the program and they have met the certificate requirements, they may request to change their status and receive the certificate. Students who enter the program as certificate candidates may also request to change their status and become degree candidates. Once they have changed from certificate status to degree status, they are no longer eligible to receive the certificate. Students who have received the certificate may apply to reenter the program as a degree candidate later. Students who wish to change their status must contact Gail Ladd (gail.ladd@duke.edu) for specifics and timelines.

## Attendance Policy

Class attendance and participation are essential to the learning process, both to the individual student and the class. Attendance in scheduled classes is a requirement for all individuals enrolled in the program. All scheduled classes are delivered as live, remote Zoom sessions. All class sessions are recorded and available for later review as needed. CRTP course directors will clearly communicate course-specific attendance policies and expectations in their course syllabi. If these policies are not clear, it is the responsibility of the student to ask the course director for clarification.

Students are expected to notify and negotiate excused absences from course activities with the course director in situations such as illness or health care appointments, attendance at scientific or professional meetings, personal or family emergencies, or major life events. Course directors are responsible for making clear to students which portions of their courses require attendance and any limit

## Duke University

on excused absences without negative consequences. These absences should be negotiated in writing by email as far in advance as possible and a plan established for the completion of any activity or work missed. Absences announced on short notice due to illness or emergency may still be excused with proper notification of the course director and unannounced absences may be excused in cases of incapacitation to the point of inability to make these contacts.

Students are strongly encouraged to consult their schedules for the academic term and discuss any planned absences (particularly if multiple class sessions will be missed during the term), with their course director during the drop/add period to determine: (a) whether accommodation is possible; and (b) arrangements for completing assignments for absences. It is the responsibility of the course director to determine the arrangements (e.g., early submission of work, an alternative assignment, rescheduling an exam, etc.) to be followed when an absence is excused. If an accommodation cannot be made, the student may consider whether to remain in the course or drop it in favor of another course that might more easily accommodate their schedule.

## Registration and Drop/Add Policy

Registration in the Clinical Research Training Program is processed in accordance with instructions distributed by the Office of the Registrar of the School of Medicine prior to official registration periods. Students may drop courses for which they have registered earlier or add courses during each semester's Drop/Add period. If a student drops a course(s) after the Drop/Add period, no tuition will be refunded to the student or the sponsoring agency.

## Grades

Courses within the Clinical Research Training Program utilize a Pass/Fail grading scale. In addition, an I (incomplete) indicates that some portion of the student's work is lacking for a reason acceptable to the instructor at the time grades are reported. Students will not be permitted to enroll in any course for which they have an unresolved incomplete in a prerequisite course. A grade of incomplete must be resolved no later than the end of the following academic semester unless the course director specifies an earlier date by which the student must make up the deficiency. In exceptional circumstances, an incomplete that is not resolved within the designated period may be extended for a specified period with the written approval of the course director and the program director. If an incomplete is resolved within the approved period, then the grade of incomplete converts to a pass on the transcript. If an incomplete is not resolved within the approved period, the grade of incomplete becomes permanent on the transcript and no credit is conveyed.

1. A student wishing to appeal the grade should discuss this with the course director within two weeks of the grade posting in Duke Hub.
2. If the student is not satisfied with the course director's decision, then the student may contact the program director within two weeks of the grade posting in Duke Hub.
3. If the student is not satisfied with the program director's decision, then the student can appeal the grade within two weeks after the program director meeting.
4. The student is to submit a formal written appeal to the program director. The appeal is to be addressed to the B&B Academic Honor Committee.
5. Within one month of receiving the student's formal appeal, the B&B Academic Honor Committee is to meet and render a decision.
6. If the student is not satisfied with the B&B Academic Honor Committee's decision, the student may submit an appeal to the Vice Dean for Education (Dr. Ed Buckley) for a ruling.
7. If the student is not satisfied with Dr. Buckley's ruling, the student may appeal to the Dean but only on grounds of improper procedure

## Satisfactory Academic Progress

Satisfactory academic progress for students in the Clinical Research Training Program consists of the successful completion of all requirements necessary to advance toward completion of degree requirements within a ten-year time limitation, or for non-degree students, toward attainment of individual training goals, within the constraints imposed by course prerequisites. This includes meeting the requirements and standards for completion of the research project as described in student orientation sessions and program guidelines, whether print or web-based. After the ten-year time limitation, no exceptions will be granted.

## Academic Status—(Dismissal) Policy

For degree candidates, receiving a single final course grade of Fail (F) will initiate an academic review by the Program Director. If a degree candidate receives two final course grades of F, the Program Director will convene a faculty review committee consisting of the Program Director and at least two other faculty members. The student will be invited to attend part of the meeting if desired – for example, to present additional information – but is not required to attend. The committee's recommendation will then be reviewed by

## Duke University

the Program Director. What happens next depends on the nature of the recommendation. If the recommendation is for dismissal, it will be reviewed by the Vice Dean of Medical Education as per the School of Medicine review procedures. The Vice Dean of Medical Education makes the final decision and communicates that decision to the student. Any appeals to that decision follow the policies of the School of Medicine. On the other hand, if the decision does not involve dismissal, it will be conveyed to the student by the Program Director.

### Research Project Examining Committee

Three faculty members constitute an examining committee to certify the student has successfully completed the research project requirement for the degree. The committee must include a clinical investigator and a statistician, each of whom is a member of the faculty of the Clinical Research Training Program (CRTP). The third member of the committee should be a faculty member who has substantive knowledge in the area in which the research project is conducted; for clinical fellows, this committee member is often the fellow's mentor. The chair of the committee must be a member of the CRTP faculty.

### Time Limitations

A degree candidate is expected to complete all requirements within ten calendar years of matriculation. After the ten-year time limitation, no exceptions will be granted. Degree credit for a course expires ten years after the course is completed by the student; in this case, degree credit can be obtained only by retaking the course(s).

### Withdrawal from a Course

A course may be dropped at the student's discretion during the first two weeks of class; no grade is recorded, and all tuition is refunded. If a course is dropped later in the term, no tuition is refunded and the status of the student at the time of withdrawal is indicated on the permanent record as WP (Withdrew Passing) or WF (Withdrew Failing).

### Withdrawal from Program

If a student withdraws from the program during the first two weeks of class, including involuntary withdrawal for academic reasons, all tuition is refunded. If a student withdraws from the program later in the term, no tuition is refunded and the status of the student at the time of withdrawal from the program is indicated on the permanent record as WP (withdrew passing) or WF (withdrew failing).

Voluntary withdrawal from the program is initiated at the request of the student. Such requests must be submitted in writing to the program coordinator. The program coordinator will notify the Office of the Registrar, the program director, and course faculty as appropriate given the student's enrollment status at the time of withdrawal. It is the student's responsibility to contact the bursar's office regarding the fulfillment of financial obligations to the university.

### Reinstatement to the Program

Students who wish to re-enter the Program after withdrawing must provide the following:

- a statement detailing the reason(s) for withdrawing from the program, including relevant history leading up to the decision;
  - how the issues relating to those reasons have been addressed;
  - a discussion as to why the student is requesting reinstatement to the program, including information concerning changes in the situation and an explanation as to the chosen time for return;
- an updated curriculum vitae;
- a transcript of any academic courses taken since the withdrawal; and
- a letter of reference from a person with whom the student worked during the withdrawal period.

The applicant will meet with the Program Director. After this meeting takes place, a committee composed of the program director and co-directors convenes to review the information submitted by the applicant, the student's previous academic file, and determines if readmission is appropriate. The decision of the committee, which is final, is provided in writing to the applicant and to the financial aid and registrar's offices.

### Student Information Reported by CRTP

C RTP shares aggregate student data and FERPA directory information compliant types of biographical data (e.g., student name, degrees and awards received, dates of attendance, enrollment status) with stakeholder groups such as the National Institutes of Health, the Duke Office of Physician-Scientist Development (OPSD), and the Duke National Clinician Scholars Program.

### Code of Professional Conduct

## Duke University

Students enrolled in the Clinical Research Training Program are expected to adhere to the Duke University School of Medicine Code of Professional Conduct as detailed in the policies for all School of Medicine programs found elsewhere in this bulletin.

### Graduation

Candidates for the Master of Health Sciences in Clinical Research degree must apply to graduate through DukeHub in keeping with the instructions and deadlines announced by the Office of the Registrar in the School of Medicine. Failure to do so may delay the conferral of the degree and issuance of the diploma, even if all degree requirements have been met.

Graduation exercises are held once a year in May when degrees are conferred, and diplomas are issued to those who have completed requirements by the end of the spring semester. Those who complete degree requirements at the end of the summer or fall terms receive diplomas dated September 1 or December 30, respectively.

In addition to completing the required course of study, degree candidates must submit to the program the required documentation demonstrating successful completion of the research project no later than April 15 for May graduation, July 31 for September graduation, and November 30 for December graduation.

Master of Health Sciences in Clinical Research Training

### Program of Study

#### Degree

The degree requires 24 credits of graded coursework and 12 credits for an approved research project. Five courses (CRP 241, 242, 245, 253, and 254) constitute 16 credits that are required for all degree candidates. The student's clinical research activities provide the setting and the data for the project, which serves to demonstrate the student's competence in the use of quantitative methods in clinical research. The program is designed for part-time study which allows the student to integrate the program's academic curriculum with clinical and/or lab-based training. CRTP does not permit the transfer of credits from other academic programs (Duke or otherwise). However, students may petition the program for one waiver of a required course based on prior coursework. Students seeking a waiver should contact Gail Ladd (gail.ladd@duke.edu).

#### Basic Science Research Track (BSRT) Degree Option

This track requires eighteen (18) credits of graded coursework and eighteen (18) credits for an approved research project. Five (5) courses (241, 253, 275, 245/276, and 279) are required for all BSRT candidates. Students may choose from other offered courses for the remaining required credits. Trainees begin work on the required research project during their first year to provide a deep immersion in basic and laboratory research methods. The second year includes electives and a required course on scientific communications to lay the foundation for a successful career in basic research. The second year incorporates a successful defense of the research project.

#### Certificate (Academic Core in Clinical Research Certificate)

Students must successfully complete the five (5) required core courses which constitute the foundation of the full degree program (CRP 241, 242, 245, 253, and 254).

Master of Health Sciences in Clinical Research Training

### Courses of Instruction

CODE	NAME	DESCRIPTION
CRP241	Introduction to Statistical Methods	This course is an introduction to the fundamental concepts in statistics and their use in clinical research. Through class lectures, in class demonstrations, directed in class exercises and discussion of representative research reports from peer-rev...
CRP242	Principles of Clinical Research	The emphasis is on general principles and issues in clinical research design. These are explored through the formulation of the research objective and the research hypothesis and the statistical methods used in analysis of each type. Emphasis is pla...
CRP243	Introduction to Medical Genetics	Coverage is provided of the fundamental knowledge in human genetics and genetic systems of the mouse and other model organisms. Topics include: introduction to concepts of inheritance (DNA, chromatin, genes, chromosomes); the human genome (normal gen...

CODE	NAME	DESCRIPTION
CRP245	Statistical Analysis	This course extends CRP 241 (Introduction to Statistical Methods) and primarily considers statistical models with a single predictor, to models containing multiple predictors. We cover models with continuous outcomes (regression, analysis of varianc...
CRP247	Clinical Research Seminar	This seminar integrates and builds on the core courses (CRP 241, 242, and 245) to provide practical experience in the development and critique of the methodological aspects of clinical research protocols and the clinical research literature. Assigned...
CRP248	Clinical Trials	Fundamental concepts in the design and analysis of clinical trials are examined. Topics include protocol management, sample size calculations, determination of study duration, randomization procedures, multiple endpoints, study monitoring, and early...
CRP249	Health Services Research	Research methods in health services research are explored. Topics include measurement of health-related quality of life, case mix and co-morbidity, quality of health care and analysis of variations in health care practice. Advantages and disadvantag...
CRP252	Principles of Clinical Pharmacology I	This course provides a basis for understanding the scientific principles of rational drug therapy and contemporary drug development, with emphasis on pharmacokinetics, methods for drug analysis, drug metabolism and pharmacogenetics. Topics include t...
CRP253	Research Ethics and Responsible Conduct of Research	This course explores a variety of ethical and related issues that arise in the conduct of medical research. Topics include human subjects and medical research, informed consent, ethics of research design, confidentiality, diversity in medical resear...
CRP254	Research Management	This course addresses operational issues that arise in the conduct of a clinical research project. Topics include administration (human resources, project management, budget development and management), data management systems (databases, case report...
CRP257	Proteomics and Protein Biology in Medicine	Platform technologies and computational methodologies for protein profiling and interaction analysis are introduced. The platform technologies covered include mass spectroscopy, 2D gel electrophoresis, surface plasmon resonance, protein arrays and f...
CRP258	Principles of Clinical Pharmacology II	As a continuation of CRP 252, this course includes the topics of drug transport mechanisms and their relevance on pharmacokinetics and drug metabolism, dose response and concentration response analysis, biological markers of drug effect, and adverse...
CRP259	Decision Sciences in Clinical Research	Modeling the potential impact of a health intervention on disease outcomes can be extremely useful in gaining an understanding of the underlying biology or epidemiology of a disease, in designing research studies, and in assessing whether an interven...
CRP261	SAS Programming for Data Management	This course is an introduction to the use of SAS for data management. The primary goal is to empower the student to restructure, clean and otherwise prepare data sets for subsequent analysis using SAS. This is accomplished through directed exercises...
CRP262	Systematic Reviews and Meta Analysis	This course provides a practical foundation for systematic reviews involving quantitative synthesis (quantitative meta-analysis). Through directed exercises, students learn when and how to perform quantitative synthesis using freely available softwa...
CRP263	Longitudinal Data Analysis	Longitudinal methods are required in the analysis of two types of study designs, those that involve questions about systematic change over time and those that involve questions about whether and when events occur. The first type is characterized by...
CRP264	Introduction to Immunology in Clinical Research	This course provides an introduction to basic concepts of immunology, clinical assessment of immune function, and the fundamental importance of immune mechanisms in human disease. Topics include innate and adaptive immunity, regulatory mechanisms, a...
CRP265	Molecular Biology Techniques	This course is an introduction to basic laboratory techniques in molecular biology. Through lectures and hands on laboratory experiments students are introduced to methods required to perform basic molecular biology techniques. Techniques covered in...
CRP266	Design and Analysis of Non-Randomized Studies	This course provides students a foundation in the design of rigorous non-randomized studies that compare the effectiveness of one or more treatments to another. In addition to a brief history of comparative effectiveness research (CER), the course w...

CODE	NAME	DESCRIPTION
CRP267	Special Topics in Clinical Research	This course focuses on new perspectives and methods in clinical and translational research. Content to be determined each semester. Prerequisite: None. Credits: 1-2.
CRP269	Independent Study	Only for students who wish to remain active in the program, i.e., students are not enrolling in classes during the semester and are not enrolling in CRP 299 – Continuation of Research. Prerequisite: None. Credit: 1.
CRP270	Research	An individualized research project under the direction and supervision of the student's mentor and examining committee forms the basis for this culmination of the program of study leading to the degree. Prerequisite: None. Credit: 12.
CRP270-BST	Research BST	This Research Project course is designed to provide a formal, structured, mentored environment in which students can practice skills necessary for conducting basic research. Students will work in their mentor's research space on an individual research...
CRP271	Clinical Outcome Assessments in Clinical Research	Clinical outcome assessments (COAs) are measures used in clinical trials designed to evaluate how a new intervention affects how patients feel or function. There are four types of COAs: patient-reported (e.g., self-reported pain), observer-reported (...)
CRP272	R Programming Boot Camp	This course is an introduction to the use of R and RStudio for data management. The primary goal is to empower the student to restructure, clean and otherwise prepare data sets for subsequent analysis using R and RStudio. This is accomplished through...
CRP273	Implementation and Dissemination of Health Care Research	Implementation research (1) seeks to understand the processes and factors that are associated with successful integration of evidence-based interventions within a particular setting (e.g., a worksite or school), (2) assesses whether the core componen...
CRP274	Independent Study II	No Description Set
CRP275	Research Project and Proposal Development A Stepwise Approach	Using a 'flipped classroom' design, this course will teach you how to conceptualize and develop a major research project into a fundable grant proposal. We will present a stepwise approach and structured exercises that guide you through all aspects...
CRP276	Statistical Methodology for Basic Research	This course focuses on the appropriate application of core concepts taught in CRP 241 (Introduction to Statistical Methods) to the arena of basic science research, including dataset construction, descriptive statistics, hypothesis formulation and stu...
CRP277	Research Professional Development	To have a successful research career, physicians and scientists need expertise in their scientific specialty as well the skills necessary to navigate the workplace and academic environments. This course will provide early career clinician-scientists...
CRP278	Machine Learning For Health	Data science and machine learning (ML) are now beginning to impact clinical medicine, with performance on some tasks, such as detection of skin cancer, exceeding that of experienced clinicians. This course is designed to introduce students to the dat...
CRP279	Scientific Communication	This course covers best practices and strategies for multiple forms of scientific communication including manuscripts, social media, posters, presentations, news interviews, and reports. Prerequisite: None. Credit: 2.
CRP280	Drug Metabolism - Study Away at UNC	This course is for only those students who are accepted into the Duke CRTP Clinical Pharmacology track. In order to be enrolled, students must complete the Interinstitutional Form and return to Gail Ladd (gail.ladd@duke.edu). Upon approval, the fo...
CRP281	Pharmacokinetics - Study Away at UNC	This course is for only those students who are accepted into the Duke CRTP Clinical Pharmacology track. In order to be enrolled, students must complete the Interinstitutional Form and return to Gail Ladd, (gail.ladd@duke.edu). Upon approval, the fo...
CRP282	Pharmacogenomics - Study Away at UNC	This course is for only those students who are accepted into the Duke CRTP Clinical Pharmacology track. In order to be enrolled, students must complete the Interinstitutional Form and return to Gail Ladd (gail.ladd@duke.edu). Upon approval, the fo...

## Master of Health Sciences Pathologists' Assistant

## Duke University

**Professor and Chairman, Department of Pathology:** Jiaoti Huang, MD, PhD

**Director, Pathologists' Assistant Program:** Michelle P. Johnson, MHS, PA (ASCP) CM

**Faculty Liaison:** Rex Bentley, MD

**Medical Director, Pathologists' Assistant Program:** Diana Cardona, MD

**Director, Surgical Pathology:** Rex Bentley, MD

**Duke Surgical Pathology Training Coordinator:** Allison Topper, MHS, PA (ASCP) CM

**Director, Autopsy Pathology:** Caroline Glass, MD, PhD

**Autopsy Pathology Training Coordinator:** Meridith Hennessey, MHS, PA (ASCP)

**Chief of Pathology and Laboratory Medicine Service, Veterans Affairs Medical Center:** Elizabeth Boswell, MD

**Director of Surgical Pathology, Veterans Affairs Medical Center:** Amy Lark, MD

**VA Surgical Pathology Training Coordinator:** TBD

**Website:** [pathology.duke.edu/education/pathologists-assistant-program](http://pathology.duke.edu/education/pathologists-assistant-program)

## Program of Study

This is a 23.5-month program beginning with the start of the medical school academic year in August of each year. Students take most of their first-year basic science courses in the School of Medicine with the medical students. The first-year curriculum provides a broad, graduate-level background in medical sciences in support of intensive training in anatomic pathology. With a background in anatomy, histology, physiology, and microbiology, the students learn pathology at the molecular level in the classroom and are trained and given experience in the microscopic and gross morphology of disease in close, one-on-one training with pathology department faculty. They learn dissection techniques and all technical aspects of anatomic pathology in year-round clinical rotations. The curriculum is designed to produce individuals who fill the gap between the pathologist on the autopsy and surgical pathology services and other technical personnel who work in the tissue processing laboratory, while also preparing graduates to assist in the training of students and pathology residents.

## Accreditation

The curriculum, faculty, facilities, and administration of the program are accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS 5600 North River Road, Suite 720, Rosemont, IL 60018-5119, (773) 714-8880, [naacls.org](http://naacls.org)). Graduates are qualified to sit for the American Society of Clinical Pathology Board of Certification examination.

Master of Health Sciences Pathologists' Assistant (A-PTA-MHS)

## Academic Calendar

FIRST YEAR	
August 7, 2023 – January 29, 2024	Fall Semester 2023
November 22 – 26, 2023	Thanksgiving Break
December 16, 2023 – January 1, 2024	Holiday Break
January 30 – June 28, 2024	Spring Semester 2024
March 16 – 24, 2024	Spring Break
June 29 – July 7, 2024	Summer Break
July 8 – August 30, 2024	Summer Semester 2024
SECOND YEAR	
September 11 – December 15, 2023	Fall Semester 2023
November 18 – 26, 2023	Thanksgiving Break
December 16, 2023 – January 1, 2024	Holiday Break
January 2 – May 10, 2024	Spring Semester 2024
April 20 – 28, 2024	Spring Break
May 13 – July 11, 2024	Summer Semester 2024

Master of Health Sciences Pathologists' Assistant (A-PTA-MHS)

## Admissions

## Prerequisites for Admission

1. A baccalaureate degree in a biological or chemical science from an accredited institution which includes coursework in general chemistry, organic chemistry and/or biochemistry, biological science, college mathematics to the level of algebra, and English composition.  
OR  
A baccalaureate degree in a non-science major to include the courses defined above and at least 24 course credits in biological sciences and chemistry of such depth that the admissions committee determines that the candidate has the minimum scientific background to successfully begin the study of medical sciences. Suggested prerequisites include cell and molecular biology, human physiology, immunology, genetics, microbiology, gross anatomy and microscopic anatomy.
2. Scores for the Graduate Record Examination (GRE) are required. The Medical College Admissions Test (MCAT) is not accepted in lieu of the GRE. Candidates who receive their baccalaureate degree from institutions outside the United States must submit a transcript evaluation showing degree equivalency and course by course subject matter description.
3. A minimum of two hours shadowing in anatomic pathology, specifically surgical pathology (preferably in more than one setting), or surgical pathology work.
4. All candidates for the master of health science degree and certification as pathologists' assistants must possess the physical and mental skills and abilities necessary to successfully complete the training program curriculum. To achieve the optimal educational experience, students are required to participate in all phases of the training program, in compliance with the Technical Standards (see below).

## Application Procedures

Application will be performed online via the Slate portal linked to the Duke Pathologists' Assistant website. Fees and materials will be paid and submitted through the portal, with transcripts submitted vial electronic request to the program director. If the electronic request is not available, transcripts will be sent to the program director at DUMC Box 3172, Department of Pathology, Durham, NC 27710. Official test score results must be sent to Duke University by the ETS, IELTS or the AAMC. To submit your GRE scores, use the Duke Institutional Code (5156) when completing the score report recipient section of the registration form. All applications must be completed by January 15 of each admissions cycle.

Candidates will be notified of the Admission Committee's decision no later than the first week in April. Accepted candidates are required to submit a nonrefundable deposit of \$450 to retain their places in the class. This deposit will apply to the first semester tuition.

## Criminal Background Checks

Candidates who are offered admission to the Pathologists' Assistant Program will undergo criminal background checks.

## Technical Standards

The study of medicine is not a pure intellectual exercise. Rather, a specific set of minimal physical, mental, emotional, and social abilities are needed to be a successful student. Students must possess all of the abilities listed in the five Technical Standards categories below. The use of an intermediary that would, in effect, require a student to rely on someone else's power of observation and/or communication will not be permitted.

1. Observation
  - Visually observe materials presented in the learning environment including audiovisual presentations, written documents, microbiology cultures, microscopic examination of microorganisms, tissues and gross organs in the normal and pathologic state, and diagnostic images;
  - Observe specimens accurately and completely, both at a distance and directly. This requires functional vision, hearing, and sensation.
2. Communication
  - Effectively speak, write, hear, read, and use a keyboard utilizing the English language;
  - Perceive nonverbal communications, including facial expressions, body language, and affect;
  - Communicate effectively and sensitively with patients and their families via speech as well as reading/writing;
  - Communicate in oral and written form with the healthcare team in an effective, accurate, and efficient manner.
3. Motor
  - Elicit information from surgical specimens and postmortem examinations by palpation and use of dissection instruments;
  - Execute movements reasonably required to provide optimal gross analysis of surgical specimens and postmortem examinations. These skills require coordination of gross and fine motor movements, equilibrium, and sensation;



## Duke University

- Manipulate equipment and instruments to perform basic dissection procedures as required to attain curricular goals. (e.g., scalpel, forceps, scissors, needles and syringes, large dissection knife, band saw, camera, cryostat).
4. Intellectual/Conceptual, Integrative, and Quantitative Abilities
- Perform calculations necessary to solve quantitative problems as required by the curriculum;
  - Collect, organize, prioritize, analyze, and assimilate large amounts of technically detailed and complex information in a timely fashion. This information will be presented in a variety of educational settings, including lectures, small group discussions, and individual clinical settings. The applicant should be able to analyze, integrate, and apply this information appropriately for problem solving and decision-making;
  - Apply knowledge and reasoning to solve problems as outlined by the curriculum;
  - Comprehend the three-dimensional spatial relationships of structures;
  - Remain awake and alert.
5. Behavioral, Emotional, and Social Attributes
- Possess the emotional health to fully apply their intellectual skill, exercise good judgment, and to complete all responsibilities attendant to the diagnosis and care of surgical specimens and postmortem examinations;
  - Develop a mature, sensitive, and effective relationship with patients and colleagues;
  - Tolerate the physical, mental, and emotional stress experienced during training and patient care;
  - Possess qualities of adaptability, flexibility, and the ability to function in the face of uncertainty;
  - Form a compassionate relationship with their patients while maintaining appropriate boundaries for a professional relationship;
  - Behave in an ethical and moral manner consistent with professional values and standards;
  - Exhibit sufficient interpersonal skills, knowledge, and attitudes to interact positively and sensitively with people from all parts of society, ethnic backgrounds, and belief systems;
  - Cooperate with others and work corroboratively as a team.

The faculty of the Duke University School of Medicine's Pathologists' Assistant Program recognizes its responsibility to present candidates for the MHS degree and certification that have the knowledge, attitudes, and skills to function in the specialized setting of anatomic pathology.

The Admissions Committee is responsible for adhering to these technical standards during the selection of students for the Pathologists' Assistant Program.

Master of Health Sciences Pathologists' Assistant (A-PTA-MHS)

## Financial Information

### Tuition and Fees

First-year tuition	\$30,317
First-year fees	\$4,237
Second-year tuition	\$28,334
Second-year fees	\$4,092

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

### Technology Fee

All matriculating students in the program will be assessed a mandatory technology fee. The fee will not only cover hardware such as laptop and other devices as deemed appropriate for the program, but service, software, and technical updates to comply to all Duke Health System compliance guidelines.

### Health Insurance

All students are required to carry full major medical health insurance throughout their enrollment in the program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, evidence of other comparable health insurance coverage must be provided. The student health fee is mandatory for all students.

Master of Health Sciences Pathologists' Assistant (A-PTA-MHS)

## Program Policies

## Duke University

This program follows all School of Medicine policies in addition to the policies below.

### **Procedure When Applied Experience Cannot Be Guaranteed**

The Duke School of Medicine and the Pathologists' Assistant Program will, to the best of its ability, strive to provide all clinical rotations as outlined. We reserve the right to add or deactivate specific courses or clinical affiliates as needed by program demands or the requirements of the clinical affiliate site itself. Students may not rotate through all affiliate sites, and site assignment is at the discretion of the program director.

Matriculated students are guaranteed that they will be given the opportunity to complete the entire curriculum and receive the master of health science degree and institutional certificate of completion if the program should unexpectedly be discontinued for any reason.

### **Attendance and Excused Absences**

Students are required to attend all mandatory events, which may include lectures, laboratories, seminars, and clinical assignments. Absences are excused only for illness or personal emergency, and students must notify course coordinators and program faculty in advance of an expected absence. Absences of one to two days duration for professional purposes during the second year are allowed with the approval of the program director, and individual clinical rotation coordinators.

### **Registration and Drop/Add Policy**

Registration in the Pathologists' Assistant Program is offered on a full-time basis only and part-time enrollment is not allowed. All required course registrations are processed in the Office of the Registrar for the School of Medicine. As the program is only offered full-time, and all courses are mandatory, dropping and adding courses is not permitted. Transfer of students from other programs is not permitted.

### **Program Policies and Grading Standards**

Grades for courses and clinical rotations in the pathologists' assistant curriculum are assigned on the basis of the following: H (honors), P (pass), L (low pass), and F (fail). Exceptions are PATHASST 103 (Foundations of Patient Care 1), PATHASST 102 (Foundations of Patient Care 2), PATHASST 302 (Forensic Pathology), PATHASST 340-341 (Photography 1-2), PATHASST 361-362 (Pathologic Basis of Clinical Medicine), and PATHASST 390 (Senior Seminar) which are graded as either P (pass) or F (fail). Honors in any didactic course is defined as an overall average score of 90 percent and an overall average score of less than 70 percent constitutes failure.

Grades for courses and rotations are H (honors), P (pass), LP (low pass), F (fail), and I (incomplete). The determination of what performance equates with what grade is up to the individual instructor and course although for written examination a minimum of 70 percent is usually required to pass. Two grades of LP results in academic probation, and will require the student to complete remediation before progression to the next semester's courses. A single grade of F can result in dismissal from the program.

Many rotations and courses also use subjective means of evaluation such as direct observation of the student's work, student participation, and evaluation of written materials. In all rotations, evaluations of performance are written and grades are derived from these evaluations.

The program is designed to integrate classroom and clinical learning experiences considered necessary for competency as health care providers and each course in the curriculum is required. Therefore, the failure of any course in which the student is unable to successfully remediate will ultimately result in withdrawal from the program. Determination of satisfactory academic progress is made by the program director upon advisement of the program advisory committee.

The advisory committee will evaluate all student deficiencies and will invite the student to a hearing. The student has the option of including a faculty member or fellow student in the hearing. The decision made by the advisory committee is sent to the program director, who will evaluate and accept, reject or modify the recommendations from the committee. The student has the benefit of appeal to the dean of the School of Medicine. An appeal to the dean may only be made on the grounds of improper procedures in the appeals process rather than continued disagreement regarding the outcome of the process. The dean will review the data related to the process of the appeal and determine whether the process was valid. If the process is found to be valid, the decision is final and binding. If the process is found to be invalid, a new review panel will be convened.

Students in the Pathologists' Assistant Program are participants in a professional training program whose graduates assume positions of high responsibility as health care providers. Students are therefore evaluated not only on their academic performance and technical skills, but on their professional conduct. These evaluations will be in a written form as part of the general clinical rotation summaries. Deficiencies in professional conduct may result in academic probation; repeated episodes or patterns of misconduct may result in suspension or dismissal from the program. The Office of the Registrar in the School of Medicine will be notified of the student's status of

## Duke University

academic probation or suspension and the status will be noted on the student's transcript at the completion of the semester(s) during which the status is assigned. If the student successfully returns to good academic standing from academic probation, the statement will be removed; if the student is suspended, however, the statement will remain permanently on the transcript.

### Remediation

Students who initially receive a failing grade in any course must undergo a remediation process as defined by the individual course instructor and approved by the program director. Successful remediation will result in the student receiving a P (pass). Unsuccessful remediation will result in academic probation, with additional remediation and academic counseling required. If these additional steps are unsuccessful, failure will result and the student will be withdrawn from the program.

### Appeals of Course Grades

A student may appeal a course grade by writing the course coordinator and program director, providing factual evidence for changing the final course grade. Appeals will be considered individually on their merits and will not be considered precedent. The program director will notify the student in writing of the appeal decision within three weeks of the appeal.

### Satisfactory Academic Progress

Satisfactory academic progress consists of the receipt of a passing grade in all didactic and practical courses and is defined as follows:

**Year One:** Completion of all required courses and rotations (a total of 42 course credits) during the fall, spring, and summer within the scheduled semester.

**Year Two:** Completion of all clinical rotations, courses, and a senior seminar during the fall, spring and summer rotations (a total of 51 course credits) within the scheduled semester.

In unusual circumstances (illness or academic remediation) the determination of satisfactory progress is made by the program director.

### Appeals of Academic Status (Academic Probation or Withdrawal)

A student placed on academic probation or withdrawal from the program may appeal by indicating in writing to the program director reasons why they did not achieve minimum academic standards and factual evidence for changing the academic standing. Appeals will be considered individually on their merits and will not be considered as precedent. The program director will notify the student of the decision of the appeal in writing within three weeks of receipt of the appeal.

### Leave of Absence

A pathologists' assistant student, after presenting a written request to the program director, may be granted an official leave of absence for personal, medical, or academic reasons for a period not to exceed one calendar year. If the leave of absence is approved, the program director provides written notification including applicable beginning and ending dates to the student, the medical school registrar and the director of financial aid. The student must notify the program director in writing of their wish to return to the program at least sixty calendar days prior to the stated date of re-entry. When a leave of absence is taken, the program director may require the student to repeat some or all of the courses completed prior to the leave of absence. In all cases of leave of absence, the student is required to complete the entire curriculum to be eligible to earn the master of health science degree and the pathologists' assistant institutional certificate.

### Return From Leave of Absence

Returning students who must complete degree requirements off-schedule from their entering cohort are required to meet all degree requirements as established at time of program completion for the cohort to which the student is joined. Following are general guidelines for return from leave of absence; individual situations may be addressed in a more detailed manner at the discretion of the program administration. For students who have withdrawn after the sixth week of a semester, tuition will be waived for the equivalent term when the student returns. For students who withdrew from the first to the sixth week, tuition will be charged according to the schedule below. The student is responsible for all other University/program fees for the returning term regardless of the timing of the withdrawal. Students completing off-schedule should contact the Office of Financial Aid regarding continued eligibility for federal education loans.

### Withdrawal

If a student withdraws, including involuntary withdrawal for academic reasons, tuition may be prorated according to the following schedule:

## Duke University

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

Historically, voluntary withdrawals are initiated at the request of the student. Working with the program director, a mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. Per letter, the program director will notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The Office of Financial Aid may revoke any financial aid that has been disbursed. The student should also contact these offices to ensure the student has fulfilled all responsibilities with regard to this process. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew on the specific effective date.

### Code of Professional Conduct

Students enrolled in the Duke Pathologists' Assistant Program are expected to adhere to the Duke University School of Medicine Code of Professional conduct as detailed in the policies for all School of Medicine programs found elsewhere in this bulletin.

The study of medicine is not a pure intellectual exercise. Rather, a specific set of minimal physical, mental, emotional, and social abilities are needed to be a successful student. Students must possess all of the abilities listed in the five Technical Standards. The use of an intermediary that would, in effect, require a student to rely on someone else's power of observation and/or communication will not be permitted.

### Degree Requirements

Passage of 93 course credits of graduate coursework is required for the MHS degree and a certificate of completion at the end of the program. There is a mandatory, comprehensive, oral seminar presentation reviewed by a panel of pathology department faculty and staff which all students must pass for successful completion of the program.

### Commencement and Certificate Award

The Pathologists' Assistant student must successfully complete 93 course credits, including all scheduled courses, clinical rotations, and the Senior Seminar, by the end of July in order to receive the master of health science degree and institutional certification of completion, and be eligible to sit for the American Society of Clinical Pathology (ASCP) Board of Certification Examination. Granting of the degree and certificate is not contingent upon the students passing any type of external certification or licensure examination.

Master of Health Sciences Pathologists' Assistant (A-PTA-MHS)

### Program Requirements

YEAR 1 FALL	COURSE CREDITS
PATHASST 204 (Introduction to Practical Anatomic Pathology Techniques)	2
PATHASST 103 (Foundations of Patient Care 1)	16
PATHASST 203 (Neuroscience and the Autopsy)	2
<b>Term Total</b>	<b>20</b>
<b>YEAR 1 SPRING</b>	
PATHASST 102 (Foundations of Patient Care 2)	16
<b>Term Total</b>	<b>16</b>
<b>YEAR 1 SUMMER</b>	
PATHASST 210 (Introduction to Autopsy Pathology)	2
PATHASST 221 (Introduction to Surgical Pathology-Duke)	2
PATHASST 222 (Introduction to Surgical Pathology-VAMC)	2
<b>Term Total</b>	<b>6</b>
<b>YEAR 2 FALL</b>	
PATHASST 218 (Anatomic Pathology and Digital Analytics)	2
PATHASST 321 (Surgical Pathology I -Duke)	4
PATHASST 322 (Surgical Pathology I -VAMC)	4
PATHASST 340 (Photography I)	1
PATHASST 323 (Autopsy Pathology I)	4
PATHASST 361 (Pathologic Basis of Clinical Medicine I)	3
PATHASST 359 (Laboratory Technologies and Management)	2
<b>Term Total</b>	<b>20</b>
<b>YEAR 2 SPRING</b>	
PATHASST 331 (Surgical Pathology II -Duke Site)	7
PATHASST 332 (Surgical Pathology II -VAMC Site)	4
PATHASST 302 (Forensic Pathology)	2
PATHASST 324 (Autopsy Pathology II)	4
PATHASST 341 (Photography II)	2
PATHASST 362 (Pathologic Basis of Clinical Medicine II)	3
<b>Term Total</b>	<b>22</b>
<b>YEAR 2 SUMMER</b>	
PATHASST 330 (Autopsy Practicum)	3
PATHASST 351 (Surgical Pathology Practicum-Duke)	2
PATHASST 352 (Surgical Pathology Practicum-VAMC)	2
PATHASST 390 (Senior Seminar)	2
<b>Term Total</b>	<b>9</b>
<b>Certificate and Academic Degree Awarded</b>	<b>93</b>

Master of Health Sciences Pathologists' Assistant (A-PTA-MHS)

## Courses of Instruction

CODE	NAME	DESCRIPTION
<b>PATHASST100</b>	Human Structure & Function 1	This core preclinical course focuses on the scientific principles underlying the structure and function of the human body, thereby providing the foundational knowledge for the practice of medicine and facilitating the incorporation of the new scienti...

CODE	NAME	DESCRIPTION
<b>PATHASST101</b>	Human Structure & Function 2	This core preclinical course focuses on the scientific principles underlying the structure and function of the human body, thereby providing the foundational knowledge for the practice of medicine and facilitating the incorporation of the new scienti...
<b>PATHASST102</b>	Foundations of Patient Care II	This core course in human disease is presented from February through June of the first year. The course begins with fundamental principles of three basic sciences most directly related to human disease: immunology, microbiology and pathology. This c...
<b>PATHASST103</b>	Foundations of Patient Care I	This integrated, multi-component, core course provides the foundational knowledge for the biomedical sciences. The units within the course focus on the scientific principles underlying the structure and function of the human body (anatomy, biochemist...
<b>PATHASST203</b>	Neuroscience and the Autopsy	Students are introduced to neurologic disease processes and how these processes relate to changes in the brain and spinal cord. Emphasis is placed on neuroanatomy, neurohistology, and the neurological dissection and how these impact the approach take...
<b>PATHASST204</b>	Introduction to Practical Anatomic Pathology Techniques	Students are introduced to the daily activities in a surgical pathology laboratory. Emphasis is places on neurologic gross and microscopic anatomy and dissection of the brain and spinal cord. Students become acquainted with the various duties assum...
<b>PATHASST210</b>	Introduction to Autopsy Pathology	This is a summer rotation given during the first summer session. It is designed to reacquaint the student with autopsy prosection and workup training and experience, building on concepts introduced in PATHASST 204. Students work with the PA on servi...
<b>PATHASST215</b>	Histology Techniques	Students participate in rotations through two histology and immunohistochemistry laboratories. The rotations are designed to acquaint students with the various laboratory techniques used in tissue processing, routine histology, special histochemistry...
<b>PATHASST217</b>	Molecular Pathology Techniques	During this one week practical rotation, students are introduced to ancillary diagnostic technologies and techniques used to assess cellular and subcellular pathology, to include immunohistochemistry, flow cytometry, image analysis and electron micro...
<b>PATHASST218</b>	Anatomic Pathology and Digital Analytics	Students participate in rotations through a histology laboratory, and are also introduced to ancillary diagnostic technologies and techniques used to assess cellular and subcellular pathology. The rotations are designed to acquaint students with the...
<b>PATHASST221</b>	Introduction to Surgical Pathology - Duke	This is the initial practical rotation conducted during the first summer session. It is designed to re-acquaint students with the techniques of gross dissection, descriptions, and submission of tissue samples from surgical specimens, focusing on sma...
<b>PATHASST222</b>	Introduction to Surgical Pathology - VAMC	This is the initial practical rotation conducted during the first summer session complimenting PATHASST 221. It presents students with the techniques of gross dissection, descriptions, and submission of tissue samples from surgical specimens process...
<b>PATHASST302</b>	Forensic Pathology	This is a practical rotation at the North Carolina Office of the Chief Medical Examiner observing and participating (on a limited basis) with forensic pathologists performing medical-legal autopsies. Credit: 2. Aurelius and staff
<b>PATHASST303</b>	Senior Seminar	Students complete an independent study under the supevision of a Department of Pathology faculty member or senior Pathology resident. Topics are selected from Surgical Pathology or Autopsy Pathology cases, and are researched, developed and presented...
<b>PATHASST321</b>	Surgical Pathology I- Duke	These courses run concurrently during the fall semester of the second year, and are meant to be complimentary. They are practical rotations on the Duke University and Veterans Administration Medical Center's Surgical Pathology Services respectively,...
<b>PATHASST322</b>	Surgical Pathology I- VAMC	These courses run concurrently during the fall semester of the second year, and are meant to be complimentary. They are practical rotations on the Duke University and Veterans Administration Medical Center's Surgical Pathology Services respectively,...
<b>PATHASST323</b>	Autopsy Pathology I	A detailed consideration of the morphologic, physiologic, and biochemical manifestations of disease. Includes gross dissection, histologic examinations, processing, and analyzing of all autopsy findings under tutorial supervision. Credit: 4, 4. Glass...

CODE	NAME	DESCRIPTION
PATHASST324	Autopsy Pathology II	A detailed consideration of the morphologic, physiologic, and biochemical manifestations of disease. Includes gross dissection, histologic examinations, processing, and analyzing of all autopsy findings under tutorial supervision. Credit: 4, 4. Glass...
PATHASST330	Autopsy Practicum	This is the final autopsy rotation completed during the summer of the second year of training. Students must perfect their dissection skills, demonstrate the ability to conduct full autopsy prosecutions in all possible situations, and write full preli...
PATHASST331	Surgical Pathology II - Duke	These courses run concurrently during the spring semester of the second year, and are meant to be complimentary. They are continuing, practical rotations on the Duke University or Veterans Administration Medical Center's Surgical Pathology Services,...
PATHASST332	Surgical Pathology II - VAMC	These courses run concurrently during the spring semester of the second year, and are meant to be complimentary. They are continuing, practical rotations on the Duke University or Veterans Administration Medical Center's Surgical Pathology Services,...
PATHASST340	Photography I	This is an introduction to medical photography. Students become familiar with photography equipment and the fundamentals of gross specimen photography. Credit: 1. Conlon
PATHASST341	Photography II	This is an introduction to medical photography. Students become familiar with photography equipment and the fundamentals of gross specimen photography. Credit: 1. Conlon
PATHASST351	Surgical Pathology Practicum - Duke	These are the final surgical pathology rotations completed during the summer of the second year of training both at Duke University and the Veterans Administration Medical Center. Students must perfect their dissection skills and demonstrate the abil...
PATHASST352	Surgical Pathology Practicum - VAMC	These are the final surgical pathology rotations completed during the summer of the second year of training both at Duke University and the Veterans Administration Medical Center. Students must perfect their dissection skills and demonstrate the abil...
PATHASST359	Laboratory Technologies and Management	Students are presented with fundamentals of laboratory management to include regulatory and compliance issues, basic management techniques, laboratory safety and infection control in both lectures and practical applications of fine needle aspiration...
PATHASST361	Pathological Basis of Clinical Medicine I	This course consists of lectures and seminars by the departments of Pathology and Medicine faculty, emphasizing both basic science and systemic pathologic topics. Credit: 3. Department of Pathology and Medicine faculty.
PATHASST362	Pathological Basis of Clinical Medicine II	This course consists of lectures and seminars by the departments of Pathology and Medicine faculty, emphasizing both basic science and systemic pathologic topics. Credit: 3. Department of Pathology and Medicine faculty.
PATHASST390	Senior Seminar	Students complete a full autopsy case and review the gross findings, microscopic slides, and report compiling with the supervision of a Department of Pathology faculty member or senior pathology resident. Cases are approved by the precepting PA on th...

## Master of Health Sciences Physician Assistant

**Department of Family Medicine and Community Health, Division of Physician Assistant Studies Department Chair:** Anthony Viera, MD, MPH PA

**Division Chief & Program Director:** Jacqueline S. Barnett, DHSc, MSHS, PA-C

**Associate Program Director:** April Stouder, MHS, PA-C

**Medical Director:** Kenyon Railey, MD

**Interim Director Preclinical Education:** Rachel Porter, PhD

**Academic Coordinator:** Betsy Q. Melcher, MS, ATC, MHS, PA-C

**Academic Coordinator:** Lorraine Anglin, MHS, PA-C

**Academic Coordinator:** Janelle Bludorn, MS, PA-C

**Academic Coordinator:** Kim Howard, MHS, PA-C

**Director of Clinical Education:** Jacquetta Melvin, MPH, PA-C

**Clinical Coordinator:** Nicholas M. Hudak, PhD, MPA, MEd, PA-C

**Clinical Coordinator:** Quincy Jones, MSW, LCSW, MHS, PA-C

**Clinical Coordinator:** Brittany Macon-Davis, DMSc, MHS, PA-C

## Duke University

**Director of Diversity and Inclusion:** Lovest T. Alexander, MHS, PA-C

**Senior Research Faculty:** Perri Morgan, PhD, MEd, PA-C

**Director of Assessment and Evaluation:** Melinda Blazar, EdD, MHS, PA-C

**Pharmacology Course Coordinator:** Jean Mesaros, PharmD, BCPS

**Anatomy Course Coordinator:** Megan Holmes, PhD

**Senior Education Specialist:** Sandro Pinheiro de Oliveira, MA, MRE, PhD

**Senior Education Strategist:** Rachel Porter, PhD

**Senior Instructional Faculty:** Annamarie Streilein, MHS, PA-C

**Instructional Specialist:** Suzanne Hallquist, MSPH, MHS, PA-C

**Instructional Specialist:** Laura Okolie, DMSc, MHS, PA-C

**Website:** [medschool.duke.edu/education/health-professions-education-programs/duke-physician-assistant-program](https://medschool.duke.edu/education/health-professions-education-programs/duke-physician-assistant-program)

### Program Mission

The Duke Physician Assistant Program's mission is to educate caring, competent primary care physician assistants who practice evidence-based medicine, are leaders in the profession, dedicated to their communities, culturally sensitive, and devoted to positive transformation of the health care system.

### The Physician Assistant Profession

Physician assistants (PAs) are well-recognized and highly sought-after members of the health care team. Working in collaboration with physicians and healthcare teams, PAs provide diagnostic and therapeutic patient care in virtually all medical specialties and settings. They take patient histories, perform physical examinations, order laboratory and diagnostic studies, and develop patient treatment plans. In all fifty states, PAs have the authority to write prescriptions. Their job descriptions are as diverse as those of their collaborating physicians, and also may include patient education, medical education, health administration, and research. Of the approximately 158,000 certified PAs in the United States, 23 percent provide primary care services, especially in family and general internal medicine.

While PAs practice medicine, other tasks have been integrated into the role, particularly in the institutional and larger clinic setting. For example, PAs in the tertiary care setting are often involved in the acquisition, recording and analysis of research data, the development of patient and public education programs, and the administration of their departments' clinical and educational services. Involvement in these other services has demonstrated the value of having PAs as part of the team and provided job advancement for PAs in these settings.

Additional nonclinical positions are developing for PAs. While these positions do not involve patient care, they depend on a strong clinical knowledge base. The MHS curriculum provides PAs with depth of knowledge in the basic medical sciences and clinical medicine, as well as skills in administration and research. With these expanded skills, graduates can take advantage of the wide diversity of positions available to PAs.

### Program of Study

The curriculum is twenty-four consecutive months in duration and is designed to provide an understanding of the rationale for skills used in patient assessment, diagnosis, and management. The first twelve months of the program are devoted to preclinical studies in the basic medical and behavioral sciences, and the remaining twelve months to clinical experiences in primary care, medical and surgical specialties, and advanced study in evidence-based practice.

Each student is assessed a technology fee for both the first and second years. This fee includes access to an electronic platform, which hosts most of the required textbooks needed for the program. In addition, the program provides computers and handheld devices, which are used for communication and a variety of in-class and clinical assignments and activities. The preclinical curriculum is integrated to introduce the student to medical sciences as they relate to specific organ systems and clinical problems. Learning strategies include the traditional lecture format, basic science laboratory, small group tutorials, and patient case discussions. Opportunities for early clinical exposures are an important part of the first-year curriculum, and these patient learning experiences are incorporated into the Patient Assessment and Counseling courses during the preclinical year. Standardized patient evaluations, using simulators and actors, are also a part of the preclinical curriculum.

As part of the clinical curriculum, students are required to complete core clinical courses in internal medicine, surgery, emergency medicine, primary care, pediatrics, obstetrics & gynecology, and behavioral medicine. In addition, two elective clinical courses are included in the clinical year schedule, as is a clinical course devoted to advanced study in evidence-based practice. At least one clinical experience must be completed in a medically underserved site. The final week of the clinical year is spent in intensive preparation for the PA National Certifying Examination (PANCE).



## Academic Calendar

### Preclinical Year Calendar — Academic Year 2023-2024 (Class of 2025)

<b>FALL 2023</b>	
August 16	Program Orientation begins
August 23	Fall Semester classes begin
September 4	Labor Day Holiday—no classes
October 6	5 p.m.—Begin Fall Break
October 11	Classes resume
November 21	5 p.m.—Begin Holiday Break
November 27	Classes resume
December 15	5 p.m.—End of Fall Semester; Winter Break begins
<b>SPRING 2024</b>	
January 2	Spring Semester classes begin
January 15	Martin Luther King, Jr. Holiday—no classes
February 9	5 p.m.—Begin Mid-Semester Break
February 14	Classes resume
April 5	5 p.m.—End of Spring Semester; Spring Break begins
<b>SUMMER 2024</b>	
April 15	Summer Term classes begin
May 17	5 p.m.—End classes for AAPA Conference
May 27	Memorial Day Holiday—no classes
May 28	Classes resume
June 19	Juneteenth Holiday—no classes
June 28	5 p.m.—End of Summer Term and Preclinical Year

<b>Clinical Year Calendar — Academic Year 2023-2024 (Class of 2024)</b>	
June 28, 2023	End of Classes
June 29-July 16	Summer Break
July 17-28	PhyAsst 299 - Bridge: The Path to Patient Care
August 1-25	Rotation #1
August 28-September 22	Rotation #2
September 4	Labor Day Holiday
September 25-October 20	Rotation #3
October 23-November 17	Rotation #4
November 20-December 15	Rotation #5
November 23	Thanksgiving Holiday
December 16, 2023-January 1, 2024	Winter Break
January 2-26	Rotation #6
January 15	Martin Luther King Jr. Holiday
January 29-February 23	Rotation #7
February 26-March 22	Rotation #8
March 25-April 19	Rotation #9

FALL 2023	
April 22-April 28	Spring Break
April 29 - May 24	Rotation #10
May 27	Memorial Day Holiday
May 28-June 21	Rotation #11
June 19	Juneteenth Holiday
June 24-July 19	Rotation #12
July 4	Independence Day Holiday
July 22-August 2	PhyAsst 390 – Practice and the Health System III
August 2	Certificate of Completion
August 9	Eligible to sit for PANCE
September 1	Graduation Date: MHS Conferral

Master of Health Sciences Physician Assistant (A-PA-MHS)

## Admissions

### Prerequisites for Application

The prerequisites for application to the MHS physician assistant curriculum include:

1. A baccalaureate degree from a regionally accredited institution. College seniors are eligible to apply, provided they receive the baccalaureate degree prior to the August starting date for the PA Program. Those candidates who received their baccalaureate degrees from colleges and institutions outside of the United States must complete at least one year (thirty semester credits) of additional undergraduate or graduate study at an accredited US college or university prior to application to the program.
2. Specific prerequisite college courses:
  - At least five biological science courses of three semester credits or four quarter credits each are required. Of these five courses, at least one must be in anatomy, one in physiology, and one in microbiology. Courses in human anatomy and human physiology are preferred to courses of a more general nature, and courses with labs are preferred. To fulfill the remaining biological science course prerequisite, the PA Program recommends courses in cell biology, molecular biology, genetics, embryology, histology, or immunology. While none of the latter courses are required, they provide a good foundation for the study of medicine.
  - At least two chemistry courses with labs are required. Each of these courses must be at least four semester credits or five quarter credits each.
  - At least one statistics course of at least two semester credits or three quarter credits is required.
  - All prerequisite courses must be completed with grades of C or better (not C minus).
3. Scores of the Graduate Record Examination (GRE general test), taken within the last four years, and no later than September 1 of the year of application. No other test scores are accepted in lieu of the GRE.
4. A minimum of 1,000 hours of patient care experience, with direct “hands-on” patient contact, completed by the CASPA submission date in the year of application.

### Application Procedures

Duke’s PA Program is a participant in CASPA (Centralized Application Service for PAs). The CASPA application may be accessed via the program’s website, [medschool.duke.edu/education/health-professions-education-programs/duke-physician-assistant-program](https://medschool.duke.edu/education/health-professions-education-programs/duke-physician-assistant-program). The application is available from April 27 to September 1. In addition to completing and submitting the web-based application by September 1, candidates must also submit:

- the CASPA application fee;
- official transcripts from all colleges/universities and other post-secondary institutions attended;
- scores of the GRE. The GRE must be taken no later than September 1;
- three completed recommendation forms, including at least one from a health care provider with whom the applicant has worked; and
- the online supplemental application (access provided to the applicant after submission of CASPA application) must be submitted by September 15.

## Selection Factors

The Duke PA Program is a mission-driven and strives to recruit a diverse student population who demonstrates a heart for service and a commitment to increasing access to primary care in rural and underserved communities. The PA Program values diversity in the broadest sense and give preference to applicants who represent a strong match to our mission. The program endeavors to matriculate a student body that differs in attributes such as age, gender, gender identity, disability, life experience, and years of health care experience. The program also seeks applicants who have served their communities or their country through volunteer activities, military service, employment opportunities, or service-oriented programs. The PA Program is committed to recruiting students from North Carolina and geographically underserved regions, as well as students from different racial, ethnic, and socioeconomic backgrounds. Information submitted by each applicant is carefully reviewed by the Committee on Admissions, and selected applicants are invited for personal interviews. These interviews take place September through November; ninety students are chosen from among those interviewed to matriculate. Only full-time students are admitted.

## Criminal Background Check and Drug Screening

Candidates offered admission to the Physician Assistant Program will undergo a criminal background check and drug screening following admission, prior to the start of the clinical year, and as needed for clinical site credentialing.

Master of Health Sciences Physician Assistant (A-PA-MHS)

## Financial Information

### Tuition and Fees

On notification of acceptance, prospective PA students are required to pay:

- a nonrefundable first registration fee of \$475
- a prematriculation background check fee of \$75
- a health screening check fee of \$100
- a nonrefundable program deposit of \$475. For those who matriculate, the program deposit is applied to the cost of tuition.

First-year tuition	\$48,951
First-year fees	\$6,878
Second-year tuition	\$46,843
Second-year fees	\$3,930

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

Subject to change and Board approval.

## Financial Aid

Most Duke PA students finance their education through student loans up to the cost of the school-approved budget, by qualifying for federal, state, or private education loans. All financial aid awards are made on the basis of documented financial need. The financial aid application process requires completion of the Free Application for Federal Student Aid (FAFSA) if applying for federal education loans.

The North Carolina Forgivable Education Loan for Service provides financial assistance in the form of loans up to \$10,000 per year for North Carolina residents; these loans may be canceled through approved service in shortage areas, public institutions, or private practice. Applicants may call (866) 866-2362 for further information about this loan program.

The US Public Health Service has several programs that offer scholarships, stipends, and loan repayment to PA students who commit to varying periods of employment within designated facilities. Interested applicants can call the National Health Service Corps Program directly at (800) 221-9393 or go to [nhsc.hrsa.gov](http://nhsc.hrsa.gov) for further information.

Limited scholarship funds are available through the Duke Physician Assistant Program. Some of the scholarships are offered with admission and others require an application after the program has begun. The scholarship may reduce the amount a student borrows in education loan funding.

Additional information can be obtained by calling (919) 684-6649, by contacting the Office of Financial Aid, Box 3067, Duke University School of Medicine, Durham, NC 27710 or by emailing [finaid@dm.duke.edu](mailto:finaid@dm.duke.edu).

## Health Insurance

## Duke University

All students are required to carry full major medical health insurance throughout their enrollment in the PA Program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, evidence of other comparable health insurance coverage must be provided. The Student Health Fee is mandatory for all students.

Master of Health Sciences Physician Assistant (A-PA-MHS)

### Program Policies

This program follows all School of Medicine policies in addition to the policies below.

#### Attendance

Our program's philosophy is that all coursework is significant and that student presence at all sessions is important and expected. Many students bring to our program previous expertise in a given field. Students with strong background knowledge of a particular subject should understand that there is always more that can be learned, or shared. Assuming that one has nothing to learn from a particular class is a dangerous presumption in a profession that requires lifelong learning. Students are expected to participate in all lectures, laboratories, and small group sessions, as they are designed to develop professional and clinical skills. Courses with practicums, laboratory sessions and seminars, Common Problem Labs, Synthesis Sessions, standardized and actual patient encounters are rich learning opportunities for students that cannot be recreated. Because of the unique nature of these learning activities, attendance is required. In the event of illness or emergency, students should notify the course coordinator and their advisor in advance of a missed practicum, laboratory session, CPL, Synthesis Session, or standardized patient encounter or any required activity. The program provides flexibility for students who wish to observe religious high holidays, and encourages students to connect with preclinical or clinical directors to discuss further. If a student needs to miss more than five (5) consecutive days of class in the preclinical year or five (5) days of a rotation in the clinical year due to urgent personal or health reasons, a formal leave of absence may be required.

A pattern of recurrent absences may have a negative impact on the clinical competency of the learner and reflects poorly on the learner's professionalism. Significant attendance concerns, which may be jeopardizing the student's academic standing, will be brought to the student's attention by faculty. For students on a professionalism or academic agreement where attendance is a required component of the agreement, recurrent absences violate the terms of the agreement and may result in recommendation for probation, suspension, or dismissal from the program.

Attendance policies in the clinical year of the curriculum are established to assure competency in each area of medicine. Clinical year policies vary from the preclinical attendance policy outlined above.

#### Registration and Drop/Add Policy

All courses are required and are offered as a cohort. In the preclinical year, with the exception of the optional medical Spanish or IPE electives, there is no opportunity to drop or add a course. In the clinical year, all students will register for the Bridge course and Practice and the Health System III, and will complete these courses together as a class. Students also register for the required core clinical courses and two of the elective course offerings, however, they will complete these courses at different times during the clinical year. Faculty assign all clinical year courses, and therefore courses can only be dropped or added with direction by the program faculty.

#### Program Policies and Grading Standards

Grades for all preclinical and clinical courses are assigned on the basis of the following: S (satisfactory) and U (unsatisfactory). The Physician Assistant Program is designed to integrate classroom and clinical learning experiences considered necessary for competency as health care providers. Therefore, the failure of any required course will result in dismissal from the program. Determination of satisfactory academic progress is made by the PA program director upon advisement by the Progress and Promotion Committee, at the conclusion of each semester/term.

A grade of I (incomplete) may remain on a student's transcript for one year only. After one year, a grade of Incomplete automatically is converted to an F. An extension to this one-year limit may be granted by the program director; a request must be submitted in writing to the program director no later than thirty days prior to the expiration of the one-year time limit.

Students in the Physician Assistant Program are participants in a professional training program whose graduates assume positions of high responsibility as providers of health care. Accordingly, students are evaluated not only on their academic and clinical skills, but also on their interpersonal skills, reliability, and professional conduct. Deficiencies in any of these areas are brought to the student's attention in the form of a written evaluation and may result in being placed on a professionalism or academic agreement, probation, suspension, or dismissal from the program.

#### Appeals of Course Grades

## Duke University

A student may appeal a course grade by writing to the program director within two weeks of the grade being posted, providing factual evidence for changing the final course grade. Appeals will be considered individually on their merits and will not be considered as precedent. The program director will notify the student of the decision on the appeal in writing, within two weeks of receipt of the appeal.

### Satisfactory Academic Progress

Determination of satisfactory academic progress is made by the PA program director upon advisement by the Promotions Committee, at the conclusion of each semester/term. Satisfactory academic progress for students in the Physician Assistant Program consists of the successful completion of all requirements necessary for the advancement from one semester to the next. These requirements are as follows:

**Preclinical Year:** Completion of all required courses (a total of 58 course credits) during the fall, spring, and summer terms within the scheduled semester or term and within one year of initial matriculation.

**Clinical Year:** Completion of the Bridge course, all required core clinical courses, elective courses, and Practice and the Health System III (a total of 51 course credits) during the fall, spring, and summer terms; clinical courses begin in the semester immediately following the completion of the preclinical year and must proceed as scheduled without interruption for three semesters/terms (twelve months).

In unusual circumstances (including leave of absence, academic remediation, or probationary status) the determination of satisfactory progress for academic purposes is made by the program director in conjunction with the Promotions Committee. This may extend the clinical course cycle into the next academic year, delaying the expected time of graduation.

For financial aid purposes, federal regulations establish the maximum time frame for completion of the program at 150 percent of the minimum time required to complete the program. Any student exceeding the 150 percent maximum time frame is ineligible for Title IV (Stafford loan) student financial aid funds.

### Determination of Academic Standing

All students' records are reviewed at the end of each term by the Promotions Committee, and each student is recommended to one of the following categories of academic standing:

**A. Satisfactory Academic Standing:** The PA student completed no more than one course in a semester with an overall grade of 70-77 in a semester or term.

**B. Academic Probation:** The PA student completed more than one course with an overall grade of 70-77 in a semester or term. Additionally, the following are considered academic concerns and may result in the assignment of academic probation: a consistent pattern of deficiencies in clinical skills, interpersonal communication abilities, and/or professional conduct, violations of academic or professionalism agreements, or as recommended by the Promotions Committee upon review of the student with multiple examination failures.

Academic probation indicates concern about the student's academic performance and/or professional behaviors in the program. If the Promotions Committee recommends academic probation and the program director accepts the recommendation, the Vice Dean for Education is notified and provided with relevant evidence justifying the recommendation. The student is informed that future performance must improve or the student risks continued probation status or dismissal from the program.

While assigned to academic probation, if a student completes more than one course in any semester with an overall grade of 70-77, the student will be recommended for dismissal from the program. Additionally, a student on probation status with a continued pattern of violation of the Duke Code of Professional Conduct, deficiencies in clinical skills, exam failures, poor interpersonal communication or unprofessional conduct could result in the student's dismissal from the PA Program or prevent their academic standing from returning to satisfactory, despite final course grades greater than 78.

In the semester probation is assigned, if the student completes all courses with final course grades of 78 or above and adheres to the expected academic and professionalism standards, the probation status will be lifted, and the student will regain the status of satisfactory academic standing in the following semester. (Example: student had two courses less than 78 in the fall semester and was assigned to academic probation at the start of the spring semester. During the spring semester, the student achieved final course grades of 78 or greater, and probation was lifted at the start of the summer semester. Total time spent on academic probation was one semester.) If a student is unable to meet academic and/or professionalism standards, the student will remain on probation until they meet the standards (achieve a 78 or higher for all course grades in a semester and/or demonstrate a pattern of adhering to the Code of Professional Conduct). The maximum allowed time that a student can be assigned to academic probation is two semesters. If a student has not met the criteria to have probation lifted after two semesters, they will be recommended for dismissal from the program.

## Duke University

If a student meets criteria for assignment of probation in the final term of the program, they would need to demonstrate competency through remedial activities in order to be eligible for graduation. Remedial activities may include repeating the course, a required Independent Study, additional assessments, or additional didactic coursework.

If a student previously on academic probation, returns to satisfactory academic standing and has a future semester with more than one overall grade of 70-77, they will be recommended for dismissal from the program.

Upon recommendation by the PA program director, the Vice Dean for Education is responsible for placing individuals on academic probation, suspension or dismissal upon a finding of unsatisfactory academic/professional performance.

Students on academic probation, who are on a professionalism agreement, or have required an Independent Study course for remediation are ineligible for special clinical experiences such as Global Health Electives, out of state rotations, out of network rotations, new clinical site proposals, some scholarship opportunities, and references for student fellowships (example: PAEA Future Educator Fellowship), or clinical rotation independent studies.

The Vice Dean for Education notifies the Medical Center Registrar of the student's academic probation. The probation status will be permanently noted on the student's transcript at the completion of the semester(s) during which this status is assigned. Students should be aware that they will be required to report academic probation when seeking medical licensure and/or credentialing, even if they returned to satisfactory academic status while enrolled. Students must meet all program competencies and be in satisfactory academic and professional standing to be eligible for graduation (see Commencement section for graduation requirements).

### Appeals of Academic Status (Academic Probation or Dismissal)

A student placed on Academic Probation or dismissed from the program may appeal to the Academic Appeals Committee (AAC) within ten business days of official notification of academic status. The student's appeal to the AAC should be directed in the form of a letter to the Vice Dean of Education, School of Medicine. A summary report, the student's rationale for the appeal, and all relevant documents are supplied to the AAC by the Vice Dean for Education. The student has ten business days after notification of the outcome of the appeal to submit a request to have the Dean of the School of Medicine review the appeals process. An appeal to the Dean may be made only upon the grounds of improper procedures in the process rather than continued disagreement about the outcome of the process. The Dean reviews the information related to the process of the appeal and determines whether it was appropriate. The Dean can uphold the Committee's decision, recommend another sanction, recommend no sanction, or send the matter back to the committee for further consideration.

Once the Dean of the School of Medicine upholds a decision of dismissal, the student relinquishes student status and is no longer enrolled in the University.

### Leave of Absence

A PA student, after presenting a written request to the PA program director, may be granted an official leave of absence (LOA) for personal, medical or academic reasons for a period not to exceed one calendar year. The student must make an appointment with the Financial Aid Office to discuss the potential impact of the LOA on their financial aid package and any additional fees associated with an off-cycle program completion. Students must reach out to Student Health administration to discuss the impact of a LOA on student health insurance coverage.

If the leave of absence is approved, the program director (or designee) provides written notification including applicable beginning and ending dates to the student, the registrar, and the director of financial aid. The student must notify the program director in writing of their wish to return to the PA Program or to extend the personal leave at least two weeks prior to the anticipated date of re-entry. When a leave of absence is taken, the program director may require the student to repeat some or all of the courses completed prior to the leave of absence to ensure the student meets the technical standards and competency requirements expected at that point in their education. Students requesting a medical leave of absence will be required to provide documentation from a healthcare provider that they are fit/medically cleared to return to the PA Program and can meet the program required technical standards and code of professional conduct for PA students. In all cases of a leave of absence, the student is required to complete the full PA curriculum to be eligible to earn the master's degree and PA certificate. A student desiring an extension of a leave of absence beyond one calendar year will need to meet with the program director for approval. All students have a maximum of four years to complete the program requirements from the time of matriculation and if unable to do so will be required to reapply for admission to the PA Program.

If a student takes a leave of absence (LOA) of six months or more, they must meet with IT staff to have Duke software removed. It will be reinstalled upon return from the LOA.

### Withdrawal

# Duke University

If a student withdraws, including involuntary withdrawal for academic reasons, tuition is refunded according to the following prorated schedule:

Before classes begin:	100%
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

Voluntary withdrawals are initiated at the request of the student. Working with the program director, a mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. Per letter, the program director (or designee) will notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The Office of Financial Aid may revoke any financial aid that has been disbursed. The student should also contact these offices to ensure that they have fulfilled any responsibilities with regard to this process. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew on the specific effective date.

## Student Employment

Due to the rigors of the curriculum, the majority of students find it difficult or impossible to work. In efforts to promote satisfactory academic progression, the program strongly discourages students from working.

Student employment may jeopardize one's ability to remain in satisfactory academic standing and to successfully complete the program. Part-time employment over breaks and holidays is at the discretion of the student, however students may not perform any medical tasks or procedures under the auspices of their role as Duke PA students. Any student working while attending the program should notify their advisor.

PA students are prohibited from working for the PA Program as instructional faculty or staff. While PA students often support each other throughout their PA education, this support does not substitute for instructional faculty or administrative staff. The program and the university have adequate faculty and staff to support students throughout their training.

Although students may assist preceptors and clinical or administrative staff with various duties to promote ongoing clinic workflow (organizing files, requesting labs, calling patients, etc.), students do not substitute for clinical or administrative staff during supervised clinical rotations.

## Commencement

The PA program will hold its commencement for students and their families at the conclusion of the program in August with the awarding of the Certificate of Completion. The MHS degree is conferred in September following completion of 109 course credits. This includes completion of all preclinical and clinical courses, as well as successful completion of all program competencies, learning outcomes, and summative assessments. Students must meet all program competencies and be in satisfactory academic and professional standing to be eligible for graduation. Additionally, students must have met all financial responsibilities to the institution. PA students should be aware that failure to begin or complete courses as scheduled could delay both receipt of the PA program certificate and the MHS degree.

Master of Health Sciences Physician Assistant (A-PA-MHS)

## Program Requirements

<b>Preclinical Year</b>	
Before proceeding into the clinical phase of the curriculum, students must satisfactorily complete the following required courses:	
<b>FALL SEMESTER</b>	<b>COURSE CREDITS</b>
PHYASST 200 Basic Medical Sciences	2
PHYASST 201 Physiology	2
PHYASST 205 Anatomy	4
PHYASST 210 Diagnostic Methods I	2

## Duke University

PHYASST 220 Clinical Medicine I	5
PHYASST 223 Pharmacology I	1
PHYASST 231 Patient Assessment and Counseling I	3
PHYASST 251 Practice and the Health System I	1
PHYASST 255 Evidence-Based Practice I	2
<b>Term Total</b>	<b>22</b>
<b>SPRING SEMESTER</b>	
PHYASST 211 Diagnostic Methods II	3
PHYASST 221 Clinical Medicine II	10
PHYASST 224 Pharmacology II	1
PHYASST 230 Fundamentals of Surgery	3
PHYASST 232 Patient Assessment and Counseling II	3
PHYASST 252 Practice and the Health System II	1
<b>Term Total</b>	<b>21</b>
<b>SUMMER TERM</b>	
PHYASST 212 Diagnostic Methods III	1
PHYASST 222 Clinical Medicine III	10
PHYASST 225 Pharmacology III	1
PHYASST 233 Patient Assessment and Counseling III	3
<b>Term Total</b>	<b>15</b>
<b>Preclinical Year Total</b>	<b>58</b>

### Clinical Year

Following successful completion of the preclinical courses, students enter the clinical phase of the program, completing the following required courses:

PHYASST 299 Bridge: The Path to Patient Care	2
PHYASST 300A, 300B Primary Care I & II	4, 4
PHYASST 305 Evidence-Based Practice II	3
PHYASST 310 Behavioral Medicine	4
PHYASST 320A, 320B Internal Medicine I & II	4, 4
PHYASST 340 Principles of Surgery	4
PHYASST 350 Emergency Medicine	4
PHYASST 360 Pediatrics	4
PHYASST 370 Obstetrics & Gynecology	4
Elective	4
Elective	4
PHYASST 390 Practice and the Health System III	2
<b>Total</b>	<b>51</b>

In addition to successful completion of the preclinical and clinical phases of the program, the PA student must also successfully complete BLS, ACLS, and all components of the summative evaluation to graduate from the PA Program.

Master of Health Sciences Physician Assistant (A-PA-MHS)

## Courses of Instruction

CODE	NAME	DESCRIPTION
------	------	-------------



CODE	NAME	DESCRIPTION
PHYASST200	Basic Medical Sciences	The basic facts, concepts, and principles which are essential in understanding the fundamental mechanisms of immunology, pathology, genetics and microbiology and nutrition. This course presents the basic methods of clinical problem solving and serve...
PHYASST201	Physiology	The basic concepts and principles that are essential to comprehending the fundamental mechanisms of human physiology at the cellular, tissue and organ levels and the requirements for the maintenance of homeostatic control. This course lays the founda...
PHYASST205	Anatomy	Functional and applied anatomy stressing normal surface landmarks and common clinical findings. Topics for this course are sequenced with the physical diagnosis components of Patient Assessment and Counseling I (PHYASST-231). Cadaver dissections, ana...
PHYASST210	Diagnostic Methods I	The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (PHYASST 220, 221, 222) and Pharm...
PHYASST211	Diagnostic Methods II	The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (PHYASST 220, 221, 222) and Pharm...
PHYASST212	Diagnostic Methods III	The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (PHYASST 220, 221, 222) and Pharm...
PHYASST220	Clinical Medicine I	This course sequence explores the essentials of diagnosis and management of the most common clinical problems seen by primary care practitioners using an organ systems and life stages approach. Clinical information is presented in lectures, small gro...
PHYASST221	Clinical Medicine II	This course sequence explores the essentials of diagnosis and management of the most common clinical problems seen by primary care practitioners using an organ systems and life stages approach. Clinical information is presented in lectures, small gro...
PHYASST222	Clinical Medicine III	This course sequence explores the essentials of diagnosis and management of the most common clinical problems seen by primary care practitioners using an organ systems and life stages approach. Clinical information is presented in lectures, small gro...
PHYASST223	Pharmacology I	The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine I, II and III (PHYASST 220, 221, 222) and are provided in lecture format. Credit: 1. Mesaros
PHYASST224	Pharmacology II	The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine I, II and III (PHYASST 220, 221, 222) and are provided in lecture format. Credit: 1. Mesaros
PHYASST225	Pharmacology III	The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine I, II and III (PHYASST 220, 221, 222) and are provided in lecture format. Credit: 1. Mesaros
PHYASST230	Fundamentals of Surgery	The course focuses on the basic surgical concepts needed for the PA to function in primary care settings as well as major surgical areas. The course emphasizes surgical concepts, topics and surgical technique. A substantial part of this course consi...
PHYASST231	Patient Assessment and Counseling I	An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. Emphasis is placed on acquiring the skills, knowledge and...
PHYASST232	Patient Assessment and Counseling II	An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. Emphasis is placed on acquiring the skills, knowledge and...
PHYASST233	Patient Assessment and Counseling III	An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. Emphasis is placed on acquiring the skills, knowledge and...

CODE	NAME	DESCRIPTION
PHYASST251	Practice and the Health System I	The Practice & the Health System courses (PHS 1 and 2) provide an overview of the U.S. health care system with a focus on the PA profession. An interprofessional faculty will provide lectures and lead conversations on various aspects of PA practice a...
PHYASST252	Practice and the Health System II	The Practice & the Health System courses (PHS 1 and 2) provide an overview of the U.S. health care system with a focus on the PA profession. An interprofessional faculty will provide lectures and lead conversations on various aspects of PA practice a...
PHYASST255	Evidence-Based Practice I	A lecture and seminar course that provides a practical approach to making sound medical decisions on the basis of current evidence in the medical literature. Through a series of didactic presentations, group exercises, and reading, students will lea...
PHYASST261	Beginning Medical Spanish	This elective course is designed to improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on learning conversational skills in order to take clinical histories, con...
PHYASST262	Intermediate Medical Spanish	This elective course is designed to improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on strengthening conversational skills in order to improve students' abili...
PHYASST263	Advanced Medical Spanish	This elective course is designed to refine students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on strengthening conversational skills specific to taking clinical historie...
PHYASST299	Bridge: The Path to Patient Care	This two-week course provides physician assistant students with preparation to begin the clinical year rotations. Topics covered include: preceptor expectations, self-care, electronic medical records access, professionalism and formative and summativ...
PHYASST300A	Primary Care	This four-week rotation is an opportunity for physician assistant students to understand the principles of Family Medicine and their application in community practice. Students are introduced to problems commonly encountered by family physicians and...
PHYASST300B	Primary Care	This four-week rotation is an opportunity for physician assistant students to understand the principles of Family Medicine and their application in community practice. Students are introduced to problems commonly encountered by family physicians and...
PHYASST300E	Primary Care	This rotation emphasizes the outpatient evaluation and treatment of conditions common at the primary care level and the appropriate health maintenance measures for different age groups. Topics include: 1) Family Medicine, 2) Urgent Care, 3) Health Ca...
PHYASST301	Occupational Medicine	This rotation offers experiences in occupational medicine which includes assessment of workplace injuries and problem management. Credit: 4. Staff
PHYASST302	Geriatrics	This rotation emphasizes the evaluation and management of geriatric patients in out-patient long-term care or hospital setting. Credits: 4. Staff
PHYASST303	Global Health	This rotation offers clinical experience in international rotation sites. Public health, health system and common clinical conditions will be emphasized. Additional costs will be incurred by the student for immunizations, travel, housing and educat...
PHYASST304	Prevention and Health Promotion	This rotation is an intensive experience in health maintenance and disease prevention. Direct care of patients constitutes approximately 50% of the clinical rotation. The remaining effort will be focused on activities designed to learn and incorpor...
PHYASST305	Evidence-Based Medicine II	During this four-week course, PA students complete an evidence-based review paper on a clinical question of interest. They present their findings to faculty and student colleagues. Credit: 3. Hallquist, Hudak
PHYASST306	Integrative Medicine	This elective provides an evidenced-based didactic and experiential understanding of integrative medicine. The core focus is on key overlaps between patient-centeredness, prevention, mindfulness, health behaviors, long-range health planning, patient...
PHYASST307	Medical Informatics	This elective provides the students with an opportunity to explore the integration of medicine and information technologies. Through a combination of lecture, observation, and project participation, students will gain an understanding of the role inf...

CODE	NAME	DESCRIPTION
PHYASST308	Pediatric Health Lifestyles Program	In this elective, students will explore the myriad of causes and complications of pediatric obesity, and the approach to the overweight child and family. Students will participate in direct patient care with a multidisciplinary team in the Healthy Li...
PHYASST309	Public Health and Healthcare in Cuba	This elective provides an opportunity for students to examine the strengths and weaknesses of a health system that emphasizes primary care and the integration of public health with primary care. The course consists of preparatory seminars designed t...
PHYASST310	Behavioral Medicine	This four-week rotation provides physician assistant students with an opportunity to participate in the care of patients with psychiatric illness and/or behavioral disorders. Rotation sites may provide students with inpatient, outpatient, or mixed...
PHYASST310E	Behavioral Medicine	This rotation provides additional emphasis on communication and behavioral modification skills, which are useful in the primary care setting. Topics include: 1) General Behavioral Medicine, 2) Pediatric Behavioral Medicine. Credit: 4. Staff
PHYASST311	Clinical Research	This rotation provides an opportunity for students to learn about clinical research with a concentration on early phase studies conducted at an inpatient research unit. Students will learn about all aspects of clinical research including study desig...
PHYASST312	Community Health	This elective introduces students to the concepts and practice of community-engaged and population-based health care. Population-based care is becoming increasingly important in addressing the health needs of the United States. This elective helps st...
PHYASST313	LGBTQ Health	This elective rotation is a four-week opportunity for physician assistant students to understand the principles of providing care to lesbian, gay, bisexual, transgender and gender-expansive children and adults and patients with differences of sex dev...
PHYASST320A	Internal Medicine	This four-week rotation provides the opportunity for physician assistant students to understand the principles of general internal medicine and their application in clinical practice. Students are introduced to problems commonly encountered in inpat...
PHYASST320B	Internal Medicine	This four-week rotation provides the opportunity for physician assistant students to understand the principles of general internal medicine and their application in clinical practice. Students are introduced to problems commonly encountered in inpat...
PHYASST320E	Internal Medicine	This rotation provides the student with an opportunity to apply basic medical knowledge to the problems and situations encountered in an internal medicine setting. Credit: 4. Staff
PHYASST321	Cardiology	This rotation offers experiences in cardiovascular assessment and problem management. Credits: 4. Staff
PHYASST322	Dermatology	This rotation offers experiences in dermatological assessment and problem management. Credits: 4. Staff
PHYASST323	Endocrinology	This rotation offers experiences in the evaluation and treatment of a variety of endocrine problems. Credits: 4. Staff
PHYASST324	Pain Medicine	This elective provides students with an opportunity to learn about the evaluation and treatment of acute and chronic pain issues, utilizing multi-faceted therapeutic approaches. Credit: 4. Staff.
PHYASST325	Hematology and Oncology	This rotation offers exposure to the principles of hematology and oncology and their application in clinical practice. Topics include: 1) General Oncology, 2) Breast Oncology, 3) Gynecological Oncology, 4) Neuro-oncology, 5) Hematologic malignancies...
PHYASST327	Infectious Medicine	This rotations emphasizes the evaluation and treatment of various infectious diseases. Topics include: 1) General Infectious Disease, 2) HIV. Credits: 4. Staff
PHYASST328	Gastroenterology	This rotation emphasizes the evaluation and treatment of various gastrointestinal problems. Credits: 4. Staff
PHYASST329	Palliative Care	The elective rotation offers experience in palliative care / symptom management and end of life care. Credits: 4. Staff.
PHYASST331	Nephrology	This rotation emphasizes renal assessment and problem management. Credits: 4. Staff

CODE	NAME	DESCRIPTION
PHYASST332	Neurology	This rotation emphasizes experiences in neurological assessment and problem management. Credits: 4. Staff
PHYASST333	Pulmonary Medicine	This rotation emphasizes prevention, cause, diagnosis and treatment of various pulmonary diseases. Credits: 4. Staff
PHYASST334	Rheumatology	This rotation emphasizes experience with the assessment of joint, connective tissue and autoimmune disorders. Credit: 4. Staff
PHYASST336	Medical Intensive Care Unit	This rotation offers an opportunity to understand the principles of medicine in an intensive care setting. Credits: 4. Staff
PHYASST338	Radiology	This rotation offers exposure to the variety of diagnostic and radiologic methods. Topics include: 1) General Radiology, 2) Interventional Radiology, 3) Neuro-radiology. Credits: 4. Staff
PHYASST339	Genetics	This rotation offers experiences with patients at risk for or diagnosed with various hereditary syndromes. Credit: 4, Staff
PHYASST340	Principles of Surgery	This four-week rotation is an opportunity for physician assistant students to understand the general principles of surgery and develop surgical skills. Special emphasis is placed on preoperative evaluation and preparatory procedures, assisting at th...
PHYASST340E	General Surgery	This rotation emphasizes preoperative evaluation and preparatory procedures, assisting at the operating table, and management of patients through the postoperative period to discharge. Credits: 4. Staff
PHYASST341	Cardiothoracic Surgery	This rotation offers experiences in cardiothoracic surgery. Credits: 4. Staff
PHYASST342	Otolaryngology	This rotation offers experiences in otolaryngology in outpatient and surgical settings. Credits: 4. Staff
PHYASST343	Neurosurgery	This rotation offers surgical experiences in neurological problems. Credit: 4. Staff
PHYASST344	Orthopaedics	This rotation offers experiences in the evaluation and treatment of orthopaedic problems. Credits: 4. Staff
PHYASST345	Plastic Surgery	This rotation offers experiences in the plastic and reconstructive surgery setting. Credits: 4. Staff
PHYASST346	Sports Medicine	This rotation offers experiences in the evaluation and treatment of sports medicine problems. Credits: 4. Staff
PHYASST347	Urology	This rotation offers experiences in the evaluation and treatment of urologic problems in outpatient and operative settings. Credits: 4. Staff
PHYASST348	Pre-Operative Screening Unit	This rotation offers the opportunity to evaluate pre-operative patients who require medical clearance prior to their procedure. Credits: 4. Staff
PHYASST349	Surgical Oncology	This rotation offers exposure to patients with malignancies who require surgical evaluation and management, and includes experiences in outpatient and surgical settings. Credit: 4. Staff
PHYASST350	Emergency Medicine	This four-week rotation is an opportunity for physician assistant students to understand the principles of emergency medicine. Students are introduced to medical and surgical problems commonly encountered in the emergency department setting. The em...
PHYASST350E	Emergency Medicine	This rotation provides opportunity for students to increase their knowledge of the triage and management of medical emergencies. Credit: 4. Staff
PHYASST352	Trauma	This rotation offers the opportunity to evaluate and treat trauma patients. Credits: 4. Staff
PHYASST353	Surgical Intensive Care Unit	This rotation offers exposure to the problems commonly encountered in a surgical intensive care setting. Topics include: 1) Surgical Intensive Care Unit, 2) Cardiothoracic Intensive Care Unit. Credits: 4. Staff
PHYASST354	Vascular Surgery	This rotation offers experiences in the evaluation and treatment of vascular problems. Credit: 4. Staff
PHYASST355	Transplant Surgery	This elective provides an opportunity to participate in the evaluation and management of patients requiring organ transplant. Credit: 4. Staff.

CODE	NAME	DESCRIPTION
PHYASST360	Pediatrics	This four-week rotation provides the opportunity for physician assistant students to understand the principles of pediatric care in the outpatient setting. Students are introduced to problems commonly encountered by pediatric primary care providers,...
PHYASST360E	Pediatrics	The rotation provides familiarity with normal growth and development, pediatric preventive medicine, and evaluation and management of common childhood illnesses. Topics include 1) Outpatient Pediatrics, 2) Inpatient Pediatrics. Credit: 4. Staff
PHYASST361	Pediatric Cardiology	This rotation offers experiences in pediatric cardiovascular assessment and problem management. Credit: 4. Staff
PHYASST362	Pediatric Surgery / Cardiothoracic Surgery	This rotation offers experiences in cardiothoracic surgery for pediatric patients. Credits: 4. Staff
PHYASST363	Pediatric Hematology and Oncology	This rotation offers exposure to the principles of hematology and oncology and their application for pediatric patients. Credits: 4. Staff
PHYASST364	Pediatric Allergy and Respiratory	This rotation offers exposure to evaluation and treatment of allergy and respiratory problems in the pediatric patient. Credits: 4. Staff
PHYASST365	Pediatric Endocrinology	This rotation offers exposure to the evaluation and management of endocrine problems in the pediatric patient. Credits: 4. Staff
PHYASST366	Pediatric Infectious Diseases	This rotation emphasizes the evaluation and treatment of various infectious diseases in the pediatric patient. Credits: 4. Staff
PHYASST367	Intensive Care Nursery	This rotation emphasizes the care of the children in the intensive care setting. Topics include: 1) Neonatal Intensive Care Unit, 2) Pediatric Intensive Care Unit. Credits: 4. Staff
PHYASST368	Pediatric Emergency Medicine	This rotation offers opportunity to manage the problems and needs of the pediatric patient in the emergency department. Credits: 4. Staff
PHYASST369	Pediatric Orthopaedic Surgery	This rotation offers exposure to pediatric orthopaedic care in the outpatient and surgical settings. Credit: 4. Staff
PHYASST370	Obstetrics and Gynecology	This rotation is a four-week opportunity for physician assistant students to understand the principles of obstetrics and gynecology. Special emphasis is placed on preventive gynecologic care, common gynecologic complaints, and prenatal care. Credit...
PHYASST370E	Obstetrics and Gynecology	This rotation provides students with the opportunity to learn about common gynecological problems and preventative care. Credit: 4. Staff
PHYASST371	Maternal and Fetal Medicine	This rotation emphasizes prenatal and postpartum care of patients with high-risk pregnancies. Credits: 4. Staff
PHYASST372	Reproductive Endocrinology and Infertility	This elective provided students an opportunity to learn about the evaluation of infertility and the assisted reproductive treatment options that are available for couples experiencing difficulty achieving pregnancy. Credit: 4. Staff.
PHYASST377	Humanism In Health and Health Care	This one-week course is designed to provide a foundation for PA students to appreciate and apply humanism in health and healthcare in their professional practice. Topics covered in this course include the history and future of humanism in medicine, m...
PHYASST381	Ophthalmology	This rotation offers exposure to the evaluation and treatment of a variety of disorders involving the eye. Credits: 4. Staff
PHYASST390	Practice and the Health System III	The Practice & the Health System courses (PHS 1, 2, and 3) provide an overview of the U.S. health care system with a focus on the PA profession. PHS 3 is the culmination of the course sequence and spans the duration of the clinical year. An interprof...

CODE	NAME	DESCRIPTION
PHYASST398	Visiting Student Elective	This course is an opportunity for PA students from non-Duke institutions who have been accepted through the Duke PA Visiting Student Policy to participate in supervised clinical practice experiences within the Duke Health System.
PHYASST399	INDEPENDENT STUDY	This course is a two, four, or eight-week, term-based, non-credit bearing enrollment status used when the student is engaged in educational activities relevant to the degree or program requirements (e.g. structured remediation activities, additional...

## Cardiac Ultrasound Certificate

**Medical Director:** Anita Kelsey, MD, MBA

**Program Director:** Richard A. Palma, BS, ACS, RCS, RDCS, RCCS, FACVP, FSMDS, FASE

**Website:** [medicine.duke.edu/divisions/cardiology/education-and-training/duke-cardiac-ultrasound-certificate-program](http://medicine.duke.edu/divisions/cardiology/education-and-training/duke-cardiac-ultrasound-certificate-program)

The Cardiac Ultrasound Program is nationally accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and sponsored by the Duke Heart Center, Duke University Health System (DUHS), and Duke University School of Medicine. This is a one-year certificate program designed to prepare the student to be employed as a cardiac sonographer. The program consists of didactic lectures and clinical experiences designed to provide the knowledge and skills necessary for students to understand and perform the technical standards and skills needed to practice as a cardiac sonographer. The program starts each year in the beginning of September. Classes consist of fifty instructional weeks and twelve days of personal leave. The first five weeks consist of core curriculum lectures supplemented with clinical introductory labs and workshops. After the first five weeks, there are 45 weeks of clinical rotations. Students will be at clinical sites four days per week and at Duke University Hospital (DUH) for didactic one day per week. Students rotate through different clinical labs. Students are monitored under the close supervision of clinical support staff and faculty and are evaluated on a routine basis as their skills develop.

## Pediatric Cardiac Ultrasound Certificate

The Pediatric Cardiac Ultrasound Program is a program sponsored by the Duke Heart Center, Duke University Health System (DUHS), and Duke University School of Medicine. This is a 30-week program designed to prepare the student to be employed as a pediatric cardiac sonographer. Classes consist of 30 weeks of combined academic instruction and clinical hands on experience. Students will be at clinical sites five days per week and at Duke University Hospital (DUH) for both didactic and clinical experience.

Upon satisfactory completion of the curriculum and passing nationally recognized Certification Examination (either American Registry of Diagnostic Sonographer (ARDMS) or Cardiovascular Credentialing International (CCI)), students in both programs receive a certificate from Duke University School of Medicine.

Cardiac Ultrasound Certificate (A-CU-C)

## Academic Calendar

Fall 2023	September 5-December 22, 2023
Spring 2024	January 2-May 3, 2024
Summer 2024 (does not apply to pediatric program)	May 6-August 23, 2024

Cardiac Ultrasound Certificate (A-CU-C)

## Admissions

### Prerequisites for Admission

An official transcript from all colleges attended is required.

Applicants must have completed a bachelor's degree in a health-related field or students with a non-health related degree must have completed an 8-hour course of anatomy and physiology with a lab. Also, a course in medical terminology is required.

Students must be physically capable of providing quality clinical patient care. Applicants must be US citizens or have permanent resident status to be eligible for the program.

**For Pediatric Cardiac Ultrasound Program Applicants:** Applicants must have completed the Adult Cardiac Ultrasound one-year program and hold a credential in adult cardiac sonography.

## Application Procedures

The deadline for application submission is June 1. Only complete applications will be considered and must contain the following:

- the completed Application for Admission for the Duke Cardiac Ultrasound Certificate Program;
- a \$50 nonrefundable processing fee in the form of a check or money order payable to Duke University;
- a copy of the applicant's official college transcript(s) from any post-secondary schools attended;
- two original letters of recommendation, one personal and one professional (employers or course instructors); and
- an essay between 500 and 1000 words, reflecting on the applicant's reasons or motivations for pursuing a career in cardiac imaging.

The Admissions Committee reviews all complete applications. The committee invites selected candidates for a personal interview and tour. Background check authorizations are signed and requested. When background check results are received, the Admissions Committee makes the final candidate selections. Applicants, notified no later than one month prior to the start of the program, secure their place in the program by providing a letter of intent to begin the program. Once the letter and deposit are received, the applicant is matriculated.

Requests for further information may be directed to the program director, Richard A. Palma (richard.palma@duke.edu).

Applications and more information may be obtained at [medicine.duke.edu/divisions/cardiology/education-and-training/duke-cardiac-ultrasound-certificate-program](http://medicine.duke.edu/divisions/cardiology/education-and-training/duke-cardiac-ultrasound-certificate-program).

## Criminal Background Check

Candidates considered for admission to the Duke Cardiac Ultrasound Certificate Program will undergo criminal background checks. Students applying for the pediatric program who have graduated from the Adult Cardiac Ultrasound program will not need to repeat the criminal background check.

Cardiac Ultrasound Certificate (A-CU-C)

## Financial Information

### Tuition and Fees

<b>Cardiac Ultrasound Program</b>	
First-year tuition	\$25,000
First-year fees	\$1,937
<b>Pediatric Cardiac Ultrasound Program</b>	
Tuition	\$12,500
Fees	\$1,937
<b>Vascular Cardiac Ultrasound Program</b>	
Tuition	\$12,500
Fees	\$1,937

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

## Health Insurance

All students are required to carry full major medical health insurance throughout their enrollment in the program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, which is included in the Tuition and Fees listed on the School of Medicine Professional Certificate Programs website above, evidence of other comparable health insurance coverage must be provided. The Student Health Fee is mandatory for all students.

## Financial Aid

Financial aid information is available for all interested applicants by contacting:

The Office of Financial Aid, Box 3067  
Duke University School of Medicine  
Durham, NC 27710

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

### Attendance

Students are required to attend all lectures, laboratories, seminars, and clinical assignments. Absences are excused only for illness or personal emergency, and students must notify the program director in advance of an expected absence. Students with three unexcused absences or late arrivals will be dismissed. An unexcused absence or late arrival is one where the student failed to notify the program director in advance. Each student is allowed twelve personal days that may be used for vacation, sickness, or interviews. In addition, the Duke Heart Center is closed for nine holidays yearly as follows: New Year's Day; Martin Luther King, Jr. Day; Memorial Day; Labor Day; Thanksgiving Day; day after Thanksgiving; Christmas Eve; and New Year's Eve.

School vacation will additionally be provided from noon on December 22, 2023 to January 2, 2024.

### Registration and Drop/Add Policy

Registration in the Duke Cardiac Ultrasound Certificate Program is offered on a full-time basis only and part-time enrollment is not allowed. All required course registrations are processed in the Office of the Registrar in the School of Medicine. As the program is only offered full-time, and all courses are mandatory, dropping and adding courses is not permitted.

### Grading Standards/Satisfactory Progress

Final grades for all courses are assigned on the following basis:

P	Pass
F	Fail

Letter grades are earned on a percentage basis. The student must maintain a minimum of C in all coursework. Students may be dismissed for any breach of the Honor Code or code of conduct. The student must maintain a C in all courses to continue on to the clinical portion of the program.

In didactic sections, a grade of C will be required on all examinations. If the student does not achieve a C, one retest may be allowed, at the discretion of the instructor, but will result in the loss of one letter grade. If a C is still not achieved the student will be placed on academic probation. Academic probation is a condition where the student is warned that they must study and bring up the grade through individual effort. If the student fails to achieve a C a second time, they will be withdrawn from the program. The Office of the Registrar in the School of Medicine will be notified in writing of the student's status of academic probation and the status will be noted on the student's academic transcript at the completion of the semester(s) during which this status is assigned. Laboratory skills will be evaluated on a Pass/Fail basis. The student may have one retest if initial testing is not successful. Retests are at the discretion of the instructor. Students will also be evaluated based on reliability, appearance and professional conduct. Failure in any of these areas may result in dismissal from the program.

### Professionalism

Students with any issues about coursework or rotations are to follow the hierarchy of program director, then medical director, then School of Medicine authorities.

### Appeals of Course Grades

A student may appeal a course grade by writing the program director and medical director, providing factual evidence for changing the final course grade. Appeals will be considered individually on their merits and will not be considered precedent. The program director will notify the student in writing of the appeal decision within three weeks of the appeal.

### Appeals of Academic Status (Academic Probation or Withdrawal)

A student placed on academic probation or withdrawal from the program may appeal by indicating in writing to the program director reasons why they did not achieve minimum academic standards and factual evidence to support changing the academic standing. Appeals will be considered individually on their merits and will not be considered as precedent. The program director will notify the student of the decision of the appeal in writing within three weeks of receipt of the appeal.



## Leave of Absence

The Duke Cardiac Ultrasound Certificate Program is an accelerated program. Time away will result in missing necessary hours, and important information. Excessive time away must be made up. A leave of absence is discouraged, however may be considered on an individual basis. Requests must be submitted in writing to the program director.

## Withdrawal

If a student withdraws, including involuntary withdrawal for academic reasons, tuition may be prorated according to the following schedule:

30 days prior to classes beginning:	Full amount except deposit
-------------------------------------	----------------------------

Student fees are nonrefundable after classes begin.

Historically, voluntary withdrawals are initiated at the request of the student. Working with the program director, a mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. Per letter, the program director will notify the offices of the registrar and financial aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The Office of Financial Aid may revoke any financial aid that has been awarded and/or disbursed. The student should also contact these offices to ensure the student has fulfilled all responsibilities with regard to this process. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew on the specific effective date. A student in good academic standing who withdraws from the program may return to the program at a future date at the start of the semester corresponding to the semester from which they withdraw.

## Code of Professional Conduct

Students enrolled in the Duke Cardiac Ultrasound Certificate Program are expected to adhere to the program's General Policy Statement and to the Duke University School of Medicine Code of Professional Conduct as detailed in the Policies for all School of Medicine programs found elsewhere in this bulletin.

## Academic Probation and Suspension

Academic probation may become necessary if a student's academic performance falls below the minimum standard of the program. The program requires a minimum of a C on all course work. Good academic standing may be restored if, after a predetermined length of time, the student's grades improve to an acceptable level. Academic probation may also be necessary if a student fails to comply with the program's General Policy Statement or the Duke School of Medicine Code of Professional Conduct. The Office of the Registrar in the School of Medicine will be notified of the student's status of academic probation or suspension and the status will be noted on the student's transcript at the completion of the semester during which the status is assigned. If the student successfully returns to good academic standing from academic probation, the statement will be removed from the transcript; if the student is suspended, however, the statement will remain permanently on the transcript. Good academic standing may be restored if the student's conduct improves and meets the standards established by the program's General Policy Statement and/or the Duke SOM Code of Professional Conduct. Failure to improve grades or conduct may result in suspension from the program. Egregious or unlawful conduct will result in immediate suspension.

## Computer Technology

A personal computer/iPad and a personal cell phone are necessary tools for success in the program. A shared calendar is used to communicate the week's activities, assignments, and clinical rotations. All students receive a Duke email account to use during their time in the program. To minimize disruptions during the clinical rotations, cell phone text messages are often the communication method of choice.

## Transportation Required

Students will rotate to clinical sites located away from the university campus. The student is responsible for reliable transportation to these sites.

Cardiac Ultrasound Certificate (A-CU-C)

## Program Requirements

Students must satisfactorily complete the following courses. The curriculum includes, but is not limited to, the following:

- CARDULTR 501. Cardiac Ultrasound. Credit: 50

## Duke University

Students in the **Pediatric Cardiac Ultrasound** program must complete the following course:

- CARDULTR 502. Cardiac Ultrasound Pediatrics. Credit: 26

Cardiac Ultrasound Certificate (A-CU-C)

### Courses of Instruction

CODE	NAME	DESCRIPTION
CARDULTR501	Cardiac Ultrasound	Adult Echocardiography: The initial 26 weeks of the program will cover all aspects of adult echocardiography and cardiovascular principles. The initial five weeks of the program is designed to prepare the student with the fundamentals and training ne...
CARDULTR502	Cardiac Ultrasound Pediatrics	The Duke Pediatric Cardiac Ultrasound is sponsored by the Duke Heart Center, Duke University Health System (DUHS), and Duke University School of Medical. This is a six-month certificate program designed to prepare the student to be employed as a pedi...

### Ophthalmic Medical Technician Certificate

**Medical Director:** Kourtney Hourser, MD

**Program Director:** Lee Ann McKinney, COT, OSC

**Website:** [dukeeyecenter.duke.edu/education-and-training/ophthalmic-technician-program](http://dukeeyecenter.duke.edu/education-and-training/ophthalmic-technician-program)

The Ophthalmic Technician Program is sponsored through the Duke University School of Medicine and by the Eye Center. This is an accelerated one-year certificate program designed to prepare the student to be employed as a certified ophthalmic technician. The program consists of didactic lectures, labs, and clinical experiences designed to provide the knowledge and skills necessary for students to understand and perform the technical tasks delegated to them by an ophthalmologist. Each year, two program start dates are offered. Orientation and classes begin in early July or early January and consist of fifty-one instructional weeks including twelve days of personal leave. The first three months focus on core curriculum lectures supplemented with clinical introductory labs and workshops. In the fourth month, clinical rotations begin. Students rotate through various subspecialty departments observing, learning, and demonstrating the skills particular to that service. Students are monitored under the close supervision of clinical support staff and faculty and are evaluated on a routine basis as their skills develop.

Upon satisfactory completion of the curriculum, students receive a certificate from Duke University School of Medicine and are required to take the internationally recognized Certification Examination for Ophthalmic Technicians administered by the International Joint Commission on Allied Health Personnel in Ophthalmology.

Ophthalmic Medical Technician Certificate (A-OPT-C)

### Academic Calendar

Fall 2023 Semester	July 5-December 15, 2023
Spring 2024 Semester	January 2-June 14, 2024

Ophthalmic Medical Technician Certificate (A-OPT-C)

### Admissions

#### Prerequisites for Admission

Official documentation of prior educational experience is required of applicants to the program. Applicants must have completed high school, or passed a high school equivalency test, prior to the start of the program. College level prerequisites are not required, however, preference may be shown to applicants who have successfully completed college level courses and/or have some eye care-related work experience. Students must be physically capable of providing quality ophthalmic clinical patient care.

Applicants must be US citizens or have permanent resident status to be eligible for the program.

#### Application Procedures

The deadline for application submission is April 15 to be considered for the July start date, or October 15 to be considered for the January start date. The online application may be found on our website, and only complete applications will be considered and must contain the following:

- the completed Duke University Medical Center Application for Admission for the Ophthalmic Technician Program;

## Duke University

- a \$50 nonrefundable processing fee paid by credit or debit card through the application website;
- a copy of the applicant's high school diploma or equivalent, or if graduation is imminent, a letter from the school counselor stating an assurance of successful completion of high school graduation requirements;
- official transcript(s) from any post-secondary schools attended;
- two original letters of recommendation from previous employers or course instructors;
- a 250-word essay on the applicant's reasons or motivations for wanting to enter the Ophthalmic Technician Program; and
- Completion of an academic reading and math proficiency assessment (>10 years post high school graduation).

The Admissions Committee reviews all complete applications and TEAS-Allied Health results. The committee invites selected candidates for a personal interview. Candidates may be instructed to complete a background check authorization and will be sent a link to the background check website. When background check results are received, the Admissions Committee makes the final candidate selections. Applicants will be notified no later than two months prior to the start of the program. Applicants must secure their place in the program by providing a letter of intent to begin the program and a \$500 nonrefundable deposit, which is applied to their first semester tuition. Once the letter and deposit are received, the applicant is matriculated.

Requests for further information may be directed to the program director, at [optech@duke.edu](mailto:optech@duke.edu). Applications and more information may be obtained at [dukeyecenter.duke.edu/optech](http://dukeyecenter.duke.edu/optech).

## Criminal Background Check

Candidates considered for admission to the Ophthalmic Technician Program will undergo criminal background checks.

Ophthalmic Medical Technician Certificate (A-OPT-C)

## Financial Information

### Tuition and Fees

2023-2024 tuition for the program is \$9,690 plus student fees. Upon acceptance to the program, a \$500 nonrefundable deposit must be submitted. This will be applied toward tuition.

First-year tuition	\$9,690
First-year fees	\$1,613

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

## Health Insurance

All students are required to carry full major medical health insurance throughout their enrollment in the program. If the student does not elect to take the Duke Student Accident and Hospitalization Insurance policy, which is included in the Tuition and Fees listed on the website above, evidence of other comparable health insurance coverage must be provided. The Student Health Fee is mandatory for all students.

## Financial Aid

Financial aid information is available for all interested applicants by contacting:

The Office of Financial Aid, Box 3067  
Duke University School of Medicine  
Durham, NC 27710  
(919) 684-6649  
[finaid@dm.duke.edu](mailto:finaid@dm.duke.edu)

Ophthalmic Medical Technician Certificate (A-OPT-C)

## Program Policies

This program follows all School of Medicine policies in addition to the policies below.

## Attendance

Students are required to attend all assigned lectures, laboratories, seminars, and clinical assignments. Absences are excused only for illness or personal emergency, and students must notify the program director in advance of an expected absence. Students with three unexcused absences or late arrivals will be dismissed. An unexcused absence or late arrival is one where the student fails to notify the

## Duke University

program director in advance. Each student is allowed twelve personal days that may be used for vacation, sickness, or interview days. In addition, the Duke Eye Center is closed for eight holidays yearly as follows: New Year's Day; Martin Luther King, Jr. Day; Memorial Day; Juneteenth; Independence Day; Labor Day; Thanksgiving Day; and Christmas Day.

### Registration and Drop/Add Policy

Registration in the Ophthalmic Technician Program is offered on a full-time basis only and part-time enrollment is not allowed. All required course registrations are processed in the Office of the Registrar in the School of Medicine. As the program is only offered full-time, and all courses are mandatory, dropping and adding courses is not permitted.

### Grading Standards/Satisfactory Progress

Final grades for all courses are assigned on the following basis:

A	90-100%
B	80-89%
C	70-79%
F	69% or below
P	Pass
F	Fail

Letter grades are earned on a percentage basis. The student must maintain a minimum of C in all coursework. The initial three-month period is considered probationary. Students may be dismissed for any breach of the Duke School of Medicine Code of Professional Conduct or the Duke Ophthalmic Technician Program General Policy Statement. The student must maintain a C in all coursework to continue on to the clinical portion of the program.

In didactic sections, a minimum grade of C (70%) will be required on all assignments and examinations. If the student does not achieve a C, one retake may be allowed, at the discretion of the instructor. To achieve a score of C (70%), the student must earn a minimum grade of B (80%) on the retake. If a C is still not achieved the student will be placed on academic probation. Academic probation is a condition where the student is warned that they must study and bring up the grade through individual effort. If the student fails to achieve a C a second time, while on academic probation, they will be withdrawn from the program. The Office of the Registrar in the School of Medicine will be notified in writing of the student's status of academic probation and the status will be noted on the student's academic transcript at the completion of the semester(s) during which this status is assigned.

Laboratory skills will be evaluated on a Pass/Fail basis. The student may have one retest if initial testing is not successful. Retests are at the discretion of the instructor.

### Professionalism

Students will also be evaluated based on reliability, appearance, professional conduct, and compliance with the Duke School of Medicine Code of Professional Conduct as well as the Duke Ophthalmic Technician Program's General Policy Statement. Failure in any of these areas may result in dismissal from the program. Students with any issues about coursework or rotations are to follow the hierarchy of program director, then medical director, then School of Medicine authorities.

### Appeals of Course Grades

A student may appeal a course grade by writing the program director and medical director, providing factual evidence for changing the final course grade. Appeals will be considered individually on their merits and will not be considered precedent. The program director will notify the student in writing of the appeal decision within three weeks of the appeal.

### Appeals of Academic Status (Academic Probation or Withdrawal)

A student placed on academic probation or withdrawal from the program may appeal by indicating in writing to the program director reasons why they did not achieve minimum academic standards and factual evidence to support changing the academic standing. Appeals will be considered individually on their merits and will not be considered as precedent. The program director will notify the student of the decision of the appeal in writing within three weeks of receipt of the appeal.

### Leave of Absence

## Duke University

The Duke Ophthalmic Technician Program is an accelerated program. Time away will result in missing necessary hours, and important information. Excessive time away must be made up. A leave of absence is discouraged, however may be considered on an individual basis. Requests must be submitted in writing to the program director.

### Withdrawal

If a student withdraws, including involuntary withdrawal for academic reasons, tuition may be prorated according to the following schedule:

Before classes begin:	Full amount
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	none

Student fees are nonrefundable after classes begin.

Historically, voluntary withdrawals are initiated at the request of the student. Working with the program director, a mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. Per letter, the program director will notify the offices of the registrar and financial aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current enrollments. The Office of Financial Aid may revoke any financial aid that has been awarded and/or disbursed. The student should also contact these offices to ensure the student has fulfilled all responsibilities with regard to this process. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew on the specific effective date. A student in good academic standing who withdraws from the program may return to the program at a future date at the start of the semester corresponding to the semester from which they withdraw.

### Code of Professional Conduct

Students enrolled in the Ophthalmic Technician Program are expected to adhere to the program's General Policy Statement and to the Duke University School of Medicine Code of Professional Conduct as detailed in the Policies for all School of Medicine programs found elsewhere in this bulletin.

### Academic Probation and Suspension

Academic probation may become necessary if a student's academic performance falls below the minimum standard of the program. The program requires a minimum of a C on all course work. Good academic standing may be restored if, after a predetermined length of time, the student's grades improve to an acceptable level. Academic probation may also be necessary if a student fails to comply with the program's General Policy Statement or the Duke School of Medicine Code of Professional Conduct. The Office of the Registrar in the School of Medicine will be notified of the student's status of academic probation or suspension and the status will be noted on the student's transcript at the completion of the semester during which the status is assigned. If the student successfully returns to good academic standing from academic probation, the student will be removed from academic probation; if the student is suspended, however, the statement will remain permanently on the transcript. Good academic standing may be restored if the student's conduct improves and meets the standards established by the program's General Policy Statement and/or the Duke SOM Code of Professional Conduct. Failure to improve grades or conduct may result in suspension from the program. Egregious or unlawful conduct will result in immediate suspension.

### Computer Technology

A personal computer and a personal cell phone are necessary tools for success in the program. Four computers are available in the classroom for student use. A shared calendar is used to communicate the week's activities, assignments, and clinical rotations. All students receive a Duke email account to use during their time in the program. To minimize disruptions during the clinical rotations, cell phone text messages are often the communication method of choice.

### Transportation Required

Students will rotate to clinical sites located away from the university campus. The student is responsible for reliable transportation to these sites.

## Program Requirements

Students must satisfactorily complete the following courses. The curriculum includes, but is not limited to, the following:

- OPTECH 151. Orientation Lectures. Credit: 0.50
- OPTECH 152. Basic Science Lecture. Credit: 3.25
- OPTECH 153, 153L. Visual Acuity Assessment. Credit: 1.0 each
- OPTECH 154. Physiology and Anatomy of the Eye. Credit: 1.0
- OPTECH 155. Physical History. Credit: 1.0
- OPTECH 156. Cardiopulmonary Resuscitation. Credit: 1.0
- OPTECH 158, 158L. Optics and Refractometry. Credit: 1.0 each
- OPTECH 159, 159L. Visual Fields. Credit: 1.0 each
- OPTECH 160. Medical Terminology. Credit: 0.50.
- OPTECH 161, 161L. Spectacles. Credit: 1.0 each
- OPTECH 162. Pharmacology. Credit: 0.50
- OPTECH 163, 163L. Glaucoma and Tonometry. Credit: 1.0 each
- OPTECH 164. External Ocular Diseases. Credit: 1.0
- OPTECH 165. Physiology of Systemic Diseases. Credit: 0.50
- OPTECH 166, 166L. Contact Lens and Keratometry. Credit: 1.0 each
- OPTECH 167, 167L. Ocular Motility. Credit: 1.0 each
- OPTECH 168. Neuro-Ophthalmology. Credit: 1.0
- OPTECH 169. General Psychology. Credit: 0.50
- OPTECH 170. Clinical Rotations. Credit: 30.0

Total Credit Hours: 54.75

Ophthalmic Medical Technician Certificate (A-OPT-C)

## Courses of Instruction

CODE	NAME	DESCRIPTION
<b>OPTECH151</b>	Orientation Lectures	Orientation lectures will familiarize the student with the eye center, ophthalmic equipment and medical terminology. Students will accompany first year ophthalmology residents to lectures. Independent study is required. Credit: .50
<b>OPTECH152</b>	Basic Science Lecture	These lectures will ground the student in the basic science needed to understand eye physiology. These lectures will set the stage for high performance as clinical rotations begin. Credit: 3.25
<b>OPTECH153</b>	Visual Acuity Assessment	The most basic measurement of the eye and the most commonly performed, visual acuity assessment requires both skill and judgment. The student will become accomplished at this task. Credit: 1
<b>OPTECH153L</b>	Visual Acuity Assessment Laboratory	Credit: 1
<b>OPTECH154</b>	Physiology and Anatomy of the Eye	This course will provide the student with knowledge on the development and workings of the human eye. Credit: 1
<b>OPTECH155</b>	Physical History	Students will learn to associate pertinent physical history to ocular history. They will learn what part of the history is pertinent and how to elicit the information in an efficient and caring manor. Credit: 1
<b>OPTECH156</b>	Cardiopulmonary Resuscitation	CPR is required for certification as an ophthalmic medical technician. Credit: 1
<b>OPTECH158</b>	Optics and Refractometry	The physics of optical systems including the eye and other lens systems along with the skills needed to adapt and evaluate those systems. Also, the ability to assist the physician in prescribing glasses and contact lens. Credit: 1

CODE	NAME	DESCRIPTION
OPTECH158L	Optics and Refractometry Laboratory	Credit: 1
OPTECH159	Visual Fields	Testing of the patient's visual field is done mechanically, by computer and through other methods. Students will learn the value of the visual field and the most appropriate method for obtaining it. Credit: 1
OPTECH159L	Visual Fields Laboratory	Credit: 1
OPTECH160	Medical Terminology	Learning medical vocabulary and abbreviations and when and how to apply them. Credit: .50
OPTECH161	Spectacles	Learning to read the prescription on a pair of glasses or contact lenses, including bi-focal power, prism power and direction. Troubleshooting problems with eye wear. Credit: 1
OPTECH161L	Spectacles Laboratory	Credit: 1
OPTECH162	Pharmacology	The course will familiarize the student with ophthalmic medications and systemic medications. The student will learn how medications affect the eye and interact with each other. Credit: .50
OPTECH163	Glaucoma and Tonometry	In this course, the student will learn to define and understand glaucoma. The student will become familiar with and learn to perform various glaucoma diagnostic tests. The student will learn to understand and explain glaucoma treatments including m...
OPTECH163L	Glaucoma and Tonometry Laboratory	Credit: 1
OPTECH164	External Ocular Diseases	The student will learn about diseases of the eyelids, orbits and lacrimal system. The student will become proficient at performing diagnostic tests to help the physician evaluate for and determine the severity of external ocular diseases. Credit: 1
OPTECH165	Physiology of Systemic Diseases	Systemic diseases have a myriad of eye complications. The student will learn what connections systemic diseases have on the eye and when and how to test for them. Credit: .50
OPTECH166	Contact Lens and Keratometry	In this course the student will learn the relationship between eye shape and contact lens fitting. The student will learn what testing should be done and how to perform the appropriate tests. Credit: 1
OPTECH166L	Contact Lens and Keratometry Laboratory	Credit: 1
OPTECH167	Ocular Motility	The student will learn about the muscles associated with the eye. They will learn how the eye is moved by the muscles and how to test for eye misalignment. Credit: 1
OPTECH167L	Ocular Motility Laboratory	Credit: 1
OPTECH168	Neuro-Ophthalmology	This course will describe which cranial nerves are responsible for specific eye movements. The student technician will learn to test for specific anomalies and to quantify defects. The student will become familiar with the relationship of the brain...
OPTECH169	General Psychology	The student technician will learn some basic psychology which will assist in handling patients in various situations. The student will learn techniques to diffuse difficult situations and patients. Credit: .50
OPTECH170	Clinical Rotations	Credit: 30

## Population Health Sciences Certificate

**Program Director:** Asheley Skinner, PhD, Director of Graduate Studies

**Website:** [populationhealth.duke.edu/education/professional-certificate-population-health-sciences-research](http://populationhealth.duke.edu/education/professional-certificate-population-health-sciences-research)

# Duke University

The Professional Certificate in Population Health Sciences Research (PHSR) is a non-degree program in the Department of Population Health Sciences that offers healthcare professionals strong foundational training in population health sciences research via a flexible format. Participants will learn theoretically grounded, applied, and pragmatic interdisciplinary approaches to solve health and healthcare challenges.

The certificate program will train and prepare enrollees to:

- Address health and disease by integrating population-level thinking.
- Critically evaluate scientific evidence and its potential impact on populations.
- Apply population-level strategies in health promotion, clinical care, research, teaching, and health policy efforts.
- Conduct research according to the highest scientifically rigorous and ethical standards and serve the needs/values of the populations with which they interact.
- Understand the ever-changing healthcare landscape.
- Engage stakeholders.
- Develop and evaluate new models of healthcare delivery.

The certificate is for:

- Past or active employees in public health who want more specialized or analytical skills
- Established professionals in healthcare or government who want to incorporate advances in health services research
- Clinicians who want to focus on policy-relevant research to improve health and healthcare

Participants may complete the certificate over a period of up to 3 years, at their convenience, so that they may undertake their training while also continuing to work. Completion in 2 years is recommended; participants must complete all requirements within 3 years. The Certificate is designed exclusively for professionals and is not available to any degree-seeking student, either at Duke or elsewhere.

Population Health Sciences Certificate (A-PHS-C)

## Academic Calendar

The Population Health Sciences Certificate program follows The Graduate School calendar, available in the The Graduate School Bulletin at [graduateschool.bulletins.duke.edu/about/calendar](http://graduateschool.bulletins.duke.edu/about/calendar).

Population Health Sciences Certificate (A-PHS-C)

## Admissions

### Prerequisites for Admission

Students in the PHSR Certificate program should have a clinical degree (e.g., MD, PA, PT) or an established career in public health.

### Application Procedures

The deadline for application submission is July 15. To apply, please submit a 250-word essay on the applicant's reasons or motivations for wanting to enter the Population Health Sciences Research Certificate program and a current CV.

The Program Director reviews all applications. Applicants will be notified within 30 days of submitting their application.

Requests for further information may be directed to the program director at [heidi.mccann@duke.edu](mailto:heidi.mccann@duke.edu).

More information may be obtained at [populationhealth.duke.edu/education/professional-certificate-population-health-sciences-research](http://populationhealth.duke.edu/education/professional-certificate-population-health-sciences-research).

Population Health Sciences Certificate (A-PHS-C)

## Financial Information

### Tuition and Fees

Tuition	\$850/credit
Fees	\$145

The full cost of attendance is available at the Duke School of Medicine Financial Aid website.

Population Health Sciences Certificate (A-PHS-C)

## Program Policies



## Duke University

This program follows all School of Medicine policies in addition to the policies below.

### Attendance

Students are expected to attend all assigned course meetings. Allowable absences are subject to the policies of each individual instructor.

### Registration and Drop/Add Policy

All required course registrations are processed in the Office of the Registrar in the School of Medicine. Odd-numbered courses are offered in the fall and even-numbered courses are offered in the spring. Each course is a full-year, indivisible course offered in two parts (fall and spring). Enrollees must take both parts of the same course in the same year (e.g., if you take Analytic Methods I, you must take Analytic Methods II the same year), and you may not take the courses out of sequence (e.g., Analytic Methods I must be completed before taking Analytic Methods II). Because the content is inextricably linked, participants will be required to take Analytic Methods and Statistical Programming simultaneously.

In certain limited cases, a standard course may be substituted with a more advanced POPHS course. This requires permission of the instructor and the Director of Graduate Studies.

### Grading Standards/Satisfactory Progress

Coursework will be graded according to the same policies outlined by The Duke Graduate School:

- A (exceptional, 4.0 grade point) is the highest grade.
- B (good, 3.0 grade point)
- C (satisfactory, 2.0 grade point)
- F (failing) is unsatisfactory.
- I (incomplete) indicates that some element of the student's work is missing for an acceptable reason at the time grades are reported.

Letter grades are assigned based on the policies of each course. The student must maintain a minimum GPA of 3.0 across all coursework. Students must adhere to all policies in the individual course, including those regarding grading, exams, retests, and class attendance.

### Withdrawal/Leaves of Absence

If a student withdraws, including involuntary withdrawal for academic reasons, tuition may be prorated according to the following schedule:

Before classes begin:	Full amount
During first or second week:	80%
During third to fifth week:	60%
During the sixth week:	20%
After sixth week:	None

Student fees are nonrefundable after classes begin.

Withdrawals or leaves of absence at the request of the student occur in collaboration with the program director. A mutual decision is reached with regard to the effective date of the withdrawal, and intended date of return for a leave of absence. Per letter, the program director will notify the offices of the registrar and financial aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current enrollments. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew on the specific effective date.

### Academic Probation and Suspension

Academic probation may become necessary if a student's academic performance falls below the minimum standard of the program. The program requires a minimum GPA of 3.0 across all coursework. Good academic standing may be restored if, after a predetermined length of time, the student's grades improve to an acceptable level. Failure to improve grades or conduct may result in suspension from the program. Egregious or unlawful conduct will result in immediate suspension.

### Code of Professional Conduct

Students enrolled in the Population Health Sciences Research Certificate are expected to adhere to the Department of Population

## Duke University

Health Sciences Professionalism Plan and to the Duke University School of Medicine Code of Professional Conduct as detailed in the Policies for all School of Medicine programs found elsewhere in this bulletin.

Population Health Sciences Certificate (A-PHS-C)

### Program Requirements

Students must satisfactorily complete the following courses. The curriculum includes, but is not limited to, the following:

- PHSR 701: Applied Analytic Methods I (3 credits)
- PHSR 702: Applied Analytic Methods II (3 credits)
- PHSR 703: Statistical Programming for Population Health Sciences I (1 credit)
- PHSR 704: Statistical Programming for Population Health Sciences II (1 credit)
- PHSR 705: Topics in Population Health Sciences I (3 credits)
- PHSR 706: Topics in Population Health Sciences II (3 credits)
- PHSR 707: Research Methods & Study Design I (3 credits)
- PHSR 708: Research Methods & Study Design II (3 credits)

To support students who have relevant prior experience or training, courses may be substituted with a more advanced (800-level or 900-level) POPHS course in a similar area. This requires prior approval of the PHS Director of Graduate Studies.

Population Health Sciences Certificate (A-PHS-C)

### Courses of Instruction

CODE	NAME	DESCRIPTION
PHSR701	Applied Analytic Methods for Population Health Sciences I	This is an introductory course in statistical analysis and inference methods useful for Population Health Sciences. Topics include descriptive statistics, analysis of contingency tables, one- and two-way analysis of variance, simple linear regression...
PHSR702	Applied Analytic Methods for Population Health Sciences II	This course is the second course in a two-course sequence that provides students a foundation in methods for analyzing clinical, health and economic outcomes often encountered in population health studies. Through course readings, in-class discussion...
PHSR703	Introduction to Statistical Programming for Population Health Sciences I	Introduction to statistical software packages (i.e., SAS Software System, R Statistical Computing Platform) to provide an introduction to the core ideas of programming including data preparation, input/output, debugging, and strategies for program de...
PHSR704	Statistical Programming for Population Health Sciences II	Students will build on programming learned in Population Health Sciences 703 using the SAS Software System and R Statistical Computing Platform. Students will continue to learn to write code to perform descriptive, statistical, and graphical analyses...
PHSR705	Topics in Population Health Sciences I	This course is designed to introduce students to the transdisciplinary field of population health sciences and provide students with a greater understanding of the general theories, concepts, and measures often used in population health sciences.
PHSR706	Topics in Population Health Sciences II	This course introduces the key components of the US health-care system—the organization, financing, and delivery of services; the role of prevention and other non-medical factors in population health outcomes; key management and policy issues in cont...
PHSR707	Population Health Sciences Research Design and Study Methods I	This is the first in a two-course sequence that gives students a strong foundation in population health research methods. The course introduces critical concepts in research methods, including varying types of validity, reliability, and causal inference...
PHSR708	Population Health Sciences Research Methods II	This is the second in a two-course sequence where students establish a strong foundation in population health research methodology, including randomized and non-randomized study design. Prerequisite: Population Health Sciences 707.

### All Courses

## ANESTH205C - Anesthesiology

Subject	Catalog Number	Title
ANESTH	205C	Anesthesiology

### Description

The Anesthesiology clerkship will allow for students to be exposed to the practice of anesthesiology and perioperative medicine. The course is 1 week long and includes didactic and applied content, as well as clinical experience in the perioperative environment. The student will learn about the broad scope of the anesthesiology and perioperative medicine, which includes general and subspecialty surgeries, labor and delivery, acute and chronic pain management, and critical care medicine. Secondary Contact: Esther Turner (esther.turner@duke.edu). Credit: 1. Grace McCarthy, MD

## ANESTH206C - Primary Care Leadership Track (PCLT) - Anesthesiology

Subject	Catalog Number	Title
ANESTH	206C	Primary Care Leadership Track (PCLT) - Anesthesiology

### Description

The Anesthesiology clerkship will allow for students to be exposed to the practice of anesthesiology and perioperative medicine. The course is 1 week long and includes didactic and applied content, as well as clinical experience in the perioperative environment. The student will learn about the broad scope of the anesthesiology and perioperative medicine, which includes general and subspecialty surgeries, labor and delivery, acute and chronic pain management, and critical care medicine. Secondary Contact: Esther Turner (esther.turner@duke.edu) Credit: 1. Grace McCarthy, MD

## ANESTH220C - Clinical Anesthesiology

Subject	Catalog Number	Title
ANESTH	220C	Clinical Anesthesiology

### Description

(Operating Room) - Students will participate in the pre-, intra-, and post-operative anesthetic management of patients while assigned 1:1 to an anesthesiologist. Clinical assignments will be made based on students' interests and may include general, cardiothoracic, regional, pediatric, neuroanesthesia, OB anesthesia and other subspecialty areas such as pain management. Additional hands-on practice will occur in the Patient Safety Center (simulation center). Students will learn about pre-operative patient evaluation and perioperative risk, anesthetic techniques and monitoring, airway management, pharmacology, physiology, and anatomy; and procedures may include vascular access, airway management, and selected others; Didactics will include Anesthesiology Grand Rounds; and other conferences. For more information please contact Dr. Grace McCarthy (grace.mccarthy@duke.edu). Secondary contact: Teena Wyatt (teena.wyatt@duke.edu) or 919-668-3400. Credit: 2; Max: 4, Min: 1. Grace McCarthy, MD

## ANESTH221C - Pain Management

Subject	Catalog Number	Title
ANESTH	221C	Pain Management

### Description

Students will participate in both outpatient and inpatient chronic pain management. Each student is assigned daily to an individual fellow or attending physician who supervises the student's active involvement. This course emphasizes a multidisciplinary approach appropriate for the individual patient. The effect of pharmacotherapy, interventional procedures, physical therapy, and psychological therapy is stressed. Students will observe and assist in various interventional procedures. Students will also attend the weekly pain conference. The course is offered throughout the year. If more than 1 absence is anticipated, the elective should be re-scheduled. Location: Duke Pain Clinic, 4309 Medical Park Drive, Durham, NC 27704; Durham VA Pain Clinic, 508 Fulton Street, Durham, NC 27705. Location: Durham VA Medical Center; arrive first day of rotation @8:00 a.m. NOTE: Students must complete required VA paperwork no less than 30 days prior to the first day of their rotation. For questions, contact Clyde.Meador@va.gov. A VA Badge is required. Students with questions may contact: Dr. Lance Roy (lance.roy@duke.edu) or they may contact Teena Wyatt at teena.wyatt@duke.edu. Contact Dr. Roy 1 week before the start of the selective. Credit: 2. Enrollment: max 2, min 1. Lance Roy, MD; and Arun Ganesh, MD

## ANESTH401C - Cardiothoracic Intensive Care Sub-Internship

Subject	Catalog Number	Title
ANESTH	401C	Cardiothoracic Intensive Care Sub-Internship

### Description

The cardiothoracic intensive care sub-internship will allow fourth year medical students to be exposed to and participate in the care of the post-operative and critically ill cardiac and thoracic surgery patient. This patient population has the highest rate of invasive monitoring, echocardiographic and hemodynamic assessment, and advanced circulatory support including utilization of inotropes, vasopressors, and mechanical circulatory support devices (LVAD, RVAD, IABP). A working knowledge of these concepts will be critical to a future career in Anesthesiology, Critical Care Medicine, or Surgery. This sub-internship level course will allow students to participate in patient care 6 days a week. This will be an in-depth experience in cardiac critical care medicine. Students will be evaluated on their knowledge, skills, and ability to facilitate patient care in this environment. Students will be expected to take a high degree of ownership of their patients, communication between the critical care, surgery, and anesthesia teams will be emphasized. This sub-internship course will not fulfill acute care curriculum requirement. Permission is required for enrollment. For more information, contact Course Director Dr. Sharon McCartney at [sharon.mccartney@duke.edu](mailto:sharon.mccartney@duke.edu) or Teena Wyatt ([teena.wyatt@duke.edu](mailto:teena.wyatt@duke.edu)). Credit: 5. Enrollment: Max-1 Min-1. Sharon McCartney, MD

## ANESTH402C - Cardiothoracic Intensive Care Elective

Subject	Catalog Number	Title
ANESTH	402C	Cardiothoracic Intensive Care Elective

### Description

The cardiothoracic intensive care elective will allow fourth year medical students to be exposed to and participate in the care of the post-operative and critically ill cardiac and thoracic surgery patient. This patient population has the highest rate of invasive monitoring, echocardiographic and hemodynamic assessment, and advanced circulatory support including utilization of inotropes, vasopressors, and mechanical circulatory support devices (LVAD, RVAD, IABP). A working knowledge of these concepts will be critical to a future career in Anesthesiology, Critical Care Medicine, or Surgery. This elective level course will allow students to participate in patient care 5 days a week. This will be an in-depth experience in cardiac critical care medicine. Students will be evaluated on their knowledge, skills, and ability to facilitate patient care in this environment. This elective will fulfill acute care curriculum requirement. Permission is Required for Enrollment. For more information, contact Course Director Dr. Sharon McCartney, [sharon.mccartney@duke.edu](mailto:sharon.mccartney@duke.edu) or Teena Wyatt ([teena.wyatt@duke.edu](mailto:teena.wyatt@duke.edu)). Credit: 4. Enrollment: Max-3 Min-1. Sharon McCartney, MD

## ANESTH430C - Diving and Hyperbaric Medicine

Subject	Catalog Number	Title
ANESTH	430C	Diving and Hyperbaric Medicine

### Description

Students participate actively in assigned patient care and clinical projects. Well-focused segments of ongoing clinical work provide intensive exposure to clinical physiology and pharmacology. Students will be assigned an attending physician (mentor), desk and computer space in the Hyperbaric Center. Consultative services are provided for inpatients and outpatients from orthopedics, medicine, radiation oncology, intensive care units, and preoperative and postoperative care units. Specific indications for hyperbaric oxygen therapy are used in clinical care and in developing translational projects. Students are guided in producing concrete clinical presentations and reports related to the field. For more information, please contact Dr. Derrick (bruce.derrick@duke.edu). Secondary contact: Tonya Manning at 684-6726 . Permission required to enroll. Students should meet for rounds on the first day of classes promptly at 7:30 a.m. The location is Hyperbaric Center Library, 0588 White Zone, CR II Building. Credit: 4. Enrollment Max 2. Bruce Derrick, MD, and staff

## ANESTH440C - Clinical Anesthesiology

Subject	Catalog Number	Title
ANESTH	440C	Clinical Anesthesiology

### Description

The student will participate in the pre-, intra-, and post-operative anesthetic management of patients while assigned to an individual resident or attending anesthesiologist. The student will spend time in the general operating rooms, the cardio-thoracic operating rooms, and in various subspecialty areas including labor and delivery, pediatric operating rooms, neurosurgical operating rooms, regional anesthesiology service, and acute pain management. Learning opportunities will include pre-operative patient evaluation, anesthetic technique selection, airway management, pharmacology, physiology, and anatomy. The student will complete various procedures such as airway management, vascular access, ultrasound, and patient monitoring. These areas will be reinforced by problem-based learning discussions, Grand Rounds, and other conferences. In the summer and fall, priority in registration is given to students considering careers in Anesthesiology. Students MUST attend the first day of the section, and are strongly advised not to miss any of the first week. More than 4 absences are not permitted. Schedules for the class will be emailed out prior to the start of the course. For questions and to obtain permission numbers, please contact Esther Turner (esther.turner@duke.edu) or 919-668-3400. Permission is required for enrollment during summer sections 43 and 44 and for fall section 41. (Not offered during summer section 42). Enrollment for other sections will be on a first come/first served basis effective summer 2021. Enrollment Max: 4. Credit: 4. Cameron Taylor, MD, Elizabeth Malinzak, MD, Grace McCarthy, MD, and Staff.

## ANESTH441C - Subinternship in SICU

Subject	Catalog Number	Title
ANESTH	441C	Subinternship in SICU

### Description

Students engaging in the Surgical Intensive Care Unit (SICU) sub-internship will gain hands-on experience and broad-based knowledge in managing critically ill surgical and trauma patients. Students will take ownership of a panel of patients under the supervision of Anesthesia and Trauma/Surgical Critical Care attendings and house staff and actively participate in daily rounds as part of the SICU team. Didactics will include multiple weekly scheduled and informal lectures. Students take one week of four on night call and work on a one-on-one basis with SICU house staff in the supervised management of critically ill patients. Time may be spent in the SICU at Duke University Medical Center (trauma, vascular surgery, liver-kidney-pancreas transplantation, general surgery) and/or the SICU at the Durham VA Medical Center (cardiothoracic and vascular surgery, general surgery). Instruction on the rotation will include particular emphasis on procedures and techniques necessary for Critical Care, including hemodynamic assessment and monitoring, cardiovascular resuscitation and use of vasoactive drugs, ventilator management such as ARDS, prevention and management of nosocomial infections, and ethical decision making in the ICU. Students are formally evaluated by the SICU house staff and the attending physician. Permission required for enrollment. Contact person is Teena Wyatt, (teena.wyatt@duke.edu). C-L: SURGERY 441C. Credit: 5. Enrollment: max 2. J. Taylor Herbert, MD, PhD; Amy Alger, MD; Suresh Agarwal, MD; Kelli Brooks, MD; Joe Fernandez-Moure, MD; Krista Haines, MD; George Kasotakis, MD; Nancy Knudsen, MD; Vijay Krishnamoorthy, MD; Nitin Mehdiratta, MD; Sean Montgomery, MD; Jamie Privratsky, MD; Lisa Pickett, MD; Susan Rowell, MD; Vanessa Schroder, MD; Arturo Suarez, MD; Steven Vaslef, MD, PhD; Cory Vatsaas, MD; and Paul Wischmeyer, MD; and Christopher Young, MD

## ANESTH445C - Physiology & Medicine of Extreme Environments

Subject	Catalog Number	Title
ANESTH	445C	Physiology & Medicine of Extreme Environments

### Description

Advanced topics in the physiology and medicine of: altered ambient pressure, immersion, gravity, temperature, breathing gas composition and hibernation. Environments considered include: diving and hyperbaric medicine; hot/cold terrestrial and water operations; microgravity and high-g acceleration; high altitude; space. Basic mechanisms and medical management of associated diseases are examined including: decompression sickness, altitude sickness, hypothermia and hyperthermia, hypoxia, carbon dioxide and carbon monoxide poisoning, oxygen toxicity. Practical applications: pressure vessel design and operation, life support equipment, cardiorespiratory physiology measurements at low and high pressure, simulated dive and flight (optional). Reading: The Biology of Human Survival Life and Death in Extreme Environments, Claude A Piantadosi (author) Prerequisites: Human anatomy and physiology. Attendance, either on-line via webex or in person is MANDATORY unless otherwise approved by the course director, in order to receive credit. Examinations are open notes / open book short essay. The course will meet weekly on Thursday evenings from 5:00pm until 7:30pm beginning in January, in the Hyperbaric Center Library (room 0584). Basement, White Zone, Bldg. CR II. For more information, contact Dr. Bruce Derrick: email bruce.derrick@duke.edu. Email permission of instructor is required. Credit: 1, Non-Direct Patient Care credit. Enrollment: max 15, min. 10. Bruce Derrick, MD, and Richard Moon, MD

## ANESTH446C - Acute and Chronic Pain Management

Subject	Catalog Number	Title
ANESTH	446C	Acute and Chronic Pain Management

### Description

Students will participate in both inpatient and outpatient pain management. Each student is assigned daily to an individual fellow or attending physician who supervises the student's active involvement. This involvement emphasizes a multidisciplinary approach appropriate for the individual patient. Topics reviewed include pharmacotherapy including opioid management, interventional procedures such as epidural and peripheral nerve catheter placement, nerve blocks, neurolytic procedures, as well as implantable devices. The benefits of physical and psychological therapy are stressed. Students will observe and/or participate in various interventional procedures. In addition to this clinical work, students attend weekly pain conference and grand rounds. The course is offered each elective period throughout the year. More than two absences must be made up, and if more than five absences are anticipated, the elective should be re-scheduled. Permission required to enroll. Students with questions may contact Dr. Lance Roy ([lance.roy@duke.edu](mailto:lance.roy@duke.edu)) or Teena Wyatt ([teena.wyattl@duke.edu](mailto:teena.wyattl@duke.edu)). Please contact Dr. Roy the week before the rotation for information about where to arrive on the first day. If your rotation assignment is at the Durham VA Medical Center, you will need to complete the required VA paperwork at least 30 days prior to the start of the rotation. For questions about the VA paperwork, please contact Clyde Meador ([clyde.meador@va.gov](mailto:clyde.meador@va.gov)). Credit: 4. Enrollment: max 2, min 1. Lance Roy, MD and Arun Ganesh, MD

## ASEP301B - Research in ASEP

Subject	Catalog Number	Title
ASEP	301B	Research in ASEP

### Description

Program Director: Richard Moon, MD. While the university offers a range of opportunities from biochemistry to organ physiology, anesthesiology, surgery, and critical care integrate these multiple systems into a larger perspective of human pathophysiology and pharmacology. Students have opportunities for research in cardiovascular and respiratory physiology, molecular pharmacology, neurobiology, and environmental science. Regardless of ultimate career choice, investigation in anesthesiology, surgery, critical care, medicine, and environmental physiology provides strong basic science grounding and application of research principles. Students meet with the Study Program Director to monitor progress in the laboratory. The Course Directors meet regularly regarding individual progress of students in the laboratories. At the end of the year, each student is expected to present his or her work at a meeting. Publication of an article by each student in a peer-reviewed journal is expected.

## BES301B - Research in BES

Subject	Catalog Number	Title
BES	301B	Research in BES

### Description

Program Director: Bruce Klitzman, PhD. This interdepartmental study program is designed to provide third-year students with an opportunity to perform laboratory-based research in the broad area of biomedical and tissue engineering and regenerative medicine. It can be either basic science or clinically focused. The program is designed to provide research opportunities to students interested in the quantitative understanding of the physiology of cells, tissues, organs, organ systems, and whole animals or people, populations, as well as the efficacy of various therapies. The mentors have laboratories that investigate these areas at the molecular, microscopic, and macroscopic levels and utilize whole animal, organ, cellular, and molecular models or in vitro simulation of disease states. The development and employment of new instrumentation may be a component of the research effort, as well as the use of versatile cell based therapies, including adult stem cells. Emphasis in the student experience is placed upon the teaching of the quantitative method of understanding biological systems. The student is expected to learn to formulate hypotheses, to develop appropriate methods to test such hypotheses and to use statistical methods to draw conclusions from their data. Each student selects a faculty preceptor in consultation with the study program director and an individual research plan is developed. Students who wish to enter this program are not required or expected to have any engineering background.

## BIOSTAT701 - Introduction to Statistical Theory and Methods I

Subject	Catalog Number	Title
BIOSTAT	701	Introduction to Statistical Theory and Methods I

### Description

This course provides a formal introduction to the basic theory and methods of probability and statistics. It covers topics in probability theory with an emphasis on those needed in statistics, including probability and sample spaces, independence, conditional probability, random variables, parametric families of distributions, and sampling distributions. Core concepts are mastered through mathematical exploration and simulation. Prerequisite(s): 2 semesters of calculus, including multivariate calculus, or its equivalent. Familiarity with linear algebra is helpful. Credits: 3



## BIOSTAT701A - Advanced Introduction to Statistical Theory and Methods I

Subject	Catalog Number	Title
BIOSTAT	701A	Advanced Introduction to Statistical Theory and Methods I

### Description

This course provides an advanced formal introduction to the basic theory and methods of probability and statistics. It covers topics in probability theory with an emphasis on those needed in statistics, including probability and sample spaces, independence, conditional probability, random variables, parametric families of distributions, and sampling distributions. Core concepts are mastered through mathematical exploration and simulation. Prerequisite(s): 2 semesters of calculus, including multivariate calculus, or its equivalent. Familiarity with linear algebra is helpful. Director of Graduate Studies permission is required. Credits: 3

## BIOSTAT701L - Advanced Statistical Theory and Method I Lab

Subject	Catalog Number	Title
BIOSTAT	701L	Advanced Statistical Theory and Method I Lab

### Description

Students who enroll in BIOS 701 may opt to enroll in this advanced lab designed to extend the material presented in BIOS 701. This course will be run as a mixture of lecture and recitation. Each session will start with a short presentation by the instructor of advanced examples that extend the material presented during that week's BIOS 701 lecture. Each session will conclude with students presenting their solutions to advanced problems assigned the prior week. At the end of the semester, students will take a cumulative exam covering the advanced topics covered during the lab session. Corequisite: BIOSTAT 701

## BIOSTAT702 - Applied Biostatistical Methods I

Subject	Catalog Number	Title
BIOSTAT	702	Applied Biostatistical Methods I

### Description

This course provides an introduction to study design, descriptive statistics, and analysis of statistical models with one or two predictor variables. Topics include principles of study design, basic study designs, descriptive statistics, sampling, contingency tables, one- and two-way analysis of variance, simple linear regression, and analysis of covariance. Both parametric and non-parametric techniques are explored. Computational exercises will use the R and SAS packages. Prerequisite(s): 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with linear algebra is helpful. Credits: 3

## BIOSTAT702A - Advanced Applied Biostatistical Methods I

Subject	Catalog Number	Title
BIOSTAT	702A	Advanced Applied Biostatistical Methods I

### Description

This course provides an advanced introduction to study design, descriptive statistics, and analysis of statistical models with one or two predictor variables. Topics include principles of study design, basic study designs, descriptive statistics, sampling, contingency tables, one- and two-way analysis of variance, simple linear regression, and analysis of covariance. Both parametric and non-parametric techniques are explored. Computational exercises will use the R and SAS packages. Prerequisite(s): 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with linear algebra is helpful. Director of Graduate Studies permission is required. Credits: 3

## BIOSTAT703 - Introduction to the Practice of Biostatistics I

Subject	Catalog Number	Title
BIOSTAT	703	Introduction to the Practice of Biostatistics I

### Description

This course provides an introduction to biology at a level suitable for practicing biostatisticians and directed practice in techniques of statistical collaboration and communication. With an emphasis on the connection between biomedical content and statistical approach, this course helps unify the statistical concepts and applications learned in BIOSTAT 701 and BIOSTAT 702. Biomedical topics are organized around the fundamental mechanisms of disease from both evolutionary and mechanistic perspectives. In addition, students learn how to read and interpret research and clinical research papers. Core concepts and skills are mastered through individual reading and class discussion of selected biomedical papers, team-based case studies and practical sessions introducing the art of collaborative statistics. Credits: 3

## BIOSTAT703A - Advanced Introduction to the Practice of Biostatistics I

Subject	Catalog Number	Title
BIOSTAT	703A	Advanced Introduction to the Practice of Biostatistics I

### Description

This course provides an advanced introduction to biology at a level suitable for practicing biostatisticians and directed practice in techniques of statistical collaboration and communication. With an emphasis on the connection between biomedical content and statistical approach, this course helps unify the statistical concepts and applications learned in BIOSTAT 701 and BIOSTAT 702. Biomedical topics are organized around the fundamental mechanisms of disease from both evolutionary and mechanistic perspectives. In addition, students learn how to read and interpret research and clinical research papers. Core concepts and skills are mastered through individual reading and class discussion of selected biomedical papers, team-based case studies and practical sessions introducing the art of collaborative statistics. Director of Graduate Studies permission is required. Credits: 3

## BIOSTAT703L - Introduction to the Practice of Biostatistics I Lab

Subject	Catalog Number	Title
BIOSTAT	703L	Introduction to the Practice of Biostatistics I Lab

### Description

The lab is an extension of the course and operates like a seminar in which journal articles are used as a basis for discussion. The primary focus is on teaching students how to dissect a research article from a statistical and scientific perspective. Students also have the opportunity to present on material covered in the co-requisite course and to practice the communication skills that are a core focus of the program. Corequisite(s): BIOSTAT 703/BIOSTAT 703A or permission of the director of graduate studies. Credits: 0

## BIOSTAT704 - Introduction to Statistical Theory and Methods II

Subject	Catalog Number	Title
BIOSTAT	704	Introduction to Statistical Theory and Methods II

### Description

This course provides formal introduction to the basic theory and methods of probability and statistics. It covers topics in statistical inference, including classical and Bayesian methods, and statistical models for discrete, continuous and categorical outcomes. Core concepts are mastered through mathematical exploration and simulations. Credits: 3

## BIOSTAT704A - Advanced Introduction to Statistical Theory and Methods II

Subject	Catalog Number	Title
BIOSTAT	704A	Advanced Introduction to Statistical Theory and Methods II

### Description

This course provides formal introduction to the basic theory and methods of probability and statistics. It covers topics in statistical inference, including classical and Bayesian methods, and statistical models for discrete, continuous, and categorical outcomes. Core concepts are mastered through mathematical exploration and simulations. Director of Graduate Studies permission is required. Credits: 3

## BIOSTAT705 - Applied Biostatistical Methods II

Subject	Catalog Number	Title
BIOSTAT	705	Applied Biostatistical Methods II

### Description

This course provides an introduction to general linear models and the concept of experimental designs. Topics include linear regression models, analysis of variance, mixed-effects models, generalized linear models (GLM) including binary, multinomial responses and log-linear models, basic models for survival analysis and regression models for censored survival data, and model assessment, validation and prediction. Core concepts are mastered through statistical methods application and analysis of practical research problems encountered by program faculty and demonstrated in practicum experiences in concert with BIOSTAT 706/BIOSTAT 706A. Computational examples and exercises will use the SAS and R packages. Credits: 3

## BIOSTAT705A - Advanced Applied Biostatistical Methods II

Subject	Catalog Number	Title
BIOSTAT	705A	Advanced Applied Biostatistical Methods II

### Description

This course provides an advanced introduction to general linear models and the concept of experimental designs. Topics include linear regression models, analysis of variance, mixed-effects models, generalized linear models (GLM) including binary, multinomial responses and log-linear models, basic models for survival analysis and regression models for censored survival data, and model assessment, validation, and prediction. Core concepts are mastered through statistical methods application and analysis of practical research problems encountered by program faculty and demonstrated in practicum experiences in concert with BIOSTAT 706/BIOSTAT 706A. Computational examples and exercises will use the SAS and R packages. Director of Graduate Studies permission is required. Credits: 3

## BIOSTAT706 - Introduction to the Practice of Biostatistics II

Subject	Catalog Number	Title
BIOSTAT	706	Introduction to the Practice of Biostatistics II

### Description

This course revisits the topics covered in BIOSTAT 703 in the context of high-throughput, high-dimensional studies such as genomics and transcriptomics. The course will be based on the reading of both the textbook and research papers. Students will learn the biology and technology underlying the generation of 'big data,' and the computational and statistical challenges associated with the analysis of such data sets. As with BIOSTAT 703, there will be a strong emphasis on the development of communication skills via written and oral presentations. Credits: 3

## BIOSTAT706A - Advanced Introduction to the Practice of Biostatistics II

Subject	Catalog Number	Title
BIOSTAT	706A	Advanced Introduction to the Practice of Biostatistics II

### Description

This course revisits the advanced topics covered in BIOSTAT 703 in the context of high-throughput, high-dimensional studies such as genomics and transcriptomics. The course will be based on reading of both the textbook and research papers. Students will learn the biology and technology underlying the generation of 'big data,' and the computational and statistical challenges associated with the analysis of such data sets. As with BIOSTAT 703, there will be strong emphasis on the development of communication skills via written and oral presentations. Director of Graduate Studies permission is required. Credits: 3

## BIOSTAT708 - Clinical Trial Design and Analysis

Subject	Catalog Number	Title
BIOSTAT	708	Clinical Trial Design and Analysis

### Description

Topics include history/background and process for clinical trial, key concepts for good statistics practice (GSP)/good clinical practice (GCP), regulatory requirement for pharmaceutical/clinical development, basic considerations for clinical trials, designs for clinical trials, classification of clinical trials, power analysis for sample size calculation, statistical analysis for efficacy evaluation, statistical analysis for safety assessment, implementation of a clinical protocol, statistical analysis plan, data safety monitoring, adaptive design methods in clinical trials (general concepts, group sequential design, dose-finding design, and phase I/II or phase II/III seamless design) and controversial issues in clinical trials. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3

## BIOSTAT707 - Statistical Methods for Learning and Discovery

Subject	Catalog Number	Title
BIOSTAT	707	Statistical Methods for Learning and Discovery

### Description

This course surveys machine learning methods for biological applications, with emphasis on probabilistic approaches and applications in genetics and genomics. Topics include neural networks, probabilistic graphical models, Bayes' nets, Markov models, decision trees and random forests, support vector machines, clustering, Bayesian regression, Markov chain Monte Carlo, and methods for training and validating models. Coursework will include practical programming assignments in R. Students will be expected to become familiar with basic concepts from graph theory and algorithms. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3.

## BIOSTAT709 - Observational Studies

Subject	Catalog Number	Title
BIOSTAT	709	Observational Studies

### Description

Methods for causal inference, including confounding and selection bias in observational or quasi-experimental research designs, propensity score methodology, instrumental variables, and methods for non-compliance in randomized clinical trials. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3

## BIOSTAT710 - Statistical Genetics and Genetics Epidemiology

Subject	Catalog Number	Title
BIOSTAT	710	Statistical Genetics and Genetics Epidemiology

### Description

Topics from current and classical methods for assessing familiarity and heritability, linkage analysis of Mendelian and complex traits, family-based and population-based association studies, genetic heterogeneity, epistasis, and gene-environmental interactions. Computational methods and applications in current research areas. The course will include a simple overview of genetic data, terminology, and essential population genetic results. Topics will include sampling designs in human genetics, gene frequency estimation, segregation analysis, linkage analysis, tests of association, and detection of errors in genetic data.

Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3

## BIOSTAT713 - Survival Analysis

Subject	Catalog Number	Title
BIOSTAT	713	Survival Analysis

### Description

Introduction to concepts and techniques used in the analysis of time-to-event data, including censoring, hazard rates, estimation of survival curves, regression techniques, and applications to clinical trials. Interval censoring, informative censoring, time-dependent covariates; nonparametric and semi-parametric methods. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3

## BIOSTAT712 - Clustered Data Designs and Applications

Subject	Catalog Number	Title
BIOSTAT	712	Clustered Data Designs and Applications

### Description

Data collected within clusters are not generally independent and analysis strategies are needed to accommodate this construct. Focus will be on identifying clustered design structures, such as: patients within clinics and measurements over time on the same patient. The course will include design, sample size, and power implications for clustered studies and mechanisms for the analysis and estimation of the factors of interest, including the ICC components. Prerequisites: BIOSTAT 201, BIOSTAT 202, BIOSTAT 204, BIOSTAT 205, or permission of the Director of Graduate Studies Credits: 2

## BIOSTAT714 - Categorical Data Analysis

Subject	Catalog Number	Title
BIOSTAT	714	Categorical Data Analysis

### Description

Topics in categorical modeling and data analysis/contingency tables; measures of association and testing; logistic regression; log-linear models; computational methods including iterative proportional fitting; models for sparse data; Poisson regression; models for ordinal categorical data and longitudinal analysis. Prerequisites: BIOSTAT 701, BIOSTAT 702, BIOSTAT 704, BIOSTAT 705, or permission of the Director of Graduate Studies Credits: 3

## BIOSTAT718 - Analysis of Correlated and Longitudinal Data

Subject	Catalog Number	Title
BIOSTAT	718	Analysis of Correlated and Longitudinal Data

### Description

Topics include linear and nonlinear mixed models; generalized estimating equations; subject-specific versus population average interpretation; and hierarchical models. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3

## BIOSTAT719 - Generalized Linear Models

Subject	Catalog Number	Title
BIOSTAT	719	Generalized Linear Models

### Description

The class introduces the concept of the exponential family of distributions and link functions, and their use in generalizing the standard linear regression to accommodate various outcome types. The theoretical framework will be presented but detailed practical analyses will be performed as well, including logistic regression and Poisson regression with extensions. The majority of the course will deal with the independent observations framework. However, there will be a substantial discussion of longitudinal/clustered data where correlations within clusters are expected. To deal with such data the Generalized Estimating Equations and the Generalized Linear Mixed models will be introduced. An introduction to a Bayesian analysis approach will be presented, time permitting. Prerequisite(s): BIOSTAT 706/706A or permission of the director of graduate studies. Credits: 3

## BIOSTAT720 - Master's Project

Subject	Catalog Number	Title
BIOSTAT	720	Master's Project

### Description

Completed during a student's final year of study, the master's project is performed under the direction of a faculty mentor and is intended to demonstrate general mastery of biostatistical practice. Prerequisite(s): BIOSTAT 706/706A. Credits: 3 in Fall Semester and 3 in Spring Semester

## BIOSTAT721 - Introduction to Statistical Programming I (R)

Subject	Catalog Number	Title
BIOSTAT	721	Introduction to Statistical Programming I (R)

### Description

This class is an introduction to programming in R, targeted at those with minimal programming knowledge. Students will learn the core ideas of programming (functions, objects, data structures, input and output, debugging, and logical design) through writing code to assist in numerical and graphical statistical analyses. Students will learn how to write maintainable code, and to test code for correctness. They will then learn how to set up stochastic simulations and how to work with and filter large data sets. Since code is also an important form of communication among scientists, students will learn how to comment and organize code to achieve reproducibility. Prerequisite(s): None; familiarity with linear algebra is helpful. Credits: 3

## BIOSTAT721A - Advanced Introduction to Statistical Programming I (R)

Subject	Catalog Number	Title
BIOSTAT	721A	Advanced Introduction to Statistical Programming I (R)

### Description

This class is an advanced introduction to programming in R, targeted at those with minimal programming knowledge. Students will learn the core ideas of programming (functions, objects, data structures, input and output, debugging, and logical design) through writing code to assist in numerical and graphical statistical analyses. Students will learn how to write maintainable code, and to test code for correctness. They will then learn how to set up stochastic simulations and how to work with and filter large data sets. Since code is also an important form of communication among scientists, students will learn how to comment and organize code to achieve reproducibility. Prerequisite(s): None; familiarity with linear algebra is helpful. Permission of the director of graduate studies. Credits: 3

## BIOSTAT722 - Introduction to Statistical Programming II (SAS)

Subject	Catalog Number	Title
BIOSTAT	722	Introduction to Statistical Programming II (SAS)

### Description

This class is an introduction to programming in SAS, targeted at those with minimal programming knowledge. Topics build from data management programming to statistical programming. Algorithms and data structures are emphasized. Prerequisite(s): None; familiarity with linear algebra is helpful. Credits: 3

## BIOSTAT722A - Advanced Introduction to Statistical Programming II (SAS)

Subject	Catalog Number	Title
BIOSTAT	722A	Advanced Introduction to Statistical Programming II (SAS)

### Description

This class is an advanced introduction to programming in SAS, targeted at those with minimal programming knowledge. Topics build from data management programming to statistical programming. Algorithms and data structures are emphasized. Prerequisite(s): None; familiarity with linear algebra is helpful. Permission of the director of graduate studies. Credits: 3

## BIOSTAT732 - Independent Study

Subject	Catalog Number	Title
BIOSTAT	732	Independent Study

### Description

Independent Study is a semester-long course focused on mentored research in the practice of biostatistics. Students work with an assigned mentor. This course is only open to students by permission of the director of graduate studies. Credits: 1, 2, or 3

## BIOSTAT740 - Continuation

Subject	Catalog Number	Title
BIOSTAT	740	Continuation

### Description

Continuation is a semester-based, noncredit-bearing enrollment status used when a student is continuing scholarly activities with the same mentor. This course is only open to students by permission of the director of graduate studies. Credits: 0

## BIOSTAT801 - Biostatistics Career Preparation and Development I

Subject	Catalog Number	Title
BIOSTAT	801	Biostatistics Career Preparation and Development I

### Description

The purpose of this course is to give the student a holistic view of career choices and development and the tools they will need to succeed as professionals in the world of work. The fall semester will focus on resume development, creating a professional presence, networking techniques, what American employers expect in the workplace, creating and maintaining a professional digital presence, and learning how to conduct and succeed at informational interviews. Practicums this semester include an informational interviewing and networking practicum with invited guests. Students participate in a professional 'etiquette dinner' and a 'dress for success' module as well an employer panel. Credit: 1

## BIOSTAT802 - Biostatistics and Career Preparation and Development II

Subject	Catalog Number	Title
BIOSTAT	802	Biostatistics and Career Preparation and Development II

### Description

The purpose of this course is to further develop the student's job seeking ability and the practical aspects of job/internship search or interviewing for a PhD program. The goal is to learn these skills once and use them for a lifetime. Modules that will be covered include Communication skills both written and oral, interviewing with videotaped practice and review, negotiating techniques, potential career choices in the Biostatistics marketplace, and working on a team. This semester includes writing and interviewing practicum, and a panel of relevant industry speakers. Students will leave this course with the knowledge to manage their careers now and in the future. Prerequisite: BIOSTAT 801. Credit: 1

## BIOSTAT821 - Software Tools for Data Science

Subject	Catalog Number	Title
BIOSTAT	821	Software Tools for Data Science

### Description

A data scientist needs to master several different tools to obtain, process, analyze, visualize and interpret large biomedical data sets such as electronic health records, medical images, and genomic sequences. It is also critical that the data scientist masters the best practices associated with using these tools, so the results are robust and reproducible. The course covers foundational tools that will allow students to assemble a data science toolkit, including the Unix shell, text editors, regular expressions, relational and NoSQL databases, and the Python programming language for data munging, visualization and machine learning. Best practices that students will learn include the Findable, Accessible, Interoperable and Reusable (FAIR) practices for data stewardship, as well as reproducible analysis with literate programming, version control and containerization. Credits: 3



## BIOSTAT822 - R for Data Science

Subject	Catalog Number	Title
BIOSTAT	822	R for Data Science

### Description

This course will build on the foundation laid in software tools for data science. The course will explore the flow of a typical data science project from importing, cleaning, transforming and visualizing datasets to modeling and communicating results, within the context of R programming. While the course will include best practices, syntax and idioms specific to R, the focus will be on the process of conducting analysis in a reproducible fashion, writing readable, well-documented code and creating a coherent presentation of results. Credits: 3

## BIOSTAT823 - Statistical Program for Big Data

Subject	Catalog Number	Title
BIOSTAT	823	Statistical Program for Big Data

### Description

This course describes the challenges faced by analysts with the increasing importance of large data sets, and the strategies that have been developed in response to these challenges. The core topics are how to manage data and how to make computation scalable. The data management module covers guidelines for working with open data, and the concepts and practical skills for working with in-memory, relational and NoSQL databases. The scalable computing module focuses on asynchronous, concurrent, parallel and distributed computing, as well as the construction of effective workflows following DevOps practices. Applications to the analysis of structured, semi-structured and unstructured data, especially from biomedical contexts, will be interleaved into the course. The course examples are primarily in Python and fluency in Python is assumed. Credits: 3

## BIOSTAT824 - Case Studies in Biomedical Data Science

Subject	Catalog Number	Title
BIOSTAT	824	Case Studies in Biomedical Data Science

### Description

This course will highlight how biomedical data science blends the field of biostatistics with the field of computer science through the introduction of 3 to 5 case studies. Students will be introduced to analytic programs typically encountered in biomedical data science and will implement the data science and statistical skills introduced in their previous coursework. Credits: 3

## BIOSTAT825 - Foundation of Reinforcement Learning

Subject	Catalog Number	Title
BIOSTAT	825	Foundation of Reinforcement Learning

### Description

This course focuses on theoretical and algorithmic foundations of bandits and reinforcement learning, involving topics including upper confidence bound methods, Thompson sampling, linear and deep contextual bandits, Markov decision process, Q-learning, policy gradient methods, etc. The course targets graduate-level students with a solid mathematical background (linear algebra, probability and statistics, and basic calculus), and a strong research interest in bandits and reinforcement learning. Prerequisite(s): linear algebra, probability and statistics, and basic calculus, or consent of the instructor and director of graduate studies. Credits: 3

## BSP301B - Research in BSP

Subject	Catalog Number	Title
BSP	301B	Research in BSP

### Description

Program Director: Chris Marx, MD, MA. This study program is designed to help third year medical students obtain an integrative understanding of the basic processes underlying normal and pathological human and laboratory animal behavior. The course and preceptorship offerings familiarize students with significant developments in the behavioral neurosciences, investigative methodology used to examine human behavior and its neurobiological underpinnings, and the application of these findings to medicine. As an example, they are provided with the neuroanatomical, histochemical, neuroimmunological, neuropharmacological, and neurobehavioral basis of prescribing anxiolytics, antidepressants, and other neurotropic drugs. Students select an area of research concentration that matches their interests. They will be supervised by a faculty member research preceptor. Projects focus on some determinant of human behavior which may include neurobiological, developmental, or psychosocial factors. Students spend a significant portion of their time in a closely supervised in the laboratory and in associated library research in their area of interest resulting with the intent producing a published report of the work. Specific science interests can be augmented through seminars, guided readings, and appropriate courses providing a greater familiarity with current issues in the biobehavioral sciences.

## CARDULTR501 - Cardiac Ultrasound

Subject	Catalog Number	Title
CARDULTR	501	Cardiac Ultrasound

### Description

Adult Echocardiography: The initial 26 weeks of the program will cover all aspects of adult echocardiography and cardiovascular principles. The initial five weeks of the program is designed to prepare the student with the fundamentals and training needed to enter the echocardiography laboratory. The class will provide laboratory clinical hands on instruction to develop essential skills needed to perform comprehensive cardiac ultrasound exams. Students are required to give peer-to-peer case presentations from their clinical experience. The small class size provides for an ideal atmosphere allowing close interaction between classmates and instructors. Ultrasound Physics and Instrumentation: The subsequent 26 weeks of the program will cover all aspects of physics and instrumentation needed to perform ultrasound exams and prepare for the national registry examination. This class will blend both didactic and case examples to develop an understanding of how the ultrasound physics effects every cardiac ultrasound examination. Students are required to give peer-to-peer case presentations from their clinical experience. Clinical Practicum: This 45-week clinical rotational will allow the student to develop the essential skills necessary to perform as a cardiac sonographer. Thru observational and hands on experience, the student will be able to connect the didactic education received at the school with 'real world' clinical education. The clinical experience is broken down into three major components that will access the student's technical ability to perform basic and advanced echocardiography procedures. In addition, the student will be evaluated with competency skill testing and observation by the clinical site coordinator and clinical site preceptors. Credits 50; Richard Palma BS, ACS, RCS, RDCS, FSDMS, FASE

## CARDULTR502 - Cardiac Ultrasound Pediatrics

Subject	Catalog Number	Title
CARDULTR	502	Cardiac Ultrasound Pediatrics

### Description

The Duke Pediatric Cardiac Ultrasound is sponsored by the Duke Heart Center, Duke University Health System (DUHS), and Duke University School of Medical. This is a six-month certificate program designed to prepare the student to be employed as a pediatric cardiac sonographer. The program consists of didactic lectures and clinical experiences designed to provide the knowledge and skills necessary for students to understand and perform the technical standards and skills needed to practice as a pediatric cardiac sonographer. The program starts each year in the beginning of September. Classes consist of twenty-six instructional weeks and 7 days of personal leave. Students will be at Duke University Hospital (DUH) for both clinical and didactic education. Students are monitored under the close supervision of clinical support staff and faculty and are evaluated on a routine basis as their skills develop. Upon satisfactory completion of the curriculum and passing nationally recognized Certification Examination (either American Registry of Diagnostic Sonographer (ARDMS) or Cardiovascular Credentialing International (CCI)), students receive a certificate from Duke University School of Medicine.

## CLP201 - Management Leadership and Team Development

Subject	Catalog Number	Title
CLP	201	Management Leadership and Team Development

### Description

The course focuses on leading and managing within complex healthcare systems, specifically through the process of developing and managing teams. Within the context of team management leadership, students will learn about changing and/or implementing system structure in a healthcare setting. Discussion will focus on adaptive, non-traditional managing techniques. Credit: 2. Willis

## CLP200 - Perspectives on Health Care

Subject	Catalog Number	Title
CLP	200	Perspectives on Health Care

### Description

Students will explore the principles behind the forces affecting the dynamic health care environment. Building upon topics covered in other core courses, students will be exposed to current issues and strategies regarding population health analysis and decision-making using of case studies and interaction with leaders in health care planning, financing, and programming. Credit: 2. Willis

## CLP202 - Use of Data to Support Change in Organizational Structure

Subject	Catalog Number	Title
CLP	202	Use of Data to Support Change in Organizational Structure

### Description

Through interaction with leaders from the private and public health care sectors, students will analyze the current state of health care delivery in the United States with a focus on the impact of changing organizational structures and rapidly advancing technologies. Discussion leaders will focus on the health care workforce, the economic framework of the health care industry, changing private and public responsibilities, and opportunities for entrepreneurial endeavors. Credit: 2. Graham

### CLP203 - Management of Self

Subject	Catalog Number	Title
CLP	203	Management of Self

**Description**

Students will be challenged to apply the skills and knowledge they have acquired through the program to develop a strategic career management plan. More specifically, the course is intended to expose the students to strategies to delineate a personal vision, mission and values; determine and achieve career goals; explore existing beliefs and strategies, and seek ways to improve personal strengths and mitigate weaknesses. Credit 2. Willis

### CLP204 - Leading in a Chaotic Environment

Subject	Catalog Number	Title
CLP	204	Leading in a Chaotic Environment

**Description**

Students will meet with industry leaders to learn perspectives on crisis management in turbulent and complex environments. Students will learn how to anticipate and plan for crises by analyzing examples of successful crisis management. Leadership theory and practice will be explored as students examine leadership styles, including their own, and learn to make shifts that help an organization endure and innovate in a changing health care environment. Credit: 2. Willis

### CLP205 - Clinical Leadership Project

Subject	Catalog Number	Title
CLP	205	Clinical Leadership Project

**Description**

The Clinical Leadership Project helps a real client decide what to do about a problem in health policy, financial planning, or administration. Its purpose is to recommend and defend a specific course of action. Students work as part of a team to complete the project. The project is divided into two parts with the first semester being devoted to client and problem identification and developing and defending a written prospectus. The second semester is devoted to the completion and final defense of the project in its entirety. Credit: 3, 3. Kane, Yaggy

### CLP206 - Quality Measure and Management

Subject	Catalog Number	Title
CLP	206	Quality Measure and Management

**Description**

The course provides a survey of all related aspects of quality management including a review of HEDIS, NCQA, JCAHO structures and guidelines. Special emphasis is placed on outcomes, clinical guidelines, evidence-based medicine, disease management, interdisciplinary team care, CQI/TQM, role of purchaser, and patient satisfaction. Credit: 3. Bradley

## CLP207 - Contemporary Human Capital Management

Subject	Catalog Number	Title
CLP	207	Contemporary Human Capital Management

### Description

Human Capital has been identified as the primary driver across successful organizations. This course will overview the core components of Human Capital Management including workforce planning, total compensation, workforce development, and overall engagement. Throughout the course, relevant employment related legislation and laws will be explored and discussed. Special attention will be given to emerging and contemporary practices, including global human resource initiatives. Credit: 3. Cavanaugh

## CLP210 - The Successful Clinical Leader

Subject	Catalog Number	Title
CLP	210	The Successful Clinical Leader

### Description

Primarily taught in a case-based format, this course offers a review and application of the fundamentals of leadership, management, strategy, and finance as they apply to decision making in administrative medicine. Credit: 3. Sangvai

## CLP211 - Fundamentals of Healthcare Finance

Subject	Catalog Number	Title
CLP	211	Fundamentals of Healthcare Finance

### Description

This course provides a background to healthcare finance including basic corporate finance, financial and cost accounting, and investment. Students will develop sound financial management and budget planning skills. Credit: 4. Sangvai

## CLP212 - Informatics for Clinicians

Subject	Catalog Number	Title
CLP	212	Informatics for Clinicians

### Description

Clinical overview of electronic medical records with a focus on the emergent clinical topics of registry development to facilitate disease management, clinical decision support and design strategies to improve clinician acceptance and utilization. Course will focus on strategies to help clinicians work with programmers to develop clinical systems that meet clinician needs working within the constraints of their organization and electronic medical records system. Credit: 3. Tcheng

## CLP213 - Health Care Organization and Policy

Subject	Catalog Number	Title
CLP	213	Health Care Organization and Policy

### Description

This course considers the interplay of various elements of the US health care delivery system: finance, reimbursement, legislation, health professional workforce, individual consumers, population and public health. The history, sociology, current trends and projected future of US health and health care are reviewed and imagined in this multidisciplinary course offering. Credit 3. Strand de Oliveira

## CLP214 - Population Health Management Approaches

Subject	Catalog Number	Title
CLP	214	Population Health Management Approaches

### Description

Provides an overview of working successfully in the area of population health management and care coordination. Gives health care professionals an understanding of the systems and tools necessary to work successfully with population health models, processes, staffing, training, patient/stakeholder engagement, and evaluation. Credit: 3. Silberberg

## CLP215 - Health Care Operations: Perspectives for Continuous Improvement

Subject	Catalog Number	Title
CLP	215	Health Care Operations: Perspectives for Continuous Improvement

### Description

Students develop a toolkit for continuous improvement within health care organizations and systems and explore selected quality, ethical, and human resources issues in health care management. Students will apply concepts to practice using quality improvement parameters, ethics modeling, and analysis of case studies. Credits: 3, Sloan

## CLP216 - Fundamentals of Social Media

Subject	Catalog Number	Title
CLP	216	Fundamentals of Social Media

### Description

Students will learn about internet based, electronic communications and how Social Media can be used in a business environment. Students will explore how to use Google Analytics, Blogging, Email, Linked-In, Webinars, Twitter and other media as a part of an effective media plan. Credit: 1, Martin

## CLP217 - Community Engaged Approaches to Health Improvement

Subject	Catalog Number	Title
CLP	217	Community Engaged Approaches to Health Improvement

### Description

This course will provide an introduction to community engagement (CE), particularly community-engaged research (CenR), as a tool for health improvement. Through course content, learners will gain an appreciation for the value of CE and its challenges. They will gain basic skills in CE and will have an opportunity to strengthen those skills through a hands-on project. Finally, they will be provided with the capacity and resources to continue to assess and develop their practice of engagement. Mina Silberberg, PhD, Vice-Chief for Research and Evaluation, and Michelle Lyn, MBA/MHA, Division Chief, Duke Division of Community Health

## CLP299 - Continuation

Subject	Catalog Number	Title
CLP	299	Continuation

### Description

The course is intended for students who need additional time to complete requirements for their Master's Project. Program Director permission is required. Credit: 0.

## COMMFAM205C - Family Medicine

Subject	Catalog Number	Title
COMMFAM	205C	Family Medicine

### Description

This basic course in Family Medicine consists of a four-week clinical clerkship in the second year. The course goal is to provide students with an understanding of the principles of Family Medicine and how these apply in community practice. The course emphasizes continuous and comprehensive health care for people of both sexes and all ages, within the context of their social groups and communities. Particular attention is paid to the diagnosis and treatment of common medical problems and to health maintenance, ambulatory care and continuity of care. Students gain extensive experience in diagnosing and managing patient problems in an ambulatory care setting under physician supervision. Students are placed with community-based faculty who are practicing family physicians in sites across the Triangle. A placement preference form will be sent to students prior to start of second year. If you do not have access to a reliable vehicle, please notify the Medical Student Coordinator, Gretchen Oakley, [gretchen.oakley@duke.edu](mailto:gretchen.oakley@duke.edu) or (919) 681-3066 or the clerkship director Nancy Weigle at least 12 weeks prior to the start of the clerkship. Changes in the rotation are not made less than 12 weeks prior to the start of the clerkship. Credit: 4. Nancy Weigle, MD

## COMMFAM206C - Primary Care Leadership Track (PCLT) - Family Medicine

Subject	Catalog Number	Title
COMMFAM	206C	Primary Care Leadership Track (PCLT) - Family Medicine

### Description

This basic course in Family Medicine consists of a four-week clinical clerkship in the second year. The course goal is to provide students with an understanding of the principles of Family Medicine and how these apply in community practice. The course emphasizes continuous and comprehensive health care for people of both sexes and all ages, within the context of their social groups and communities. Particular attention is paid to the diagnosis and treatment of common medical problems and to health maintenance, ambulatory care and continuity of care. Students gain extensive experience in diagnosing and managing patient problems in an ambulatory care setting under physician supervision. Students are placed with community-based faculty who are practicing family physicians in sites across the Triangle and across the state. A placement preference form will be sent to students prior to start of second year. If you do not have access to a reliable vehicle, please notify the Medical Student Coordinator, Gretchen Oakley, [gretchen.oakley@duke.edu](mailto:gretchen.oakley@duke.edu), or (919) 681-3066 or the clerkship director Nancy Weigle at least 12 weeks prior to the start of the clerkship. Changes in the rotation are not made less than 12 weeks prior to the start of the clerkship. Credit: 4. Nancy Weigle, MD



## COMMFAM209C - Longitudinal Integrated Curriculum (LIC) - Family Medicine

Subject	Catalog Number	Title
COMMFAM	209C	Longitudinal Integrated Curriculum (LIC) - Family Medicine

### Description

This basic course in Family Medicine consists of a four-week clinical clerkship in the second year. The course goal is to provide students with an understanding of the principles of Family Medicine and how these apply in community practice. The course emphasizes continuous and comprehensive health care for people of both sexes and all ages, within the context of their social groups and communities. Particular attention is paid to the diagnosis and treatment of common medical problems and to health maintenance, ambulatory care and continuity of care. Students gain extensive experience in diagnosing and managing patient problems in an ambulatory care setting under physician supervision. Students are placed with community-based faculty who are practicing family physicians in sites across the Triangle and across the state. A placement preference form will be sent to students prior to start of second year. If you do not have access to a reliable vehicle, please notify the Medical Student Coordinator, Gretchen Oakley, gretchen.oakley@duke.edu, (919) 681-3066 or the clerkship director Nancy Weigle at least 12 weeks prior to the start of the clerkship. Changes in the rotation are not made less than 12 weeks prior to the start of the clerkship. Credit: 4. Nancy Weigle, MD

## COMMFAM220C - Occupational Medicine: Prevention and Populations

Subject	Catalog Number	Title
COMMFAM	220C	Occupational Medicine: Prevention and Populations

### Description

This selective provides hands-on experiences in the broad, interdisciplinary field of Occupational Medicine. The focus is to apply key principles of Preventive Medicine, Population Health Management, and Prospective Health through participating in a broad range of Occupational Medicine activities. In clinic visits students will examine patients, interpret multiple types of information (beyond typical medical data), and communicate with key parties. Throughout the Durham area, they will assess worksite/environmental hazards and assist in reporting on them. Working with faculty mentors, students will find and draw upon information resources (many of which may be new to them) to address complex questions. All students will engage in interactive learning modules on prevention, attend didactic sessions on key aspects of Occupational Medicine, and perform problem/project-based learning. Students will complete their own health risk assessments, as well as helping with health promotion activities and health risk communications to patients. Prerequisite: Permission of instructor is required. Please contact the second year coordinator, Nikeya Goodson (nikeya.goodson@duke.edu). Credit: 1. Enrollment Max. 1. Carol Epling, MD/MSPH; Dennis Darcey, MD, MPH

## COMMFAM225C - Travel Medicine at Duke Student Health

Subject	Catalog Number	Title
COMMFAM	225C	Travel Medicine at Duke Student Health

### Description

Health education, immunizations, and medications pertinent to the traveler compose a distinct area of medical knowledge that has not been otherwise addressed in the curriculum. The medical student taking this course will review the major infectious illnesses of concern for each travel area. They will be responsible for the medical knowledge base and patient education needs about the mode of transmission and typical presentation of these illnesses, available behavioral intervention prevention methods, available vaccine prevention, options of chemical prophylaxis, and treatment if prevention is not successful. Students cannot take 2-week selective and 4-week elective. Permission of the instructor is required. Credit: 2. Enrollment max: 1. Melanie Trost, MD Meet at 8:00 am first day at Student Health 305 Towerview Dr.

## COMMFAM245B - Untitled Course

Subject	Catalog Number
COMMFAM	245B

## COMMFAM251 - COMPLEMENTARY MEDICINE

Subject	Catalog Number	Title
COMMFAM	251	COMPLEMENTARY MEDICINE

## COMMFAM401C - Sub-Internship in Family Medicine

Subject	Catalog Number	Title
COMMFAM	401C	Sub-Internship in Family Medicine

### Description

Sub internship in Family Medicine. This course provides senior medical students with an intense patient and population-oriented clinical rotation with responsibilities and autonomy similar to that of an intern. This clerkship will provide a unique opportunity to participate in the departments effort to test new models of care in the delivery of team-based chronic disease management in the ambulatory and community setting. Students will see patients supervised by senior faculty at Duke Family Medicine Center and have an opportunity to see patients with the duke family medicine residents in clinic and the long term care setting. Each clerk will participate in a PDSA project in conjunction with the Population Health team. At least 50% of the rotation will be direct clinical care in the Duke Family Medicine Center. Students also have the opportunity to rotate on the Family Medicine Inpatient Service and work with the duke family medicine residents to see patients in the inpatient setting. The remaining will occur with the Population Health Resident, independent projects, home visits, or long term care facility. Clinical instruction and supervision on each patient encounter is provided by senior level house staff and faculty members of the Department of Community and Family Medicine. Students are advised to contact the department as early as possible for course approval (at least eight weeks in advance). No drops are permitted within 60 days of the first day of the rotation. Priority will be given to students with an interest in a career in primary care. For more information, please contact the Coordinator of Medical Student Programs, Gretchen Oakley (gretchen.oakley@duke.edu), or 919-681-3066. Permission is required. Credit: 5. Enrollment: max 2 per session. Raman Nohria, MD; Brian Halstater, MD; and Nancy Weigle, MD

## COMMFAM403C - Community Clinic Leadership Elective - Holton Clinic

Subject	Catalog Number	Title
COMMFAM	403C	Community Clinic Leadership Elective - Holton Clinic

### Description

Over the course of the both semesters students will provide leadership to the DSOM Holton Clinic, operating at Holton Wellness Center from 5:30-9:30pm on Fridays. Under the supervision of a clinician, students will lead the clinical team through overseeing the care of patients, developing care management plans, and supervising MS1s. Students will be responsible for weekly operations of the clinic, such as scheduling students, follow-up with patients, and coordinating with clinic staff. Additionally, students will define goals for learner development and patient care, and engage in quality improvement that impact learners (i.e. developing teaching modules). Offered to approved 3rd and 4th year medical students. Third year students must obtain approval to enroll from their third year mentor. Third year students will receive one clinical credit toward their fourth year upon successful completion. NOTE: Students may only sign up for the Holton Clinic or the Fremont Clinic. Students may not enroll in both courses. This is a longitudinal course. A grade of 'Z' will be entered in the fall term and credit will be awarded in the spring term. Credit: 1; Enrollment Max.: 6. Prerequisite: Permission of instructor is required. Course is graded 'Credit or No Credit'. Virgil Mosu, FNP-C and Michelle Lyn, MBA, MHA

## COMMFAM404C - Community Clinic Leadership Elective - Fremont Clinic

Subject	Catalog Number	Title
COMMFAM	404C	Community Clinic Leadership Elective - Fremont Clinic

### Description

Over the course of the both semesters students will provide leadership to the Fremont Clinic, operating at Fremont Clinic from 7:30am-1:30pm on Saturdays, once a month. Under the supervision of a clinician, students will lead the clinical team through overseeing the care of patients, developing care management plans, and supervising MS1s. Students will be responsible for monthly operations of the clinic, such as scheduling students and preceptors and handling any clinic supplies needed. Additionally, students will define goals for learner development and patient care, and engage in quality improvement that impact learners (i.e. developing teaching modules). This course is offered to approved 3rd and 4th year medical students. Third year students must obtain approval to enroll from their third year mentor. Third year students will receive one clinical credit toward their fourth year upon successful completion. NOTE: Students may only sign up for the Holton Clinic or the Fremont Clinic. Students may not enroll in both courses. This course is considered longitudinal. A 'Z' grade and zero credit will be entered for the fall term. Credit (CR) will be awarded with one credit upon successful completion during the spring term. Credit: 1; Enrollment Max. 6. Prerequisite: Permission of instructor is required. Course is graded 'Credit or No Credit'. Nathan Sison, MD

## COMMFAM410C - Travel Medicine at Duke Student Health

Subject	Catalog Number	Title
COMMFAM	410C	Travel Medicine at Duke Student Health

### Description

Health education, immunizations, and medications pertinent to the traveler compose a distinct area of medical knowledge that has not otherwise been addressed in the curriculum. The medical student taking this course will review the major infectious illnesses of concern for each travel area. They will be responsible for the medical knowledge base and patient education needs about the mode of transmission and typical presentation of these illnesses, available behavioral intervention prevention methods, available vaccine prevention, options of chemical prophylaxis, and treatment if prevention is not successful. Students that took this course as a 2 week selective cannot take this course as a two-week, fourth year elective. Permission is required. Enrollment max: 1. Credit: 2. Contact: the Coordinator of Medical Student Programs at 919-681-3066 for permission. Please Note: 8:00am will be the start time unless otherwise instructed by Dr. Trost and you will need to meet at the Student Health Center, 305 Towerview Drive. Melanie Trost, MD

## COMMFAM423C - Occupational and Environmental Medicine

Subject	Catalog Number	Title
COMMFAM	423C	Occupational and Environmental Medicine

### Description

This elective is designed to enhance the student's skills in several important areas related to occupational medicine: occupational injury and illness prevention, epidemiology, health management for employee populations including COVID response for employee exposures, industrial toxicology, worksite wellness, and prevention programs. During this four-week rotation, students will complete readings related to these areas, observe surveillance exams and prospective health planning visits, participate in lectures and seminars, learn to conduct computerized database searches concerning industrial toxicology, and (as available) visit industrial sites. Students will also complete at least one project involving one of the topics above. Upon completion of the rotation, students can expect to have practical and useful skills applicable to occupational medicine and work site health programs. Credit: 4. Two-months advance notice and permission from instructor is required. Permission is required for enrollment. Enrollment: max 1 student per month. All interested students should contact Gretchen Oakley, Coordinator of Medical Student Programs, at 681-3066. Satish Subramaniam, MD and Carol Epling MD

## COMMFAM433C - Community Health

Subject	Catalog Number	Title
COMMFAM	433C	Community Health

### Description

This elective introduces students to the concepts and practice of community-engaged population health improvement, with the aim of improving knowledge and skills to design, implement and/evaluation these type of initiatives. Population-based health care is becoming increasingly important in addressing the health needs of the United States. This elective will help students understand how Duke Health serves communities through collaborative, innovative, interdisciplinary clinical services, educational programs, advocacy initiatives and applied research. By allowing students to participate in actual community/population health improvement initiatives that address diverse social drivers or health, role modeling and experiential learning are used to supplement and apply what is learned in the required text-based materials of the course. Because the specific course activities depend upon the student's particular interests and the community health initiatives ongoing at the time of the elective, each student's course activities and health improvement project will be individually designed. Participation in this course requires instructor permission. Students must contact Dr. Anh Tran, Program Director, at least six weeks prior to the start of the course via email at anh.tran@duke.edu. At that time, Dr. Tran and the student, along with community programming faculty and staff, will plan the specific activities that will be undertaken by that student, and establish the requirements for the student's successful completion of the course. For more specific information about the course, students may contact Adriana Green (adriana.green@duke.edu), Training Coordinator in the Division of Community Health, at 919-681-7007. Details on course meeting location, days and time will be communicated prior to the first day of class. Credit: 4; Enrollment max: 1. Anh Tran, PhD, MPH

## COMMFAM435C - Health Promotion and Disease Prevention

Subject	Catalog Number	Title
COMMFAM	435C	Health Promotion and Disease Prevention

### Description

This elective is an intensive clinical experience in health promotion and disease prevention. Students see patients in the Duke Family Medicine Center, Duke Affiliated Programs, and Duke Community Health Programs. They will participate in a variety of activities designed to help them provide excellent health maintenance care. Specific content areas addressed include risk assessment, counseling skills in nutrition, safe sex practices, and smoking and alcohol cessation, as well as screening tests and immunizations. Students will be introduced to the practical implementation of preventative care in the clinical and community setting. Prerequisite: Successful completion of Family Medicine Clerkship (COMMFAM 205C). All interested students should contact the Coordinator of Medical Student Programs, Gretchen Oakley, at 919-681-3066. Permission is required. Credit: 4. Enrollment: max 1 per session. 2nd student accepted when clinic space allows. Raman Nohria, MD and Nancy Weigle, MD

## COMMFAM448C - Introduction to Informatics

Subject	Catalog Number	Title
COMMFAM	448C	Introduction to Informatics

### Description

This elective provides students with an opportunity to explore the integration of medicine and information technologies in an experiential manner by working on an ongoing or self-initiated medical IT project. In doing so, students will gain an understanding of the field of clinical informatics and the role it plays in the national effort to improve quality of care and eliminate medical errors. Additionally, topics students will explore include: Electronic medical systems (e.g. EHR, PHR, CPOE, CDS); Role of health IT in patient safety; Health information standardization (e.g. HL7); and Medical Information Terminologies/Taxonomies (e.g. SNOMED). For more information about the course, students should contact the Duke Center for Health Informatics, Dr. Ed Hammond via email at [william.hammond@duke.edu](mailto:william.hammond@duke.edu), or by phone, 919-668-0189. Offered during spring section 42 only. Permission is required for enrollment. Credit: 4, Non-Direct Patient Care credit. Enrollment: max: 8. Ed Hammond, PhD

## CRP241 - Introduction to Statistical Methods

Subject	Catalog Number	Title
CRP	241	Introduction to Statistical Methods

### Description

This course is an introduction to the fundamental concepts in statistics and their use in clinical research. Through class lectures, in class demonstrations, directed in class exercises and discussion of representative research reports from peer-reviewed journals, students are introduced to the core concepts in statistics, including: composition of data sets, descriptive statistics, hypothesis formulation, statistical significance, confidence intervals, statistical power, common statistical tests and basic statistical models. Basic statistical computations and introductory data analyses will be performed using R a multi-platform (e.g., Windows, UNIX, MacOS) free software environment for statistical computing and graphics. Prerequisite: None. Credits: 4.

## CRP242 - Principles of Clinical Research

Subject	Catalog Number	Title
CRP	242	Principles of Clinical Research

### Description

The emphasis is on general principles and issues in clinical research design. These are explored through the formulation of the research objective and the research hypothesis and the statistical methods used in analysis of each type. Emphasis is placed on the traditional topics of clinical epidemiology such as disease etiology, causation, natural history, diagnostic testing, and the evaluation of treatment efficacy. In addition, the course content promotes an understanding that allows the student to classify studies as experimental or observational, prospective or retrospective, case-control, cross-sectional, or cohort; this includes the relative advantages and limitations and the statistical methods used in analysis of each type. Emphasis is placed on the traditional topics of clinical epidemiology such as disease etiology, causation, natural history, diagnostic testing, and the evaluation of treatment efficacy. In addition, an introduction to ethical issues in clinical research is included. Prerequisite: None. Credits: 4.

## CRP243 - Introduction to Medical Genetics

Subject	Catalog Number	Title
CRP	243	Introduction to Medical Genetics

### Description

Coverage is provided of the fundamental knowledge in human genetics and genetic systems of the mouse and other model organisms. Topics include: introduction to concepts of inheritance (DNA, chromatin, genes, chromosomes); the human genome (normal genetic variation, SNPs, comparative genomes, molecular mechanisms behind inheritance patterns, and mitochondrial genetics); mouse genetics (classical mouse genetics, genotype- and phenotype-driven approaches, QTL mapping); microarrays (expression, genomic, ChIP (chromatin IP on chip), bioinformatics and use of genome databases); genetic association studies (haplotype blocks, study design in complex disease and approaches to complex disease gene identification, pharmacogenetics and pharmacogenomics). Prerequisite: None. Credits: 2.

## CRP245 - Statistical Analysis

Subject	Catalog Number	Title
CRP	245	Statistical Analysis

### Description

This course extends CRP 241 (Introduction to Statistical Methods) and primarily considers statistical models with a single predictor, to models containing multiple predictors. We cover models with continuous outcomes (regression, analysis of variance, analysis of covariance), dichotomous outcomes (logistic regression), time to event outcomes (survival models), and count outcomes (Poisson and negative binomial models). Through class lectures, in class demonstrations, directed in class exercises, and discussion of representative research reports from peer-reviewed journals, students are introduced to the core concepts in statistical modeling. Prerequisite: CRP 241. Credit: 4.

## CRP247 - Clinical Research Seminar

Subject	Catalog Number	Title
CRP	247	Clinical Research Seminar

### Description

This seminar integrates and builds on the core courses (CRP 241, 242, and 245) to provide practical experience in the development and critique of the methodological aspects of clinical research protocols and the clinical research literature. Assigned readings are drawn from contemporary literature and include both exemplary and flawed studies. This course is offered in even-numbered years only. Prerequisite: None. Credits: 2.

## CRP248 - Clinical Trials

Subject	Catalog Number	Title
CRP	248	Clinical Trials

### Description

Fundamental concepts in the design and analysis of clinical trials are examined. Topics include protocol management, sample size calculations, determination of study duration, randomization procedures, multiple endpoints, study monitoring, and early termination. Prerequisite: CRP 245. Credits: 2.

## CRP249 - Health Services Research

Subject	Catalog Number	Title
CRP	249	Health Services Research

### Description

Research methods in health services research are explored. Topics include measurement of health-related quality of life, case mix and co-morbidity, quality of health care and analysis of variations in health care practice. Advantages and disadvantages of studies that use large databases as well as advanced methods in analysis and interpretation of health services outcomes are addressed. This includes application of traditional research designs (e.g., randomized trials) to address health services research questions and the interface between health services research and health policy. Prerequisite: None. Credits: 2.



## CRP252 - Principles of Clinical Pharmacology I

Subject	Catalog Number	Title
CRP	252	Principles of Clinical Pharmacology I

### Description

This course provides a basis for understanding the scientific principles of rational drug therapy and contemporary drug development, with emphasis on pharmacokinetics, methods for drug analysis, drug metabolism and pharmacogenetics. Topics include the physiologic and pathophysiologic factors involved in drug absorption, distribution, metabolism and elimination, determinants of variability in drug responses, inter- and inpatient variability in pharmacokinetics/pharmacodynamics, and drug interactions. This course also provides an introduction to common pharmacokinetic and pharmacodynamic modeling approaches. Prerequisites: Basic knowledge of calculus. Credits: 2.

## CRP253 - Research Ethics and Responsible Conduct of Research

Subject	Catalog Number	Title
CRP	253	Research Ethics and Responsible Conduct of Research

### Description

This course explores a variety of ethical and related issues that arise in the conduct of medical research. Topics include human subjects and medical research, informed consent, ethics of research design, confidentiality, diversity in medical research, international research, relationships with industry, publication and authorship, conflict of interest, scientific integrity and misconduct, intellectual property and technology transfer, and social and ethical implications of genetic technologies and research. The course is designed to meet and exceed the NIH requirement for training in Responsible Conduct of Research. Prerequisite: None. Credits: 2.

## CRP254 - Research Management

Subject	Catalog Number	Title
CRP	254	Research Management

### Description

This course addresses operational issues that arise in the conduct of a clinical research project. Topics include administration (human resources, project management, budget development and management), data management systems (databases, case report forms, data acquisition, quality assurance and quality control (QA/QC), monitoring and auditing), regulation (Investigational New Drug [IND] applications, good clinical practice (GCP), and the Health Insurance Portability and Accountability Act (HIPAA), and sponsorship (sources, sponsor motivations, identification of sponsors). Prerequisite: None. Credits: 2.

## CRP257 - Proteomics and Protein Biology in Medicine

Subject	Catalog Number	Title
CRP	257	Proteomics and Protein Biology in Medicine

### Description

Platform technologies and computational methodologies for protein profiling and interaction analysis are introduced. The platform technologies covered include mass spectroscopy, 2D gel electrophoresis, surface plasmon resonance, protein arrays and flow cytometry. Structural biology and high-throughput screening methods are also discussed. Prerequisite: None. Credits: 2.

## CRP258 - Principles of Clinical Pharmacology II

Subject	Catalog Number	Title
CRP	258	Principles of Clinical Pharmacology II

### Description

As a continuation of CRP 252, this course includes the topics of drug transport mechanisms and their relevance on pharmacokinetics and drug metabolism, dose response and concentration response analysis, biological markers of drug effect, and adverse drug reactions. In addition, emphasis is given to optimizing and evaluating the clinical use of drugs, as well as drug therapy in special populations (children, elderly adults, pregnant and nursing women). A special course module focuses on the processes of drug discovery and development, and the regulatory role of the FDA. Prerequisite: CRP 252. Credit: 2.

## CRP259 - Decision Sciences in Clinical Research

Subject	Catalog Number	Title
CRP	259	Decision Sciences in Clinical Research

### Description

Modeling the potential impact of a health intervention on disease outcomes can be extremely useful in gaining an understanding of the underlying biology or epidemiology of a disease, in designing research studies, and in assessing whether an intervention is economically feasible. This course focuses on basic modeling techniques, with an emphasis on decision analysis and cost-effectiveness analysis, and the application of these techniques to the student's own research. Topics covered include basic decision theory, basic principles of economic analysis in health care, decision trees, Markov models, infectious disease models, and economic analysis of clinical trials, how to review a decision/cost-effectiveness analysis, and the application of models for research and policy analysis. Prerequisite: None. Credits: 2.

## CRP261 - SAS Programming for Data Management

Subject	Catalog Number	Title
CRP	261	SAS Programming for Data Management

### Description

This course is an introduction to the use of SAS for data management. The primary goal is to empower the student to restructure, clean and otherwise prepare data sets for subsequent analysis using SAS. This is accomplished through directed exercises in which fundamental programming and documentation tools are emphasized. Prerequisite: CRP 241. Credit: 1.

## CRP262 - Systematic Reviews and Meta Analysis

Subject	Catalog Number	Title
CRP	262	Systematic Reviews and Meta Analysis

### Description

This course provides a practical foundation for systematic reviews involving quantitative synthesis (quantitative meta-analysis). Through directed exercises, students learn when and how to perform quantitative synthesis using freely available software. Topics include: computing effect sizes, computing a combined effect, fixed effect vs. random effects analyses, heterogeneity in effect sizes, and methods to detect publication bias. Note: This course is offered in even-numbered years only. Prerequisite CRP 241 and 242. Credits: 2.

## CRP263 - Longitudinal Data Analysis

Subject	Catalog Number	Title
CRP	263	Longitudinal Data Analysis

### Description

Longitudinal methods are required in the analysis of two types of study designs, those that involve questions about systematic change over time and those that involve questions about whether and when events occur. The first type is characterized by repeated observations of the same variables over time, allowing the analysis of temporal changes. In the second type, commonly referred to as time-to-event designs, the outcome of interest is the time to an event such as death or hospitalization. The course covers the design, analysis and interpretation of these types of studies. Various models, methodological issues and methods of analysis are discussed and demonstrated using R, SAS and Enterprise Guide. Lectures are supplemented with readings from texts and journal articles. Prerequisite: CRP 245. Credits: 2.

## CRP265 - Molecular Biology Techniques

Subject	Catalog Number	Title
CRP	265	Molecular Biology Techniques

### Description

This course is an introduction to basic laboratory techniques in molecular biology. Through lectures and hands on laboratory experiments students are introduced to methods required to perform basic molecular biology techniques. Techniques covered in the workshop include polymerase chain reaction (PCR), Western blotting, nucleic acid isolation, cloning, protein expression, and siRNA amongst others. No laboratory experience is required. Prerequisite: Permission of the instructor. 2 credits

## CRP264 - Introduction to Immunology in Clinical Research

Subject	Catalog Number	Title
CRP	264	Introduction to Immunology in Clinical Research

### Description

This course provides an introduction to basic concepts of immunology, clinical assessment of immune function, and the fundamental importance of immune mechanisms in human disease. Topics include innate and adaptive immunity, regulatory mechanisms, and inflammation. Translational techniques used in immune assessment are described in the context of relevant clinical examples. Emphasis is placed on the application of basic immunology to human diseases in oncology, infections, autoimmunity, and transplantation. Credits: 2.

## CRP266 - Design and Analysis of Non-Randomized Studies

Subject	Catalog Number	Title
CRP	266	Design and Analysis of Non-Randomized Studies

### Description

This course provides students a foundation in the design of rigorous non-randomized studies that compare the effectiveness of one or more treatments to another. In addition to a brief history of comparative effectiveness research (CER), the course will use examples from the literature to highlight the strengths and weaknesses of CER against the gold standard randomized controlled trial (RCT). Through course readings, in-class discussions, and development of a short proposal on a non-randomized study of the students' choosing, students will develop research skills and competencies related to understanding, conducting and interpreting non-randomized studies. Topics include: conceptual models, critical review of clinical literature, national survey and claims data sources, quasi-experimental study designs, sensitivity analysis and statistical adjustment in quasi-experiments, controlling for bias in observational data, and heterogeneity of treatment effects. Prerequisite CRP 242 or permission of the instructors. Prerequisite: None. Credits: 2.

## CRP267 - Special Topics in Clinical Research

Subject	Catalog Number	Title
CRP	267	Special Topics in Clinical Research

### Description

This course focuses on new perspectives and methods in clinical and translational research. Content to be determined each semester. Prerequisite: None. Credits: 1-2.

## CRP269 - Independent Study

Subject	Catalog Number	Title
CRP	269	Independent Study

### Description

Only for students who wish to remain active in the program, i.e., students are not enrolling in classes during the semester and are not enrolling in CRP 299 – Continuation of Research. Prerequisite: None. Credit: 1.

## CRP270 - Research

Subject	Catalog Number	Title
CRP	270	Research

### Description

An individualized research project under the direction and supervision of the student's mentor and examining committee forms the basis for this culmination of the program of study leading to the degree. Prerequisite: None. Credit: 12.

## CRP270-BST - Research BST

Subject	Catalog Number	Title
CRP	270-BST	Research BST

### Description

This Research Project course is designed to provide a formal, structured, mentored environment in which students can practice skills necessary for conducting basic research. Students will work in their mentor's research space on an individual research project chose and designed by the student with guidance from their mentor. Course directors will guide students in the selection of a research mentor and the development of a scholarship oversight committee, which will meet regularly with the student to guide the project. Mentors will provide 1:1 guidance on the development and conduct of the research project over the course of 4 semesters. Prerequisite: None. Credit: 18.

## CRP271 - Clinical Outcome Assessments in Clinical Research

Subject	Catalog Number	Title
CRP	271	Clinical Outcome Assessments in Clinical Research

### Description

Clinical outcome assessments (COAs) are measures used in clinical trials designed to evaluate how a new intervention affects how patients feel or function. There are four types of COAs: patient-reported (e.g., self-reported pain), observer-reported (e.g., parent report of child's physical functioning), clinician-reported (e.g., clinician rating of disease severity), and performance outcome measures (standardized tasks performed in a standardized environment, such as 6-minute walk test). In this course, we will learn how to (a) develop a conceptual model of the health outcomes that are important to measure; (b) select the most appropriate type of COA for measuring a given health outcome; (c) find and evaluate existing COAs or develop a new COA; and (d) use scores from a COA to construct a meaningful trial endpoint. The course will include general discussions of qualitative and quantitative methods in developing and evaluating measures. The emphasis throughout the course will be on preparing future study Principal Investigators to use COAs effectively rather than on becoming expert at specific technical skills (e.g., advanced psychometric analyses). Prerequisite: None. Credits: 2.

## CRP272 - R Programming Boot Camp

Subject	Catalog Number	Title
CRP	272	R Programming Boot Camp

### Description

This course is an introduction to the use of R and RStudio for data management. The primary goal is to empower the student to restructure, clean and otherwise prepare data sets for subsequent analysis using R and RStudio. This is accomplished through directed exercises in which fundamental programming and good documentation practices are emphasized. Prerequisite: CRP 241. Credit: 1.

## CRP273 - Implementation and Dissemination of Health Care Research

Subject	Catalog Number	Title
CRP	273	Implementation and Dissemination of Health Care Research

### Description

Implementation research (1) seeks to understand the processes and factors that are associated with successful integration of evidence-based interventions within a particular setting (e.g., a worksite or school), (2) assesses whether the core components of the original intervention were faithfully transported to the real-world setting (ie, the degree of fidelity of the disseminated and implemented intervention with the original study), and (3) is also concerned with the adaptation of the implemented intervention to the local context. This course provides an overview of methods for undertaking research and program evaluation within health services organizations and systems. A particular focus will be on healthcare products and how to evaluate their impact on various stakeholders whether individual patients, family, health care providers, healthcare systems, or policy makers. In addition to methods, the course also provides 'the state of the art' in research and evaluation through the review of major completed studies. Case studies of recent programs and technologies will be used. This course is recommended for students who will be carrying out policy research, social science research, or program impact evaluation within health delivery systems as well as developing and implementing programs to improve healthcare outcomes. Prerequisite: None. Credits: 2.

## CRP274 - Independent Study II

Subject	Catalog Number	Title
CRP	274	Independent Study II

## CRP275 - Research Project and Proposal Development A Stepwise Approach

Subject	Catalog Number	Title
CRP	275	Research Project and Proposal Development A Stepwise Approach

### Description

Using a 'flipped classroom' design, this course will teach you how to conceptualize and develop a major research project into a fundable grant proposal. We will present a stepwise approach and structured exercises that guide you through all aspects of research project development, from defining a problem of importance, to developing an experimental plan, to writing a compelling NIH-style grant application. Within this course, each student will develop their own research project and proposal using best practices, proven approaches, and continuous feedback from peers and instructors. Pre-requisite: None. Credit: 2.

## CRP276 - Statistical Methodology for Basic Research

Subject	Catalog Number	Title
CRP	276	Statistical Methodology for Basic Research

### Description

This course focuses on the appropriate application of core concepts taught in CRP 241 (Introduction to Statistical Methods) to the arena of basic science research, including dataset construction, descriptive statistics, hypothesis formulation and study power, and statistical inference. Through in-class lectures, directed exercises, and discussion of representative peer-reviewed manuscripts, students engage with core concepts in statistical modeling through its real-world application to the challenges of bench-science research. Classes will generally be delivered using a combination of brief introductory lectures followed by a journal club-format discussion in which students will be responsible for presenting and critiquing a peer-reviewed manuscript selected for its relevance to that week's topic area (e.g. handling non-Gaussian continuous outcomes). At the end of the course, students will be able to think critically about study design, draft study power sections for grant proposals, and outline a statistical analysis plan that would be appropriate to share at a pre-study consultation session with a master's or PhD-level staff biostatistician. Data analyses will be performed using R, a free software environment for statistical computing and graphical presentation. Prerequisite: 241. Credit: 2.

## CRP277 - Research Professional Development

Subject	Catalog Number	Title
CRP	277	Research Professional Development

### Description

To have a successful research career, physicians and scientists need expertise in their scientific specialty as well the skills necessary to navigate the workplace and academic environments. This course will provide early career clinician-scientists training in core skills essential to successfully lead a research team and advance academically. Skills addressed include: identifying applicable funding, obtaining a career development award, grant-writing, managing a research team, identifying and negotiating jobs, self- and scientific promotion, forming and maintaining collaborations, and authorship. Prerequisite: None. Credit: 2.

## CRP278 - Machine Learning For Health

Subject	Catalog Number	Title
CRP	278	Machine Learning For Health

### Description

Data science and machine learning (ML) are now beginning to impact clinical medicine, with performance on some tasks, such as detection of skin cancer, exceeding that of experienced clinicians. This course is designed to introduce students to the data science techniques poised to disrupt clinical practice through foundational material and clinical case studies. Course content will provide students with an intuitive, applications-oriented foundation in these techniques while highlighting both their capabilities and current limitations. Students will be introduced to pitfalls commonly encountered when developing models for clinical data as well as relevant practical and ethical considerations. Prerequisite: An introductory course in statistics and/or probability; and prior use of statistical software (e.g. R, SPSS, SAS, Python) to manage data and run analyses. Prerequisite: None. Credit: 2.

## CRP279 - Scientific Communication

Subject	Catalog Number	Title
CRP	279	Scientific Communication

### Description

This course covers best practices and strategies for multiple forms of scientific communication including manuscripts, social media, posters, presentations, news interviews, and reports. Prerequisite: None. Credit: 2.

## CRP280 - Drug Metabolism - Study Away at UNC

Subject	Catalog Number	Title
CRP	280	Drug Metabolism - Study Away at UNC

### Description

This course is for only those students who are accepted into the Duke CRTP Clinical Pharmacology track. In order to be enrolled, students must complete the Interinstitutional Form and return to Gail Ladd (gail.ladd@duke.edu). Upon approval, the form will be submitted to UNC for approval to enroll. Upon approval of enrollment from UNC, the Office of the Registrar at Duke University School of Medicine will process the enrollment. The form may be found on the Duke University Registrar's website, [http://registrar.unc.edu/files/2012/03/CCM1\\_042585.pdf](http://registrar.unc.edu/files/2012/03/CCM1_042585.pdf). Prerequisite: Must be currently enrolled in CRTP Clinical Pharmacology track. Credit: 4; Maximum Enrollment: 5.



## CRP281 - Pharmacokinetics - Study Away at UNC

Subject	Catalog Number	Title
CRP	281	Pharmacokinetics - Study Away at UNC

### Description

This course is for only those students who are accepted into the Duke CRTP Clinical Pharmacology track. In order to be enrolled, students must complete the Interinstitutional Form and return to Gail Ladd, (gail.ladd@duke.edu). Upon approval, the form will be submitted to UNC for approval to enroll. Upon approval of enrollment from UNC, the Office of the Registrar at Duke University School of Medicine will process the enrollment. The form may be found on the Duke University Registrar's website, [http://registrar.unc.edu/files/2012/03/CCM1\\_042585.pdf](http://registrar.unc.edu/files/2012/03/CCM1_042585.pdf). Prerequisite: Must be currently enrolled in CRTP Clinical Pharmacology track. Credit: 4; Maximum Enrollment: 5.

## CRP282 - Pharmacogenomics - Study Away at UNC

Subject	Catalog Number	Title
CRP	282	Pharmacogenomics - Study Away at UNC

### Description

This course is for only those students who are accepted into the Duke CRTP Clinical Pharmacology track. In order to be enrolled, students must complete the Interinstitutional Form and return to Gail Ladd (gail.ladd@duke.edu). Upon approval, the form will be submitted to UNC for approval to enroll. Upon approval of enrollment from UNC, the Office of the Registrar at Duke University School of Medicine will process the enrollment. The form may be found on the Duke University Registrar's website, [http://registrar.unc.edu/files/2012/03/CCM1\\_042585.pdf](http://registrar.unc.edu/files/2012/03/CCM1_042585.pdf). Prerequisite: Must be currently enrolled in CRTP Clinical Pharmacology track. Credit: 4; Maximum Enrollment: 5

## CRS301B - CONTINUATION OF RESEARCH STUDY

Subject	Catalog Number	Title
CRS	301B	CONTINUATION OF RESEARCH STUDY

### Description

Continuation of third year research project. Must be approved by mentor, study program director and advisory dean. No credit awarded toward degree requirements.

## CRSP301B - Research in Clinical Research

Subject	Catalog Number	Title
CRSP	301B	Research in Clinical Research

### Description

Clinical Research Study Program Director Vivian Chu, MD, MHS. This study program offers students the opportunity to explore the quantitative and methodological principles of clinical research. Under the direction of a clinical investigator and a statistician, students use the methods and techniques of biostatistics and related disciplines to address a clinical research question. Designated courses may be taken with the approval of the student's preceptors.

## CVS301B - RESEARCH IN CVS

Subject	Catalog Number	Title
CVS	301B	RESEARCH IN CVS

### Description

Program Director: Neil J. Freedman, MD. This interdepartmental study program is designed to provide third year medical students with an in-depth basic science research experience in one area of the broad discipline of cardiovascular science. The program is directed at those students potentially interested in a career in cardiovascular research. Faculty members in this study track come from numerous departments, including Medicine, Biochemistry, Cell Biology, Immunology, Pathology, and Pharmacology and Cancer Biology. Students who elect this study program undertake a research project in a laboratory under the guidance of a faculty preceptor. In addition, with the permission of their mentor and study program director, students may take course work each term to complement their research interests. Because a wide range of research opportunities is available, course work is individually tailored by the faculty preceptor to the interests of the student.

## DERMATOL220C - Introduction to Dermatology

Subject	Catalog Number	Title
DERMATOL	220C	Introduction to Dermatology

### Description

The dermatology selective is a two-week introduction to dermatology. Each student's schedule will be individualized to reflect the student's interests (eg. surgery or pediatrics) and will include time in the outpatient clinics and inpatient dermatology consults. A study course is provided that includes on-line modules as well as textbook readings. Students will be given the opportunity to identify a mentor and/or opportunities for research. Permission of instructor required. Credits: 2. Enrollment Max: 1, unless otherwise noted. Caroline Rao, MD

## DERMATOL401C - Dermatology Inpatient Consults

Subject	Catalog Number	Title
DERMATOL	401C	Dermatology Inpatient Consults

### Description

Dermatology Inpatient Consults offers an option for fourth year students who are interested in a brief introduction to dermatology. Students will participate in the evaluation and management of hospitalized patients and will have the opportunity to work directly with the dermatology chief resident and consult attending. Please note students are given a 4-week period to complete the clinical requirements for this is a 2-credit course. Students select 10 weekdays to round with the consult team. This course is ideally taken as a 2-week block, but non-consecutive days within the 4-week course are permissible. Students will be contacted prior to the start date to Dr. Caroline Rao is the course director and may be reached at caroline.rao@duke.edu or 681-3590 Secondary contact: Jessica Braddock, (jessica.braddock@duke.edu). Credit: 2. Enrollment: max 1. Caroline Rao, MD; Sabrina Shearer, MD; Sarah Myers, MD

## DERMATOL450C - Clinical Dermatology

Subject	Catalog Number	Title
DERMATOL	450C	Clinical Dermatology

### Description

The elective in clinical dermatology is designed to prepare students to perform an accurate skin examination, formulate a differential diagnosis, and choose appropriate therapeutic interventions. This course is valuable to any student interested in improving their ability and confidence in the cutaneous exam. Students spend two weeks working in the outpatient dermatology clinics, one week on the inpatient consult service at Duke, and one week at the Durham VA Medical Center. The outpatient clinical experience includes general dermatology clinics as well as a variety of specialty clinics such as pediatric dermatology, transplant dermatology, and procedural dermatology. Patient care is supplemented with modules designed to provide the student with a foundation in dermatologic principles, and students are encouraged to attend weekly departmental teaching conferences. Student evaluations are based on the development of clinical skills as assessed by faculty and residents. Students are to report to the Dermatology Clinic, VA medical center 8A clinic on 8:30 a.m. on the first day of the rotation for orientation. NOTE Students enrolled in DERMATOL 450C must have VA computer access. Students are responsible for contacting Clyde Meador at clyde.meador@va.gov no less than 60 days from the first day of the section in which they are enrolled. Dr. Caroline Rao is the course director and may be reached at 681-3590 or 970-9601. Secondary contact: Jessica Braddock, (jessica.braddock@duke.edu). Permission of the instructor is required for all summer sections and fall 41/42. Credit: 4. Enrollment: max. 3, except where otherwise indicated. Sole Enrollment. Students may not enroll in any other daytime courses while enrolled in this course. Caroline Rao, MD, Erin Lesesky MD, Sabrina Shearer MD, Megan Jamison MD, Rabina Walsh, MD as well as other faculty

## EMERGMED220C - Early Experience in Emergency Medicine

Subject	Catalog Number	Title
EMERGMED	220C	Early Experience in Emergency Medicine

### Description

The American College of Emergency Physicians defines emergency medicine as "the medical specialty with the principal mission of evaluating, managing, treating and preventing unexpected illness and injury." In this selective, students will gain firsthand exposure to the approach to the undifferentiated emergency medical patient, including essential diagnostic and therapeutic measures. Students will be paired with emergency medicine attending physicians or senior emergency medicine residents to gain exposure to the principles of emergency diagnosis, treatment, and disposition. Students will work 7 shifts in the emergency department which will be a variety of morning, afternoon, and overnight time slots and will include both weekdays and weekends. Most shifts will be at Duke University Hospital while a few may take place at the Durham VA Emergency Department. Didactic lectures typically occur on Monday and Thursday mornings. Credit 2. Enrollment max. 2 (but may vary in different sections). Location: Will be provided in an introductory email but is typically 1pm in conference room 2619 in the 2nd floor administrative suite above the ED. Contact: Students should contact Dr. Leiman with any questions via email [erin.leiman@duke.edu](mailto:erin.leiman@duke.edu). Secondary contact: Stacy Cayton ([stacy.cayton@duke.edu](mailto:stacy.cayton@duke.edu) or 919-681-4458. Erin Leiman, MD

## EMERGMED240C - Emergency Medicine: Longitudinal Experience

Subject	Catalog Number	Title
EMERGMED	240C	Emergency Medicine: Longitudinal Experience

### Description

This course provides an emergency medicine/acute care experience for students enrolled in the Primary Care Longitudinal Track (PCLT) or Longitudinal Integrated Clerkship (LIC). Students will work a total of 13 clinical shifts across different sites: Duke University Hospital (DUH) Emergency Department, Durham VA Emergency Department, and Duke Urgent Care. At least one of these shifts will be spent in the resuscitation area of DUH Emergency Department participating in the care of critically ill patients. Through this course students will develop their skills in evaluating undifferentiated patients, performing focused patient assessments, developing differential diagnoses, and recognizing high-acuity medical conditions. Enrollment will be in the spring/summer. The credit will be awarded in the summer term. The course will be graded P/F. Enrollment Max. 16; Credit: 2 spring/2 summer. For more information, please contact Dr. Erin Leiman ([erin.leiman@duke.edu](mailto:erin.leiman@duke.edu)). Erin Leiman, MD

## EMERGMED401C - Emergency Medicine Subinternship

Subject	Catalog Number	Title
EMERGMED	401C	Emergency Medicine Subinternship

### Description

This sub-internship is designed for students with a career interest in emergency medicine. Students will hone their approach to the emergency medical patient, including essential diagnostic and therapeutic measures. The experience will encourage the development of skills important to the practice of emergency medicine including differential diagnosis, managing multiple patients, communicating with consultants, and making appropriate dispositions. Efforts are made to coordinate the majority of a student's shifts with a core group of faculty to provide mentorship. Students will attend weekly medical student lectures, Thursday morning resident conferences, and deliver a final case presentation. For more information, please contact Dr. Erin Leiman at 681-2820 or via email, [erin.leiman@duke.edu](mailto:erin.leiman@duke.edu). Secondary Contact: Erin Browning ([erin.browning@duke.edu](mailto:erin.browning@duke.edu)). Prerequisites: Students must have already completed a prior emergency medicine rotation and permission of the instructor is required. Please try to contact the course director at least several weeks in advance of enrollment to help guarantee availability. First day meeting: 1:00 p.m. in the conference room located in the emergency services administrative suite above the emergency department. Credit: 5. max: variable. Offered in summer 43 only, summer 44 only, and all fall sections. Erin Leiman, MD

## EMERGMED405C - Emergency Medicine

Subject	Catalog Number	Title
EMERGMED	405C	Emergency Medicine

### Description

The American College of Emergency Physicians defines emergency medicine as 'the medical specialty with the principal mission of evaluating, managing, treating and preventing unexpected illness and injury.' Course Goals: 1) Students will see patients with the full range of chief complaints that present to the Duke Hospital Emergency Department. 2) Students will gain experience in making initial evaluations as well as diagnostic and treatment plans with an emphasis on detecting and treating immediate life threatening conditions. 3) Students' ability to rapidly obtain critical facets of a history and physical examination will improve. 4) Students will mature as clinical problem-solvers by seeing several patients per day with undifferentiated chief complaints. How Goals Are Achieved: 1) Students will work with attendings and residents during approximately 13 eight-hour shifts per month. A mixture of day, evening, and overnight shifts will be assigned that include both weekdays and weekends. 2) Medical student lectures will be held each week. 3) Students will attend resident conferences on Thursday mornings, 8am to 1pm. Methods of Evaluation: Attendings and residents will give feedback to students verbally and through shift evaluation cards. For more information, please contact Dr. Erin Leiman at 919-681-2820 or by email, [erin.leiman@duke.edu](mailto:erin.leiman@duke.edu). Secondary Contact: Erin Browning ([erin.browning@duke.edu](mailto:erin.browning@duke.edu)). Prerequisites: none. First day meeting: 1:00 p.m. in the conference room located in the emergency services administrative suite above the emergency department. Duke medical students must make sure that their VA credentials are active prior to the course as they may be assigned a shift at the Durham VA Medical Center. Credit: 4. Enrollment: max varies by term. Erin Leiman, MD

## EMERGMED407C - Direct Observation and IPE Student Clinic Leadership Elective I

Subject	Catalog Number	Title
EMERGMED	407C	Direct Observation and IPE Student Clinic Leadership Elective I

### Description

Senior students provide leadership to the direct observation and IPE student clinic. Students will help define goals for the clinic, barriers to achieving these goals, and solutions to these barriers. Main roles will include leading the clinical team (responsibility for direct clinical operations, such as opening the clinic each night, selection of clinic patients, teaching and providing feedback to other learners in clinic) and engaging in quality improvement that impacts the learners (i.e. developing formal teaching modules/videos/simulations) and that impacts patients (patient access to health care, patient flow, patient satisfaction, patient outcomes and or learner). This elective will give students a direct role in shaping a clinic for patient care. Students will gain insight into important aspects of systems-based practice: from laws governing care to patients with possible emergent/urgent medical conditions, to health care finance and reform, and healthcare reimbursement. The elective will run through the entire semester and the clinic sessions are not expected to be consecutive. For one credit the students will be expected to: •7 IPE sessions•Patient follow up activity/academic research endeavor: 2 hours, to be scheduled with Drs. Leiman/Waite. •One Multimedia Educational Project with presentation to fellow students and faculty at end of rotation. •For 2 credits the student will be expected to:•12 IPE sessions•Patient follow up activity/academic research endeavor: 4 hours, to be scheduled with Drs. Leiman/Waite. •One Multimedia Educational Project with presentation to fellow students and faculty at end of rotation. •One significant QI project to be done longitudinally through rotation and presented at conclusion of rotation. Expectation is that this will need to be semester long in order to complete a PDSA cycle. For more information, please contact Dr. Waite at Kathleen.waite@duke.edu or Dr. Leiman at erin.leiman@duke.edu. Credit: 1-2; Enrollment Max: 2. Kathleen Waite, MD and Erin Leiman, MD

## EMERGMED408C - Direct Observation and IPE Student Clinic Leadership Elective II

Subject	Catalog Number	Title
EMERGMED	408C	Direct Observation and IPE Student Clinic Leadership Elective II

### Description

Senior students provide leadership to the direct observation and IPE student clinic. Students will help define goals for the clinic, barriers to achieving these goals, and solutions to these barriers. Main roles will include leading the clinical team (responsibility for direct clinical operations, such as opening the clinic each night, selection of clinic patients, teaching and providing feedback to other learners in clinic) and engaging in quality improvement that impacts the learners (i.e. developing formal teaching modules/videos/simulations) and that impacts patients (patient access to health care, patient flow, patient satisfaction, patient outcomes and or learner). This elective will give students a direct role in shaping a clinic for patient care. Students will gain insight into important aspects of systems-based practice: from laws governing care to patients with possible emergent/urgent medical conditions, to health care finance and reform, and healthcare reimbursement. The elective will run through the entire semester and the clinic sessions are not expected to be consecutive. For 3 credits the student will be expected to:•17 IPE sessions•Patient follow up activity/academic research endeavor: 6 hours, to be scheduled with Drs. Leiman/Waite. •One Multimedia Educational Project with presentation to fellow students and faculty at end of rotation. •One significant QI project to be done longitudinally through rotation and presented at conclusion of rotation. Expectation is that this will need to be semester long in order to complete a PDSA cycle. For 4 credits the student will be expected to:•22 IPE sessions•Patient follow up activity/academic research endeavor: 8 hours, to be scheduled with Drs. Leiman/Waite. •One Multimedia Educational Project with presentation to fellow students and faculty at end of rotation. •One significant QI project to be done longitudinally through rotation and presented at conclusion of rotation. Expectation is that this will need to be semester long in order to complete a PDSA cycle. For more information, please contact Dr. Waite at Kathleen.waite@duke.edu or Dr. Leiman at erin.leiman@duke.edu. Credit: 3-4; Enrollment Max: 1. Kathleen Waite, MD and Erin Leiman, MD

## EPH301B - Research in EPI and Public Health

Subject	Catalog Number	Title
EPH	301B	Research in EPI and

## GHS301B - Global Health Study Program

Subject	Catalog Number	Title
GHS	301B	Global Health Study

## Duke University

STEP 1  
SOE  
RESEARCH INTERNSHIP  
Public Health

### Description

Program Director: Kathryn M. Andolsek, MD, MPH. The Epidemiology and Public Health Study Program is designed for students pursuing third year opportunities in public health through obtaining a Masters of Public Health degree as part of their Duke third year medical school requirements. Students interested in this track should consult with Dr. Kathryn Andolsek as early as possible, ideally in their first year or very early in their second year. This study track combines formal coursework in epidemiology, social drivers of health, and population health, allowing students an opportunity to participate in the quantitative research design and/or analysis of a research study. Participants will practice skills related to research design, statistical analyses, assessment, health policy, and comparative effectiveness so that they can be effective contributors to improve health and the system of health care. The focus may be on improved health of the patient or a discrete population but should be transferable to local, state, national and/or global health issues. Students should select an appropriate Duke Faculty mentor in consultation with the study track director, or if they wish to work with an external mentor, confirm they are approved/arrange to have them approved as an acceptable mentor by Dr. Andolsek and the third-year committee. For most students who obtain their MPH at the University of North Carolina, having a Duke mentor is strongly encouraged. Eligibility. Students enrolled in the School of Medicine, after satisfactory completion of the first two years of the regular curriculum, may seek a Master of Public Health degree at the University of North Carolina Gillings School of Global Public Health (Chapel Hill) or an alternate accredited school of public health. These two pathways differ. Please see below for the two pathways. 1. University of North Carolina Gillings School of Global Public Health: For students seeking a Master of Public Health at the University of North Carolina Gillings School of Global Public Health (Chapel Hill): <https://sph.unc.edu/resource-pages/master-of-public-health/a>. Several concentrations at the UNC Gillings School of Global Public Health have been 'pre-approved' by the Third-Year committee. Some of these may be able to be completed within a calendar year; however, the Third Year Committee strongly recommends students take these degrees over a two-year time period. This two-year time period gives adequate time for Step 1 study, taking full advantage of the MPH curriculum, having a robust research experience, and decompressing re-entry into the fourth year of Duke SoM. In general, these curricula include: 12 credits in a core curriculum; 15 credits in a concentration curriculum, and 3 credits in a practicum. The pre-approved concentrations include •Master of Public Health with Leadership in Practice Concentration (Public Health Leadership Program) •Master of Public Health in Applied Epidemiology •Master of Public Health in Health Policy •Master of Public Health in Maternal, Child, and Family Health •Master of Public Health in Nutrition b. In addition, there are several other concentrations that could probably easily be 'pre-approved' if a

STEP 1  
SOE  
RESEARCH INTERNSHIP  
Global Health Study Program

### Description

Program Director: Dennis Alfred Clements, MD, PhD, MPH. The Global Health Study Program (GHSP) was approved in February 2008 to meet the growing demand from Duke medical students for a centralized resource for information, mentors, funding, and research opportunities related to Global Health (GH). In collaboration with the Duke Global Health Institute (DGHI), the GHSP facilitates connections for students with research opportunities at Duke's GH field sites, including international partners and locations offering appropriate opportunities. The Institute focuses on seven signature research initiatives with global reach. The program also connects students to Duke faculty with GH expertise, such as those whose research focuses on infectious diseases, epidemiology, clinical microbiology, translational medicine and social science. The GH Study Program, as with all Third Year Study Programs, requires a thesis that demonstrates quantitative expertise, regardless of the discipline chosen. Students will work with a project mentor, usually a Duke Faculty member, to develop and conduct research that is of benefit both to the community collaborator and to the educational goals of the student. DGHI and SOM collaborate to provide pre-departure orientation and academic support while students are engaged in their work. For more information, please contact the GH Third Year Study Program Coordinator. NOTE: Students wishing to conduct research at an international site that is not related to global health and/or health disparities, or who would be best mentored under another study program, may find more appropriate mentorship through another Third Year Study Program. Limited funding will be available for Third Year students undertaking research projects related to global health. While preference will be given to students participating in the GH Study Program and working at DGHI partner sites, all relevant proposals will be considered. Global Health funding opportunities for Third Year for Medical Students are found here. Please contact the GH Third Year Study Program Coordinator to learn more. Dual-Degree Option: Master of Science in Global Health DGHI has developed an interdisciplinary Master of Science in Global Health (MSc-GH) that launched in fall 2009. The 38-unit curriculum includes six core courses, five electives, a funded 10-week (minimum) field experience to apply learned research methods, and a research-based scholarly thesis. Upon completion of the MSc-GH, graduates will be prepared to engage in clinical, epidemiological, social-behavioral, and policy-oriented research, as well as contribute to the design, implementation, and management of health programs. Each year, the School of Medicine and the Graduate School will grant limited tuition scholarships to at least two students wishing to earn the MSc-GH. Applicants to the program will be automatically considered for these scholarships when an application for the MSc-GH is submitted to the Graduate School. For more information and application instructions, please contact DGHI or visit the MSc-GH website.

## Duke University

student were interested and worked with Dr. Andolsek to bring to the committee (Masters of Public Health in Global Health; Master of Public Health in Population Health; Master of Public Health in Health Equity/Social Justice/Human Rights). Students should consult the UNC Gillings School of Global Public Health website carefully to make certain the most up to date information, including application deadlines is known.c.UNC also offers Master of Science degrees in several concentrations which require 60 credit hours (compared with 42) for those interested in a more comprehensive degree. In the past, only a few Duke students have pursued this option.d.Students (ideally) should identify a Duke approved mentor and research topics by January-March of the year in which they begin their third year. Most students have been able to use that project for some of the UNC's requirements, should they desires. Ideally, Duke IRB approval is obtained at the same time recognizing that IRB approval is usually necessary through both Duke and the other pertinent institutions. Coursework continuously informs their research project.If their desired Duke mentor is not already approved, students should describe their project and send the potential mentor's NIH biosketch to Dr. Andolsek to present to the Third Year Committee for approval as soon as possible. Mentor expectations can be found at the Third Year website but usually can include a faculty member at the associate professor rank (or higher), track record of successful mentoring, and research funding (sufficient that they will have protected time to mentor).e.The UNC MPH tuition will depend on whether a student is determined to meet UNC's 'in-state for tuition purposes' criteria and applies accordingly. Interested students should do what they can to maximize their ability to meet these criteria as soon as they believe that have an interest.f.Each student is required to complete their MPH Requirements and fulfill Duke's third year requirements (submitting to Duke a completed thesis, grant, or manuscript consistent with Duke Third Year requirements, and a poster for AOA day).g.UNC makes the determination of whether a student is considered 'in-state' for tuition purposes. For details, see <https://sph.unc.edu/mch/mch-student-information/residency/>. This determination can be made on a semester by semester basis. A student who is turned down, may wish to appeal. If turned down for first semester can apply for subsequent semester(s).h.UNC School of Global Public Health has their own programs of scholarship and other support; students should apply as interested.1.A Master of Public Health NOT at the University of North Carolina Gillings School of Global Public Health:a.Students who wish to apply to an alternate school of public health need to present their proposal to the Duke Third Year Committee as a Study Away Proposal, consistent with the process for all other Study Away Timelines. The Third Year Committee, in general, supports two-year master's programs, so that the students have an adequate research experience in addition to required coursework. If the course of MPH study is a single year, then the Third Year Committee generally looks more favorably on student requests that include a 'second' third year of research. Students generally select a research project and a mentor at the MPH



## Duke University

granting Institution. Supporting materials must be presented to the Duke Third Year Committee as a Study Away Proposal, consistent with Study Away Proposal Timelines. Alternatively, students may identify an approved Duke mentor they will work with 'remotely;' supporting information will be made part of the Duke Study Away proposal. Each student will have the equivalent of 10-12 months' participation in research. Students should identify a mentor, a research topic by Spring of the year in which they begin their third year. Ideally, Duke IRB approval is obtained at the same time, recognizing that IRB approval is usually necessary through both Duke and other pertinent institutions. Coursework continuously informs their research project. Each student will be required to produce an in-depth thesis analyzing an area of epidemiology, health service research, health systems, or health policy. This research activity extends throughout the year, culminating with the acceptance of the completed thesis, grant, or manuscript consistent with Duke Third Year requirements. This study track is for students participating in an MPH. For MPH students, the student must apply to the relevant MPH program within the public health school, and satisfy their requirements and the Third Year Requirements before progression to year 4 of Duke's curriculum. PCLT students have additional expectations regarding the community engagement of their projects and should consult Dr. Anh Tran. Students should consider carefully: •The timing of their plans to 're-enter' fourth year, especially with regard to clinical rotations and sub-internships. •Their projected study plan for USMLE Step 1. Students may instead choose to spend a research year within the field of public health (but without pursuing a second MPH degree) through other Third Year options: The Clinical Research Study Program, headed by Dr. Vivian Chu, in Global Health with Dr. Dennis Clements, or in an area of qualitative research through the Medical Humanities Study Program, headed by Dr. Margaret Humphreys. In addition, students may propose an individually tailored Study Away option. Students interested in the MPH may want to compare and contrast this opportunity with Masters of Public Policy or Masters of Health Sciences (through CRTP) with Dr. David Edelman. Another opportunity is the Masters of Business Administration, headed by Dr. Jennifer Perkins or the new Duke Master's in Population Health. Faculty from a number of study programs provide mentorship of students in the study away programs. Tuition: All students are responsible for both Duke SOM Third Year tuition and the tuition for their MPH degree. This policy is subject to change. For more information, contact Dr. Kathryn Andolsek, MD, MPH, Third Year Study Program Director, at [kathryn.andolsek@duke.edu](mailto:kathryn.andolsek@duke.edu). A list of faculty can be found on the Third Year website.

### HGP301B - Research in HGP

Subject	Catalog Number	Title
HGP	301B	Research in HGP

### HLTHSCI501 - Human Structure

Subject	Catalog Number	Title
HLTHSCI	501	Human Structure

### **Description**

Program Director: Rasheed Gbadegesin, MBBS, MD. Our genetic makeup plays a large role in dictating our health. With our improved knowledge of human genetics and genomic variation, we have tremendous opportunity to dissect the genetic determinants of human diseases such as heart disease, psychiatric conditions, cancer, and osteoarthritis to name a few. Once these genetic contributions are understood, the physician will have a powerful means at his or her disposal for realizing personalized medicine by identifying individual risk factors and offering lifestyle modifications. The study program in human genetics offers third year medical students an integrated program for understanding research in human genetics, its application to human genetic disease for risk assessment, genetic counseling, potential therapeutics, and ethical and legal implications for this research on the patient, the family, and society. We anticipate that students in this program will follow one of several broad paths, utilizing either a molecular approach or a statistical approach to understanding and treating human genetic disease. Research opportunities are available in laboratories studying such diverse topics as positional cloning of human disease genes, gene therapy, biochemical genetics, animal models of genetic diseases, development and developmental defects, epigenetics, and genetic epidemiology. At the end of the year, students are expected to produce a thesis summarizing their work. In addition to the research project and thesis, the program requirements include a year-long seminar series held weekly targeting current topics in human genetic research. Other elective courses may be taken with the permission of the program director and the student's preceptor.

### **Description**

The fundamental goal of this course is to provide an anatomical framework for understanding the form and function of the normal human body. In pursuing that goal, this course will expose students to principles that define critical thinking within the basic sciences. The knowledge students develop about anatomical relationships and structure and function can then be applied to problems of dysfunction that are relevant to clinical practice providing the foundation for success in other courses and in future studies. This goal will be achieved through a variety of team-centered and learner-focused experiences, including direct, active dissection of human cadavers, learner-centered investigation of intact and prosected human brain specimens, classroom presentation and discussion, and team-based learning activities. The team-based learning activities will emphasize applications that connect the dissection and didactic experience to larger problems in functional and clinical anatomy. With these goals in mind, the central theme of the course is gross human anatomy and the relationships between the musculoskeletal, neurological, and vascular systems of the human body. These relationships will be explored by dissection, examination, and integrative investigations of the morphology and function of the axial skeleton, upper and lower limbs, the central and peripheral nervous systems, and cardiac, pulmonary, gastrointestinal, urogenital and reproductive systems. This process will involve the instructional staff for gross anatomy in all aspects of the course, as well as course leaders from other courses in the Masters of Biomedical Sciences curriculum. The broader participation of program faculty will help integrate course content with larger curricular goals and objectives, including those pertaining to the longitudinal clinical practice—a unique feature of this approach that is typically absent from a traditional undergraduate course on human anatomy. Thus, this course will include a focus on the surface anatomy of the intact (living) human body and the palpation skills necessary to locate important bony landmarks, joint spaces, muscles, ligaments, bursae, nerves, and vessels as well as the anatomical correlates of many clinical procedures including venipuncture, tracheotomy, and fractures or joint displacement reduction. These areas highlight key aspects of human functional anatomy as they pertain to clinical practice and are critical for training and practice as emergency medical technicians (EMT). Therefore, content sequence and clinical correlations with the concurrent EMT-B course will be emphasized. Mode of instruction for this course will utilize the principles and practices of team-based learning, with students organized in small teams for readiness assurances, integrative team applications and guided discovery in laboratory experiences. Prerequisite: none. Credit 5. (Degree requirement)

## HLTHSCI502 - Cellular Sciences

Subject	Catalog Number	Title
HLTHSCI	502	Cellular Sciences

### Description

Cellular Sciences is a 13-week course that surveys the foundational cellular and molecular mechanisms underlying human health and disease. This course integrates multiple disciplines: biochemistry, genetics, cell and molecular biology, immunology, and tissue histology. By the end of the course, students should have a foundational understanding of how cells function, including their growth, communication, and death, in multiple environments within the body. Students will also understand how cells build the four tissue types found in the body and identify those tissues using virtual microscopy. This course is instructed using principles and practices of team-based learning, which include the flipped classroom, weekly assessments, and team-based application exercises. The histology portion utilizes virtual microscopy in guided laboratory sessions. Previous coursework exploring any of the disciplines listed above is strongly recommended prior to enrollment. Cellular Sciences serves as the prerequisite to Organ Systems. Prerequisite: HLTHSCI 501. Credit: 5. (Degree Requirement) (Graded)

## HLTHSCI503 - Organ Systems

Subject	Catalog Number	Title
HLTHSCI	503	Organ Systems

### Description

Organ Systems is a 16-week course during which students will understand how the physiology of every major organ system contributes to the regulation of overall homeostasis in the human body. The course develops a conceptual model for understanding the integrated function of major organ systems in the body, utilizing principles of human anatomy, embryology, histology, and molecular and cellular biology. Students will also use elements of pathophysiology and pharmacology to probe the homeostatic disturbances to organ systems in response to injury and disease. While all organ systems in the body are covered, the final seven weeks of the course focus on the biology of the nervous system. This course is instructed using principles and practices of team-based learning, which include the flipped classroom, weekly assessments, and team-based application exercises. Students will also participate in guided laboratory exercises using virtual microscopy and dissection of human brain specimens. Prerequisite: HLTHSCI 501 and 502. Credit: 5. (Degree requirement) (Graded)

## HLTHSCI504 - Essentials of Health Practice and Professional Development

Subject	Catalog Number	Title
HLTHSCI	504	Essentials of Health Practice and Professional Development

### Description

This two course sequence is designed to enhance understanding of the meaning of illness, and the development of personal identity and professional formation in the aspiring health professional. Through regular small group seminars with mentoring faculty and advisers, the course stresses active learning in a supportive environment. Students will develop a core set of skills including improved insight and self-awareness, effective verbal and written communication, cultural humility, self-reflection and practice giving and receiving feedback. They demonstrate self-care and resiliency, practice conflict management and critical conversations, explore career alternatives, practice teamwork, and practice interviewing. Prerequisite: none; must be taken in sequence. Credit 3 each. (Degree requirement)

## HLTHSCI505 - Essentials of Health Practice and Professional Development

Subject	Catalog Number	Title
HLTHSCI	505	Essentials of Health Practice and Professional Development

### Description

This two course sequence is designed to enhance understanding of the meaning of illness, and the development of personal identity and professional formation in the aspiring health professional. Through regular small group seminars with mentoring faculty and advisers, the course stresses active learning in a supportive environment. Students will develop a core set of skills including improved insight and self-awareness, effective verbal and written communication, cultural humility, self-reflection and practice giving and receiving feedback. They demonstrate self-care and resiliency, practice conflict management and critical conversations, explore career alternatives, practice teamwork, and practice interviewing. Prerequisite: none; must be taken in sequence. Credit 3 each. (Degree requirement)

## HLTHSCI506 - Medical Arts and Sciences Seminar III

Subject	Catalog Number	Title
HLTHSCI	506	Medical Arts and Sciences Seminar III

### Description

This 3-semester longitudinal course is designed to enhance understanding of the meaning of illness, and the development of personal identity and professional formation in the aspiring health professional. Through training and practice as EMTs and regular small group seminars with mentoring faculty and advisers, the course stresses active learning in a supportive environment. Students will develop a core set of skills including improved insight and self-awareness, effective verbal and written communication, cultural humility, self-reflection and practice giving and receiving feedback. They will demonstrate self-care and resiliency, practice conflict management and critical conversations, explore career alternatives, practice teamwork, strategically plan their application processes and timelines, and practice interviewing. Prerequisite: none; must be taken in sequence . Credit 2. (Degree requirement)

## HLTHSCI507 - Discovery / Special Topics Journal Club I

Subject	Catalog Number	Title
HLTHSCI	507	Discovery / Special Topics Journal Club I

### Description

The two course sequence will consist of introductory skills in searching, critically reading and interpreting the medical literature. Students will learn how to construct appropriate clinical questions to discover answers to challenging patient situations. The course features outside speakers who provide expertise on current topics in medicine and health care delivery followed by interactive large and small group exercises. The course culminates in the spring semester with MBS Scholar's Day, for which each student prepares a required capstone scientific poster. Prerequisite: none. Credit 2. (Degree requirement)

## HLTHSCI508 - Discovery / Special Topics Journal Club II

Subject	Catalog Number	Title
HLTHSCI	508	Discovery / Special Topics Journal Club II

### Description

The two course sequence will consist of introductory skills in searching, critically reading and interpreting the medical literature. Students will learn how to construct appropriate clinical questions to discover answers to challenging patient situations. The course features outside speakers who provide expertise on current topics in medicine and health care delivery followed by interactive large and small group exercises. The course culminates in the spring semester with MBS Scholar's Day, for which each student prepares a required capstone scientific poster. Prerequisite: none. Credit 2. (Degree requirement)

## HLTHSCI509 - Medical Statistics

Subject	Catalog Number	Title
HLTHSCI	509	Medical Statistics

### Description

This course covers statistical concepts that enable understanding of the medical literature including study design; summarizing and presenting data; relationships between two variables; probability and probability distributions; analysis of means, analysis of variance and covariance, methods of testing proportions; correlation; and regression. Mode of instruction for this course will utilize the principles and practices of team-based learning, with students organized in small teams for readiness assurances, application exercises, and a final project involving data analysis and report writing. Prerequisites: None. Credit: 4. (Degree Requirement) (Graded)

## HLTHSCI510 - Health Systems

Subject	Catalog Number	Title
HLTHSCI	510	Health Systems

### Description

The US healthcare system is in the midst of a tumultuous transformation. The goals of this course are to understand the key principles on which the US healthcare system was established, how it functions today, and how to help it work successfully in the future. Students will review historical milestones and readings and discern with fellow students and faculty the underlying principles on which the US healthcare system is based; describe current principles and mechanisms of healthcare finance, healthcare delivery, and healthcare policy, and discuss how they impact health systems performance and health outcomes; and learn and utilize key quality improvement skills and methodologies, systems-based healthcare approaches, team function, behavior change theories and methodologies, project management, and interpersonal skills needed to improve population health outcomes, the experience of healthcare, and to reduce overall health/healthcare costs. Students will work in teams and submit a project proposal to improve the health of a specified population. Prerequisite: none. Credit 3. (Degree requirement)

## HLTHSCI511 - Enhanced EMT-Basic Training Course

Subject	Catalog Number	Title
HLTHSCI	511	Enhanced EMT-Basic Training Course

### Description

This course is designed to instruct a student to the level of Emergency Medical Technician-Basic (EMT-B), and will be concurrent with and supplemented by correlated content in the Human Structure and Cellular Sciences courses. The EMT-B serves as a vital link in the chain of the healthcare team. It is recognized that the majority of pre-hospital emergency medical care will be provided by the EMT-Basic. This includes all skills necessary for the individual to provide emergency medical care at a basic life support level with an ambulance service or other specialized service. Specifically, after successful completion of the course, the student will be capable of performing the following functions at the minimum entry level: recognize the nature and seriousness of the patient's condition or extent of injuries to assess requirements for emergency medical care; administer appropriate emergency medical care based on assessment findings of the patient's condition; lift, move, position and otherwise handle the patient to minimize discomfort and prevent further injury; and, perform safely and effectively the expectations of the job description. The EMT-B course will be conducted at our partner community college institution and students will be required to achieve a passing grade. EMT-B course failure will result in failure of HLTHSCI511. Prerequisite: none. Credit 1. (Degree requirement) (Pass/Fail)

## HLTHSCI512 - EMT Clinicals I

Subject	Catalog Number	Title
HLTHSCI	512	EMT Clinicals I

### Description

This course builds on HLTHSCI511 and will ensure readiness to enter the clinical environment to practice at the level of an EMT-B. Students will be expected to demonstrate mastery of the EMT-B course material by passing the NC state EMT examination as well as completing the number of hours of clinical care required by the state of NC\*. Upon completion of these requirements, student will then file for NC state EMT-B certification. Students who have completed a prior EMT Basic Training Course will be expected to participate in the clinical care component of this course. Students who provide documentation of active certification acceptable to the state of North Carolina will not have to sit for 'recertification' and will be determined to have met the requirements of 512, receiving a passing grade. Prerequisite: HLTHSCI 511. Credit 1. (Degree requirement) (Pass/Fail)\*4 shifts are anticipated to be required for AY2023-4 however the state sets these requirements and may change without notice.

## HLTHSCI513 - EMT Clinicals II

Subject	Catalog Number	Title
HLTHSCI	513	EMT Clinicals II

### Description

This course continues the required clinical experiences through which students will demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with an ambulance service or by participating in clinical care at an emergency department, urgent care, or other specialized service. The course will be concurrent with and supplemented by correlated content in the Organ Systems, Essentials of Health Practice and Professional Development, Health Systems, and Evidence Based Clinical Practice courses. The number of required hours of clinical care will be set by the course instructor. Prerequisite: HLTHSCI 512. Credit 2. (Degree requirement) (Pass/Fail)

## HLTHSCI514 - EMT Clinicals III

Subject	Catalog Number	Title
HLTHSCI	514	EMT Clinicals III

### Description

This elective course enables selected students to continue to refine and demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with an ambulance service, in an Emergency Department or other specialized services. The ability for a student to enroll in this elective is contingent on its role in the individual student's educational plan and the availability of an approved site with appropriate supervision. Prerequisites: HLTHSCI 513 and permission of advisor and participating site. Credit variable 1-5. (Elective)

## HLTHSCI516 - EMT Clinicals

Subject	Catalog Number	Title
HLTHSCI	516	EMT Clinicals

### Description

This course builds on HLTHSCI 511 and consists of required clinical experiences through which students will demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with an ambulance service or by participating in clinical care at an emergency department, urgent care, or other specialized service. The course will be concurrent with and supplemented by correlated content in the Cellular Services, Organ Systems, Essentials of Health Practice and Professional Development, and Evidence Based Clinical Practice courses. A minimum of 12 hours per month is required October-May. Prerequisite: HLTHSCI 511. Credit: 2. (Degree requirement).

## HLTHSCI517 - EMT Selective

Subject	Catalog Number	Title
HLTHSCI	517	EMT Selective

### Description

This selective course enables selected students to continue to refine and demonstrate their mastery of the skills necessary to function as part of the health care team in providing emergency medical care at a basic life support level with an ambulance service, in an Emergency Department or other specialized services. The ability of a student to enroll in this selective is contingent on its role in the individual student's educational plan and the availability of an approved site with appropriate supervision. Prerequisites: HLTHSCI 516 and permission of advisor and participating site. Credit variable: 1-4. (Selective)

## HLTHSCI519 - Rural Primary Care Selective

Subject	Catalog Number	Title
HLTHSCI	519	Rural Primary Care Selective

### Description

This course offers an immersive experience into rural family medicine, exploring the complexities of longitudinal patient care at Duke Primary Care Oxford. Students will gain insight into the breadth of ambulatory family medicine, participating in preventive and acute primary care for newborns through centenarians. Components of this selective will include clinical observation, hands-on patient care, and interactive didactic sessions. By the end of the course, students will develop skills to successfully conduct patient interviews and exams, perform oral presentations, critically review medical literature, and gain insight into health determinants affecting rural populations. Students will join an interdisciplinary healthcare team including nurses, medical assistants, physicians, advanced care providers, social workers, and clinical pharmacists. A vehicle is required as students will be responsible for traveling to Oxford, NC (approx. 30 miles north of Durham). Course Director: Dr. Alexa Namba. Enrollment Max. 2. Min. 1. Credit 2. (Selective) (Graded)

## HLTHSCI518 - Evidence Based Clinical Practice

Subject	Catalog Number	Title
HLTHSCI	518	Evidence Based Clinical Practice

### Description

This course consists of introductory skills in searching, critically reading and interpreting the medical literature. Students learn how to construct appropriate clinical questions to discover answers to challenging patient situations. The course features outside speakers who provide expertise on current topics in medicine and health care delivery followed by interactive large and small group exercises. The course culminates in the spring semester MBS Scholar's Day, for which each student prepares a required capstone scientific poster. Prerequisite: none. Credit: 4 (Degree Requirement)

## HLTHSCI521 - Community Health Engagement Practicum

Subject	Catalog Number	Title
HLTHSCI	521	Community Health Engagement Practicum

### Description

This course provides students with a foundation in the principles and practices of population health improvement within the framework of community engagement. Participants are expected to first complete required readings and instructional modules that provide core knowledge regarding population health and community engagement; they will participate in a month-long orientation to various health improvement agencies and meet with health care leaders about implementing community/population health initiatives. After appropriate onboarding with a local community health initiative through Duke's Division of Community Health, students will then gain further insight and skills during immersive weekly project assignments in the organization. The practicum culminates with the completion of a work plan that demonstrates acquisition of specific skills necessary to plan, implement, or assess a population health improvement initiative that is community-engaged patient/client-centered. The requirements for this product are derived from each student's individual learning plan in consultation with the host community organization and the Community Health Division. Dr. Anh Tran. Enrollment Min. 3 Max 8. Credit: 4. (Selective) (Graded)

## HLTHSCI522 - Nutrition Selective

Subject	Catalog Number	Title
HLTHSCI	522	Nutrition Selective

### Description

The major focus of this course is to develop a foundation of understanding of basic nutrition and the treatment of various medical diagnoses. This course reviews the nutrition therapy associated with various disease processes in an effort to manage or prevent the progression of the disease. Learning objectives: by the end of this course, students will discuss and describe macro and micronutrients and how these impact overall health; verbalize nutrition therapy for various disease states; and describe the impact of evidence based nutrition on wellness. Learning outcomes: students are able to match diseases or conditions with the appropriate nutrition therapy guidelines; students will be able to discuss the impact of nutrition therapy in conjunction with current medical practices on disease states. This course includes two 1-hour class sessions and independent project work. Franca B. Alphin. Enrollment max. 4. Credit: 4 (Selective) (Graded)

## HLTHSCI523 - DOCR Research Immersion

Subject	Catalog Number	Title
HLTHSCI	523	DOCR Research Immersion

### Description

An unpaid short-term (1 semester) apprenticeship in an academic laboratory or clinical research setting. In general, students will be expected to dedicate approximately 10-12 hours per week to a mentored research project and submit weekly journals, a midterm abstract and a summary presentation that will be graded. The selective experience will enable students to generalize learning beyond the classroom, to reinforce the development of competence within an authentic setting, to obtain 'workplace' mentorship, and to explore unfamiliar scientific fields and alternative career paths. In addition to the project time, students will meet regularly during the semester to learn specific clinical research competencies in a didactic setting, to discuss broad research topics in a journal club setting, and to experience unique career and research-oriented discussions from clinical research faculty and staff. Biweekly discussion forums also will offer an opportunity to explore further the ideas and concepts presented in class. Contact person: Ted Snyderman. Email: ted.snyderman@duke.edu. Stephanie Freel, MD. Enrollment Max 13. Credit 4. (Selective) (Graded)

## HLTHSCI524 - Directed Study

Subject	Catalog Number	Title
HLTHSCI	524	Directed Study

### Description

Directed Studies are variable credit selective pass/fail offerings that respond directly to students' expressed interests and needs and/or to the opportunistic availability of a resource, event, or activity of a timely or transient nature. Examples of potential topics include, but are not limited to, population health, the arts and medicine, food and health, spirituality and medicine, communicating science, ethics, and special topics in human anatomy. Students will complete required readings, and individual and group activities in keeping with individualized learning contracts approved by the course instructors and study mentor, and will produce a culminating final work product (e.g. paper, presentation, substantive artifact). IMPORTANT: for clinical and translational science work, please get in touch with Dr. Corsino to reach out to potential mentor. For basic science work, please get in touch with Dr. Len While to reach out to potential mentor. Credit variable 1-4. Leonor Corsino, MD (Selective)

## HLTHSCI525 - Fundamentals of Ultrasound

Subject	Catalog Number	Title
HLTHSCI	525	Fundamentals of Ultrasound

### Description

Ultrasound has been used in medical education since the mid-1990s, initially focusing on anatomy and more recently to enhance training in physical diagnosis. This selective course aims to educate students in the basic principles (including physics) and core applications of bedside ultrasound. Students gain a thorough understanding of the sonographic anatomy and imaging technique of various anatomic regions through self-directed computer-based didactic sessions. Using the handheld SonoSim® Probe, students practice the psychomotor skills necessary to image these anatomic regions and acquire experience scanning pathologic states. Samuel Francis, MD. Enrollment Min. 6. Enrollment Max 12. Credit 2. (Selective) (Graded)



## HLTHSCI526 - Pediatrics and Child Health

Subject	Catalog Number	Title
HLTHSCI	526	Pediatrics and Child Health

### Description

This course is designed for pre-health profession students eager to explore the health and well-being of pediatric populations. This course will address the key introductory principles of pediatric health by highlighting disease prevention, health promotion, injury prevention and anticipatory guidance for patients in the outpatient pediatric clinic. Topics will emphasize principles related to the maternal child dyad, family-centered care principles, and common outcomes in pediatric populations. Thru participation in this course students will learn to: 1) identify key aspects of pediatric health which include an understanding of the importance of the therapeutic relationship of the family, the interplay of advocacy principles, and the importance of addressing mental health and care coordination principles in the pediatric setting, 2) Understand the social determinants of health that impact pediatric patients including factors that affect a child's access to health care in the US, factors that place children at higher risk for certain health problems, and factors that affect diagnoses such as obesity, asthma, trauma, and an array of mental health disorders, and 3) demonstrate basic clinical reasoning skills that can be utilized in future health professions that intersect with the pediatric population. Successful completion of the course includes satisfactory completion of modules, satisfactory completion of individualized readiness assurance opportunities, and successful completion of scholarly child health presentation or project. Joseph Jackson, MD. Credit: 2, (Selective) (Graded).

## HLTHSCI527 - Patient Care in the Ambulatory Environment

Subject	Catalog Number	Title
HLTHSCI	527	Patient Care in the Ambulatory Environment

### Description

This course offers in-depth exposure to patient care within the Duke Primary Care network (DPC). Throughout the semester, students will develop clinical competencies by participating in observational experiences, attending lecture-based sessions, and providing hands-on patient care. Students will be exposed to the variety of skill sets necessary to care for both adult and pediatric patient populations, including EMR training, medication administration, clinical procedure assistance, and complex disease management. Additionally, this course features an introductory overview of DPC's clinical workflows and quality improvement initiatives, with specific emphasis on the newly developed Encounter Specialist model. Interested students are encouraged to continue their clinical training with Duke Primary Care upon completion of the Biomedical Sciences program. Kelly Sullivan. Enrollment max. 8. Credit: 2 (Selective) (Graded).

## HLTHSCI528 - Basic Science Selective

Subject	Catalog Number	Title
HLTHSCI	528	Basic Science Selective

### Description

An unpaid short-term (1 semester) apprenticeship in an academic laboratory. The goal of this selective is to understand the essentials of laboratory-based research through hands-on 'bench' experience. In general, students will be expected to dedicate approximately 10-12 hours per week to a mentored research project and submit an oral and written research abstract presentation that will be graded. The selective experience will enable students to generalize learning beyond the classroom, to understand the process of scientific inquiry and experimental design, become familiar with commonly used laboratory techniques and data analysis, obtain 'workplace' mentorship, and explore career paths in biomedical research. In addition to the project time, students will meet biweekly during the semester to learn specific basic research competencies in a didactic setting, to discuss broad research topics in a journal club setting, and to experience unique career and research-oriented discussions from MD faculty who conduct basic research. Gow Arepally, MD. Credit 4. (Selective) (Graded)

## HLTHSCI529 - COVID-19 Case Investigation and Contact Tracing (CICT)

Subject	Catalog Number	Title
HLTHSCI	529	COVID-19 Case Investigation and Contact Tracing (CICT)

### Description

COVID-19 Case Investigation and Contact Tracing (CICT): the course is a collaboration with Duke Employee Health. This is a longitudinal experiential course. The course will be offered July-September; September-January; January-May on infectious disease (specifically, SARS-CoV-2 [the virus] and its associated COVID-19 [the illness]) case investigation and contact tracing. During this course students will learn common public health technique highly topical given the ongoing COVID-19 pandemic. In addition, the course will include sessions emphasizing the background on COVID-19 and the utility of case investigation and contact tracing; introductory skills for performing these interviews and tracings; and supervised experiential performance of these techniques while assisting Duke Employee Health with its COVID-19 Monitoring program. Participants are expected to complete required instructional modules and readings that provide core knowledge regarding SARS-CoV-2, COVID-19, and best practices in contact tracing. Students will explore how best to communicate new diagnoses, elicit a complete case history and use motivational interviewing techniques to guide behavior. The course will feature Duke faculty who will provide expertise on topics related to public and employee health. The course includes both large and small group training, team meetings and self-learning modules. Students will gain essential skills in interviewing techniques, public health infectious disease prevention and use of digital data platform (REDCap) for collecting information. Students will then conduct directly supervised contact tracing of clients with direct feedback from their assigned preceptor. Once they have demonstrated competency in the acquisition of specific skills, they will then begin the immersive portion of the course in which they will work with clients during each shift. Min: 1. Max: 50 (32 concurrently). Dr. Kathy Andolsek, MD. Credit variable: 2, 3\*, or 4 credits (Selective). \* 3 credit course will be expected to be used extremely rarely; most students will take for 2 or 4 credits. Pass/Fail.

## HLTHSCI533 - Planning for Health Professions Education

Subject	Catalog Number	Title
HLTHSCI	533	Planning for Health Professions Education

### Description

The journey to the health professions requires intentionality, planning, and strategy. This selective provides the participant with a 'deep dive' into the creation of a competitive application for health professions education. Workshops include: the application process; managing disclosures in the application; the personal statement; identifying and rectifying 'gaps' in the application. Each applicant will have a working draft of the personal statement (required for successful completion of the course) and an overview of the application by the appropriate health professional. Maureen Cullins Credit: 2. (Selective)

## HLTHSCI534 - Advanced Nutrition Selective

Subject	Catalog Number	Title
HLTHSCI	534	Advanced Nutrition Selective

### Description

This Medical Nutrition Therapy course is designed for nutrition students wishing to obtain a comprehensive review and understanding of various disease states and medical conditions as well as assist students in applying this knowledge to conduct nutrition assessments, develop a nutrition care plan, and utilize critical thinking skills. This course will provide students with valuable insight into the role that nutrition plays in the recovery from illness, trauma, surgery, etc. as well as, the Dietitian's role on the healthcare team. Learning Objectives: Explain the Nutrition Care Process and Nutrition Assessment guidelines, discuss and interpret laboratory values, anthropometric measurements, clinical data, and NFPE in order to make nutrition recommendations, understand and describe the importance of nutrition for the treatment of various disease states and perform calculations for both enteral and parenteral nutrition. This course is 16 week, 4 hours of class sessions and one additional hour of clinical observation/experience. Prereqs: Introductory course in medical nutrition therapy and on career path to take RD exam. Course Directors: Franca B. Alphin, MPH, RD, LDN, Associate Professor, Family Medicine and Community and Melissa Kay, MS, MPH, Ph.D, RD, Assistant Professor, Department of Pediatrics and Instructor: Carolyn West, MS, RD, LDN. 4 credits. (Selective) (Graded)

## HLTHSCI535 - Fundamentals of Learning: Theory and Practice

Subject	Catalog Number	Title
HLTHSCI	535	Fundamentals of Learning: Theory and Practice

### Description

Success in the health professions requires good habits including time management, insight into learning styles, efficient study habits, and self-care. This selective provides exposure to evidence-based approaches to learning and memory from cognitive psychology and other disciplines (including cognitive training methods to facilitate how memory is encoded, consolidated and retrieved), and considers life style factors and practices that can support new learning (e.g., stress reduction, diet, exercise and sleep habits). Successful completion of the course includes: 1) development of a personal action plan that includes documentation of your methods to meet a specific learning goal (e.g., study plan for MCAT, GRE, DAT etc.), evidence of a commitment to a healthy lifestyle (e.g., exercise plan, dietary changes, meditation classes) and evidence of good sleep hygiene via a nightly diary and relevant checklists. The course includes eight workshop-style sessions that include both in- and out-of-class assignments. Melanie Bonner, MD. Credit: 2. (Selective) (Graded)

## HLTHSCI536 - Health Systems Selective

Subject	Catalog Number	Title
HLTHSCI	536	Health Systems Selective

### Description

This selective will allow selected students an opportunity to individualize and focus on an area of health systems such as health policy, health law, and/or intersectional population-based health issues. Interested students will work one-on-one with the instructor to identify a project with specific aims, implementation plan, timeline, and outcome measure(s). The course will include bi-weekly, student led discussion/debate sessions related to core and project-related readings. The project may [or may not] be coordinated with the Scholars Day project. Course Director: Dr. Don Bradley. Max enrollment: 8. Credit: 1-2 (Selective) (Graded)

## IAD101B - Year 1 Independent Academic Development

Subject	Catalog Number	Title
IAD	101B	Year 1 Independent Academic Development

### Description

This status is a semester term-based, noncredit-bearing enrollment status while completing a scholarly experience. It can be elected up to three terms. This status enables a student to explore various aspects of academic medicine, including scholarly activity. Students may pursue independent academic development resulting in poster and platform presentations at regional and national academic meetings, authorship of journal articles, and participation in existing clinical projects. An application consisting of a description of your scholarly project and approval by your Advisory Dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. Students may not be enrolled in any other course work while enrolled in this status. A continuation fee of \$500 per term is charged for this status.

## IAD201C - Year 2 Independent Academic Development

Subject	Catalog Number	Title
IAD	201C	Year 2 Independent Academic Development

### Description

This status is a semester term-based, noncredit-bearing enrollment status while completing a scholarly experience. It can be elected up to three terms. This status enables a student to explore various aspects of academic medicine, including scholarly activity. Students may pursue independent academic development resulting in poster and platform presentations at regional and national academic meetings, authorship of journal articles, and participation in existing clinical projects. An application consisting of a description of your scholarly project and approval by your Advisory Dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. Students may not be enrolled in any other course work while enrolled in this status. A continuation fee of \$500 per term is charged for this status.

## IAD301B - Year 3 Independent Academic Development

Subject	Catalog Number	Title
IAD	301B	Year 3 Independent Academic Development

### Description

This status is a semester term-based, noncredit-bearing enrollment status while completing a scholarly experience. It can be elected up to three terms. This status enables a student to explore various aspects of academic medicine, including scholarly activity. Students may pursue independent academic development resulting in poster and platform presentations at regional and national academic meetings, authorship of journal articles, and participation in existing clinical projects. An application consisting of a description of your scholarly project and approval by your Advisory Dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. Students may not be enrolled in any other course work while enrolled in this status. A continuation fee of \$500 per term is charged for this status.

## IAD401C - Year 4 Independent Academic Development

Subject	Catalog Number	Title
IAD	401C	Year 4 Independent Academic Development

### Description

This status is a semester term-based, noncredit-bearing enrollment status while completing a scholarly experience. It can be elected up to three terms. This status enables a student to explore various aspects of academic medicine, including scholarly activity. Students may pursue independent academic development resulting in poster and platform presentations at regional and national academic meetings, authorship of journal articles, and participation in existing clinical projects. An application consisting of a description of your scholarly project and approval by your Advisory Dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, and financial aid for living expenses. Students may not be enrolled in any other course work while enrolled in this status. A continuation fee of \$500 per term is charged for this status.

## INTERDIS107B - Introduction to the Medical School Profession

Subject	Catalog Number	Title
INTERDIS	107B	Introduction to the Medical School Profession

### Description

This course is required for all entering medical students. It is designed to provide a broad overview of the profession from a variety of perspectives. It will also aim to clarify the goals, expectations, demands and professional requirements placed upon you as you transition from undergraduate school to a physician-in-training. The course will meet for most of each day and will involve both large and small group experiences. No Credit/Graded Credit (CR) or No Credit (NC). Joseph Jackson, MD

## INTERDIS109B - Clinical Skills Training Immersion

Subject	Catalog Number	Title
INTERDIS	109B	Clinical Skills Training Immersion

### Description

The Clinical Skills Training Immersion course is a two-week experience in basic clinical skills training, leadership, team-work across disciplines, and wellness strategies. The aim is to develop clinical practice and reasoning skills from day 1, framed around the patient as the priority. The course will provide the basic clinical and reasoning skills that serve as the foundation for the clinically oriented biomedical sciences curriculum in year 1. Graded Credit/No Credit. Enrollment Max: 125; Credit: 2. Julian Hertz, MD

## INTERDIS111B - Moral Moments in Medicine: Pandemics, Race, Social Justice

Subject	Catalog Number	Title
INTERDIS	111B	Moral Moments in Medicine: Pandemics, Race, Social Justice

### Description

This interprofessional MS1 elective will bring the resources of the medical humanities and ethics to bear on the twin pandemics of COVID-19 and systemic racism. All students will participate in one of several monthly evening small groups led by 1-2 faculty. Some will focus on historical and contemporary narratives related to epidemics. Others will be more experiential; for example, students could complete a scholarly or creative project with oral history, documentary photography, or another form of artistic expression. Hours can also be earned through Trent Center events open to all MS1 students, such as interest groups in ethics and history of medicine; or book clubs/film discussions related to the course themes. Students who complete at least 20 elective hours from these activities will receive a notation on their transcript. Graded: Credit/No Credit. No credits/units awarded. Jeffrey Baker, MD, PhD, Sneha Mantri, MD, MS, Brian Quaranta, MD, MA, Jennifer Lawson, MD, Farr Curlin, MD, John Moses, MD, Karen Jooste, MD, and Margaret Humphreys, MD, PhD

## INTERDIS112B - Foundations of Patient Care 1

Subject	Catalog Number	Title
INTERDIS	112B	Foundations of Patient Care 1

### Description

This integrated, multi-component, core preclinical course provides the foundational knowledge for the practice of medicine. The biomedical sciences focus on the scientific principles underlying the structure and function of the human body (anatomy, biochemistry, cell biology, embryology, genetics, histology, physiology, and the neurosciences) and are taught in the context of a clinical framework. The Clinical Skills Foundation component expands upon the interviewing and physical diagnosis skills initiated during the Clinical Skills Training Immersion, with an emphasis on the doctor/patient relationship. The Cultural Determinants of Health and Health Disparities component allows students to explore the contributors to health disparities among vulnerable populations and gain the knowledge and skills to mitigate provider influences on disparities. Students apply principles learned from the Leadership Education and Development (LEAD) component of the course to their interactions in team-based activities to hone their teamwork skills. Core material is presented through team-based learning, didactic lectures, scientific readings, laboratory exercises, small group discussions, standardized patients, patient visits on the wards and in clinics, clinical case based problem-solving, and clinical correlations with patients. Credit: 21. Jennifer Carbrey, PhD, Leonard White, PhD, Andrew Als paugh, MD, Richard Brennan, PhD, Vivian Chu, MD, Andrea Deyrup, MD, PhD, Michael Gunn, MD, Andrew Muzyk, PharmD, Victoria Parente, MD, Kenny Railey, MD, John Roberts, MD, Daniel Schmitt, PhD, Matt Velkey, PhD, Nancy Weigle, MD, Angel Zeininger, PhD

## INTERDIS113B - Foundations of Patient Care 2

Subject	Catalog Number	Title
INTERDIS	113B	Foundations of Patient Care 2

### Description

This integrated, multi-component, core preclinical course provides the foundational knowledge for the practice of medicine. The biomedical sciences portion begins with fundamental principles of immunology, microbiology, pathology, and pharmacology. The remaining biomedical sciences are dedicated to an integrated presentation of common human diseases organized by organ system taught in the context of a clinical framework. The Clinical Skills Foundation component expands upon the interviewing and physical diagnosis skills taught during Foundations of Patient Care 1 to focus on clinical reasoning and differential diagnosis. The Cultural Determinants of Health and Health Disparities component allows students to explore the contributors to health disparities among vulnerable populations and gain the knowledge and skills to mitigate provider influences on disparities. Students apply principles learned from the Leadership Education and Development (LEAD) component of the course to their interactions in team-based activities to hone their teamwork skills. Core material is presented through didactic lectures, laboratory exercises, small group discussions, standardized patients, patient visits on the wards and in clinics, clinical case based problem-solving, human simulation cases, and clinical correlations with patients. Credit: 22.5. Matt Velkey, PhD, Andrew Muzyk, PharmD, Andrew Alspaugh, MD, Jennifer Carbrey, PhD, Vivian Chu, MD, Andrea Deyrup, MD, PhD, Michael Gunn, MD, Victoria Parente, MD, Kenny Railey, MD, John Roberts, MD, Daniel Schmitt, PhD, Nancy Weigle, MD, Leonard White, PhD, Angel Zeininger, PhD

## INTERDIS114B - Advanced Clinically-Centered Education in Spanish (ACCES)

Subject	Catalog Number	Title
INTERDIS	114B	Advanced Clinically-Centered Education in Spanish (ACCES)

### Description

This is a clinically-centered educational experience in Spanish designed to help medical students become culturally competent Spanish-speaking healthcare providers. The student will build a foundation of medical terminology in Spanish, practice assuming the role of a Spanish-speaking provider, and build communication skills in Spanish. The course is designed to align with the content of Clinical Skills and patient foundation courses. To enroll, the student will need an intermediate to advanced level of Spanish based on a standardized assessment (Marco Comun Europeo de Referencia para lenguas) by a third-party evaluator. Passing grades will depend on meeting class attendance and completing the standardized patient encounters (3). The classes will be twice per month, 1.5 hours. Class size maximum: none. Credit: 1. Serena Wong, MD



## INTERDIS201C - Outpatient Integrated Longitudinal Experience (PIONEER)

Subject	Catalog Number	Title
INTERDIS	201C	Outpatient Integrated Longitudinal Experience (PIONEER)

### Description

The PIONEER curriculum will allow for students to learn essential clinical skills in an ambulatory setting with longitudinal contact with preceptors and patients. The course is a total of 16 weeks and includes didactic and applied content, ambulatory internal medicine, pediatrics, neurology, and obstetrics-gynecology. All students will also complete shifts in the emergency department and have unscheduled time which they can use to design experiences to help with career exploration and advancement of clinical skills. Credit: 12; Maximum Enrollment: 40; Minimum Enrollment: 20. Poonam Sharma, MD

## INTERDIS203C - Clinical Skills Assessment

Subject	Catalog Number	Title
INTERDIS	203C	Clinical Skills Assessment

### Description

The End of Year Objective Structured Clinical Examination (OSCE) is an opportunity for students to demonstrate competency in clinical skill areas, and to gain insight into basic and clinical science areas needing additional development. The major purposes of the OSCE are (a) to evaluate, in a standardized way, each student's approach to patients with common complaints, demonstrating the clinical activities of history-taking, physical examination, communication skills and diagnostic reasoning that cannot be adequately assessed through written tests, (b) to provide individualized feedback to students about their clinical skills performance, and (c) to provide a measure of curriculum effectiveness. Passing the OSCE is required for graduation. Credit: 1. Deborah Engle, EdD, MS

## INTERDIS204C - Clinical Skills Course

Subject	Catalog Number	Title
INTERDIS	204C	Clinical Skills Course

### Description

The Clinical Skills Course will assist the medical student in patient care by providing a foundation of clinical skills taught longitudinally through the clinical year to complement those taught during the required clerkships. The initial focus will be on history and physical examination skills to generate a differential diagnosis. Procedural skills, including arterial blood gas sampling, nasogastric tube insertion, and intravenous line start will be taught using simulated models. Interpretation and characteristics of diagnostic tests, including electrocardiograms and laboratory studies, will be emphasized. Advanced clinical reasoning skills and evidence-based medicine will conclude the course. Both large-group lectures and small-group sessions with applied practice will be used to instruct students. Credits: Fall Term 3, Spring Term 0.5; Summer Term 0.5. Saamil Chudgar, MD and staff

## INTERDIS205C - Clinical Skills Foundation 2 (CSF2)

Subject	Catalog Number	Title
INTERDIS	205C	Clinical Skills Foundation 2 (CSF2)

### Description

Year two in the Clinical Skills Foundation course students develop advanced communication skills and reflect on ward experience in a small group setting. Discussion topics include ethics, spirituality, pain, professional identity formation, and end of life issues. Credit: 1. Nancy Weigle, MD

## INTERDIS207C - Primary Care Leadership Track Clerkships (PCLT)

Subject	Catalog Number	Title
INTERDIS	207C	Primary Care Leadership Track Clerkships (PCLT)

### Description

The Longitudinal Integrated Clerkships will produce physicians with knowledge of the health care system, understanding of longitudinal chronic illness care, and skills to work effectively in teams to care for patients and improve systems of care. Fatima Syed, MD

## INTERDIS208C - Primary Care Seminar

Subject	Catalog Number	Title
INTERDIS	208C	Primary Care Seminar

### Description

This small group tutorial will cover patient care in a holistic manner from the complete care of the patient to understanding the clinical and basic science behind disease processes. Emphasis will be focused on looking at an illness from the patient's perspective with treatment plans that consider social and cultural issues, community resources, cost effectiveness, and health care systems issues such as transitional care between different sites. Students will consider the various different roles of the primary care provider in the care of patients. Students will also reflect on their experiences within the different longitudinal clinical learning sites and offer ongoing feedback to the program. For questions, please contact Melissa Graham (melissa.graham@duke.edu). Students enroll spring/summer. Credit: 1. Graded Credit/No Credit. Fatima Syed, MD and Bruce Peyser, MD

## INTERDIS211C - Longitudinal Integrated Clerkships (LIC)

Subject	Catalog Number	Title
INTERDIS	211C	Longitudinal Integrated Clerkships (LIC)

### Description

The Longitudinal Integrated Clerkships will produce physicians with knowledge of the health care system, understanding of longitudinal chronic illness care, and skills to work effectively in teams to care for patients and improve systems of care. Poonam Sharma, MD

## INTERDIS212C - Longitudinal Integrated Clerkships Seminar

Subject	Catalog Number	Title
INTERDIS	212C	Longitudinal Integrated Clerkships Seminar

### Description

This small group tutorial will cover patient care in a holistic manner from the complete care of the patient to understanding the clinical and basic science behind disease processes. Emphasis will be focused on looking at an illness from the patient's perspective with treatment plans that consider social and cultural issues, community resources, cost effectiveness, and health care systems issues such as transitional care between different sites. Students will consider the various different roles of the primary care provider in the care of patients. Students will also reflect on their experiences within the different longitudinal clinical learning sites and offer ongoing feedback to the program. Credit: 1. Poonam Sharma, MD

## INTERDIS213C - Cultural Determinants of Health and Health Disparities Course Year 2

Subject	Catalog Number	Title
INTERDIS	213C	Cultural Determinants of Health and Health Disparities Course Year 2

### Description

The overall goal of the Cultural Determinants of Health and Health Disparities (CDHD) Course is to explore cultural humility, health disparities, and sociocultural influences on health and wellness. The first year of the course delivered to preclinical phase students served as an introduction to health disparities and highlighted the complex interplays of identity and culture on patients and providers alike. The clinical phase of the CDHD course aims to build upon concepts introduced in the first year. Year 2 will facilitate clerkship specific explorations into relevant material with a focus on high yield strategies to improve patient care, professionalism, peer interactions, and preparation for residency training. Time and location for the initial meeting will be determined. For questions, please contact Dr. Railey, (Kenyon.railey@duke.edu). The course is graded as 'Credit/No Credit'. Credit: 0.5; Enrollment max: 130. Kenyon Railey, MD and Victoria Parente, MD, MPH

## INTERDIS215C - Academic Enrichment Year 2

Subject	Catalog Number	Title
INTERDIS	215C	Academic Enrichment Year 2

### Description

This non-credit bearing course is for second year medical students with no scheduled classes, but will be preparing for board exams, are approved to start research off-cycle due to unique circumstances, approved workshops/presentations, and other academic opportunities. Permission of the student's advisory dean and SoM Registrar are required for enrollment. No Grade. No Credit.

## INTERDIS300B - Quantitative Medicine and Decision Making - Medical Statistics

Subject	Catalog Number	Title
INTERDIS	300B	Quantitative Medicine and Decision Making - Medical Statistics

### Description

The Quantitative Medicine and Decision Making -Medical Statistics is a required component of the Quantitative Medicine and Decision Making course that offers joint training in evidence based medicine and medical statistics by interleaving related topics from both content areas during the 3rd year of medical school. Active participation will be possible for students who are on and off campus during the 3rd year, and all course materials will be archived and accessible. All students must complete Quantitative Medicine and Decision Making - Medical Statistics. Students may receive credit for Quantitative Medicine and Decision Making II- Medical Statistics through prior completion or concurrent enrollment in another training program that provides similar education (e.g. MPH degree programs at accredited institutions, masters level training through the Duke Global Health Institute, the Duke Clinical Research Training Program, or a science-related PhD earned prior to attending Duke School of Medicine). Waivers will be granted for Quantitative Medicine and Decision Making - Medical Statistics only. All students must complete Quantitative Medicine and Decision Making II-Evidence Based Medicine (EBM).Credit: 1. Joel Boggan, MD and Yu Jiang, MD

## INTERDIS301B - Independent Study - Year 3

Subject	Catalog Number	Title
INTERDIS	301B	Independent Study - Year 3

### Description

Independent Study is a four-week (up to 16 weeks) term-based, non-credit bearing enrollment status used when the student is engaged in medical education-related activity that is relevant to the degree (e.g. structured USMLE preparation, medical volunteerism, internship at organization related to training). An application consisting of a brief description of the activity and advisory dean approval is required of fourth year students. A brief report to the advisory dean on the progress of the activity is required at the end of each four-week section. Students enrolled in Independent Study are eligible for benefits of insurance, but are not eligible for financial aid for living expenses. Completion of the Independent Study form and permission of advisory dean is required in order to be enrolled. Approved enrollments will be processed by the Registrar's Office upon receipt of the completed Independent Study form. There is a \$500 enrollment fee, per term.

## INTERDIS305C - Clinical Skills Continuity Clinic

Subject	Catalog Number	Title
INTERDIS	305C	Clinical Skills Continuity Clinic

### Description

A continuity ambulatory (outpatient) care experience, the course is required of third year students and is designed to teach students patient outcomes over time. Study away, dual degree, and scholarship students who may not be able to take the course in their third year must take its equivalent in their fourth year. The outpatient clinic experience is 34 weeks, one-half day a week. Twenty-two weeks are required in an approved continuity ambulatory site. Specialty care sites (medicine or surgery) may be approved, if at least 50 percent of the patients are seen on a continuing basis with typical follow-up in 1-3 months for the 22 weeks. Approval is required by the Course Director prior to beginning clinic and attendance must be documented by the preceptor. Students may arrange to use 12 of the 34 weeks to pursue non-continuity outpatient clinic experiences (e.g., specialty clinics that do not see patients back before three months). A student may choose to do all 34 weeks at the same approved site. Credit: 3.0. Nancy Weigle, MD

## INTERDIS310C - Quantitative Medicine and Decision Making - Evidence Based Medicine YR3

Subject	Catalog Number	Title
INTERDIS	310C	Quantitative Medicine and Decision Making - Evidence Based Medicine YR3

### Description

The Quantitative Medicine and Decision Making - Evidence Based Medicine course is a required component of the two-part Quantitative Medicine and Decision Making course. EBM is an essential clinical tool and is intended as a method or process for healthcare providers to identify clinical questions and then find, critically appraise, and apply the best available evidence to the care of individual patients. Students will develop clinical questions, explore articles of therapy, diagnosis, harm, prognosis, and synthesis. Students will interpret results of articles, including relative and absolute risk reduction, numbers needed to treat/harm, risk ratios and odds ratios, likelihood ratios, and forest plots. Students will practice applying the results back to patient cases. QMDM EBM takes place over 8 sessions in the Spring semester of MS3. Enrollment Max: 130; Credit: 1. For more information please contact Megan Von Isenburg (meganvoniseburg@duke.edu). Jane Gagliardi, MD, MHS, FACP, FAPA and Megan Von Isenburg

## INTERDIS312B - Research Ethics

Subject	Catalog Number	Title
INTERDIS	312B	Research Ethics

### Description

Research Ethics is due 30 days after the student begins their research. This is true even if the student is completing research and studying for the boards simultaneously.

## INTERDIS400C - Independent Study

Subject	Catalog Number	Title
INTERDIS	400C	Independent Study

### Description

Independent Study is a semester-term-based, non-credit bearing enrollment status used when the student is engaged in medical education-related activity that is relevant to the degree (e.g. structured USMLE preparation, medical volunteerism, internship at organization related to training). With approval, the students may be enrolled in Independent Study for four, eight or for an entire term. An application consisting of a brief description of the activity and advisory dean approval is required of fourth year students. A brief report to the advisory dean on the progress of the activity is required at the end of each four-week section. Students enrolled in Independent Study are eligible for benefits of insurance, but are not eligible for financial aid for living expenses. Completion of the Independent Study form and permission of advisory dean is required in order to be enrolled. Approved enrollments will be processed by the Registrar's Office upon receipt of the completed Independent Study form. A continuation fee of \$500 per term is charged for this enrollment status.

## INTERDIS401C - Acute Care Curriculum

Subject	Catalog Number	Title
INTERDIS	401C	Acute Care Curriculum

### Description

Critical Care is not limited by location and focuses on the care of patients with acute life-threatening illnesses. Every practitioner needs the ability and fundamental knowledge to quickly recognize and initiate appropriate, timely management which can prevent further patient deterioration and end-organ damage.

Multidisciplinary care depends on respect and communication for the best outcomes. The cost of health care continues to grow and much of it is spent in the intensive care setting, often in the last months of life. The use of technology must be tempered with sound judgment and quality versus quantity must be addressed. The course should be taken simultaneously with the four-week, four-credit course that will satisfy the acute care course requirement as the course builds on the clinical environment and vice versa. The course includes in-person learning every Friday from 12-4pm. The 4th week of Summer 44, class will be Thursday 8am-12pm, to accommodate the School of Medicine Research Day. Attendance is MANDATORY for all weeks. Excused absences are at the discretion of the Course Director and for activities related to professional growth only (interviews, presenting at conference). Only one absence will be excused per student. Students requiring >1 absence will need to drop the course and retake at a later date. Offered summer 41, 42, 43 and 44 (minimum of 5 students/no drops); fall 41, 42, and 43; spring 41 and 42. Primary Contact: Course Director Dr. Sharon McCartney @ Sharon.McCartney@duke.edu. Course coordinator: Melissa Graham, melissa.graham@duke.edu. Credit/No Credit. Zero credits. Enrollment max: 24; min: 5. Sharon McCartney, MD; Sandy An, MD and Mitchell Black, MD

## INTERDIS402C - Introduction to Healthcare Markets and Policy for Practitioners

Subject	Catalog Number	Title
INTERDIS	402C	Introduction to Healthcare Markets and Policy for Practitioners

### Description

The purpose of this elective is to provide students with a working understanding of the business and policies that drive the U.S. healthcare system. The course structure is designed to be engaging with interactive case studies, small group discussion, and visiting faculty lecturers from the Duke-Margolis Center and Duke University's Fuqua School of Business. The 90-minute sessions will take place on weekday evenings in the Trent-Semans Center, once per month from September to April. Students are expected to attend or view a recording (with written summary) of 9/9 sessions. Student may utilize the 'online view and review' option no more than three times. For more information, please contact Don Bradley (don.bradley@duke.edu). Credit: 1, Non-Direct Patient Care Credit. Enrollment max: 115; min: 10. Note: credit will be awarded in the spring term. Don Bradley, MD

## INTERDIS403C - Narrative Medicine for Medical Learners

Subject	Catalog Number	Title
INTERDIS	403C	Narrative Medicine for Medical Learners

### Description

This elective course is a fourth year clinical elective where students will discuss selected works of literature that address the human condition in a way that is meaningful to physicians-in-training. The course is open to third and fourth year medical students. The aim is to incorporate literature into the medical training experience, give students the opportunity to practice reflective writing, and the space to explore the humanistic roots of medicine. In this course we will examine the intersection between the domains of narrative and medicine through the study of diverse representations of medical issues. Among the questions we will ask are: how does narrative give us greater insight into illness, medical treatment, doctor-patient relationships, and other aspects of health and medicine? How do illness and other experiences within the realm of medicine influence ways of telling stories? How do doctors' perspectives and patients' perspectives differ, and what, if anything, should be done to close those differences? Attendance to all sessions is mandatory. However, with advanced approval from the course director, a student may miss one session, but the student must submit a written reflection of the readings for the missed session, as outlined by the course director, in order to receive credit for the course. This course will be offered during the first eight weeks of the spring term. The course will meet once a week for eight weeks, on Wednesday evenings, starting in January, from 6:00p - 8:00p. Open to MS3 students (with mentor approval) and to MS4 students. For questions, please contact Dr. Quaranta via email, [brian.quaranta@duke.edu](mailto:brian.quaranta@duke.edu). Credit: 1, Non-Direct Patient Care credit. Enrollment Max.:12; Min. 8. Brian Quaranta, MD

## INTERDIS406C - Physician Leadership: From Daily Challenges to Global Crises

Subject	Catalog Number	Title
INTERDIS	406C	Physician Leadership: From Daily Challenges to Global Crises

### Description

This course will be a seminar-type offering, with guest lectures, readings and video content providing the basis for discussions on the leadership challenges physicians face at all levels during times of crisis at the local, regional, national and international level, as well as during their daily efforts. The course will include presentations from local and international healthcare and non-healthcare leaders addressing issues physician leaders will face daily and in times of crisis. Course schedule: - 8 week course; meets once a week (Monday, 5:15 pm – 7:15 pm), 120 min per session: Each session will be broken down in to 20 min intro/guest lecture presentation, followed by small group sessions of 5-6 students, sharing from groups, and wrap up. Enrollment Max.: 50; Min.: 8. Credit: 1. Dean Taylor, MD and Joe Doty, PhD. Faculty: Cecily Peterson, MD; Adia Ross, MD; Tony Fuller, MD; Fatima Syed, MD; Chan Park, MD; Lee Diehl, MD; Jocelyn Wittstein, MD; Tally Lassiter, MD; Walter Lee, MD; Diana McNeill, MD; Jon Andrews, MD with guest speakers.



## INTERDIS407C - Duke Design Health Fellows Program

Subject	Catalog Number	Title
INTERDIS	407C	Duke Design Health Fellows Program

### Description

The Duke University Design Health Fellows Program is an interdisciplinary, patient-focused program that discovers pressing needs in healthcare and assembles teams from across engineering, business, medicine and other disciplines to create solutions. The program provides an immersive learning experience to undergraduate, graduate and postgraduate fellows who actively identify, validate, prioritize and solve problems that have an impact on human health. At its foundation, the program seeks to educate students in innovation through immersion and project-based learning. It also aspires to serve as a source of identified needs and intellectual property that feeds into other design and entrepreneurship activities at Duke and beyond. Maximum Enrollment: 10; Credit: 1-4. Eric S. Richardson, PhD

## INTERDIS408C - Bone and Soft Tissue Multidisciplinary Experience

Subject	Catalog Number	Title
INTERDIS	408C	Bone and Soft Tissue Multidisciplinary Experience

### Description

This course will provide a deep dive into musculoskeletal (MSK) disorders, focusing mostly on the diagnosis of bone and soft tissue neoplasms, their presentation and clinical management. This collaborative and integrated course will expose students to orthopedic pathology, surgery, and radiology subspecialties. Students will participate in cross-disciplinary conferences and tumor boards, a multidisciplinary clinic, imaging interpretations, and diagnostic and intraoperative consultation within surgical pathology. In addition to this in-depth exposure to MSK disorders, this rotation aims to provide students a better understanding of the intersection of these highly interactive healthcare teams. Enrollment Max. 1; Credit: 2. Diana Cardona, MD; Robert French, MD; Brian Brigman, MD; and Rex Bentley, MD

## INTERDIS410C - Academic Enrichment Fourth Year

Subject	Catalog Number	Title
INTERDIS	410C	Academic Enrichment Fourth Year

### Description

This course is for fourth year (MS4) students with no scheduled classes, but will be preparing for board exams, residency interviews, approved workshops/presentations, additional clinic time, and other academic opportunities are required to enroll in Academic Enrichment for all periods of Non-Enrollment. No Grade. No Credit.

## INTERDIS422C - Exploring Medicine: Cross-Cultural Challenges to Medicine in the 21st Century

Subject	Catalog Number	Title
INTERDIS	422C	Exploring Medicine: Cross-Cultural Challenges to Medicine in the 21st Century

### Description

The purpose of this course is to promote understanding the cultural background of the people of Latin America (particularly Honduras) and how that impacts the delivery of medical care. The course content is designed to facilitate understanding how art, history, literature, music, geography, ethics, religion and social drivers of health influence the practice of medicine in the Latin American Culture. The Classes will be given by multidisciplinary faculty from Duke, the University of Colorado, and local experts. Medical Spanish instruction is included in each class to facilitate understanding the culture and facilitate encounters with Spanish speaking patients in our own environments as well as in Honduras. The course will be held as a 2-hour seminar for 12 weeks (begins in early January) with the trip to Honduras as an optional laboratory experience. There will be 20 hours of instruction. For more information, please contact Dr. Clements via email ([dennis.clements@duke.edu](mailto:dennis.clements@duke.edu)) or 684-7790. Secondary contact: Rosa Solorzano, ([rosa.solorzano@dm.duke.edu](mailto:rosa.solorzano@dm.duke.edu)). Students meet for the first day of classes in the School of Nursing Amphitheater the first Tuesday of the Spring Semester at 6:00 p.m. This selective was approved, effective spring 2013, for third and fourth year medical students. Third year students must obtain mentor approval. Non-direct patient care elective. Credit: 1 Enrollment - up to 15 students. Dennis Clements, MD/PhD

## INTERDIS423C - Honduras Trip

Subject	Catalog Number	Title
INTERDIS	423C	Honduras Trip

### Description

A 10-day trip to Honduras is planned to begin the end of April with approximately 15 students invited. INTERDIS 422C is a prerequisite for this trip. A certain number of students with Spanish fluency are needed for the trip. Those traveling to Honduras will visit a local Honduran hospital and additionally provide medical care to patients in a rural area during 6 days of the trip. A trip to Copan and an indigenous Mayan community is also planned. There is a non-refundable \$3000 fee that is required for this course and will be charged upon enrollment. For more information and permission, please contact Dr. Clements at 684-7790 or email, Dennis.Clements@duke.edu. You may also direct questions to Dr. Rosa Solorzano, rosa.solorzano@duke.edu. This elective will not be open to MS4 students due to the dates of the trip, which occur after the MS4 spring calendar end date. Third year medical students are eligible to enroll, however, third year students MUST obtain permission from their mentor, study program director, and advisory dean (prior to the trip) to be away for 10 days. ORIENTATION AND SELECTION FOR THIS TRIP TAKES PLACE IN OCTOBER THROUGH A SEPARATE EMAIL REQUEST. For information concerning spring trip dates, please reach out to Dr. Clements. Permission of the instructor is required for the trip. Credit 1. Enrollment up to 15. Instructor - Dennis Clements, MD/PhD

## INTERDIS450C - Capstone

Subject	Catalog Number	Title
INTERDIS	450C	Capstone

### Description

- This mandatory course for all fourth-year medical students will provide important information and tools to prepare medical students for their first year of residency. Topics covered include the following: providing compassionate and effective patient care, learning practical intern tips, further developing medical knowledge about established and evolving biomedical, clinical, and cognate sciences, honing interpersonal communication skills with patients/families/other health professionals, professionalism relative to responsibilities, adherence to ethical principles, sensitivity to a diverse patient population, and understanding systems-based practices. As part of this course, medical students must complete the ACLS and/or PALS initial provider course. For more information, students should contact Dr. Jamie Fox (james.fox@duke.edu) or Dr. Julian Hertz (julian.hertz@duke.edu). This is a longitudinal course. Students must enroll in the course for the Fall term and select '0' credits. They also will need to enroll for the Spring term and select 4 credits. The final grade and credits will be awarded in the Spring term. If you have additional questions, please contact Dr. Fox (james.fox@duke.edu). Credit: 4. Enrollment max. 130. James (Jamie) Fox, MD and Julian Hertz, MD

## INTERDIS470C - MSTP Clinical Experience

Subject	Catalog Number	Title
INTERDIS	470C	MSTP Clinical Experience

### Description

Clinical experience for MSTP student's only. 0 credit.

## INTERDIS475C - Clinical Experience

Subject	Catalog Number	Title
INTERDIS	475C	Clinical Experience

### Description

This course is designed for students that elect to explore clinical experiences while enrolled in dual degree programs or the Community Clinic Leadership electives at the Fremont or Holton clinics at Duke. This course is for students that wish to refresh their clinical skills in a patient setting. This course is not for students in the Medical Scientist Training Program (MSTP). 0 credit.

## MEDHUM301B - Research in MEDHUM

Subject	Catalog Number	Title
MEDHUM	301B	Research in MEDHUM

### Description

Program Director: Margaret Humphreys, MD, PhD. The Medical Humanities Study Program offers a multidisciplinary opportunity for students to explore topics in medical history, ethics, theology, and other fields within the medical humanities. Students design

## MEDICINE205C - Medicine

Subject	Catalog Number	Title
MEDICINE	205C	Medicine

### Description

During the second year clerkship in medicine, students each will be assigned two four-week blocks to a team taking care of patients on the Internal Medicine Wards at Duke University Hospital, Duke Regional Hospital, or the Durham Veterans

## Duke University

and other notable medical humanities educators design their own research projects under the guidance of medical humanities mentors, and tailor their third year experience around the completion of this project. While some students may participate in their mentor's ongoing research, others can pursue projects independent of (but related to) their mentor's primary areas of interest. The Master of Arts in Bioethics and Science Policy dual degree is housed within this track. Curriculum: Research. The principal component of the Medical Humanities Study Program is an in-depth research experience within the medical humanities. The location of this research will vary with the mentor and project chosen. Some projects may be appropriately pursued in libraries and archives. Others may include interviews with or experimentation upon human subjects in the clinical or other academic setting. Like their peers in the more traditional science track, medical humanities students will explore a research question, find data to support or refute it, and write a thesis that communicates their results. Proposal: All students are expected to prepare a 3-5 page proposal by the end of spring of the second year outlining the aims of the proposed research in consultation with their chosen mentor. This proposal will state the problem to be studied, the rationale and relevance of the problem, and include a bibliography of relevant literature and sources. Courses: Students are expected to take two courses in the medical humanities during their third year. Working with their mentor, students will identify courses within the university relevant to their research question. Courses may be chosen from the Medical School, Divinity School, or Faculty of Arts and Sciences. Individual readings courses with the mentor or other faculty may be included in the courses chosen. The student must complete two semesters devoted fully to the medical humanities field of study. The student may include relevant courses from prior study to reduce the course expectation at the discretion of the study program director, but this does not minimize the two-semester requirement of dedicated humanities study. Lecture series: Students will attend the regular humanities lecture series offered through the Center for the Study of Medical Ethics and Humanities. Posters: Students are expected to submit abstracts to present results in poster or oral format at the annual Alpha Omega Alpha research day. Final thesis: Students will prepare a thesis that fulfills the usual thesis requirements (traditional, manuscript submission or grant submission format) and that represents the product of their research. This is due on the thesis deadline date set by the Registrar's Office. Publication: Students are encouraged to produce work that is of sufficient originality, importance, and quality that it will be accepted for publication by a relevant medical humanities journal. Authors of historical theses will be encouraged to submit their work for the William Osler Prize awarded by the American Association of the History of Medicine for the best essay by a medical student. The winning essay of this prize contest is traditionally published in the Bulletin of the History of Medicine. Dual-Degree Option: MD/MALS (Master of Arts in Liberal Studies) Graduate Level program for exploring diverse areas of study (social sciences, history, policy, ethics, etc.) as they

relating to the medical humanities. The program is housed at the Papanicolaou Hospital, Duke University Medical Center, and the Durham Veterans Administration Hospital. The Internal Medicine Clerkship is an opportunity for the student to consolidate knowledge from the first year and apply it to patient care. Functioning within teams allows students to observe, practice, acquire, and refine basic humanistic and clinical skills while acquiring some of the factual information used in the practice of medicine. Students are assigned patients to evaluate and follow; these patients become representative learning experiences in a case-study model. Goals of the Medicine clerkship are to teach a method of patient evaluation and care and to provide a firm foundation in medical problem-solving that will be helpful throughout the student's future career. Students are expected to take primary responsibility for the care of their patients, following them daily, writing progress notes in the chart, keeping track of what has happened to their patients since last seen, and having a good understanding of the rationale for and outcomes of all diagnostic tests and therapeutic interventions. Methods of assessment include clinical evaluations by residents and attendings, a clinical performance exam, ECG interpretation exam, Lab interpretation exam, online case-based examination, and the NBME Medicine shelf exam. Credit: 8. Poonam Sharma, MD; Jenny Van Kirk, MD; and staff

## Duke University

relate to medicine. Students design an individual course of study that brings together their intellectual interests and professional goals.

### MEDICINE206C - Primary Care Leadership Track (PCLT) - Medicine

Subject	Catalog Number	Title
MEDICINE	206C	Primary Care Leadership Track (PCLT) - Medicine

#### Description

During the second year clerkship in medicine, students each will be assigned two four-week blocks to a team taking care of patients on the Internal Medicine Wards at Duke University Hospital, Duke Regional Hospital, or the Durham Veterans Administration Hospital. The Internal Medicine Clerkship is an opportunity for the student to consolidate knowledge from the first year and apply it to patient care. Functioning within teams allows students to observe, practice, acquire, and refine basic humanistic and clinical skills while acquiring some of the factual information used in the practice of medicine. Students are assigned patients to evaluate and follow; these patients become representative learning experiences in a case-study model. Goals of the Medicine clerkship are to teach a method of patient evaluation and care and to provide a firm foundation in medical problem-solving that will be helpful throughout the student's future career. Students are expected to take primary responsibility for the care of their patients, following them daily, writing progress notes in the chart, keeping track of what has happened to their patients since last seen, and having a good understanding of the rationale for and outcomes of all diagnostic tests and therapeutic interventions. Methods of assessment include clinical evaluations by residents and attendings, a clinical performance exam, ECG interpretation exam, Lab interpretation exam, online case-based examination, and the NBME Medicine shelf exam. Credit: 8. Poonam Sharma, MD; Jenny Van Kirk, MD; and staff

### MEDICINE209C - Longitudinal Integrated Curriculum - Medicine

Subject	Catalog Number	Title
MEDICINE	209C	Longitudinal Integrated Curriculum - Medicine

#### Description

During the second year clerkship in medicine, students each will be assigned two four-week blocks to a team taking care of patients on the Internal Medicine Wards at Duke University Hospital, Duke Regional Hospital, or the Durham Veterans Administration Hospital. The Internal Medicine Clerkship is an opportunity for the student to consolidate knowledge from the first year and apply it to patient care. Functioning within teams allows students to observe, practice, acquire, and refine basic humanistic and clinical skills while acquiring some of the factual information used in the practice of medicine. Students are assigned patients to evaluate and follow; these patients become representative learning experiences in a case-study model. Goals of the Medicine clerkship are to teach a method of patient evaluation and care and to provide a firm foundation in medical problem-solving that will be helpful throughout the student's future career. Students are expected to take primary responsibility for the care of their patients, following them daily, writing progress notes in the chart, keeping track of what has happened to their patients since last seen, and having a good understanding of the rationale for and outcomes of all diagnostic tests and therapeutic interventions. Methods of assessment include clinical evaluations by residents and attendings, a clinical performance exam, ECG interpretation exam, Lab interpretation exam, online case-based examination, and the NBME Medicine shelf exam. Credit: 8. Poonam Sharma, MD; Jenny Van Kirk, MD; and staff

## MEDICINE221C - A Taste of Palliative Care

Subject	Catalog Number	Title
MEDICINE	221C	A Taste of Palliative Care

### Description

Palliative care focuses on helping patients and their families achieve the best quality of life, regardless of the length of life. Attention to suffering, excellent symptom management, and compassionate communication skills are paramount. Students will have the opportunity to observe and work alongside various palliative care practitioners in community, inpatient, outpatient and hospice settings. The importance of multi-disciplinary teamwork will be emphasized. Concepts to be explored include common fears and challenges that terminally ill people face, biopsychosocial models of care, palliative care symptom management, the family interface, grief, and bereavement. Students should contact Jennifer Bowen, [jennifer.bowen@duke.edu](mailto:jennifer.bowen@duke.edu), for questions about where to report and their schedules prior to the first day of classes. Primary Contact: Alisha Benner, MD, [alisha.benner@duke.edu](mailto:alisha.benner@duke.edu), or 919-668-7215. Credit: 2. Enrollment Max. 1. Location: Duke University Hospital, Duke Regional Hospital, Duke Home Care & Hospice. Alisha Benner, MD

## MEDICINE225C - Introduction to Hospital Medicine

Subject	Catalog Number	Title
MEDICINE	225C	Introduction to Hospital Medicine

### Description

The student on the Hospital Medicine selective will help manage acutely ill patients as a member of the Hospital Medicine Service. Four major learning areas will be emphasized. 1) General Medicine consultations for management of hypertension, tachycardia, delirium, diabetes, hypoxia, perioperative risk assessment. 2) Procedures including thoracentesis, paracentesis, and lumbar puncture through direct observation, simulation, and viewing of procedure videos. 3) Inpatient care working directly with a Hospital Medicine attending. 4) Late evening and overnight patient care with Hospital Medicine attendings with the opportunity to participate in patient admissions, cross cover emergencies, and transitions of care. Credit: 2. Enrollment Max: 1. Prerequisite: MED2 205C (Medicine Clerkship). Permission of the course director is required: Saamil Chudgar, MD

## MEDICINE223C - Gastroenterology Selective

Subject	Catalog Number	Title
MEDICINE	223C	Gastroenterology Selective

### Description

In order to expose students to the field of Gastroenterology, students will rotate on the inpatient gastroenterology services. Students will spend two weeks on the inpatient services at Duke/VA hospital. On these services, students will perform inpatient consults and be able to see a variety of general gastroenterology procedures. Some accommodations according to interests (general GI, inflammatory bowel diseases, hepatology, advanced endoscopy) can be considered depending on availability. Credit:1. Enrollment Max. 2. Location: TBD depending on the start of the rotation. Student will be contact with schedule prior to rotation. For more information, please contact Ashley McPherson, [ashley.mcpherson@duke.edu](mailto:ashley.mcpherson@duke.edu). Cecelia Zhang, MD

## MEDICINE226C - Introduction to Endocrinology

Subject	Catalog Number	Title
MEDICINE	226C	Introduction to Endocrinology

### Description

This selective serves as a general introduction to Endocrinology. The student on the Endocrinology Selective will help manage both acutely ill patients on our inpatient consultative service the first week and then follow patients in our clinics on an outpatient basis the second week. Learning areas emphasized include: 1) diabetes care including a) acute management; b) long term management; c) medication use and familiarity, especially insulin; 2) general thyroid disease and 3) exposure to metabolic bone disease, lipidology, adrenal diseases and pituitary diseases. Class meets Monday thru Friday 8am-5pm. Meeting location for first day: Student should meet Dr. Hong at Clinic 1A for orientation on Monday, first day of rotation at 8am. Credit: 2. Enrollment Max. 1. Beatrice Hong, MD and Susan Spratt, MD

## MEDICINE227C - Introduction to Consultative Cardiology

Subject	Catalog Number	Title
MEDICINE	227C	Introduction to Consultative Cardiology

### Description

Student will work as a member of the consultative cardiology team at either Duke or the VA and will have the opportunities to participate in some of the following: EKG/rhythm strip reading, stress testing, echocardiography, cardioversion, cardiac catheterization, pacemaker placement and overall care of inpatients with cardiac disease. Secondary Contact: Dawne Smith via email, dawne.t.smith@duke.edu. Pre-requisite: Permission of instructor required. For more information or a permission number, please contact Dawne Smith via email, dawne.t.smith@duke.edu. Credit: 1. Enrollment: max 1. Nishant Shah, MD

## MEDICINE229C - Adult Nephrology

Subject	Catalog Number	Title
MEDICINE	229C	Adult Nephrology

### Description

This selective course will provide the learner with the opportunity to experience the practice of nephrology in a variety of clinical settings. This course includes at least 1 week in the inpatient setting in Duke University Hospital. The student will be expected to see a new consult, perform a focused history and physical, and determine the assessment and plan with the help of the fellow and attending on the service. The course also has a few pathways for the second week of the selective. •Transplant Nephrology •ICU/Critical Care Nephrology •VA service (includes a mix of everything) •An ambulatory/outpatient week (mix of outpatient clinics and outpatient dialysis clinics) Permission of instructor is not required. There is a limit of 2 students per section. Students will not work on weekends or SOM holidays. If not directed otherwise, students should report to Duke North Dialysis Unit 7800 at 8am on first day of class. Students must notify the course director via email at (john.roberts@duke.edu) AT LEAST 2 weeks prior to your selective to confirm enrollment and confirm your preferred 2nd week pathway (from the list above.) In that email, also identify TWO learning goals or special interests you have. We will try our best to take these into account for your selective experience. Credits: 2. Enrollment Max: 2. John Roberts, MD

## MEDICINE231C - Introduction to Infectious Diseases

Subject	Catalog Number	Title
MEDICINE	231C	Introduction to Infectious Diseases

### Description

The Infectious Disease (ID) Elective will give second year medical students the opportunity to gain exposure to and participate in care of patients on the Duke Hospital ID service. They will work as a part of the team taking part in the care of patients with a wide variety of infectious diseases in the inpatient and outpatient settings of critical illness. This patient population spans a wide range of disease causes, both common and rare, including iatrogenic, transplant, immunosuppression induced, HIV, community acquired, and drug-resistant cases. Unlike the 4th year elective this selective course will allow student(s) extensive exposure to high maintenance Infectious Diseases experience in Transplantation. Students should report to workroom 6W70 in the Duke Medicine Pavilion at 8:00am on the first day of classes. Hours are 8:00am - 5:00pm, M-F. For more information, please contact Haley Sullivan ([haley.sullivan@duke.edu](mailto:haley.sullivan@duke.edu)). Requisite: Permission of Instructor is Required. Max. Enrollment: 1; Credit: 2. Micah McClain, MD

## MEDICINE232C - Introduction to Rheumatology

Subject	Catalog Number	Title
MEDICINE	232C	Introduction to Rheumatology

### Description

This is a 2 week elective designed to introduce second-year medical students to the field of rheumatology. Learn about the diagnosis and treatment of complex disease in an outpatient environment. Students will take part in the division's didactic and educational activities, such as Journal Club. Other educational modalities such as instructional videos and podcasts will be used. By the end of the rotation, students will learn (a) how to distinguish symptoms from autoimmune diseases from other causes (b) how to perform a detailed physical exam with emphasis on musculoskeletal exam. Credit: 2; Max. Enrollment: 1. Pre-requisite: Permission of instructor is required. If the course is full/unavailable during a specific section where you have interest, please email the course director and we will try to make accommodations. Students should meet at Clinic 1J on the first day of the rotation. For more information, please contact Dr. Mithu Maheswaranathan via email, [mithu.maheswaranathan@duke.edu](mailto:mithu.maheswaranathan@duke.edu). Mithu Maheswaranathan, MD; Nancy Allen, MD; Lisa Criscione-Schreiber, MD; Ryan Jessee, MD; Ankoor Shah, MD; William St. Clair, MD; and Sophia Weinmann, MD



## MEDICINE233C - Interventional Pulmonology

Subject	Catalog Number	Title
MEDICINE	233C	Interventional Pulmonology

### Description

Interventional pulmonary involves the use of both rigid and flexible bronchoscopes and diagnostic tools such as endobronchial ultrasound, autofluorescence bronchoscopy, electromagnetic navigation bronchoscopy, and pleuroscopy. Minimally invasive procedures include, airway ablation, airway stent placement, endobronchial valve placement, percutaneous dilation trachelectomy, pleurodesis and photodynamic therapy. Interventional pulmonary is attractive for the low rate of complications and most cases are done in the outpatient setting. Students will have the ability to experience out-patient pulmonary clinics, procedures in bronchoscopy, attend interdisciplinary research conferences, and be an integral part of the interventional pulmonary team. Pre-requisite: Permission of the instructor is required. Students should report at 7:30am to Duke Pulmonary and Specialty services in the DMP Bronchoscopy suite (ground floor near radiology) on the first day. Credit: 2; Maximum Enrollment: 1. Coral X. Giovacchini, MD

## MEDICINE401C - Internal Medicine Sub-Internship

Subject	Catalog Number	Title
MEDICINE	401C	Internal Medicine Sub-Internship

### Description

Course Goals: To provide an internal medicine inpatient care experience at the intern level. (2) How Goals Are Achieved: Students are assigned to an inpatient service at Duke or the Durham VA. These services include the general medicine services at both hospitals, where internal medicine residents and attendings supervise the students; students may also rotate in the medical intensive care unit, in the cardiac intensive care unit, or on the cardiology service at Duke Hospital. The student functions as an intern on that service with the exception that orders must be countersigned by a resident or attending. Overnight duty consisting of night float responsibilities may be included over the course of the four-week schedule. The supervising resident or attending determines the number of patients assigned with anticipated increases over the four weeks. (3) Methods of Evaluation: Students are evaluated by their residents, fellows, and attendings. The evaluation form is made available to each student at the beginning of the rotation. Prerequisites: permission of instructor is required in order to add the course and permission is required in order to drop the course. In order to drop the course, students must provide at least 14 days advanced notice and permission of instructor is required. Failure to do so will result in a grade of Incomplete ('I') or a Withdrawal ('W') may be assigned. Please contact Tanya Wells at 681-5258 or via email at tanya.wells@duke.edu for more information. Course is not available for visiting medical students. Credit: 5. Enrollment: max: varies by term. Jenny Van Kirk, MD, Poonam Sharma, MD and staff

## MEDICINE402C - Medical Sub-Internship in Hematology-Oncology

Subject	Catalog Number	Title
MEDICINE	402C	Medical Sub-Internship in Hematology-Oncology

### Description

(1) Course Goals: This is an intensive experience in the care of inpatients with serious hematologic and oncologic disorders. The student learns to interpret peripheral blood films, how to use and interpret other specialized laboratory tests (e.g., bone marrow aspirate/biopsy, serum electrophoresis, coagulation studies, tumor markers, leukemia cell markers), and how to approach the evaluation and treatment of hematologic and solid tissue malignancies and their complications. (2) How Goals Are Achieved: Under supervision of a Hematology/Oncology fellow and a division staff member, the student is given considerable responsibility in the care of inpatients on one of the Hematology/Oncology or Experimental Therapeutics wards in Duke Hospital. They receive instruction and guidance in performing diagnostic and therapeutic procedures and gain experience in the use of chemotherapeutic drug regimens. Specific issues such as quality of life, care of the aging patient with malignancy, and decisions regarding DNR status are addressed by the patient-care team. In addition, students receive a series of core lectures, receive training in chemotherapy, and attend the ongoing clinical, research and didactic divisional conferences. (3) Methods of Evaluation: Students are evaluated by their preceptors on the basis of their ability to obtain a history, perform a physical examination, evaluate hematologic and other laboratory data, and propose assessments and plans of action. For more information, please contact Nyasia Lloyd at 684-2287 or via email at [nyasia.lloyd@duke.edu](mailto:nyasia.lloyd@duke.edu). Credit: 5. Enrollment: max 1. Matthew Labriola, MD and Medical Oncology staff

## MEDICINE404C - Cardiac Intensive Care Unit Sub-Internship

Subject	Catalog Number	Title
MEDICINE	404C	Cardiac Intensive Care Unit Sub-Internship

### Description

(1) Course Goals: Primary - To provide an in-depth experience in the evaluation and care of inpatients with various cardiovascular problems. Secondary -To refine student understanding of the cardiovascular history, physical examination and non-invasive and invasive laboratory testing in evaluating and managing patients with known or suspected acute cardiovascular disease, including acute coronary syndromes, life threatening arrhythmias, acute heart failure, and shock. (2) How Goals Are Achieved: Students are assigned to the Duke CICU and, in concert with the house staff, cardiology fellows, and senior staff attendings, work up and manage patients admitted to the CICU. (3) Methods of Evaluation: Students are evaluated by all resident, fellow, and senior staff with whom they work. The evaluation form is available at the beginning of the elective. Depending on circumstances, students may also be evaluated by written and practical examinations at the beginning and/or end of the elective. For more information, please contact Dawne Smith at 668-1524 or via email at [dawne.t.smith@duke.edu](mailto:dawne.t.smith@duke.edu). Prerequisite: Successful completion of an accredited internal medicine clerkship. Credit: 5. Enrollment: max 2. Robert Harrison, MD and cardiology staff

## MEDICINE405C - Intensive Care Medicine Sub-Internship (Duke)

Subject	Catalog Number	Title
MEDICINE	405C	Intensive Care Medicine Sub-Internship (Duke)

### Description

Course Goals: (1) Primary - To introduce the student to a pathophysiologic approach to critically ill adults. Secondary - To provide an opportunity for students to perform selected procedures. (2) How Goals Are Achieved: Students function as sub-interns in a very active intensive care unit. Students perform patient evaluations, procedures, and develop diagnostic treatment plans under the direct supervision of the junior assistant resident, critical care fellow, and attending physician. Add Typical shifts are 6am to 6pm, six days a week with one weekend day off. Physiology and biochemistry based approach to critical care medicine is stressed. Emphasis is placed on bedside teaching with easy access to attending physicians and critical care fellows for the discussion of specific patient oriented questions. Preferences for the month of rotation are honored, if possible. Questions should be directed to Dr. Young, katherine.a.young@duke.edu. (3) Methods of Evaluation: Each student's performance is assessed by the course director through direct observation of the student in the clinical and didactic environments. Input from the residents, fellows, and other attending physicians is obtained, and provides the primary basis for grade assignment. IMPORTANT: Students may need to take care of COVID patients and need to be vaccinated for COVID in order to take the rotation. For more information, please contact Donna Permar at 681-5919 or via email at donna.permar@duke.edu. Permission of the Instructor is Required for Enrollment. Please contact Dr. Young for permission (katherine.a.young@duke.edu) Credit: 5. Enrollment: max 4. Katie Young, MD and critical care staff

## MEDICINE412C - Hospital Medicine

Subject	Catalog Number	Title
MEDICINE	412C	Hospital Medicine

### Description

The student on the Hospital Medicine elective will help manage acutely ill patients as a member of the Hospital Medicine Service. Three major learning areas may be emphasized. 1) Procedures including thoracentesis, paracentesis, and lumbar puncture through participation and direct observation. 2) Management of inpatients on the Hospital Medicine service. 3) Overnight patient care including patient admissions, cross cover emergencies, and transitions of care. This course is a two-week course. When contacting the course director with interest, please indicate if you

## MEDICINE407C - Sub-Internship in Internal Medicine/Psychiatry

Subject	Catalog Number	Title
MEDICINE	407C	Sub-Internship in Internal Medicine/Psychiatry

### Description

This course is an intensive clinical experience in the diagnosis and treatment of acute co-morbid medical and psychiatric disorders requiring inpatient hospitalization. Students participating in this four-week elective based in Duke Hospital are expected to function at intern-level, assuming care of a small census of complex patients. The Medicine/Psychiatry faculty on the GenMed 12 service provides direct supervision. The goal of the elective is to refine and then clinically apply basic knowledge from the fields of Internal Medicine and Psychiatry. Participation at selected case conferences and didactic sessions is expected. Students are invited to attend the intern lecture series during Psychiatry Academic Half-day and educational offerings in Internal Medicine, including Intern Report. For more information, please contact Dr. Kristen Shirey via email, kristen.shirey@duke.edu; secondary contact: Cathy Lefebvre, cathy.lefebvre@duke.edu. Preference is given to students considering a career in combined Medicine-Psychiatry. Prerequisite: permission of instructor and successful completion of PSYCHTRY-205C and MEDICINE-205C. C-L PSYCHTRY 407C. Credit: 5. Enrollment: max 1. Kristen Shirey, MD

## MEDICINE414C - Introduction to Outpatient Primary Care Internal Medicine

Subject	Catalog Number	Title
MEDICINE	414C	Introduction to Outpatient Primary Care Internal Medicine

### Description

The rotation is best suited for students interested in pursuing a career in primary care or internal medicine due to the faster pace of clinic. Course Goals: At the end of the experience, students should be able to 1) Diagnose and manage a number of common

## Duke University

prefer the first or second two weeks of the four-week block.

Prerequisite: Permission of course director is required. Contact talia.bernal@duke.edu for permission to enroll. Enrollment Max.: 2.  
Credit: 2. Talia Bernal, MD

should be able to 1) diagnose and manage a number of common internal medicine and primary care problems including a wide variety of diseases that are generally seen only in the ambulatory setting 2) Be familiar with current USPSTF guidelines for preventive services and cancer screening, 3) Competently and efficiently take a problem-focused history, perform a directed physical exam and perform some office-based procedures. How Goals Are Achieved: The student will work with faculty preceptors within Duke Primary Care, Duke Outpatient Clinic, and other community-based offices spending one or more days per week seeing patients with a preceptor. The student will see patients at multiple different sites with multiple preceptors. Clinical sites are located both at Duke and in the surrounding communities. A diverse mix of patients and conditions are seen in the outpatient setting. Patients present for preventive services, as well as, management of chronic diseases such as diabetes, hypertension, heart disease, osteoporosis, and common mental health conditions. In addition, patients are seen for acute illnesses such as pneumonia, pharyngitis, sinusitis and urinary tract infections on a same day basis. Patients routinely present with symptoms that have not been previously evaluated or diagnosed, allowing students to truly sharpen their clinical skills. The student evaluates selected patients first then presents and discusses the case with the attending. The student must outline in writing five goals that he or she wishes to accomplish during this rotation. The student's goals should be emailed to Dr. Waite at least three weeks before the rotation begins. Methods of Evaluation: The faculty preceptor who works directly with the student does the student evaluation. Grades are based on the student's interactions with patients, his or her clinical thinking regarding diagnosis and management of their problems, and documented records. Professionalism, fund of knowledge, and commitment to learning are highly weighted. Prerequisites: Students must be enrolled in their fourth year of medical school at Duke and must have completed first, second, and third year requirements as demonstrated by advancement by the Promotions Committee to fourth year student status. Students must have access to the Duke Maestro Care computer system to effectively function in clinic. Students must contact Dr. Kathleen Waite via email (waite001@mc.duke.edu) to determine time and location for initial meeting. They must also contact Dr. Waite in advance of the course start date to create goals and schedule. Dr. Waite can also be reached by phone at 919-619-2642. Credit: 1 (10 clinic sessions, 4 hours each session over a four-week block) or 2 (20 clinic sessions, 4 hours over a four-week block). Due to scheduling issues if in not possible to complete this elective in a 1- or 2-week period of time. Please note that this is a 1 or 2 credits only. Enrollment: max 1 student for 2 credits. Kathleen Waite, MD; Raneer Chatterjee, MD; Chris Fink MD, Denise Pong MD, Kevin Shah, MD; and other outpatient faculty

## MEDICINE415C - Clinical Management of Obesity

Subject	Catalog Number	Title
MEDICINE	415C	Clinical Management of Obesity

### Description

The unique blend of clinical and research programs related to obesity at Duke provides an opportunity for students to learn how to evaluate and manage obesity in many ways. This elective involves attendance in outpatient clinics or residential programs related to obesity or obesity-related co-morbidities including multidisciplinary outpatient programs (Lifestyle and Weight Management Center, Pediatric Healthy Lifestyles), residential programs (Structure House), Metabolic and Weight Loss Surgery, Adult and Pediatric Endocrinology, Cardiometabolic Clinic Keto Medicine Clinic, Non-Alcoholic Fatty Liver Disease Clinic, and Sleep Disorders Center. Students will have the opportunity to observe and take part in clinical care as well as observe ongoing studies and attend lectures at various clinical and research conferences. In consultation with the course director, an independent project related to obesity will be completed. For more information, please contact Dr. Yancy at 919-681-2863 or via email at will.yancy@duke.edu. Credit: 4. Enrollment: 1. Faculty: William Yancy, MD/MHS, Eric Westman, MD/MHS; Dana Portenier, MD; Sarah Armstrong, MD; Andrea Coviello, MD; Anna Mae Diehl, MD; Manal Abdelmalek, MD; Andrew Spector, MD.

## MEDICINE423C - Rheumatology

Subject	Catalog Number	Title
MEDICINE	423C	Rheumatology

### Description

(1) Course Goals: For students to learn the basics of the evaluation and management of patients with inflammatory and non-inflammatory arthritis, autoimmune and immunological disorders. Diseases seen include the various forms of arthritis and other inflammatory diseases such as lupus and other connective tissue diseases, vasculitis, scleroderma, and myositis. Students will also learn to interpret specialized laboratory studies relating to the evaluation of patients with rheumatic and immunological disorders. Students are exposed to joint aspiration and injection, synovial fluid analysis, musculoskeletal radiology, and histopathological analysis. (2) How Goals Are Achieved: Two weeks of the rotation are spent in the Duke Rheumatology faculty clinics located in Duke South Clinics and in our South Durham or Brier Creek (Raleigh) locations. Two weeks are spent as part of the rounding team on the Duke Hospital inpatient rheumatology consultation service. The inpatient consultation team includes an attending physician, a fellow, a student and possibly 1 resident. Students are expected to perform at least three new inpatient

## MEDICINE416C - Effective Clinical Teaching

Subject	Catalog Number	Title
MEDICINE	416C	Effective Clinical Teaching

### Description

The course aims to make students more effective clinical teachers in preparation for their role as teachers during residency. Strategies include classroom discussion of adult learning theory, facilitating small-group learning, teaching at the bedside, teaching using clinical cases, and giving effective feedback. Weekly participation in role plays of teaching scenarios is required. The final project is an 8 to 10-minute video-recorded 'chalk talk' on the topic of one's choice. Students self-reflect on the talk and obtain feedback from their classmates and instructor to develop a teaching improvement plan. Attendance at course sessions is mandatory. Permission of instructor is required. The classes meet Mondays from 5:00p - 7:00p. Students should contact Dr. Taylor Broome at taylor.broome@duke.edu to obtain a permission number. Credit: 1. Enrollment: max 10, min 4. Taylor Broome, MD

## MEDICINE424C - Fluids and Electrolytes

Subject	Catalog Number	Title
MEDICINE	424C	Fluids and Electrolytes

### Description

The Fluids and Electrolytes Course will consist of eight sessions on both the physiology of fluid, electrolyte, and acid-base homeostasis and on the pathophysiology of fluid, electrolyte, and acid-base disorders. Emphasis will be placed on the clinical application of these concepts: from the rational administration of intravenous fluid, to the interpretation of arterial blood gases, to the diagnosis of primary hyperaldosteronism. This course will be of value to just about any student who plans to take care of patients. Students must verify that there is no time conflict with other courses offered during the same time period. Enrollment is open to all eligible students, no permission from course faculty is required to enroll. The course is offered during the Spring section 81 only (roughly early January to end of February). We understand many students are traveling for interviews during this section. In 2023, we will host the course as a hybrid virtual and in-person course. All sessions will be live-streamed and recorded. All

## Duke University

consultations each week. Rounds focus on oral presentation of patients including detailed review of history, physical examination findings, pertinent laboratory, x-ray and pathological findings. Students attend divisional conferences including weekly Rheumatology and Immunology Grand Rounds, Rheumatology Fellows Core Curriculum Conference, Journal Club, and Rheumatology/Radiology Conference. Students are expected to watch two introductory videos, one on the approach to the rheumatology patient and one on the rheumatologic musculoskeletal examination. Justification for a grade of honors includes the following: Evidence through direct observation of house officer-level clinical skills in rheumatology; evidence of timely completion of learning modules, demonstrated by 1) active participation in and preparation for weekly meetings and 2) completion of the log of learning points and questions; 3) attendance at conferences listed above; 4) evidence of additional reading through case presentations to faculty members; 5) faculty evaluations; 6) demonstration of exemplary interest and effort during the rotation. Students are assigned primary house officer level responsibilities on the Consultation Service and the Outpatient Clinics at Duke South/South/Durham/Brier Creek. (3) Methods of Evaluation: Students are evaluated by the primary faculty and fellows with whom they work. Evaluations are based on students' performance on rounds and in the clinics, including history and physical examination skills and conference attendance. For more information, please contact Dr. Maheswaranathan (mithunan.maheswaranathan@duke.edu). Students may also contact Nyasia Lloyd (nyasia.lloyd@duke.edu). Credit: 4. Enrollment: max 1. Mithu Maheswaranathan, MD; David Caldwell, MD; Philip Chu, MD; Megan Clowse, MD; Atul Kapila, MD; David Leverenz, MD; Jennifer Rogers, MD; Ankoor Shah, MD; William St. Clair, MD; Terri Tarrant, MD; Rebecca Sadun, MD; Kai Sun, MD; Sophia Weinmann, MD. Sole Enrollment

sessions are mandatory aside from any excused absences. We will require you to attend in-person for AT LEAST 4 of the 8 sessions. The rest you can attend virtually. This hybrid format permits a larger class size. Also, many students are traveling during the course and this format can accommodate your travels more easily. You will need a working computer/tablet/smartphone and internet access to participate in the course. We do allow one unexcused absence. Excused absences will need to be cleared by the Course director. Classes will be held on Wednesday evenings from 5:30p - 7:30p. Credit: 1. Minimum Enrollment: min: 2; max: 45. To enroll after the course has filled, you will need special permission from the Course Director, Dr. John Roberts (john.roberts@duke.edu). John Roberts, MD and Michael Berkoben, MD (director).

## MEDICINE425C - Clinical Coagulation

Subject	Catalog Number	Title
MEDICINE	425C	Clinical Coagulation

### Description

(1) Course Goals: Primary - To teach the clinical and laboratory approach to patients with a hemorrhagic or thrombotic disorders. The student learns to evaluate clinical coagulation disorders and become familiar with coagulation laboratory testing and interpretation. Secondary - To expose the student to recent advances in the area of coagulation research. (2) How Goals Are Achieved: The student spends four weeks on the Hematology Consult Service under the direction of hematology division faculty. The student is expected to work up inpatients with coagulation problems referred to the Coagulation Service as well as participate in a half day a week Coagulation Outpatient Clinic. Patients generally present with complex diagnostic as well as therapeutic problems. The rotation includes Coagulation lab rounds during which the student learns to interpret lab tests and review abnormal results. The student is expected to read standard texts regarding their patients' problems, as well as relevant reviews provided by the attending physician. The student may also interact with the Anticoagulation Management Service to gain a better understanding of various approaches to outpatient management of anticoagulant therapy. Students electing to do an eight-week rotation have a more extensive laboratory and clinic research experience. (3) Methods of Evaluation: The student's performance is evaluated by the hematology attending with input from the fellow and/or medicine resident on the service. The evaluation is based on observation of the student's ability to do careful histories and physical examinations, to appropriately assess the problem and develop a logical diagnostic and therapeutic plan, and to demonstrate an increase in knowledge regarding laboratory tests and their application to clinic problems. For more information, please call Nyasia Lloyd at 681-4510, or by email at nyasia.lloyd@duke.edu. Credit: 4. Enrollment: max 1. Matthew Labriola, MD; and hematology staff

## MEDICINE427C - Hospice and Palliative Medicine

Subject	Catalog Number	Title
MEDICINE	427C	Hospice and Palliative Medicine

### Description

Hospice and Palliative Medicine is a specialty that is focused on the treatment of patients living with serious illness. Comprehensive care, including physical (primarily symptom management), psychological, and spiritual care, is provided by an interdisciplinary team to patients and families to help alleviate suffering and promote quality of life. This 2 week (Monday-Friday), 2 credit elective provides students the opportunity to observe and work alongside palliative care practitioners in inpatient settings including the palliative care consult services at Duke University Hospital and Duke Regional Hospital, as well as inpatient hospice exposure through Duke Home Care & Hospice. The importance of multi-disciplinary teamwork will be emphasized. A schedule will be sent to you by email prior to the first day. Please note that because this is a 10-day rotation, students are required to be present with the team a minimum of 8 days (80% of the course) in order to make the most of the rotation and to ensure that our clinicians are able to appropriately assess and grade the learning experience. If students need to miss more than 2 days of the rotation they will need to drop the course at least 10 days prior to the start date to allow time for other learners to have an opportunity to enroll. All absences must be approved by the course director (Dr. Alisha Benner) before the start of your rotation. For more information, contact the course director Dr. Alisha Benner and the educational admin Jennifer Bowen via email at alisha.benner@duke.edu and jennifer.bowen@duke.edu. Credit: 2 Enrollment max: 2. Alisha Benner, MD; Ashley Allen, MD; David Casarett, MD; Farr Curlin, MD; David Fisher, MD; Jonathan Fischer, MD; Anthony Galanos, MD; Sarah Gall, MD; Kimberly Johnson, MD; Karen Jooste, MD; Megan Jordan, Neha Kayastha, MD; Amy Lee, MD; Delani Mann, MD ; Kristin Meade, MD; Robin Turner, MD; Wil Santivasi, MD; APP's: Jennifer Gentry, DNP; Paula McKinzie, NP; Charis Bernard, NP; Leigh Howard, NP; Lindsey Jackson, NP; Ashley Toscano, LCSW; Eileen Williams, LCSW

## MEDICINE428C - Metabolism and Endocrinology

Subject	Catalog Number	Title
MEDICINE	428C	Metabolism and Endocrinology

### Description

1) Course Goals: Primary - The student has an in-depth experience in the evaluation and management of patients with endocrine disorders. Secondary - The student learns basic principles of hormone physiology and applies these concepts in clinical settings. (2) How Goals Are Achieved: Each student is introduced to patient problems by working with the Endocrine faculty. The student is exposed to clinical endocrine disorders by seeing patients in endocrine outpatient clinics (Diabetes/ General Endocrine, and Durham VA Medical Center General Endocrine Clinics), as well as experiencing the inpatient Diabetes Management/General Endocrine Consult Service. The student has the opportunity to review general literature on common endocrinologic conditions and endocrinologic emergencies, as well as learning basic assessment skills of the patient with diabetes, thyroid disease, and other common endocrinologic presentations. Division conferences include Grand Rounds, Case Conference, and Inpatient Consult Rounds with opportunities to integrate basic concepts with clinical applications. (3) Methods of Evaluation: A written critique is provided by the student's preceptors with comments from other members of the division as appropriate. For more information, including where to report on the first day of classes, please contact via email Dr. Beatrice Hong, [beatrice.hong@duke.edu](mailto:beatrice.hong@duke.edu). Secondary contact: Dr. Spratt ([susan.spratt@duke.edu](mailto:susan.spratt@duke.edu)). Credit: 4. Enrollment: max 2. Beatrice Hong, MD, Susan Spratt, MD and endocrinology staff

## MEDICINE430C - Pulmonary Medicine

Subject	Catalog Number	Title
MEDICINE	430C	Pulmonary Medicine

### Description

Pulmonary Medicine. (1) Course Goals: Primary - To provide training in clinical aspects of pulmonary medicine. The primary diseases emphasized include asthma, chronic obstructive lung disease, pulmonary vascular diseases including pulmonary embolus, acute respiratory failure, hypersensitivity, interstitial and immunologic lung diseases and pulmonary manifestations of systemic illnesses, i.e., sarcoid, scleroderma, cystic fibrosis, etc. Secondary - To provide experience with pulmonary laboratory techniques including pulmonary function testing, cardio-pulmonary exercise testing, chest radiology, and bronchoscopy. (2) How Goals Are Achieved: Students are assigned to the Pulmonary Inpatient and Consult Services at Duke Hospital. They have primary responsibility for workup and presentation of selected patients on these services. All patients are presented and followed at daily rounds with fellows and faculty. Students are expected to attend the following conferences at Duke Hospital during their rotation unless clinical duties supersede: Tuesday Fellows Lecture series, Wednesday Chest Conference; and Thursday ILD conference. Students are otherwise encouraged to attend General Medicine Noon Conferences. (3) Methods of Evaluation: Formative feedback: It is expected that students seek out personalized feedback at least weekly to bi-monthly with both the fellow and faculty on the rotation. Also, students will take a pre and post-test (20 questions) on Pulmonary Medicine. This will be strictly for self-assessment and will not be factored into their final grade. Summative feedback: Student summative evaluations are done by fellows and faculty assigned to the Consult Services during the period of the course and is based on observed performance in regards to patient presentations, participation during rounds, and oral presentations on self-selected pulmonary topics Questions should be directed to Tina Van Nevel, via email at [tinavannevel@duke.edu](mailto:tinavannevel@duke.edu) or by phone at 919-684-0435. Dr. Marshall can be reached via email at [Harvey.marshall@duke.edu](mailto:Harvey.marshall@duke.edu). Credit: 4. Enrollment: min 1, max 1. Harvey Marshall, MD and pulmonary staff



## MEDICINE431C - Adult Allergy and Clinical Immunology

Subject	Catalog Number	Title
MEDICINE	431C	Adult Allergy and Clinical Immunology

### Description

Enrollment Requisite: Students must contact Dr. Lugar prior to enrolling in the course. The adult allergy and clinical immunology elective consists of direct patient care, didactic sessions, independent readings and hands-on training of various clinical and laboratory test modalities that are used in clinical practice. This elective will provide exposure to patients with various allergic and immunologic disorders including allergic rhinitis, sinusitis, asthma, hypersensitivity pneumonitis, allergic conjunctivitis, diseases associated with autoimmunity, immuno-deficiencies and allergic skin diseases. Additionally, the student will obtain hands-on practice with allergy skin testing as well as conducting other immunology labs. The schedule and content can be individualized on the basis of the student's needs and goals. Students must contact the course instructor, Dr. Patricia Lugar, [patricia.lugar@duke.edu](mailto:patricia.lugar@duke.edu), to arrange meeting location. Secondary contact: Jason Bullock at 919-613-5707. Credit: 4. Enrollment max: 1. Patricia Lugar, MD

## MEDICINE432C - Introduction to Duke Medical Intensive Care Unit

Subject	Catalog Number	Title
MEDICINE	432C	Introduction to Duke Medical Intensive Care Unit

### Description

Course Goals Introduce students to the principles of the diagnosis and care of critical illness. This course is identical to MEDICINE 405C but is the 2-week elective rather than 4-week elective. By the end of the course students should be able to recognize the pathophysiologic processes underlying shock and respiratory failure, should be able to recognize basic principles of mechanical ventilation and have explored death and dying issues as they apply in the ICU. How Goals Are Achieved Students perform patient evaluations and procedures as well as diagnostic and treatment planning under the direct supervision of a junior medical resident, pulmonary fellow, and critical care attending. Educational material is available on the Duke MICU website ([sites.duke.edu/micu](http://sites.duke.edu/micu)) but patient-oriented, evidence-based, bedside training is the primary teaching method. Evaluation The attending physician, critical care fellows and residents primarily assess each student's performance. Input from junior medical residents working with each student is also obtained, as is the input of the course director. For questions or to obtain a permission number to enroll, please contact Dr. Young via email, [katherine.a.young@duke.edu](mailto:katherine.a.young@duke.edu). Requisite: Students that take this course are not eligible to enroll in MEDICINE 405C. This course does not satisfy the Acute Care Course requirement. The course will be graded 'Credit/No Credit'. Permission of the instructor is required for enrollment. Course Credit: 2; Maximum Enrollment: 2 per section. Katie Young, MD;

## MEDICINE434C - Outpatient Hematology-Oncology (Duke or Durham VA)

Subject	Catalog Number	Title
MEDICINE	434C	Outpatient Hematology-Oncology (Duke or Durham VA)

### Description

(1) Course Goals: To give the student experience in the diagnosis, long-term treatment, and supportive care of patients with hematologic and oncologic disorders in the outpatient setting. The use and interpretation of peripheral blood films and other specialized laboratory tests (e.g., bone marrow aspirate/biopsy, serum electrophoresis, coagulation studies, tumor markers, leukemia cell markers), as well as an approach to the evaluation and treatment of common hematologic problems (anemias, bleeding and clotting disorders, hematologic and solid tissue malignancies) are included. Issues such as quality of life and care of the geriatric oncology patient are addressed. (2) How Goals Are Achieved: The student is assigned a staff member as preceptor with whom to work in the Hematology/Oncology clinic one to three half-days per week in clinic, depending on the student's schedule and the availability of physicians in clinic. Alternatively, the student may work with several preceptors in the Hematology/Oncology clinic for five full days per week during a four-week block. If desired, preceptors who concentrate mainly on hematology or oncology may be arranged. (3) Methods of Evaluation: Students are evaluated by their preceptors on the basis of their ability to obtain a history, perform a physical examination, evaluate hematologic and other laboratory data, and propose assessments and plans of action. NOTE: Students cannot drop the course 2 weeks prior to the course start date. For more information, please call Nyasia Lloyd at 684-2287 or via email, nyasia.lloyd@duke.edu. Credit: 4. Enrollment: max 1. Matthew Labriola, MD, and Hematology, Medical Oncology and Cell Therapy staff

## MEDICINE435C - Gastroenterology

Subject	Catalog Number	Title
MEDICINE	435C	Gastroenterology

### Description

(1) Course Goals: Primary - To provide an experience from which the student can develop a fundamental approach to the diagnosis and management of digestive diseases. (2). Goals Are Achieved: Through participation in the care of patients under the guidance of the fellows and faculty on the GI Consult Services (Duke Hospital), Liver Service (Duke), Biliary Service (Duke), VA Hospital GI consults and Outpatient GI Clinics. (3) Methods of Evaluation: Evaluations are completed by the course director, attendings, and fellows working with the student and include assessment of clinical skills, fund of medical knowledge, and the ability to apply this knowledge to the care of patients. Course meets at 8:00 am, Monday through Friday. No holiday or weekend coverage for students. Prior to the start of rotations, students will receive an email detailing their specific schedule, assigned supervising fellow and meeting location. For more information, please contact Ashley McPherson at 684-2819 or via email at ashley.mcpherson@duke.edu. Credit: 4. Enrollment: max 2. Cecelia Zhang, MD and GI department staff.

## MEDICINE437C - Rheumatology 2-Week Elective

Subject	Catalog Number	Title
MEDICINE	437C	Rheumatology 2-Week Elective

### Description

- This is a 2-week elective for 4th year medical students who are looking to demystify the field of rheumatology. This rotation will be especially helpful for future internal medicine, family medicine, dermatology and orthopedic residents. Students will be able to rotate on the Rheumatology Inpatient Consult service or our ambulatory Outpatient Clinic rotation depending on interest and course availability. Students will take part in the division's didactic and educational activities, such as Journal Club and learning from our Divisional Grand Rounds. Other educational modalities such as instructional videos, podcasts will be used. By the end of the rotation, students will learn (a) how to distinguish symptoms from autoimmune diseases from other causes (b) how to perform a detailed physical exam with emphasis on musculoskeletal exam (c) how to order and interpret common autoimmune labs (d) basics of how rheumatologists use immunosuppression to manage autoimmune disease. Students that take the 2nd year, two credit Rheumatology selective are not eligible to enroll in this course. Students must have taken Medicine 205C in order to be eligible. Credit: 2; Maximum Enrollment: 1. The course is graded 'Credit/No Credit'. Mithu Maheswaranathan, MD; David Caldwell, MD; Philip Chu, MD; Megan Clowse, MD; Atul Kapila, MD; David Leverenz, MD; Jennifer Rogers, MD; Ankoor Shah, MD; William St. Clair, MD; Terri Tarrant, MD; Rebecca Sadun, MD; Kai Sun, MD; Sophia Weinmann, MD.

## MEDICINE438C - Clinical Hematology and Oncology Consults (Duke or Durham VA)

Subject	Catalog Number	Title
MEDICINE	438C	Clinical Hematology and Oncology Consults (Duke or Durham VA)

### Description

(1) Course Goals: Students learn how to interpret peripheral blood films, how to use and interpret other specialized laboratory tests (e.g., bone marrow aspirate/biopsy, serum electrophoresis, coagulation studies, tumor markers, leukemia cell markers), and how to approach the evaluation and treatment of common hematologic problems (anemias, bleeding and clotting disorders, hematologic and solid tissue malignancies). (2) How Goals Are Achieved: Students receive a series of core lectures, gain familiarity with chemotherapy regimens and administration, and attend the ongoing clinical, research, and didactic divisional conferences. Clinical duties include the performance of inpatient consults under the supervision of a fellow and staff member. This course may be taken for four or eight weeks. (3) Methods of Evaluation: The students are expected to perform and present initial evaluations of consult cases including peripheral blood film on daily rounds, and to perform limited literature searches and evaluations of chosen clinical topics. For more information, please contact Nyasia Lloyd at 684-2287 or via email at nyasia.lloyd@duke.edu. Credit: 4. Enrollment: max 2. Matthew Labriola, MD and hematology/oncology staff

## MEDICINE439C - Grief and Bereavement 101

Subject	Catalog Number	Title
MEDICINE	439C	Grief and Bereavement101

### Description

This course will address the need for physicians to be able to understand personal and professional grief in order to help their patients, their patients' families, and themselves. We will review the typical symptoms experienced when people suffer the loss of a friend, partner, or family member. We will emphasize the cognitive, emotional and physical effects of bereavement. We will review the typical symptoms associate with 'prolonged grief disorder', a new DSM-5-TR diagnosis. Prolonged Grief Disorder will be contrasted with the symptoms of Major Depression Disorder and PTSD. Students will consider what impact grief has on their patient care as a resident and beyond. Course meets weekly for 8 weeks; Tuesday evenings. Time: 5:00pm - 7:00pm. Credit: 1 Non-Direct Patient Care Credit. Maximum Enrollment: 12; Minimum 4. Anthony N. Galanos, MD and Paul A. Riordan, MD

## MEDICINE440C - Clinical Infectious Diseases

Subject	Catalog Number	Title
MEDICINE	440C	Clinical Infectious Diseases

### Description

The objectives of this course are learning principles in Infectious Diseases and Antibiotic Stewardship and will be specifically achieved through the consult service cases and teaching by the Infectious Disease Fellows and Attendings. The students will be able to work-up and present cases to Fellows and Faculty and attend multiple conferences that occur each week (Journal Clubs, Grand Rounds and Case Conferences). The basic principles of Infection Management and Antibiotic Stewardship will be taught by Fellow and/or Attending Physician and this education should provide a platform to utilize during house officer training and care in most medical and surgical specialties. The teaching methods will be: case presentations, rounding daily on the Infectious Diseases Service, Didactic teaching sessions on core topic areas in Infectious Diseases, attending Clinical Microbiology Rounds, and attending Infectious Diseases Conferences. This course strives to allow the student to appreciate the clinical 'thought processes and principles around diagnosis and management of Infectious Diseases'. Grading criteria are subjective and the direct responsibility of the individual attending physician on the service. There are no objective tests to support the grade. The student is encouraged to be involved and attempt to learn as much as possible. This enthusiasm for learning is the expectation of Fellows and Faculty for the student. The feedback for students may be gathered by direct interaction with the attending physician. NOTE: This elective may require students to complete some rotations at the VA Medical Center. Please note that you must complete the required VA paperwork no later than 30 days from the 1st day of your scheduled class in order to participate. Paperwork should be obtained from the course director or their designated staff. Permission of the Instructor is required for enrollment. Meeting Location 1st day: Workroom 6W70 in DMP. For more information and/or to obtain a permission number, please contact Haley Sullivan, haley.riddle@duke.edu. Credit: 4. Enrollment max. 4. Micah McClain, MD/PhD

## MEDICINE442C - Clinical Arrhythmia Service

Subject	Catalog Number	Title
MEDICINE	442C	Clinical Arrhythmia Service

### Description

(1) Course Goals: Primary - To provide students with an in-depth exposure to the diagnosis and management of cardiac arrhythmias, electrophysiologic studies, ablation of arrhythmias, cardiac pacemakers, and implantable defibrillators; to help students to understand the electrophysiologic events that result in arrhythmias and ECG changes. Special emphasis will be placed on ECG interpretation. This course is not designed to be a substitute for the general cardiology elective (MEDICINE 404C and 445C). Secondary - To familiarize the student with certain basic techniques of arrhythmia diagnosis; (2) How Goals Are Achieved: The student spends four weeks working on the Clinical Arrhythmia Service. The student makes rounds on the inpatient Clinical Electrophysiology Service on patients with arrhythmias. The student is encouraged to attend electrophysiologic studies and assist in the analysis of data from these studies. Attendance at electrophysiologic surgical procedures is also encouraged. The student is responsible for the work-up of patients admitted to the Arrhythmia Service as well as inpatient consults and plays an important role in the follow-up of these patients while they are in the hospital. The student may elect to see outpatients during Arrhythmia Clinics that meet on Monday, Tuesday, Wednesday, and Thursday in the PDC (Duke Clinic). The student assists in the evaluation of patients for permanent pacemaker and defibrillator implantation. Students are responsible for reviewing the literature on subjects related to the patients that they have seen on the clinical service. Didactic conferences are given on Monday and Wednesday mornings; (3) Methods of Evaluation: Students are evaluated on their clinical skills in taking histories, performing physical examinations interpretation of the ECG as well as in their presentation and assessment of the patient's problem. They are also assessed on their ability to read and understand the relevant literature and their ability to assume a responsible role in the care of patients on the Clinical Arrhythmia Service. Students should meet at Conference Room 7451A Duke North Hospital at 7:30 a.m. and page Dr. Grant (970-6656) if he is not there shortly after 7:30 a.m. STUDENTS MUST CHECK IN WITH DR. GRANT OR HE WILL NOT BE ABLE TO COMPLETE THE GRADE EVALUATION FOR THE COURSE. For more information, please email Dr. Grant at grant007@mc.duke.edu. Secondary Contact: Mitzi Scarlett, 919-681-3518. Credit: 4. Enrollment: max 1. Augustus Grant, M.B., CH.B., PhD; Tristram Bahnsen, MD; and Sana Al-Khatib, MD/MHS

## MEDICINE444C - Clinical Heart Failure and Cardiac Transplantation

Subject	Catalog Number	Title
MEDICINE	444C	Clinical Heart Failure and Cardiac Transplantation

### Description

This course is designed to allow the student to gain a broad experience in the fields of heart failure and cardiac transplantation. The student will participate in both inpatient rounds and outpatient clinics. There will also be an opportunity to participate in the surgical management of heart failure including the use of mechanical circulatory support devices, high-risk palliative cardiac surgical procedures and cardiac transplantation. The learning objectives of the course are supplemented by multidisciplinary rounds, cardiac transplant listing conference and cardiac pathology rounds. For more information, please contact Dr. Agarwal at richa.agarwal@duke.edu, or by phone, 919-684-3854. Secondary Contact: Patti Gentry, patti.gentry@duke.edu, or 919-684-3854. Credit: 4. Enrollment: max 2. Richa Agarwal, MD and other Heart Failure Faculty

## MEDICINE445C - Consultative Cardiology

Subject	Catalog Number	Title
MEDICINE	445C	Consultative Cardiology

### Description

(1) Course Goals: Primary - To refine and further develop the skills necessary for eliciting an accurate, complete CV history and for performing an accurate, complete CV physical examination: To refine student understanding of normal and pathologic cardiovascular physiology while functioning in the role of a consultant for inpatients and outpatients with various cardiovascular problems; Secondary - to develop the skills necessary to quickly and accurately interpret ECGs (both 12-lead ECGs and rhythm strips). (2) How Goals Are Achieved: Students are assigned to the consult service at either the Durham VA Center or Duke, where, in concert with the resident, fellow and senior staff attending, they evaluate the operative risk for cardiac and non-cardiac surgery as well as make decisions concerning the evaluation and treatment of patients with a wide variety of heart diseases. Students participate in reading ECGs and a core curriculum experience including individually assigned times to work with HARVEY, the cardiology patient simulator, and various computer assisted instruction programs. (3) Methods of Evaluation: Students are evaluated by the resident, fellow, and senior staff with whom they work. The evaluation form is made available at the beginning of the elective. Depending on circumstances, students may also be evaluated by written and practical examinations at the beginning and/or end of the elective. NOTE: Students enrolled in this course may be required to complete their rotation at the DVAMC. The required paperwork for the DVAMC must be completed at least 30 days prior to the first day of classes for the section/term the student is enrolled. Contact the department to obtain required paperwork. For more information, please contact Dawne Smith, 668-1524 or via email at dawne.t.smith@duke.edu. Prerequisite: none. Credit: 4. Enrollment: max. 5, (unless otherwise noted). Nishant Shah, MD; and cardiology staff

## MEDICINE447C - Practitioners and Patients: The History of Clinical Medicine

Subject	Catalog Number	Title
MEDICINE	447C	Practitioners and Patients: The History of Clinical Medicine

### Description

How has the physician-patient relationship changed over time, and

## MEDICINE446C - Nephrology

Subject	Catalog Number	Title
MEDICINE	446C	Nephrology

### Description

(1) Course Goals: Primary: To provide clinical experience in the diagnosis and treatment of patients with kidney diseases, fluid and electrolyte disorders, and hypertension. Secondary: To integrate physiology, immunology, pathology, and biochemistry into the evaluation and management of patients with renal disease. (2) How Goals Are Achieved: The students are integrated into the patient care team consisting of attending physician, nephrology fellows, and medical residents. They will participate in both inpatient and outpatient care of patients with a wide range of kidney diseases, fluid and electrolyte problems, and difficult to manage hypertension. Students will round on three major nephrology services: the Acute ICU Service which cares balanced exposure to all facets of nephrology including patients in the intensive care units at Duke, the Transplant Service which focuses on patients with kidney or combined kidney-pancreas transplants, and the Acute Floor Service which provides care to patient with acute kidney injury, acid base and electrolyte disturbances. The student participates in work rounds with the residents and fellows each day, daily rounds with the attending physician, and weekly nephrology conferences. These conferences include Journal Club where the latest clinical and basic science literature is reviewed, the weekly Nephrology Didactic Lecture Series focusing on pathophysiological principles of clinical nephrology, and Grand Rounds encompassing Pathology Conference, Clinical Case Conference, and seminars by fellows, faculty and/or visiting professors. This combination of broad-based clinical experience, coupled with formal didactics, provides the student with a comprehensive educational opportunity. (3) Methods of Evaluation: Written evaluation from faculty preceptor. For more information, please contact Dr. Shweta Punj via email at shweta.punj@duke.edu or by phone at 681-2298. Students should meet on the first day at Duke Hospital, Dialysis Unit, 7th floor near 7900. Unit phone: 681-7800. Please meet promptly at 9:00 a.m. Acute Fellow page: 970-7746. Credit: 4. Enrollment: max 4. Shweta Punj, MD, and nephrology staff

## MEDICINE449C - Geriatric Medicine

Subject	Catalog Number	Title
MEDICINE	449C	Geriatric Medicine

### Description

1) Course Goals: Primary - To enable the student to become familiar with the principles of caring for the geriatric patient. Secondary - To familiarize the student with the physiology and diseases of aging. (2) How Goals Are Achieved: This elective is offered by the interdisciplinary faculty of the Division of Geriatric Medicine. The student works with faculty fellows, advanced

## Duke University

what are its possibilities for the future? This class will consider these questions using a variety of sources including medical memoirs, patient narratives, short stories, and other media. We will identify the critical historical processes (scientific, social, and cultural) that account for the structure of medical practice today, as well as examine the ethical tensions and controversies that have resulted. Priority given to MS3 students; class may be taken individually or as part of longitudinal MS3 medical humanities sequence. Location to report on the first day: Conference Room, Trent Center for Bioethics, Humanities, and History of Medicine, Room 108 Seeley G Mudd Building (Medical Center Library). Classes will meet on Wednesday evenings 5:15pm - 7:15pm. Permission of instructor is required for enrollment - students must obtain permission number from the course director. Third Year students must also obtain email approval from their mentor. The email approval from the mentor should be sent to [thirdyear@dm.duke.edu](mailto:thirdyear@dm.duke.edu) and the course director ([jeffrey.baker@duke.edu](mailto:jeffrey.baker@duke.edu)). Enrollment Max.: 14; Enrollment Min.: 8. Credit: 1, Non-Direct Patient Care credit. Offered during fall section 82. Jeffrey P. Baker, MD/PhD

medicine. The student works with faculty, fellows, advanced practice providers and house staff in a number of settings involved in the care of the geriatric patient. These include the Geriatric Evaluation and Treatment Clinic (Duke), Geriatrics Consultation Service (Duke University Hospital and Duke Regional Hospital), The Forest at Duke Clinic, Community Living Center (Durham VA Medical Center) and other subspecialty clinics. Principles to be stressed are biology and pathophysiology of aging, multiple clinical problems in the elderly, interdisciplinary team approach to evaluation, planning and treatment, goals of maximal functional achievement and independence for the elderly. Specific clinical problems that students encounter include dementia, delirium, polypharmacy, gait instability and falls, urinary incontinence, pressure sores, and chronic pain. The student participates actively in the work-up and management of patients inpatient extended care and outpatient settings. Familiarity with the growing literature in geriatric medicine is encouraged. The student participates in seminars, lectures and team meetings at the appropriate sites. (3) Methods of Evaluation: Evaluation is by consensus of instructors and fellows at the various training sites and the papers submitted during the rotation and at the conclusion of the rotation. It is based on discussions and presentations throughout the course period. If students are registering for the course within 15 days of starting the rotation, they must contact Dr. Serena Wong at [serena.wong@duke.edu](mailto:serena.wong@duke.edu) to notify them of their late registration and request permission to enroll. Permission will be based upon availability of clinical experiences for the team identified. No students will be accepted for registration after 4PM on the Wednesday before a Monday rotation start. As noted above, students registering within 15 days of the rotation start are expected to contact Dr. Wong immediately to notify them and request permission. Prerequisite: Successful completion of first and second year of medical school. NOTE: Students taking this course may be required to complete rotations at the Durham VA Medical Center. Please contact the department to obtain the required paperwork. Paperwork must be completed 30 days prior to the first day of the section in which the student is enrolled. Students that have not completed the paperwork will not be allowed to work at the Durham VA Medical Center. Primary contact: Dr. Serena Wong ([serena.wong@duke.edu](mailto:serena.wong@duke.edu)) Secondary contact: Dr. Liza Genao, ([liza.genao@duke.edu](mailto:liza.genao@duke.edu)) . Credit: 4. Enrollment: max 2. Serena Wong, DO; and Liza Genao, MD and other staff

## MEDICINE452C - Clinical Medical Ethics: What Would a Good Physician Do?

Subject	Catalog Number	Title
MEDICINE	452C	Clinical Medical Ethics: What Would a Good Physician Do?

### Description

What is medicine for? What standards and norms reasonably guide physicians' actions? This course will consider rival answers to these questions, and then follow clinical ethical cases to grapple with questions about the clinician-patient relationship, the limits of medicine, the meaning of autonomy, the place of conscience and judgment in the physician's work, the difference between an intended effect and a side effect, proportionality, sexuality and reproduction, the beginning of life, disability, and end-of-life care. Open to MS3 and MS4 students. The class may be taken individually or as part of longitudinal MS3 medical humanities sequence. Third year students must obtain approval of their research mentor in order to take the course. Email approvals should be sent to [thirdyear@dm.duke.edu](mailto:thirdyear@dm.duke.edu) and the course director. Meeting Location: Conference Room, Trent Center for Bioethics, Humanities, and History of Medicine, Room 108 Seeley G Mudd Building (Medical Center Library). To be held Wednesday evenings, 5:15pm, -7:15pm. Credit: 1. Enrollment Max.: 16; Enrollment Minimum: 8. Joshua Briscoe, MD ([joshua.briscoe@duke.gov](mailto:joshua.briscoe@duke.gov)); Farr A. Curlin ([farr.curlin@duke.edu](mailto:farr.curlin@duke.edu)), MD; and Marjorie Miller ([marjorie.miller@duke.edu](mailto:marjorie.miller@duke.edu))

## MEDICINE453C - Medicine, Humanities and the Arts

Subject	Catalog Number	Title
MEDICINE	453C	Medicine, Humanities and the Arts

### Description

How do the humanities and the arts help us understand the human experience of illness, suffering, and dying? How does skilled storytelling improve our ability to guide families facing complicated decisions and uncertainty? Can literature improve our ability to care for patients from different cultures and backgrounds? Drawing on a wide range of disciplines in the humanities, this course will emphasize concrete ways in which the humanities and the arts can teach us to be better doctors. Priority given to MS3 students; class may be taken individually or as part of longitudinal MS3 medical humanities sequence. Pre-requisite: Permission of the Instructor is required - Instructor must provide permission number. Third year students must also obtain email approval from their mentors in order enroll. The email approval should be sent to the [thirdyear@dm.duke.edu](mailto:thirdyear@dm.duke.edu) and to the course director. Enrollment Max.: 16; Minimum Enrollment: 8. Credit: 1. Offered spring 82; The class will meet in-person, in the Trent Center Conference Room, 108A Seeley G. Mudd Medical Center Library Building; Thursday Evenings, 5:15pm - 7:15pm. Sneha Mantri, MD



## MEDICINE479C - REHABILITATION MEDICINE - UNC

Subject	Catalog Number	Title
MEDICINE	479C	REHABILITATION MEDICINE - UNC

## MERP301B - Research in Medical Education Study Program

Subject	Catalog Number	Title
MERP	301B	Research in Medical Education Study Program

### Description

Director: Deborah Engle, EdD, MS. The intent of creating a dedicated medical education research track is to train future medical education scholars by incorporating a rigorous quantitative education research experience with didactic training and practical experience in educational theory and research skills. This will meet a need that has been expressed by students interested in pursuing a medical education research career trajectory, and is consistent with the Duke University School of Medicine mission to develop innovative programs to meet the needs of future academic physicians. FACULTY: Deborah Engle, EdD, MS; Poonam Sharma, MD

## MIDIP301B - Research in Microbiology and Infectious Disease Study Program

Subject	Catalog Number	Title
MIDIP	301B	Research in Microbiology and Infectious Disease Study Program

### Description

Program Director: Steve Taylor, MD. The Microbiology, Infectious Diseases, and Immunology Program (MIDIP) Study Program provides students with the opportunity to explore laboratory-based and clinical research in infectious diseases and immunology. For example, MIDIP will appeal to students interested in the public health initiatives of vaccine design, mechanisms of autoimmunity, or the management of infectious diseases. Knowledge of infectious diseases and immunology is central to the effective management of disease in a vast array of public health and clinical settings. Duke University faculty members include world leaders in the study of microbiology and immunology, many with a strong tradition of outstanding mentorship for third year medical students. The MIDIP research experience can be focused on one of a wide variety of important clinical problems: Aberrations of immune system development can be studied using animal models of primary or acquired immunodeficiency syndromes. Diseases of chronic inflammation and autoimmunity highlight the damaging effects of exaggerated or inappropriate immune responses and can be examined through research focused on the pathogenesis of diseases such as asthma and rheumatoid arthritis. Modulation of normal immune

## MMCI301B - Research in MMCI

Subject	Catalog Number	Title
MMCI	301B	Research in MMCI

### Description

Director: James Lawrence, MD. The Master of Management in Clinical Informatics (MMCI) is offered by the Duke School of Medicine. The program is designed to train health professionals to thoughtfully apply technology in order to improve the experience and value of health care. It is clear that information technology has the capacity to transform clinical care, it is equally clear that it has not yet accomplished this vision. This program builds the core skills to lead this transformation, exposing students to core concepts in business as well as informatics to allow them to function as leaders in this emerging field, working in a health system, a start-up, a consulting firm, or a major technology firm. The curriculum has expanded to also address data visualization and data science. MMCI's unique Friday/Saturday class schedule is ideal for a third year medical student, where a third year research project can be applied to the required practicum project within MMCI. Contact Dr. Lawrence for mentors.

## Duke University

Immune and hematopoietic stem cell modulation of hematopoietic responses is also critical to the management of solid organ and bone marrow transplantation and is becoming increasingly important in the treatment of cancer. Faculty mentors at Duke also have outstanding research programs studying the molecular mechanisms of microbial pathogenesis in bacterial, fungal, and viral and parasitological systems. Microbial genetics can be exploited to investigate fundamental processes in genetics and molecular biology. The development of novel chemotherapies for microbial infections, particularly of prevalent or emerging infections, remains a high priority for public health. The student may also choose to pursue research pertinent to the many molecular processes that underlie normal lymphocyte development and function, and use this opportunity to master some of the new technologies available to biomedical research. Additionally, these molecular genetic tools can be used to explore the molecular epidemiology of microbes in humans, non-human hosts, and environmental samples. The MIDIP track emphasizes original research. This program offers third year medical students an opportunity to undertake basic research and to integrate with graduate students, fellows, and faculty of the Medical Center departments contributing to this Program. Each student will select a faculty mentor, and together they will develop an original proposal within the context of the mentor's ongoing research program. The student will be expected to design experiments, critically assess the relevant literature, evaluate data, apply appropriate statistical tests, solve problems associated with the project, and communicate the research results in written and oral presentations. The faculty and staff will provide appropriate guidance and assistance within the laboratory or clinical setting.

## MMCI511 - Principles of Cost and Managerial Accounting

Subject	Catalog Number	Title
MMCI	511	Principles of Cost and Managerial Accounting

### Description

Managerial accounting is concerned with the internal use of accounting information by managers to plan, control, and evaluate operations and personnel of the firm. The course covers two broad topics: (i) cost management systems and their use in decision making (these systems provide information about the costs of the goods and services sold by the firm, and decisions based on them include break-even analyses, pricing, and make/buy decisions); and (ii) management control systems and their use (control systems help the firm plan, execute, measure, and evaluate its operations). Topics covered include cost structures, costing systems, budgeting, variance analysis, performance measurement and evaluation, and transfer pricing.

## MMCI512 - Foundations of Data Analysis

Subject	Catalog Number	Title
MMCI	512	Foundations of Data Analysis

### Description

In health care, data comes from many sources including electronic health records, government agencies and clinical research organizations. This course covers the types of analyses that are required to make informed decisions with data. It also demonstrates the tools available to process data. This course prepares students to turn data into knowledge.

## MMCI517 - Applied Data Science

Subject	Catalog Number	Title
MMCI	517	Applied Data Science

### Description

Practical Data Science in Healthcare. This course is designed to introduce students to the tools and technologies of 'data science' as they are applied to healthcare. Bill Cleveland, the famous computer scientist wrote 'Knowledge among computer scientists about how to think of and approach the analysis of data is limited, just as the knowledge of computing environments by statisticians is limited. A merger of the knowledge bases would produce a powerful force for innovation.' Everything we do in delivering health to our patients involves information: how it is stored, how it is moved around, how we extract meaning from it. Understanding the many principles, technologic, ethical, and regulatory issues surrounding the 'merger', is a requirement for leadership in the realm of clinical informatics. Included in this course will be practical hands-on experience with plug and play machine learning tools via Microsoft Azure (no programming needed). Credit: 3

## MMCI525 - Healthcare Finance

Subject	Catalog Number	Title
MMCI	525	Healthcare Finance

### Description

This course examines important issues in healthcare finance from the perspective of payers and providers. The concept of net present value, suitably adapted to account for taxes, uncertainty, and strategic concerns is used to analyze how investment and financing decisions interact to affect the value of a firm.

### MMCI533 - Clinical Informatics Ethics & Equity Seminar 1

Subject	Catalog Number	Title
MMCI	533	Clinical Informatics Ethics & Equity Seminar 1

**Description**

Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational responses, and health literacy and access to electronic medical records.

### MMCI534 - Clinical Informatics Ethics and Equity Seminar 2

Subject	Catalog Number	Title
MMCI	534	Clinical Informatics Ethics and Equity Seminar 2

**Description**

Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational responses, and health literacy and access to electronic medical records. No credit awarded.

### MMCI535 - Clinical Informatics Ethics & Equity Seminar 3

Subject	Catalog Number	Title
MMCI	535	Clinical Informatics Ethics & Equity Seminar 3

**Description**

Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational responses, and health literacy and access to electronic medical records. No credit awarded.

### MMCI536 - Clinical Informatics Ethics & Equity Seminar 4

Subject	Catalog Number	Title
MMCI	536	Clinical Informatics Ethics & Equity Seminar 4

**Description**

Each term, a case-based ethics and equity seminar addresses issues in health information technology. Topics may include the sale of prescription drug information; ownership of personal health records; data security breaches and organizational responses, and health literacy and access to electronic medical records. No credit awarded.

## MMCI537 - Health IT Business Solutions

Subject	Catalog Number	Title
MMCI	537	Health IT Business Solutions

### Description

Healthcare is highly regulated and associated with special needs and risks not present in other sectors. This course will assist the student in identifying the critical needs of the current health information systems including vendor, stakeholders, and healthcare organization perspectives. The course will include an examination of electronic health records, current and emerging use of clinical information systems, current themes and applications in clinical health information systems, technologies that support health care information systems, and system design, implementation, maintenance and overview and their impact on organizational resources and efficiency.

## MMCI538 - Data, Information and Knowledge Representation

Subject	Catalog Number	Title
MMCI	538	Data, Information and Knowledge Representation

### Description

This course addresses different strategies for representing data, information and knowledge including description logic, information models, data elements, terminologies and ontologies. Emphasis is placed on the data, information, and knowledge framework for solving problems in health informatics. Declarative and procedural knowledge acquisition, modeling, representation and use will be explored.

## MMCI539 - Digital Health Informatics Strategy

Subject	Catalog Number	Title
MMCI	539	Digital Health Informatics Strategy

### Description

Health IT (HIT) solutions have been promoted as a means to reduce the cost and increase the quality of health care delivery in the US and globally. The question we try to assess in this course is how we can deploy HIT technology to achieve its promise. This question is addressed from a strategic rather than technical perspective. You will develop exploratory frameworks to help analyze potential for impact of IT implementation efforts: scale economics, network economics, and organizational innovation. You will also assess the adoption of technology within existing organizations as well as barriers to adoption. Additionally, you will explore the development of killer apps -- how are health IT firms financed and what are successful business models and concepts. Overall, you will grasp the potential for the technology to achieve the cost and quality goals that have been proposed, and the barriers to achieving this success.

## MMCI540 - Data, Information, and Health Care Transformation

Subject	Catalog Number	Title
MMCI	540	Data, Information, and Health Care Transformation

### Description

Organizational decisions, including accreditation, quality management, and reimbursement would be improved by relevant, timely, accurate, and complete analyses of available data for decision support. This course is designed to introduce theoretical knowledge and practical skills to evaluate and conduct analysis for secondary data available in health care settings. Using epidemiology methods as a framework, you will learn how one can evaluate or conduct secondary data analysis. You will recognize the principles of epidemiology methods applicable to health services and outcome analyses, and understand the terminology and methods for research using secondary data. Threats to validity including selection bias, confounding, information bias, and methods for their control will be discussed in a variety of settings emphasizing practical considerations.

## MMCI541 - Clinical Informatics Practicum

Subject	Catalog Number	Title
MMCI	541	Clinical Informatics Practicum

### Description

Through a team-based project approach, this capstone course applies the core concepts of the informatics and management courses to a 'real world' situation at Duke Health or in a similar clinical environment. Students explore the relationship between organizational strategy, implementation, and technical applications of health informatics. The practicum usually entails joining an ongoing real-world health IT project and project team, and requires a written, publication quality report of the practicum and related results.

## MMCI544 - Foundations of Management and Organizations

Subject	Catalog Number	Title
MMCI	544	Foundations of Management and Organizations

### Description

The goal of this course prepares you to be an effective leader and manager of others whatever your level in the organization. We will examine practices that make teams more efficient and adaptable and that help harness diversity and enhance innovation. We will also study the theory and practice of negotiation. We will study how you can improve your personal contribution to your team and your firm and how you can lead others to respect your views and listen to you. Much of the content of the course will be put to use in learning teams used throughout the program.

## MMCI550 - Introduction to Marketing Analysis

Subject	Catalog Number	Title
MMCI	550	Introduction to Marketing Analysis

### Description

Modern marketing philosophy holds that only those firms that provide high customer value can succeed in the long run. Creating this value requires that managers must effectively: (i) assess marketing opportunities by analyzing customers, competitors, and their own company ('the 3 C's'), and (ii) design effective marketing programs via selecting appropriate strategies for pricing, promotion, place, and product ('the 4 P's'). Accordingly, this course will introduce students to the principles, processes and tools necessary to analyze markets and design optimal marketing programs.

## MMCI554 - Introduction to Operations and Supply Chain Management

Subject	Catalog Number	Title
MMCI	554	Introduction to Operations and Supply Chain Management

### Description

A supply chain comprises all the processes and activities involved with product delivery, from the extraction of raw materials, through transportation and processing, to the delivery of finished products to the customer. These activities typically involve numerous geographic locations and firms with different objectives. The crucial decisions include infrastructure investments, the quantities to produce and ship, the timing of shipments, where to hold inventories, and which firms should be responsible for which activities. The management of supply chains is difficult and complicated, but essential in the modern economy. This course will cover the basic facts and principles of the subject.

## MMCI557 - Principles of Strategy

Subject	Catalog Number	Title
MMCI	557	Principles of Strategy

### Description

This course helps you learn to identify business opportunities in dynamic competitive environments and, in turn, develops skills necessary to be an effective strategy analyst as part of any business position. We will tackle the complexity of analyzing competition in this era of globalization and changing firm boundaries, as well as assessing strategy under increasing uncertainty. You will develop strategic thinking by learning the concepts, models, and tools of strategic analysis and by applying them to competitive situations. The course develops the capability to assess a firm's strategic position with respect to rivals, the larger industry, and customers given the firm's internal resources and capabilities.

## MOLMED301B - Research in MOLMED - Oncological Sciences

Subject	Catalog Number	Title
MOLMED	301B	Research in MOLMED - Oncological Sciences

### Description

Program Director: David Hsu, MD This interdepartmental study program is designed to provide third year medical students with an in-depth basic science or translational research experience in oncological sciences, regenerative medicine, the nutritional and metabolic mechanisms of chronic disease or the molecular basis of disease. Faculty members in this study track come from numerous departments, including Medicine, Biochemistry, Cell Biology, Immunology, Pathology, and Pharmacology and Cancer Biology. Students who elect this study program undertake a research project in a laboratory under the guidance of a faculty preceptor and participate in appropriate seminar series. In addition, with the permission of their mentor and study program director, students may take course work each term to complement their research interests. Due to the wide range of research opportunities available, course work is individually tailored to the interests of the student by the faculty preceptor. There are five (5) discreet sub tracks to accommodate the diversity of interest in Molecular Medicine. This interdepartmental study program is designed to provide third year medical students with an in-depth basic science or translational research experience in oncological science. Faculty in the study program are engaged in investigating oncogenes, tumor suppressor genes, growth factors, chromosomal abnormalities, cellular invasion and metastases, proliferation, differentiation, apoptosis, tumor hypoxia, tumor angiogenesis, chemical/radiation/viral carcinogenesis, biologic and immunotherapy principles, radiobiology and hyperthermic oncology, and the pharmacology of cancer chemotherapy. The program is directed at students potentially interested in a career in oncology and cancer research. Faculty members in this study track come from numerous departments, including Medicine, Biochemistry, Cell Biology, Immunology, Pathology, and Pharmacology and Cancer Biology. Students who elect this study program undertake a research project in a laboratory under the guidance of a faculty preceptor and participate in appropriate seminar series. In addition, with the permission of their mentor and study program director, students may take course work each term to complement their research interests. Due to the wide range of research opportunities available, course work is individually tailored to the interests of the student by the faculty preceptor.

## MSIS301B - Master of Science of Information Science Study Program

Subject	Catalog Number	Title
MSIS	301B	Master of Science of Information Science Study Program

### Description

Director: Patricia L. Thibodeau, MLS, MBA: This dual degree program allows students interested in information management, information technology, and the development of evidence-based resources to further explore the role of information in the clinical setting. Through the dual-degree program, students will be able to integrate their clinical knowledge with the information skills and concepts found in the library and information sciences studies curricula. In the future these medical informationists will be able to contribute to the development, selection, and delivery of high quality information that is relevant to the clinical setting and patient care. FACULTY: Jeffrey P. Baker, MD, PhD; Raymond Barfield, MD, PhD; Robert Cook-Deegan, MD; Peter C. English, MD, PhD; Margaret Humphreys, MD, PhD; Anne Lylery, MD; Ross McKinney, MD; Philip Rosoff, MD; Svati Hasumukh Shah, MD, MHS; Gopal Sreenivasan, PhD; James A. Tulskey, MD

## MSLS301B - Master of Library Science Study Program

Subject	Catalog Number	Title
MSLS	301B	Master of Library Science Study Program

### Description

Director: Patricia L. Thibodeau, MLS, MBA: This dual degree program allows students interested in information management, information technology, and the development of evidence-based resources to further explore the role of information in the clinical setting. Through the dual-degree program, students will be able to integrate their clinical knowledge with the information skills and concepts found in the library and information sciences studies curricula. In the future these medical informationists will be able to contribute to the development, selection, and delivery of high quality information that is relevant to the clinical setting and patient care.

## NEURO205C - Neurology

Subject	Catalog Number	Title
NEURO	205C	Neurology

### Description

This two-week experience in clinical neurology teaches the principles and skills underlying the recognition and management of the neurologic diseases a general medical practitioner is most likely to encounter in practice. The clerkship is comprised of a two-week rotation in inpatient neurology. Online topic lectures will address major clinical issues in neurology, and case vignettes sessions will address differential diagnosis of neurological symptoms, review pertinent neuroanatomy, diagnostic testing, test utilization, and management of emergent and routine neurologic problems. Secondary contact: Chris Berry at 613-0314 or via email, christine.berry@duke.edu. Credits: 2. Course Director: Karissa Gable, MD

## NEURO206C - Primary Care Leadership Track (PCLT)-Neurology

Subject	Catalog Number	Title
NEURO	206C	Primary Care Leadership Track (PCLT)-Neurology

### Description

This four week experience in clinical neurology teaches the principles and skills underlying the recognition and management of the neurologic diseases a general medical practitioner is most likely to encounter in practice. The clerkship is comprised of two, two-week rotations with one rotation centered in outpatient neurology, and the other in inpatient neurology. Student conferences will address major clinical issues in neurology, and patient-oriented problem sessions will address differential diagnosis of neurological symptoms, review pertinent neuroanatomy, diagnostic testing, test utilization, and management of emergent and routine neurologic problems. Secondary Contact: Christine Berry (christine.berry@duke.edu). Credits: 4. Course Director: Karissa Gable, MD



## NEURO209C - Longitudinal Integrated Curriculum - Neurology

Subject	Catalog Number	Title
NEURO	209C	Longitudinal Integrated Curriculum - Neurology

### Description

This basic required course provides an introductory to clinical neurology with a focus of learning neurological symptoms, signs, and diseases. With this course, students will learn and hone the neurological examination and integrate this in clinical practice moving forward. For this clerkship, there will be an intensive two-week inpatient clinical experience. LIC students will participate in the case discussions, neurology on-call, and neurology lectures. LIC students will see neurologic cases in their other outpatient clinics, in Urgent Care, and the Emergency Room shifts. These outpatient clinical experiences will provide further instruction of neurological illnesses, diagnostic tools needed to diagnosis these illnesses, and treatments for this diseases. Secondary Contact: Chris Berry (Christine.berry@duke.edu) Credit: 4. Karissa Gable, MD

## NEURO220C - Neurocritical Care

Subject	Catalog Number	Title
NEURO	220C	Neurocritical Care

### Description

The Neurocritical Care Elective will give second year medical students the opportunity to gain exposure to and participate in care of patients in the Neurologic ICU. They will work as a part of the multidisciplinary team taking part in the care of patients with a wide variety of neurologic processes, both common and rare, and is a burgeoning field of active research amongst neurosurgeons, neurologists and intensivists. A permission number is required for enrollment. For more information about the course and to obtain a permission number, required to take the course, contact Dr. Shreyansh Shah, at Shreyansh.shah@duke.edu. Secondary contact: Chris Berry (christine.berry@duke.edu). Meeting location for first day of classes: Duke Central Tower, 7th floor, Neuro ICU at 6:45am. Credit: 2. Enrollment Max: 1. Shreyansh Shah, MD

## NEURO401C - Neurology Sub-Internship

Subject	Catalog Number	Title
NEURO	401C	Neurology Sub-Internship

### Description

(1) Course Goals: To provide a neurological patient care experience at the intern level. Students have the opportunity to apply neurological examination skills learned in the second year to direct patient care situations. Students are exposed to a variety of neurological problems, procedures, and therapies. This course is recommended for the student interested in neurology, psychiatry, internal medicine, neurosurgery, neuropathology or ophthalmology. (2) How Goals Are Achieved: Students are assigned to a Duke Hospital inpatient neurology service for two or four weeks with an option to be assigned to the Neuroscience Intensive Care Unit for two weeks. Students attend Neuroscience Grand Rounds, Neurology Subspecialty Conferences and participate in all ward or NICU activities. Full time participation is expected. (3) Methods of Evaluation: Resident and staff physicians provide a written evaluation. For more information, please contact Chris Berry via email at [christine.berry@duke.edu](mailto:christine.berry@duke.edu) or by phone, 613-0314. Prerequisite: Neuro 205C or 402C. Permission is required. Credit: 5. Enrollment: max 2. Jordan Mayberry, MD and Neurology faculty.

## NEURO402C - Neurology Clerkship

Subject	Catalog Number	Title
NEURO	402C	Neurology Clerkship

### Description

This course is restricted to those students who did not take a Neurology clerkship (Neuro 205C or 206C) in their second year. It provides the student with a firm understanding of the neurological examination, formulation of clinical neurological problems, and practice with written and oral communications in a hospital setting. The student has the opportunity to apply the neuroanatomy, neurophysiology, neurochemistry, and neuropathology learned in the first year to the evaluation and care of his or her patients. The patients are drawn from the neurology services at Duke Hospital or the Durham VA Medical Center. The students elicit a history and perform a physical examination. The student records the findings in the hospital charts and presents the findings at regular staff rounds. The student then participates with a clinical team of faculty and house officers in the hospital evaluation of the patients. The student is encouraged to participate in all diagnostic procedures such as lumbar puncture. The student has the opportunity to follow patients through neuro-radiological and neuro-surgical procedures forming part of evaluation and treatment. The specific expectations for the student are: (a) to perform and record a competent neurological and history examination on each admitted patient; (b) to be competent in the hospital management of neurological patients including diagnostic evaluations such as hematological and urine evaluations, lumbar puncture and appropriate electrical studies; (c) to assume responsibility as the primary care person for his or her patients; (d) to participate in daily work rounds with an assigned team of house officers and faculty; (e) to be sufficiently knowledgeable to participate in patient care decisions; (f) to attend faculty attending rounds and to present patients to faculty within 24 hours after admission; and (g) to participate in neurology service rounds and conferences during the course. A written evaluation is provided to the students by faculty and house staff. For more information, please call Christine Berry at 613-0314 or via email at [christine.berry@duke.edu](mailto:christine.berry@duke.edu). VA student credentialing is required prior to registration. Permission is required. Credit: 4. Enrollment: max 1. Karissa Gable, MD and neurology faculty

## NEURO403C - Clinical Neurology Subspecialties

Subject	Catalog Number	Title
NEURO	403C	Clinical Neurology Subspecialties

### Description

(1) Course Goals: To provide the student clinical exposure to a specific subspecialty in neurology. (2) How Goals Are Achieved: The student focuses on one or more specific subspecialty in neurology and attends clinics for approximately 4 days per week. During that time the student participates in the clinical evaluation of patients with a member of the neurology faculty. Clinical experience in epilepsy and sleep disorders, headache/pain, memory disorders, movement disorders, and neuromuscular disorders are available. Appropriate reading material is utilized to complement the clinical experience. Neuro 205C, 206C, or 402C are prerequisites for this course. (3) Method of Evaluation: Standard written evaluation form by faculty supervisor. Approval by the course director is required in order to ensure access to the desired neurologic subspecialty. For more information, please contact Christine Berry, 613-0314 or via email, christine.berry@duke.edu. VA student credentialing is required prior to registration. Permission is required. Credit: 1-2. Enrollment: max: 2 (if participating in different subspecialties). Karissa Gable, MD and neurology faculty.

## NEURO404C - Consultative Neurology

Subject	Catalog Number	Title
NEURO	404C	Consultative Neurology

### Description

(1) Course Goals: To introduce senior medical students to the diagnostic and treatment issues encountered on the consultative neurology service. (2) How Goals Are Achieved: The student becomes part of the inpatient neurology consultation team either at Duke Hospital or the Durham VA Medical Center. This team consists of rotating neurology faculty as well as a neurology and/or medicine house officer. Consultations are performed by the student under the guidance of the house staff and then are presented to the attending on rounds. The student is responsible for performing a neurologic history and physical as well as assisting in the interpretation of all important laboratory data. The student continues to follow the patient's course as required. The student also attends rounds when other patients are presented by the house officers. Appropriate reading material is utilized to compliment the clinical experience. Attendance at Neurology Grand Rounds and various Neurologic Subspecialty Conferences is required. (3) Method of Evaluation: Standard written evaluation by faculty supervisor with house staff input. VA student credentialing is required prior to registration. Permission is required. Credit: 4. Enrollment: max 1. For more information, please contact Christine Berry, 613-0314 or via email, christine.berry@duke.edu. Karissa Gable, MD and neurology faculty

## NEURO405C - The Neurobiology of Aging

Subject	Catalog Number	Title
NEURO	405C	The Neurobiology of Aging

### Description

The proportion of older adults in the population is rapidly increasing in all parts of the world. Advances in medicine and public health, rising standards of living, and improvements in education and nutrition have lengthened the human lifespan. This elective will survey the biochemical, physiological, and behavioral changes associated with normal aging versus changes associated with pathologic conditions such as Alzheimer's disease. Course is available for MS4 students. The course will meet once a week, for two hours each week. For more information regarding the number of sessions, where to meet, etc., please contact Dr. Simon Davis (simon.davis@duke.edu). Students that successfully complete the course receive one Non-Direct Patient care credit (the maximum number of non-direct patient care credits that count toward MS4 graduation credits is 4). Permission of the instructor (permission number) is required for enrollment. Max students is 40; The course director will provide the permission numbers. Simon W. Davis, PhD; Laurie Sanders, PhD; Alexandra Badea, PhD; Michael Lutz, PhD; Andrew Liu, MD/MS; Robert O'Brien, MD/PhD; and Roberto Cabeza, PhD

## NEUROSUR220C - Neurosurgical Intervention in the Modern Era

Subject	Catalog Number	Title
NEUROSUR	220C	Neurosurgical Intervention in the Modern Era

### Description

This neurosurgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive neurosurgery, including the subspecialties (Neuro-oncology, Vascular, Functional, Spine, and Pediatrics). There will be didactic instruction with patient care exposure in the clinic setting, the Emergency Department, on the neurosurgical wards and in the operating room. Credit: 2. Enrollment Max. 4. Location: Duke Central Tower, 5:45 a.m. Contact: For questions and to confirm meeting time and location, please contact Dr. Steven Cook via email at steven.cook@duke.edu. Secondary contact: Sherolyn Patterson, (sherolyn.patterson@dm.duke.edu). The standard meeting location is Monday at 5:45 am at Duke Central Tower room 8A90. Steven Cook, MD

## NEUROSUR401C - Sub-Internship in Neurological Surgery

Subject	Catalog Number	Title
NEUROSUR	401C	Sub-Internship in Neurological Surgery

### Description

This course is designed for those students with a career interest in neurological surgery. Duties include the work-up and care of inpatients, evaluation of clinic patients, assistance in the operating room, daily rounds, and approximately every 3rd-night call. Students will be expected to assume intern-level responsibilities. Students round with the neurosurgical team in the mornings then participate in the OR, or attend one of the neurosurgery clinics after rounds. Students attend the Wednesday academic day neurosurgical conferences covering topics within neurosurgery, neurology, neuropathology and neuroradiology, as well as twice monthly Brain School conferences. For more information, please contact Sherolyn Patterson at 684-3053 or contact her via email, sherolyn.patterson@duke.edu. First Day of Classes: Students are to meet the residents in the neurosurgery work room at 5:45 AM in 8th floor conference room 8A90 of Duke Central Tower (DCT). Credit: 5. Enrollment max: 5. Steven Cook, MD; Gerald Grant, MD (Chairman), Muhammad Abd-El-Barr, MD, PhD; Deb Bhowmick, MD; Allan Friedman, MD; John Barr, MD; Patrick Codd, MD; Andrew Cutler, MD; Peter Fecci, MD, PhD; Herbert Fuchs, MD, PhD; Rory Goodwin, MD, PhD; Oren Gottfried, MD; Michael Haglund, MD, PhD; Dvaid Hasan, MD; Erik Hauck, MD; Jordan Komisarow, MD; Nandan Lad, MD, PhD; Anoop Patel, MD; John Sampson, MD, PhD; Christopher Shaffrey, MD; Brandon Smith, MD; Derek Southwell, MD, PhD; Khoi Than, MD; Dennis Turner, MD; Matthew Vestal, MD; Chester Yarbrough, MD; and Ali Zomorodi, MD

## NEUROSUR402C - Intermediate Clinical Neurosurgery

Subject	Catalog Number	Title
NEUROSUR	402C	Intermediate Clinical Neurosurgery

### Description

This elective is intended as an intermediate experience that focuses on the clinical presentation of common neurosurgical disorders, radiographic evaluation, and therapeutic options including the indications and contraindications for surgical intervention. The student sees patients each morning with the neurosurgical team and chooses one or two patients to evaluate in more detail. The student attends one of the neurosurgery clinics or participates in the OR each morning after rounds, and attends the Wednesday academic day neurosurgical conferences. Most students attend Monday - Friday for half days beginning at 5:45 am. For more information, please contact Sherolyn Patterson at 684-3053 or via email, sherolyn.patterson@duke.edu. First Day of Classes: Students are to meet the residents in the neurosurgery work room at 5:45 am, 8th floor conference room 8A90 of Duke Central Tower (DCT). Credit: 2. Enrollment max: 4. Course Director: Steven Cook, MD; Gerald Grant, MD (Chairman), Muhammad Abd-El-Barr, MD, PhD; Deb Bhowmick, MD; Allan Friedman, MD; John Barr, MD; Patrick Codd, MD; Andrew Cutler, MD; Peter Fecci, MD, PhD; Herbert Fuchs, MD, PhD; Rory Goodwin, MD, PhD; Oren Gottfried, MD; Michael Haglund, MD, PhD; Dvaid Hasan, MD; Erik Hauck, MD; Jordan Komisarow, MD; Nandan Lad, MD, PhD; Anoop Patel, MD; John Sampson, MD, PhD; Christopher Shaffrey, MD; Brandon Smith, MD; Derek Southwell, MD, PhD; Khoi Than, MD; Dennis Turner, MD; Matthew Vestal, MD; and Ali Zomorodi, MD

## NEUROSUR404C - Neuro-Oncology

Subject	Catalog Number	Title
NEUROSUR	404C	Neuro-Oncology

### Description

This 4-week advanced rotation will allow medical students to experience Medical Neuro-Oncology. Students will rotate in the Brain Tumor Center (BTC) Clinic, located in Cancer Center Clinic 3-1, with medical neuro-oncology faculty and interact with neuropathology faculty at the neuropathology consensus conference. Students will develop a clinical foundation in the care of brain tumor patients and will have the chance to care for patients with primary and metastatic brain malignancies during all times of the illness trajectory (at diagnosis, during treatment, stable disease, at tumor progression, and transitioning to palliative care). Attendance at weekly adult and pediatric neuro-oncology tumor board, weekly neuropathology consensus conference, monthly integrative neuro-oncology conference, and

## NSS301B - Research in NSS

Subject	Catalog Number	Title
NSS	301B	Research in NSS

### Description

Program Director: C. Rory Goodwin, MD, PhD. Overview: The Neurosciences Study Program is designed to provide a multidisciplinary opportunity for third year medical students over the broad range of basic and clinical neurosciences. Many of the most intractable and prevalent diseases of our time afflict the nervous system, and in many ways research in the neurosciences represents one of the final frontiers of medicine and biomedical science. Areas of study range from molecular and cellular neuroscience, neuroimaging, developmental neurobiology, systems and cognitive neuroscience to translational neuroscience such as animal modeling of neurological disease and development of potential therapeutics. Faculty in the program are drawn from many departments including Neurobiology, Radiology,

## Duke University

monthly research educational meeting is encouraged for all students in this rotation. For more information, please contact Dr. Khasraw via email, [mustafa.khasraw@duke.edu](mailto:mustafa.khasraw@duke.edu), or you may contact her assistant, Kelly Seagroves, at [kelly.seagroves@duke.edu](mailto:kelly.seagroves@duke.edu) or by phone at 919-684-6173. Credit: 4 credits. Enrollment max.: 1 student. Course Director: Mustafa Khasraw, MD; Secondary Director: Giselle Lopez, MD/PhD; Other faculty: Carey Anders, MD, David Ashley MD, Annick Desjardins MD, Allan Friedman MD, Henry Friedman MD, Margaret Johnson MD, Daniel Landi MD, Justin Low, MD, and David Vanmeter, MD. Students will also interact with the Preston Robert Tisch Brain Tumor Center staff, Neuropathology faculty, and Neuro-Oncology Fellows.

Pharmacology, Cell Biology, Psychology, Neurosurgery, Neurology, Pediatrics, Medicine, Psychiatry, and Ophthalmology, and are engaged in research that ranges from fundamental properties of ion channels and neurotransmitter receptors to cognition and perception. The program emphasizes a basic research experience under the guidance of a mentor along with opportunities to attend seminars and present results in written, oral, and poster presentations. Research: The basic component of the Neurosciences Study Program is an in-depth research experience in a research laboratory under the supervision of one of the participating faculty. Students will work full-time in a laboratory pursuing an independent research project including conducting experiments, analyzing results, and communicating findings. Proposal: All students are expected to prepare a 2-3 page proposal by the beginning of the third year, outlining the aims of the proposed research in consultation with their chosen mentor. This proposal should state the problem to be studied, the rationale and relevance of the problem, the specific hypotheses to be tested, a brief description of the experiments to be performed, and references. In addition, Vascular, Neurology, Neurosurgery, and Stroke Center conferences can also be attended. Although there are no specific course requirements in the Program, students may pursue their own particular interests by taking or auditing courses recommended by their mentor or relevant to their research project. Seminars: Students will be able to attend regular seminar series including the Division of Neurology Research Seminar, the Neurobiology Seminar, Signal Transduction Colloquium, Cell Biology Seminar, and Brain Imaging Seminar as appropriate for their particular research project. Attendance at research seminars is encouraged. Meetings: Students will attend monthly informal meetings with Dr. Lascola to discuss proposed research plans, ongoing projects and career development issues. Students will be encouraged to present and discuss data. Outside speakers may also be invited to discuss particular topics of interest. Posters: Students are expected to submit abstracts to present results in poster or oral format at the annual Alpha Omega Alpha research day in August. Final Thesis: At the end of the research year, students are required to write a description of their hypotheses, the outcome of their experiments, and conclusions of their work (15-25 pages).

## OBGYN205C - Obstetrics and Gynecology

Subject	Catalog Number	Title
OBGYN	205C	Obstetrics and Gynecology

### Description

This clerkship is required of all second-year students and consists of six weeks in obstetrics and gynecology. Students complete two weeks of inpatient obstetrics, two weeks of inpatient gynecology, and two weeks of outpatient clinics. Students participate actively in patient care, surgeries, deliveries, and week case-based learning seminars; as well as attending grand rounds and M+M conferences. Secondary Contact: Cescille Gesher (cescille.gesher@duke.edu). Credit: 6. Sarah Dotters-Katz, MD

## OBGYN206C - Primary Care Leadership Track (PCLT) - Obstetrics and Gynecology

Subject	Catalog Number	Title
OBGYN	206C	Primary Care Leadership Track (PCLT) - Obstetrics and Gynecology

### Description

This second year clerkship is required of all second-year students in the Primary Care Leadership Track (PCLT). The course consists of six weeks in general obstetrics and gynecology. Students attend lectures, work daily in the general and special outpatient clinics, and are assigned patients on the obstetric and gynecologic wards. Students share in patient care, teaching exercises, and in daily tutorial sessions with the faculty. Clinical conferences, a gynecologic-pathology conference, endocrine conferences, and correlative seminars and lectures are included. Credit: 6. Sarah Dotters-Katz, MD

## OBGYN209C - Longitudinal Integrated Curriculum - Obstetrics and Gynecology

Subject	Catalog Number	Title
OBGYN	209C	Longitudinal Integrated Curriculum - Obstetrics and Gynecology

### Description

This second year clerkship is required of all second-year students in the Longitudinal Integrated Clerkship. The course consists of an inpatient and outpatient obstetrics and gynecology. Students attend lectures, work daily in the general and special outpatient clinics, and are assigned patients on obstetric and gynecologic wards. Students share in patient care, teaching exercises, and in daily tutorial sessions with faculty. Clinical conferences, a gynecologic-pathology conference, endocrine conferences, and correlative seminars and lectures are included. Secondary Contact: Program Coordinator, 613-5156. Credit: 6. Sarah Dotters-Katz, MD

## OBGYN220C - Prenatal Diagnosis

Subject	Catalog Number	Title
OBGYN	220C	Prenatal Diagnosis

### Description

Students will spend 2 weeks in one of the prenatal diagnostic units within Duke. They will divide their time between diagnostic ultrasound and genetic counseling. There will be time allotted for lab time in the cytogenetics lab. The student will be expected to learn common fetal malformations, genetic disorders and syndromes and be able to discuss their etiologies and evaluation. The student will be expected to understand common screening techniques in the prenatal period including pedigree analysis and risk assessment. Enrollment Max. 1. Location: Fetal Diagnostic Center is located at Lofts at Lakeview, 2608 Erwin Road, Suite 200 (above Chipotle Grill), at 8:15 a.m. For more information, please contact Dr. Brita Boyd via email at brita.boyd@duke.edu and/or Regan Matthews at chall002@mc.duke.edu regarding start time. Dr. Boyd can be reached by phone at 919-684-2595. Students should meet at 8:30am in the Fetal Diagnostic Center reading room the first Monday of the rotation. Brita Boyd, MD

## OBGYN221C - Introduction to Reproductive Endocrinology

Subject	Catalog Number	Title
OBGYN	221C	Introduction to Reproductive Endocrinology

### Description

This course is a short introduction to reproductive endocrinology for students interested in a career in reproductive medicine. Because of the short duration of the course, each student is encouraged to focus either on the clinical or laboratory aspects of the service. During the course, each student will research a focused question in reproductive endocrinology and present his/her findings at a division meeting. Students must contact the instructor prior to registration. Permission of the instructor is required for registration. Credit: 2. Enrollment Max. 1. Location: 5704 Fayetteville Road, Durham, NC 27713. Please contact Cescille Geshner cescille.gesher@duke.edu) for more information about the meeting time. Sarah Dotters-Katz, MD; Kelly Acharya, MD

## OBGYN404C - Preparation for ObGyn Residency

Subject	Catalog Number	Title
OBGYN	404C	Preparation for ObGyn Residency

### Description

This two-credit course is designed to build on the foundation laid in the Capstone Course to further prepare students specifically for OB/GYN residency, though it is open to other students as well. Emphasis is placed on knowledge/skills necessary to succeed as PGY-1. Coursework includes high yield patient management didactics, review of common obstetric and gynecologic surgeries and procedures, critical appraisal of the literature / journal club, basic surgical skills (gowning, gloving, prepping, draping, suturing, knot tying), simulation of obstetric emergencies, practice pages, and Resident-as-teacher sessions, as well as time to work directly with faculty and residents. The course will be graded Credit/No Credit. Credit 2. Enrollment max 20; Enrollment Min: 2. Students should meet at 248 Baker House on the first day. For questions about the time to meet, and/or the class dates in April, please contact Dr. Sarah Dotters-Katz (sarah.dotters-katz@duke.edu). Sarah Dotters-Katz, MD, Jennifer Howell, MD, and associated departmental faculty. \*\*Only offered Spring 44



## **OBGYN405C - Gynecologic Cancer Sub-Internship**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
OBGYN	405C	Gynecologic Cancer Sub-Internship

### **Description**

This course presents a clinical experience in the management of patients with a gynecologic malignancy. This will include operating room, inpatient unit and clinic experiences. The student assumes the role of a sub-intern. Outpatient, inpatient, and operative exposure to these patients is extensive. The student should report to the 6300 work room at 6:00am on their first day. Credit: 5 Enrollment: max 1. Emma Rossi, MD; Andrew Berchuck, MD; Laura Havrilesky, MD; Haley Moss MD, Angeles Alvarez Secord, MD; Emma Rossi MD; Georgia Smith; and gynecologic oncology fellows

## **OBGYN407C - Female Pelvic Medicine and Reconstructive Surgery Sub-Internship**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
OBGYN	407C	Female Pelvic Medicine and Reconstructive Surgery Sub-Internship

### **Description**

For students preparing for obstetrics and gynecology, general practice, surgery, and urology. Emphasis is placed on the outpatient assessment and inpatient or ambulatory management of patients with acute and chronic Urogynecologic disorders including pelvic floor dysfunction, pelvic organ prolapse, urinary and fecal incontinence, and others. Students have the opportunity to work closely with faculty members in the Division of Urogynecology. Participation in the operative care of Urogynecologic patients is desired. Time for independent study is planned. The student is expected to utilize this time to review and present a specific clinical problem with frequent guidance and input from a member of the Urogynecology Division with similar interests. Credit: 5. Enrollment: max 1. Contact: Alison.weidner@duke.edu. Enrollment Max. 1; Credit: 5. Prior to the first day, the student should contact Gail McFarland, Duke Urogynecology, 5324 McFarland Drive, Suite 310, Duke Medicine Patterson Place, Durham, NC 27707; Phone: 919-401-1006. Students meet at the Patterson Place location at 8:30am on the first day of the rotation. Alison Weidner, MD; Cindy Amundsen, MD; Matthew Barber, MD/MHS; John Jelovsek, MD; Amie Kawasaki, MD; Nazema Siddiqui, MD; Anthony Visco, MD; and urogynecology fellows

## OBGYN408C - Minimally Invasive Gynecologic Surgery

Subject	Catalog Number	Title
OBGYN	408C	Minimally Invasive Gynecologic Surgery

### Description

For students preparing for obstetrics and gynecology, general practice, and surgery. Emphasis is placed on the outpatient assessment and inpatient or ambulatory management of patients with acute and chronic gynecologic disorders including menorrhagia, dysmenorrhea, myomas, endometriosis, and others. Students have the opportunity to work closely with faculty members in the Division of Minimally Invasive Gynecology (MIGS). Participation in the preoperative, surgical, and post-operative management of MIGS patients is another critical aspect of the rotation. Time for independent study is planned. The student is expected to utilize this time to review and present a specific clinical problem with frequent guidance and input from a member of the MIGS Division with similar interests. Credit: 4. Enrollment: max 1. Arleen Song, MD; Amy Broach, MD; and Craig Sobolewski, MD. Contact: Arleen.song@duke.edu

## OBGYN409C - Benign Gynecology Subinternship

Subject	Catalog Number	Title
OBGYN	409C	Benign Gynecology Subinternship

### Description

For students preparing for obstetrics and gynecology, general practice, and surgery. Emphasis is placed on the surgical management and inpatient care patients with acute and chronic gynecologic disorders including abnormal uterine bleeding, dysmenorrhea, myomas, endometriosis, and others as well as the outpatient evaluation of these disorders. Students will work closely with faculty members in the Division of Community and Population health. Participation in the preoperative, surgical, and post-operative management of GYN patients is another critical aspect of the rotation (including emergent gynecologic care). The student will also have their own continuity GYN clinic once a week, where they will have assigned patients to see, evaluate and formulate plans for (with supervision). Students will also take call with the GYN team, during which they will cover inpatient services, emergency room and consult pager as well as participate in urgent / emergent GYN cases. Students will round with the team daily on the inpatient GYN service as well. Credit: 5. Enrollment: max 1. Nicole Kerner, MD; Beverly Gray, MD; Liz Deans, MD; Bethany Beasley, MD/MPH; Mark Lachiewicz, MD; Lisa Muasher, MD; Evan Myers, MD/MPH; Newton Pleasant, Jr., MD; Jonas Swartz, MD; Vanisha Wilson, MD; and Megan J. Huchko, MD/MPH. Contact: Nicole.kerner@duke.edu Contact: Nicole.kerner@duke.edu

## OBGYN447C - Maternal-Fetal Medicine Sub-Internship

Subject	Catalog Number	Title
OBGYN	447C	Maternal-Fetal Medicine Sub-Internship

### Description

This course is for students preparing for general practice of medicine, pediatrics, or obstetrics and gynecology. This course studies the relationship of clinical factors during pregnancy, labor, and delivery. Emphasis is placed on abnormal conditions of pregnancy as related to the infant. Current problems in the maternal-fetal relationship are outlined. The student functions on an intern level and takes part in activities of the house staff and faculty in the inpatient and outpatient arenas. Opportunities for experience in prenatal ultrasound, diagnosis and genetic counseling available. Meet on the 5th floor of Duke Hospital, L&D workroom at 6:45AM on the rotation's first day (rounds begin at 7:10AM). Permission is required in order to enroll. Please contact Cescille Gesher, cescille.gesher@duke.edu. For more information, please contact Dr. Anne Honart at anne.honart@duke.edu. Secondary Contact: Cescille Gesher (cescille.gesher@duke.edu). Credit: 5. Enrollment: max 2. Dr. Anne West Honart, MD and Brenna Hughes, MD

## OPHTHAL220C - Ophthalmology

Subject	Catalog Number	Title
OPHTHAL	220C	Ophthalmology

### Description

This ophthalmology selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive ophthalmology, including subspecialties (neuro-ophthalmology, external disease, oculoplastics, cornea, refractive surgery, pediatrics, strabismus, glaucoma, and vitreoretinal disease). There will be didactic instruction and case-based learning with patient care exposure in the clinic setting and operating room. Credit: 2. Enrollment max. 5. Location: Duke Eye Center, Hudson Building, 3rd floor Surgery Check-in Waiting. Please contact Crystal Smith (Wright) (crystal.wright@duke.edu) for more information. Jullia Rosdahl, MD, PhD

## OPHTHAL420C - Medical Ophthalmology

Subject	Catalog Number	Title
OPHTHAL	420C	Medical Ophthalmology

### Description

This lecture series emphasizes common ophthalmic conditions. The ophthalmic signs and symptoms of ocular and systemic diseases are presented in a lecture series. No clinic or operating room exposure or hands on experience. Oriented for those students interested primarily in family medicine, pediatrics, internal medicine, or ophthalmology. This clinical science course can be audited. Students are required to view pre-recorded lectures, complete self-assessments and once a week for an in-person attend weekly live discussion sessions. This course is offered during sections Spring 81; students are expected to view all pre-recorded lectures and attend at least 6 of the live discussion sessions, over the 8-week period. For more information, students may contact Crystal Smith (crystal.wright@duke.edu) Credit: 1. Enrollment: min 8, max 20. Jullia Rosdahl, MD/PhD

## OPHTHAL422C - General Ophthalmology

Subject	Catalog Number	Title
OPHTHAL	422C	General Ophthalmology

### Description

A clinical preceptorship in which the student participates and observes the regular house staff activities including night call, conferences, lectures, patient care, and treatment including surgery. The use of specialized ophthalmic apparatus is emphasized. Students should report to the 2nd floor lobby of the Duke Eye Center, Hudson Building @ 8:30 am to see Crystal Smith (crystal.wright@duke.edu). Credit: 4. Enrollment: max 4. Jullia Rosdahl, MD/PhD

## OPHTHAL425C - Pediatric Ophthalmology

Subject	Catalog Number	Title
OPHTHAL	425C	Pediatric Ophthalmology

### Description

A clinical preceptorship in which the student participates in the outpatient pediatric ophthalmology and strabismus clinic. The student will encounter the more common ocular disorders of childhood including ocular motility disturbances (strabismus), amblyopia, congenital cataracts, glaucoma, and congenital genetic and metabolic disorders. In addition, adult motility disorders such as those related to childhood strabismus, stroke, thyroid eye disease and cranial nerve palsies will be encountered. The diagnosis and treatment aspects are emphasized heavily and opportunities to observe surgery are provided. The course meets by arrangement and requires a minimum of 5 days per credit. For more information, please call Brittany Jones, 919-684-4584 or email, Brittany Jones, brittany.jones244@duke.edu. Credit: 1 or 2. Enrollment: max 2. Sharon Freedman, MD; Edward Buckley, MD; Laura Enyedi, MD; Tanya Glaser, MD, and Grace Prakalapakorn, MD

## OPTECH151 - Orientation Lectures

Subject	Catalog Number	Title
OPTECH	151	Orientation Lectures

### Description

Orientation lectures will familiarize the student with the eye center, ophthalmic equipment and medical terminology. Students will accompany first year ophthalmology residents to lectures. Independent study is required. Credit: .50

## OPTECH152 - Basic Science Lecture

Subject	Catalog Number	Title
OPTECH	152	Basic Science Lecture

### Description

These lectures will ground the student in the basic science needed to understand eye physiology. These lectures will set the stage for high performance as clinical rotations begin. Credit: 3.25

## OPTECH153 - Visual Acuity Assessment

Subject	Catalog Number	Title
OPTECH	153	Visual Acuity Assessment

### Description

The most basic measurement of the eye and the most commonly performed, visual acuity assessment requires both skill and judgment. The student will become accomplished at this task. Credit: 1

## OPTECH153L - Visual Acuity Assessment Laboratory

Subject	Catalog Number	Title
OPTECH	153L	Visual Acuity Assessment Laboratory

### Description

Credit: 1

## OPTECH154 - Physiology and Anatomy of the Eye

Subject	Catalog Number	Title
OPTECH	154	Physiology and Anatomy of the Eye

### Description

This course will provide the student with knowledge on the development and workings of the human eye. Credit: 1

### OPTECH155 - Physical History

Subject	Catalog Number	Title
OPTECH	155	Physical History

**Description**

Students will learn to associate pertinent physical history to ocular history. They will learn what part of the history is pertinent and how to elicit the information in an efficient and caring manor. Credit: 1

### OPTECH156 - Cardiopulmonary Resuscitation

Subject	Catalog Number	Title
OPTECH	156	Cardiopulmonary Resuscitation

**Description**

CPR is required for certification as an ophthalmic medical technician. Credit: 1

### OPTECH158 - Optics and Refractometry

Subject	Catalog Number	Title
OPTECH	158	Optics and Refractometry

**Description**

The physics of optical systems including the eye and other lens systems along with the skills needed to adapt and evaluate those systems. Also, the ability to assist the physician in prescribing glasses and contact lens. Credit: 1

### OPTECH158L - Optics and Refractometry Laboratory

Subject	Catalog Number	Title
OPTECH	158L	Optics and Refractometry Laboratory

**Description**

Credit: 1

### OPTECH159 - Visual Fields

Subject	Catalog Number	Title
OPTECH	159	Visual Fields

**Description**

Testing of the patient's visual field is done mechanically, by computer and through other methods. Students will learn the value of the visual field and the most appropriate method for obtaining it. Credit: 1

### OPTECH159L - Visual Fields Laboratory

Subject	Catalog Number	Title
OPTECH	159L	Visual Fields Laboratory

**Description**

Credit: 1

### OPTECH160 - Medical Terminology

Subject	Catalog Number	Title
OPTECH	160	Medical Terminology

**Description**

Learning medical vocabulary and abbreviations and when and how to apply them. Credit: .50

### OPTECH161 - Spectacles

Subject	Catalog Number	Title
OPTECH	161	Spectacles

**Description**

Learning to read the prescription on a pair of glasses or contact lenses, including bi-focal power, prism power and direction. Troubleshooting problems with eye wear. Credit: 1

### OPTECH161L - Spectacles Laboratory

Subject	Catalog Number	Title
OPTECH	161L	Spectacles Laboratory

**Description**

Credit: 1

### OPTECH162 - Pharmacology

Subject	Catalog Number	Title
OPTECH	162	Pharmacology

**Description**

The course will familiarize the student with ophthalmic medications and systemic medications. The student will learn how medications affect the eye and interact with each other. Credit: .50

### OPTECH163 - Glaucoma and Tonometry

Subject	Catalog Number	Title
OPTECH	163	Glaucoma and Tonometry

**Description**

In this course, the student will learn to define and understand glaucoma. The student will become familiar with and learn to perform various glaucoma diagnostic tests. The student will learn to understand and explain glaucoma treatments including medications, lasers and surgeries. Credit: 1

### OPTECH163L - Glaucoma and Tonometry Laboratory

Subject	Catalog Number	Title
OPTECH	163L	Glaucoma and Tonometry Laboratory

**Description**

Credit: 1

### OPTECH164 - External Ocular Diseases

Subject	Catalog Number	Title
OPTECH	164	External Ocular Diseases

**Description**

The student will learn about diseases of the eyelids, orbits and lacrimal system. The student will become proficient at performing diagnostic tests to help the physician evaluate for and determine the severity of external ocular diseases. Credit: 1

### OPTECH165 - Physiology of Systemic Diseases

Subject	Catalog Number	Title
OPTECH	165	Physiology of Systemic Diseases

**Description**

Systemic diseases have a myriad of eye complications. The student will learn what connections systemic diseases have on the eye and when and how to test for them. Credit: .50

## OPTECH166 - Contact Lens and Keratometry

Subject	Catalog Number	Title
OPTECH	166	Contact Lens and Keratometry

### Description

In this course the student will learn the relationship between eye shape and contact lens fitting. The student will learn what testing should be done and how to perform the appropriate tests. Credit: 1

## OPTECH166L - Contact Lens and Keratometry Laboratory

Subject	Catalog Number	Title
OPTECH	166L	Contact Lens and Keratometry Laboratory

### Description

Credit: 1

## OPTECH167 - Ocular Motility

Subject	Catalog Number	Title
OPTECH	167	Ocular Motility

### Description

The student will learn about the muscles associated with the eye. They will learn how the eye is moved by the muscles and how to test for eye misalignment. Credit: 1

## OPTECH167L - Ocular Motility Laboratory

Subject	Catalog Number	Title
OPTECH	167L	Ocular Motility Laboratory

### Description

Credit: 1

## OPTECH168 - Neuro-Ophthalmology

Subject	Catalog Number	Title
OPTECH	168	Neuro-Ophthalmology

### Description

This course will describe which cranial nerves are responsible for specific eye movements. The student technician will learn to test for specific anomalies and to quantify defects. The student will become familiar with the relationship of the brain to the eye. Credit: 1

## OPTECH169 - General Psychology

Subject	Catalog Number	Title
OPTECH	169	General Psychology

### Description

The student technician will learn some basic psychology which will assist in handling patients in various situations. The student will learn techniques to diffuse difficult situations and patients. Credit: .50

## OPTECH170 - Clinical Rotations

Subject	Catalog Number	Title
OPTECH	170	Clinical Rotations

**Description**  
Credit: 30

## OPTRS101B - Optional Research Studies

Subject	Catalog Number	Title
OPTRS	101B	Optional Research Studies

### Description

Optional Research Studies is a semester term-based, non-credit bearing enrollment status used when the student is conducting a new/different research project with a new mentor at Duke or away from Duke. It can be elected for up to three semesters. An application consisting of a brief research project description and approval by the mentor and the advisory dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services, insurance and financial aid for living expenses. A continuation fee is charged for this status.

## OPTRS301B - Optional Research Studies

Subject	Catalog Number	Title
OPTRS	301B	Optional Research Studies

### Description

Optional Research Studies is a semester term-based, non-credit bearing enrollment status used following the required scholarly experience when the student is conducting a new research project with a new mentor at Duke or away from Duke. It can be elected for up to three semesters. An application consisting of a brief research project description and approval by the mentor and the advisory dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services, insurance and financial aid for living expenses. A continuation fee is charged for this status. No credit awarded toward degree.

## OPTRS401C - OPTIONAL RESEARCH STUDIES - 4th Year

Subject	Catalog Number	Title
OPTRS	401C	OPTIONAL RESEARCH STUDIES - 4th Year

### Description

Optional Research Studies is a semester term-based, non-credit bearing enrollment status used following the required scholarly experience when the student is conducting a new research project with a new mentor at Duke or away from Duke. It can be elected for up to three semesters. An application consisting of a brief research project description and approval by the mentor and the advisory dean is required. A brief report to the advisory dean on the progress of the project is required at the end of each semester. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services, insurance and financial aid for living expenses. ORS should be due to an extension of the third year research into a new area of investigation due to a change of career plans or a desire to enhance research skills, not to delay graduation. A continuation fee is charged for this status. No Credit.



## ORTHO221C - Physical Medicine and Rehabilitation

Subject	Catalog Number	Title
ORTHO	221C	Physical Medicine and Rehabilitation

### Description

Physical Medicine & Rehabilitation is the medical specialty that focuses on treating patients with physical disabilities, whether it be from stroke, sports injury, spinal cord injury, traumatic brain injury, or congenital musculoskeletal conditions. PM&R physicians are known as physiatrists. Physiatrists focus on a holistic approach to healthcare, focusing on how to improve a patient's function and manage their pain. Physiatrists often lead interdisciplinary rehabilitation teams and work closely with neurologists, psychiatrists, and orthopedic surgeons. Thus, students who participate in this selective will take part in a collaborative practice, build on their medical knowledge, and develop basic MSK and neurological exam skills. Students must report to their designated assignments (VA, Duke North, NCOC) on the first Monday of the section at 8:00am. The class meets M-F, 8am - 5pm. Students attend Grand Rounds on Wednesday from 6:30am - 7:30am (Bryan Center). Students must contact Dr. Guo prior to registering and/or questions about schedules or course information. Enrollment Max. 2; Credit: 2. H. Michael Guo, MD; Mike O. Boyd, DO; Gloria Liu, MD; Christopher D. Lunsford, MD; and Paul J.W. Tawney, MD

## ORTHO222C - Orthopaedic Surgery Experience

Subject	Catalog Number	Title
ORTHO	222C	Orthopaedic Surgery Experience

### Description

This course involves a rigorous experience working on the Orthopaedic Surgery Service. Duties include inpatient care, outpatient examination, operating room experience, and emergency room call. Conference attendance is required during both weeks. regular discussions are conducted with attending staff and residents. This course will emphasize broad concepts of orthopaedics and will be useful for all students regardless of their career choices. Orthopaedic Rounds at 5:30 AM Monday through Friday by meeting the residents in the Replant Office (919-681-3163) located at Duke University Hospital in the Hospital for Surgery Addition (HAFS), 1st Floor, and Room 1661 (2301 Erwin Road, Durham, NC 27710). For more information, interest in taking the selective, and to obtain a permission number, please contact Wendy Thompson at 684-3170 or via e-mail at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu). Credit: 2, Enrollment max: 3. Kendall Bradley, MD

## ORTHO421C - Fractures/Musculoskeletal Trauma

Subject	Catalog Number	Title
ORTHO	421C	Fractures/Musculoskeletal Trauma

### Description

Students participate in the emergency management of patients through the Duke Emergency Room. Principles of fractures and trauma are given during emergency room assignment. Requirements are attendance at one outpatient clinic per week, two nights per week on call in the emergency room, and conference attendance. Students planning to apply for orthopaedic residency are required to complete 429C prior to taking this elective. For more information and to obtain a permission number, please contact Wendy Thompson at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu) or 684-3170. Permission is required. Credit: 3. Enrollment: maximum 2 students per four-week section. Malcolm DeBaun, MD; Christian Pean, MD; Rachel Reilly, MD and Duke Orthopaedic Staff

## ORTHO429C - Sub-Internship in Orthopaedic Surgery

Subject	Catalog Number	Title
ORTHO	429C	Sub-Internship in Orthopaedic Surgery

### Description

A full educational experience in orthopaedic surgery with duties and responsibilities similar to a first year resident. Students will have the opportunity to rotate through various orthopaedic subspecialties including trauma, joint arthroplasty, sports medicine, and foot and ankle. Inpatient care, outpatient examination, operating room experience, and emergency room call are expected. Individual or group discussions are conducted each day with attending staff/residents. Conference attendance and emergency room call are required. For more information and to obtain a permission number, please contact Wendy Thompson at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu) or 684-3170. NOTE: This course requires that students complete one week of rotations at the VA Medical Center. Students must complete the required paperwork no later than 30 days prior to the first day of the section in which they are enrolled. Failure to do so may result in the student not being eligible to participate in the elective or sub-internship experience. Permission is required. Credit: 5. Enrollment: max 4 for 4 weeks. Summer section 41, maximum of 2 students. Interested visiting medical students must contact the Visiting Student Coordinator, [scott.campbell@duke.edu](mailto:scott.campbell@duke.edu), to inquire about the process for applying. Kendall Bradley, MD; Robert Fitch, MD and orthopaedic staff and house staff

## ORTHO430C - Orthopaedic Sports Medicine

Subject	Catalog Number	Title
ORTHO	430C	Orthopaedic Sports Medicine

### Description

This elective is ideal for students interested in orthopaedic surgery, but also relevant to occupational medicine, and rehabilitation. Students participate in clinic and operating room. They learn about anatomy, pathology, physical exam, and treatment of a wide range of musculoskeletal presentations in patients from young to old, including athletes. Attendance at educational conferences is required. Students are also encouraged to participate in school physicals and game coverage to gain a full experience. For more information and to obtain a permission number, please contact Wendy Thompson at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu) or 684-3170. Permission required. Credit: 4; Enrollment max: 1. Prerequisite: Ortho 429C. Dean Taylor, MD; Ned Amendola, MD; Oke Anakwenze, MD; Richard Mather, MD; and Alison P. Toth, MD

## ORTHO431C - Hand/Upper Extremity Surgery

Subject	Catalog Number	Title
ORTHO	431C	Hand/Upper Extremity Surgery

### Description

This elective is especially suitable for students interested in orthopaedic surgery, but also relevant to plastic surgery and emergency medicine. Trauma and microvascular are emphasized. Students participate in all aspects from outpatient visits to operative procedures and inpatient rounds. They also spend time in the Hand and Upper Extremity Anatomy Lab. Attendance at educational conferences is required. For more information and to obtain a permission number, please contact Wendy Thompson at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu) or 684-3170. Permission Required. Credit: 4. Prerequisite: Ortho 429C. Enrollment max: 1. David Ruch, MD; Warren Hammert, MD ; Neill Li, MD; and Marc Richard, MD

## ORTHO432C - Musculoskeletal Oncology

Subject	Catalog Number	Title
ORTHO	432C	Musculoskeletal Oncology

### Description

Students gain an understanding of benign and malignant musculoskeletal neoplasms in an interdisciplinary team approach. They learn relevant anatomy, histopathology, radiology, and clinical skills related to the evaluation and management of patients from children to adults. Students participate fully in the daily activities of the orthopaedic oncology service including outpatient visits, operative procedures, and inpatient rounds. Attendance at clinical and basic science conferences is required. For more information and to obtain a permission number, please contact Wendy Thompson at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu) or 684-3170. Prerequisite: Ortho 429C. Permission is required. Credit: 4. Enrollment max: 1. Brian Brigman, MD and William Eward, DVM, MD ; Julia Visgauss, MD

## ORTHO433C - Pediatric Orthopaedics

Subject	Catalog Number	Title
ORTHO	433C	Pediatric Orthopaedics

### Description

Students learn about a wide range of pediatric orthopaedic conditions from birth defects to sports injuries and fractures. Emphasis is placed on understanding the pediatric skeletal anatomy, acquisition of physical examination skills, and relating pathology to structure/function relationship in the pediatric patient. Students participate fully in all aspects of care including outpatient visits, operative procedures, and inpatient rounds. Attendance at educational conferences is required. For more information and to obtain a permission number, please contact Wendy Thompson at [wendy.thompson@duke.edu](mailto:wendy.thompson@duke.edu) or 684-3170. Prerequisite: Ortho 429C. Permission is Required. Credit: 4. Enrollment max: 1. Robert Fitch, MD; and Robert Lark, MD; Benjamin Alman, MD, and Anthony Catanzano, Jr., MD

## OT-D500 - Occupation as a Mechanism of Health

Subject	Catalog Number	Title
OT-D	500	Occupation as a Mechanism of Health

### Description

In this course, students study what it means to understand humans and health from an occupational perspective. Students practice identifying and analyzing what people, do and why. The focus is on how multiple factors transact to influence how people engage in and experience occupations. One factor includes how people move during occupation in context. Therefore, the course includes an interdisciplinary and occupation-based anatomy component.

## OT-D502 - Occupational Science

Subject	Catalog Number	Title
OT-D	502	Occupational Science

### Description

Students explore the science that is dedicated to generating knowledge about occupation, including how occupational science evolved from occupational therapy over the 20th century and its formalization in the late 20th century.

## OT-D501 - Occupation, Occupational Therapy, & Care Systems I

Subject	Catalog Number	Title
OT-D	501	Occupation, Occupational Therapy, & Care Systems I

### Description

OTD 501 is the first course in a three-part series of courses focused on how societal and practice-based contexts have influenced the practices of occupational therapists over time.

## OT-D504 - Enabling Occupational Skills I

Subject	Catalog Number	Title
OT-D	504	Enabling Occupational Skills I

### Description

This is the first course in a of 4-part series of Team-based Learning courses. The series focuses on the skills and processes involved in enabling occupation. In Part I, students learn and develop ten essential skills for enabling occupation paired with the skills of client-centered enablement and applying the occupational therapy process to a range of practice situations.

## OT-D505 - Assembling, Creating, & Translating Knowledge I

Subject	Catalog Number	Title
OT-D	505	Assembling, Creating, & Translating Knowledge I

### Description

Part one of a two-part research series, this course involves an overview of epidemiology as the foundation of public health and as a set of tools that support occupational research that is community-based, community-engaged, and community-empowering. Working collaboratively with a team of peer-colleagues and a community partner, students design and implement a research project at the intersection of occupation, diversity, and health.

## OT-D506 - Formation for Service I

Subject	Catalog Number	Title
OT-D	506	Formation for Service I

### Description

This course is Part I of a series that occurs across the curriculum. Formation refers to developing the groundwork for professional identity as an occupational therapist. Developing a professional identity means intentionally forming in oneself the ways of engaging with self, others, and the world that are distinctive to being an occupational therapist. Through the series, students establish the alignment between who they are, their vocation, and occupational therapy's distinct knowledge and contributions. In Part I, students clarify values, beliefs, assumptions, and strengths. They hone skills to carefully observe, listen to, and support others in group and team contexts. They explore philosophical reflections on occupational therapy, critiques of the field, and accounts of the professional identities and formation stories of occupational therapists.

## OT-D507 - Applied Practice Experience (APEX) IA

Subject	Catalog Number	Title
OT-D	507	Applied Practice Experience (APEX) IA

### Description

In this two-week experiential, students apply content from first semester coursework to simulated practice scenarios, followed by application to practice setting.

## OT-D508 - Occupational Transitions I

Subject	Catalog Number	Title
OT-D	508	Occupational Transitions I

### Description

This course is one in a four-part, co-occurring series focused on applying the occupational therapy process to situations in which occupations are disrupted. Here, students assess and create interventions for situations where occupation is disrupted by issues in the environment, including physical, social, cultural, virtual, and political environments.

## OT-D509 - Occupational Transitions II

Subject	Catalog Number	Title
OT-D	509	Occupational Transitions II

### Description

This course is one in a four-part, co-occurring series focused on applying the occupational therapy process to situations in which occupations are disrupted by issues in physical, social, cultural, and political environments. Attention is given to the use of technology and data to assess the impact of environmental disruptions on individuals, groups, communities, and populations and to design and implement environmental interventions.

## OT-D511 - Enabling Occupation Skills II

Subject	Catalog Number	Title
OT-D	511	Enabling Occupation Skills II

### Description

Students use the Kawa Model and other models to integrate their learning occurring in the transition series courses addressing occupational transitions due to human development, environments, and health conditions. Students explore client narratives and appreciate the complex contextual elements that enable, support, challenge, limit and determine what occupations people engage in, how they engage and how they experience occupation.

## OT-D513 - Formation for Service II

Subject	Catalog Number	Title
OT-D	513	Formation for Service II

### Description

This course is Part II of a series that occurs across the curriculum. Students consider the formation of a professional identity in relation to service with and alongside others – colleagues, clients, and neighbors. Students explore how frameworks for service, therapeutic use of self, self-empathy, and power dynamics shape their commitment to service as an emerging occupational therapy practitioner.

## OT-D510 - Occupational Transitions III

Subject	Catalog Number	Title
OT-D	510	Occupational Transitions III

### Description

Also part of the four-course series on occupational transitions, students in this course become proficient in administering the OT process with clients whose occupations are disrupted or in transition due to the impacts of health conditions such as mental illness, neurological events, burn injuries, visual impairments, and intellectual or developmental disability. Students also explore the underlying anatomy/neuroanatomy elements of transitions resulting from health-impacting conditions.

## OT-D512 - Assembling, Creating, & Translating Knowledge II

Subject	Catalog Number	Title
OT-D	512	Assembling, Creating, & Translating Knowledge II

### Description

In the second course in the two-part research series, students continue to develop and implement research at the intersection of occupation, diversity, and health through a community-engaged research project. Students design and conduct a qualitative study in collaboration with a community partner, analyze the results, and present the findings at a public poster session.

## OT-D514 - Applied Practice Experience (APEX) IB

Subject	Catalog Number	Title
OT-D	514	Applied Practice Experience (APEX) IB

### Description

In this two-week experiential, students apply content from second semester coursework to simulated practice scenarios, followed by application to practice settings.

## OT-D515 - Innovation & Everyday Leadership

Subject	Catalog Number	Title
OT-D	515	Innovation & Everyday Leadership

### Description

Students analyze the informal ways people innovate and exert leadership on behalf of individuals, communities, populations, and the profession. Students examine their actions through an innovation and leadership lens to identify the ways in which they are everyday leaders. They examine their formal and informal leadership roles and discuss those roles in light of leadership and entrepreneurship theories. Students discover how to influence change in the profession by working with the governance and political processes of various professional organizations.

## OT-D516 - Teaching, Learning and Change

Subject	Catalog Number	Title
OT-D	516	Teaching, Learning and Change

### Description

Students discover learning theory and change theory at the foundation of occupational therapy's longstanding use of education as an intervention. Students create theory- and research-driven education plans that are centered on occupation for patients, clients, fieldwork students, academic students, and the public.

## OT-D517 - Enabling Occupation Skills III

Subject	Catalog Number	Title
OT-D	517	Enabling Occupation Skills III

### Description

Students integrate content from each co-occurring course through team-based learning. They demonstrate enabling occupation skills that are related to each co-occurring course and continue to conduct the occupational therapy process with individuals across the lifespan, from infancy to advanced old age, communities, and populations.

## OT-D518 - Formation for Service III

Subject	Catalog Number	Title
OT-D	518	Formation for Service III

### Description

This course is Part III of a series that occurs across the curriculum. Students are formed for service by becoming aware of systemic issues that promote health disparities and occupational disruptions and injustices. Students explore issues of power dynamics, occupational justice, therapeutic use of self, advocacy, and creating partnerships with individuals, groups, and communities to enable flourishing and greater access to and participation in occupation.

## OT-D519 - Applied Practice Experience (APEX) IC

Subject	Catalog Number	Title
OT-D	519	Applied Practice Experience (APEX) IC

### Description

In this two-week experiential, students apply content from third-semester coursework to simulated practice scenarios, followed by application to practice settings.

## OT-D600 - Needs Assessment and Programming to Support Occupation

Subject	Catalog Number	Title
OT-D	600	Needs Assessment and Programming to Support Occupation

### Description

Students conduct a comprehensive needs assessment, design a program aimed at improving access to and participation in occupation, and write a grant proposal for the proposed program. Students demonstrate and explain occupational therapy's value and contributions to health outcomes.

## OT-D601 - Occupation and Technology

Subject	Catalog Number	Title
OT-D	601	Occupation and Technology

### Description

Students develop practice skills to assess, select, and advocate for assistive technologies that can improve the alignment between the occupations someone needs to do, the context with which they do them, and their capacities.

## OT-D602 - Occupation, Occupational Therapy, & Care Systems II

Subject	Catalog Number	Title
OT-D	602	Occupation, Occupational Therapy, & Care Systems II

### Description

Students develop understanding of the systems that influence occupational therapy practice in diverse settings. These systems include service delivery models, policy, regulatory bodies, reimbursement systems, credentialing requirements, ethics, liability, and expectations for lifelong career development. Emphasis is on how to influence systems as needed in order to create contexts where the value and distinct contribution of occupational therapy to peoples' health and well-being can be fully realized.

## OT-D603 - Enabling Occupation Skills IV

Subject	Catalog Number	Title
OT-D	603	Enabling Occupation Skills IV

### Description

This is the fourth course in the four-part EOS courses. Students address skills and processes involved in enabling occupation with attention to personal factors related to motor function, motor control, sensation, and cognition.

## OT-D604 - Formation for Service IV

Subject	Catalog Number	Title
OT-D	604	Formation for Service IV

### Description

This course is Part IV of a series that occurs across the curriculum. Students focus on skills related to lifelong professional development, including the scope of professional responsibilities and accountabilities to entities such as Review Boards, clinical trials, ethics committees, boards of directors, university systems, as well as regional, state, national, and international OT organizations, interdisciplinary colleagues, and occupational therapy assistants.



## OT-D606 - Capstone I

Subject	Catalog Number	Title
OT-D	606	Capstone I

### Description

The Duke OTD Capstone is a two-course series followed by a 14-week, in-person capstone experience (after level II fieldwork placements). Throughout the two capstone courses, students start their capstone project and prepare for their capstone experience. This is an applied project course, which means students work collaboratively to design and implement authentic and impactful projects. This course is the culmination of the entire Duke OTD curriculum; an opportunity to explore a topic that is inspiring and meaningful to them

## OT-D607 - Advanced Practice Course I

Subject	Catalog Number	Title
OT-D	607	Advanced Practice Course I

### Description

In this 5-week course, students use the occupational therapy process to analyze and adapt occupations to optimize 5 performance and promote health and well-being. The course deepens understanding of activity analysis and the person-environment-occupation transaction and enables students to address performance challenges with adaptive interventions, including adaptive devices, compensatory strategies, environmental modifications, and graded approaches to ADLs. The process is applicable to optimizing all areas of occupation, including education, work, instrumental activities of daily living, and others. Students provide interventions that are occupation-based, grounded in evidence, and culturally competent.

## OT-D608 - Advanced Practice Course II

Subject	Catalog Number	Title
OT-D	608	Advanced Practice Course II

### Description

In this 5-week course, students use the occupational therapy process to address UE function and improve participation in occupation through remediation and compensatory approaches. The course reviews assessments and occupational performance analysis skills gained in former OTD courses. These skills are integrated with new health conditions, interventions, and psychosocial issues. Interventions include activities to prepare clients for occupation such as therapeutic activities, therapeutic exercise, neuromuscular re-education, custom orthoses, and physical agents (i.e., ultrasound, electrical stimulation, and superficial hot/cold). Interventions also include the use of adaptive devices and task modification to support and challenge UE movement capacities

## OT-D609 - Advanced Practice Course III

Subject	Catalog Number	Title
OT-D	609	Advanced Practice Course III

### Description

In this 5-week course, students use the occupational therapy process to assess cognition and reduce/increase cognitive load through remediation and compensatory approaches. The course reviews activity analysis and occupational performance analysis, with particular attention to identifying process skills and mental functions. While the course primarily addresses cognitive rehabilitation and habilitation, the process is applicable to optimizing all client factors such as motor skills, visual skills, and others. Students provide interventions that are occupation-based, grounded in evidence, and culturally competent.

## OT-D610 - Advanced Practice Course IV

Subject	Catalog Number	Title
OT-D	610	Advanced Practice Course IV

### Description

This series of modules allows students to go deeper into an area of interest. They must enroll in 3 of the 4 modules. These will change based on the expertise of the faculty or practitioners offering an APC. Students have the option of substituting a 3-credit elective for the APC series or taking an elective in addition to the APC series. The elective should be related to the student's capstone project and experience.

## OT-D611 - Customized Learning Project

Subject	Catalog Number	Title
OT-D	611	Customized Learning Project

### Description

This course is a seminar-style discussion to frame customized learning projects (CLP) within an occupational perspective. Students can complete a chosen project in line with their interests anytime across their didactic course work and receive credit for the project through this seminar. Students define an occupational perspective and determine how this perspective guides the design and implementation of their CLP. Credit is determined by how extensive experience was and course completion. 20 hours = 1 credit 40 hours = 2 credits 60+ hours = 3 credits

## OT-D612 - Comprehensive Assessment and Management of Practice (CAMP) I

Subject	Catalog Number	Title
OT-D	612	Comprehensive Assessment and Management of Practice (CAMP) I

### Description

In this course, students begin the transition to the responsibilities of a practicing occupational therapist. Through a supervised team approach, students complete the full OT process with community volunteer clients. Students assess volunteers' occupational supports and needs, plan and implement interventions to optimize occupational engagement, establish a discharge plan, complete documentation, and practice billing for services. This course builds upon earlier foundational experiences in APEX and coursework to further develop professional reasoning, therapeutic use of self, evidence-based practice, and enabling skills in preparation for Level II Fieldwork.

## OT-D613 - Comprehensive Assessment and Management of Practice (CAMP) II

Subject	Catalog Number	Title
OT-D	613	Comprehensive Assessment and Management of Practice (CAMP) II

### Description

These experiences offer students the opportunity to work with a specific population for 4-5 weeks. Students complete assessments, collaborate with community members as clients to determine their goals and challenges, generate an intervention plan, and implement and assess outcomes. It is our hope that these experiences will become interprofessional experiences with physical therapy and others. For example, a pair or team of occupational therapy and physical therapy students would work together with 1-3 children experiencing challenges at school or in the community, or occupational therapy and physical therapy students may work together with 1-3 adults who have neurologic conditions. Students must enroll in 3 of the 4 CAMP experiences. Each CAMP is 1 credit; 3 credits total.

### OT-D614 - Comprehensive Assessment and Management of Practice (CAMP) III

Subject	Catalog Number	Title
OT-D	614	Comprehensive Assessment and Management of Practice (CAMP) III

#### Description

These experiences offer students the opportunity to work with a specific population for 4-5 weeks. Students complete assessments, collaborate with community members as clients to determine their goals and challenges, generate an intervention plan, and implement and assess outcomes. It is our hope that these experiences will become interprofessional experiences with physical therapy and others. For example, a pair or team of occupational therapy and physical therapy students would work together with 1-3 children experiencing challenges at school or in the community, or occupational therapy and physical therapy students may work together with 1-3 adults who have neurologic conditions. Students must enroll in 3 of the 4 CAMP experiences. Each CAMP is 1 credit; 3 credits total.

### OT-D615 - Comprehensive Assessment and Management of Practice (CAMP) IV

Subject	Catalog Number	Title
OT-D	615	Comprehensive Assessment and Management of Practice (CAMP) IV

#### Description

These experiences offer students the opportunity to work with a specific population for 4-5 weeks. Students complete assessments, collaborate with community members as clients to determine their goals and challenges, generate an intervention plan, and implement and assess outcomes. It is our hope that these experiences will become interprofessional experiences with physical therapy and others. For example, a pair or team of occupational therapy and physical therapy students would work together with 1-3 children experiencing challenges at school or in the community, or occupational therapy and physical therapy students may work together with 1-3 adults who have neurologic conditions. Students must enroll in 3 of the 4 CAMP experiences. Each CAMP is 1 credit; 3 credits total.

### OT-D616 - Formation for Service V

Subject	Catalog Number	Title
OT-D	616	Formation for Service V

#### Description

This course is Part V of a series that occurs across the curriculum. In this final course, students explore tools to support their resiliency as emerging occupational therapists. Students consider stewardship as a framework for serving clients facing occupational transitions, injustices, or disruptions. Students create a professional development plan for their upcoming year of Level II Fieldwork and Capstone experiences.

### OT-D617 - Capstone II

Subject	Catalog Number	Title
OT-D	617	Capstone II

#### Description

The Duke OTD Capstone is a two-course series followed by a 14-week, in-person capstone experience. Students synthesize knowledge, skills, and dispositions gained across the curriculum to design a self-selected project implemented after Level II fieldwork placements.

### OT-D618 - OTD Level II Fieldwork IIA

Subject	Catalog Number	Title
OT-D	618	OTD Level II Fieldwork IIA

**Description**

Students complete a 12-week full-time fieldwork experience.

### OT-D619 - Applied Practice Experience (APEX) ID

Subject	Catalog Number	Title
OT-D	619	Applied Practice Experience (APEX) ID

**Description**

In this two-week experiential, students apply content from fourth-semester coursework to simulated practice scenarios, followed by application to practice settings.

### OT-D620 - Occupational Justice and Social Entrepreneurship

Subject	Catalog Number	Title
OT-D	620	Occupational Justice and Social Entrepreneurship

**Description**

Students explore the synergies between occupational justice and social entrepreneurship in response to state and local occupational injustices and challenges. They generate strategies and occupation-centered options to mitigate and eliminate social ills. Students are inspired and empowered by the passion, stories, and prosocial concerns of successful occupational therapy social entrepreneurs who are part of their knowledge community. The course culminates in a juried presentation of a proposed occupation-centered social enterprise or innovation for the local community.

### OT-D621 - Becoming an OT Social Entrepreneur

Subject	Catalog Number	Title
OT-D	621	Becoming an OT Social Entrepreneur

**Description**

Students explore personal and professional prosocial concerns, values, and priorities and examine the relationship between these factors and social entrepreneurship as a career path. Students design a strategic plan for pursuing occupation-centered social entrepreneurship based on self-assessment, coaching, and advisory feedback.

### OT-D622 - Introduction to Low Vision Rehab

Subject	Catalog Number	Title
OT-D	622	Introduction to Low Vision Rehab

**Description**

This course focuses on occupational therapy's role in vision rehabilitation services. Students study the history of low vision rehabilitation, basic anatomy and diseases of the eye that are associated with low vision, evaluation tools, and therapeutic approaches. Students learn to use visual, non-visual, optical, and technology strategies to support occupational engagement for people with low vision.

### OT-D623 - Occupational Therapy in Acute Care

Subject	Catalog Number	Title
OT-D	623	Occupational Therapy in Acute Care

**Description**

Acute and Critical Care occupational therapists enable clients to engage in chosen and meaningful occupations in preparation for the next level of care. In this course, students learn a systems-based approach to addressing occupations impacted by medical complexities for diverse populations.

## OT-D624 - Spirituality and Religion in Occupational Therapy

Subject	Catalog Number	Title
OT-D	624	Spirituality and Religion in Occupational Therapy

### Description

This course examines spirituality and religion in health care and occupational therapy practice. Students acquire methods of assessing spiritual strengths and needs as well as approaches that consider spirituality as a person's relationship with themselves, other people, and the transcendent. Learners explore religious occupations and develop skills related to assessment, intervention, ethical discernment, and clinical reasoning to address spiritual and religious concerns in OT practice.

## OT-D701 - OTD Level II Fieldwork IIB

Subject	Catalog Number	Title
OT-D	701	OTD Level II Fieldwork IIB

### Description

Students complete a 12-week full-time fieldwork experience.

## OT-D700 - Capstone Experience

Subject	Catalog Number	Title
OT-D	700	Capstone Experience

### Description

Students complete a 14-week Capstone Experience.

## OTOLARYN220C - Surgical Treatment of Diseases of the Head and Neck, Ears, Nose and Throat

Subject	Catalog Number	Title
OTOLARYN	220C	Surgical Treatment of Diseases of the Head and Neck, Ears, Nose and Throat

### Description

This otolaryngology, head and neck surgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive head and neck surgery, including: pediatrics, otology, laryngology, rhinology, benign and malignant disease of the neck (including thyroid), benign and malignant disease of the upper aerodigestive tract, microvascular reconstruction, and craniomaxillofacial trauma. There will be didactic instruction with patient care exposure in the clinic, emergency department and operating room settings. Credit: 2. Enrollment Max: 3. Location: Duke North Ward 6300 - 6:30 a.m. Contact: Please reach out to Lori Allsbrook (lori.allsbrook@duke.edu) and Dr. Janet Lee (janet.w.lee@duke.edu) one week prior to the rotation start date to confirm the exact time and place to meet. Janet Lee, MD

## OTOLARYN401C - Sub-Internship in Otolaryngology Head and Neck Surgery

Subject	Catalog Number	Title
OTOLARYN	401C	Sub-Internship in Otolaryngology Head and Neck Surgery

### Description

This course is a full educational experience in OHNS with duties and responsibilities similar to a first year resident. Students will experience a comprehensive survey of clinical activities, including inpatient care, assisting in the operating room, seeing consults, and emergency room call. The student participates in ward rounds and in various conferences held by the department. At the end of the subinternship, the student will give a 20 to 30-minute presentation on the topic of his/her choice at our departmental Grand Rounds Conference (usually based on a patient the student has taken care of during the subinternship). For more information on where to report or basic questions, please refer to the OHN consult pager, 970-1320. Credits: 5. Enrollment max: 2. Janet Lee, MD

## OTOLARYN403C - Clinical Otolaryngology

Subject	Catalog Number	Title
OTOLARYN	403C	Clinical Otolaryngology

### Description

This 4-week course provides the senior student with a comprehensive survey of clinical otolaryngology, from oncology to pediatrics to otology to laryngology. Duties include intern-level participation in both outpatient clinic activities and inpatient care, including assisting in the operating room. The student participates in daily ward rounds and in weekly conferences held by the department. Students are expected to schedule call each week and give a 15-20 minute grand rounds style presentation on their selected OHNS topic at the end of the rotation. Students should report at 6:30 a.m. on 6300 for the first day of classes. This course is intended for fourth year students NOT applying for Otolaryngology residency. For more information on where to report or basic questions, please refer to the OHN consult pager, 970-1320 or contact Lori Allsbrook (lori.allsbrook@duke.edu) or 919-681-6588. Credit: 4. Enrollment: max: 2. Janet Lee, MD

## OVS301B - Research in OVS

Subject	Catalog Number	Title
OVS	301B	Research in OVS

### Description

The development of the next generation of clinician-scientists is a high priority of the educational mission of the Department of Ophthalmology. To achieve this goal, the faculty offer a wide scope of research opportunities to third-year students. These range from intense, hands-on experience in molecular and cell biology, to animal surgery, to clinical prospective and retrospective studies. The student, in addition to being closely mentored by an individual faculty member, is encouraged to participate in the vast array of departmental research and clinical seminars and lectures and tutorials. These activities offer an intensive learning environment and provide a solid foundation from which to launch a successful career bridging basic and clinical sciences with the practice of medicine. FACULTY: Vadim Arshavsky, PhD, BS; Sanjay Asrani, MBBS; Catherine Bowes Rickman, PhD; Edward Buckley, MD; Pratap Challa, MD; Scott Cousins, MD, BA; Sina Farsiu, PhD; Sharon Fekrat, MD; Sharon Freedman, MD, BS; Michael Hauser, PhD; Leon Herndon, MD; Glenn Jaffe, MD; Anthony Kuo, MD; Stephen Lisberger, PhD; Paloma Liton, PhD, MSc; Goldis Malek, PhD; Felipe Medeiros, MD, PhD; Kelly Muir, MD, MHS; Grace Prakalapakorn, MD, MPD, BSE; Ponugoti Rao, PhD; Jullia Rosdahl, MD, PhD; Daniel Saban, PhD, MS; W Stamer, PhD, BS; Cynthia Toth, MD; Lejla Vajzovic, MD, BS; Joanne Wen, MD; Heather Whitson, MD, MHS

## PATHASST100 - Human Structure & Function 1

Subject	Catalog Number	Title
PATHASST	100	Human Structure & Function 1

### Description

This core preclinical course focuses on the scientific principles underlying the structure and function of the human body, thereby providing the foundational knowledge for the practice of medicine and facilitating the incorporation of the new scientific knowledge throughout the medical career. The course content includes: biochemistry, cell biology, genetics, histology, anatomy, physiology, and the neurosciences. Topics pertaining to human disease and injury are incorporated into the curriculum to promote application of course material. Core material is presented through team-based learning, didactic lectures, laboratory exercises, clinical case based problem-solving, and clinical correlations with patients. Credit 6. Carbrey

## PATHASST101 - Human Structure & Function 2

Subject	Catalog Number	Title
PATHASST	101	Human Structure & Function 2

### Description

This core preclinical course focuses on the scientific principles underlying the structure and function of the human body, thereby providing the foundational knowledge for the practice of medicine and facilitating the incorporation of the new scientific knowledge throughout the medical career. The course content includes: biochemistry, cell biology, genetics, histology, anatomy, physiology, and the neurosciences. Topics pertaining to human disease and injury are incorporated into the curriculum to promote application of course material. Core material is presented through team-based learning, didactic lectures, laboratory exercises, clinical case based problem-solving, and clinical correlations with patients. Credit 12. Carbrey

## PATHASST102 - Foundations of Patient Care II

Subject	Catalog Number	Title
PATHASST	102	Foundations of Patient Care II

### Description

This core course in human disease is presented from February through June of the first year. The course begins with fundamental principles of three basic sciences most directly related to human disease: immunology, microbiology and pathology. This component is followed by an integrated presentation of the most common human diseases organized sequentially by organ system. Teaching modes include lectures, a variety of small group activities guided by faculty and clinically-oriented disease workshops. Credit: 16. Muzyk, Alsbaugh, Gunn, Deyrup, Roberts, and Velkey

## PATHASST103 - Foundations of Patient Care I

Subject	Catalog Number	Title
PATHASST	103	Foundations of Patient Care I

### Description

This integrated, multi-component, core course provides the foundational knowledge for the biomedical sciences. The units within the course focus on the scientific principles underlying the structure and function of the human body (anatomy, biochemistry, cell biology, embryology, genetics, histology, physiology, and the neurosciences) and are taught in the context of a clinical framework. Students apply principles learned from the Leadership Education and Development (LEAD) component of the course to their interactions in team-based activities to hone their teamwork skills. Core material is presented through team-based learning, didactic lectures, scientific readings, laboratory exercises, small group discussions, standardized patients, clinical case based problem-solving, and clinical correlations with patients.

## PATHASST204 - Introduction to Practical Anatomic Pathology Techniques

Subject	Catalog Number	Title
PATHASST	204	Introduction to Practical Anatomic Pathology Techniques

### Description

Students are introduced to the daily activities in a surgical pathology laboratory. Emphasis is placed on neurologic gross and microscopic anatomy and dissection of the brain and spinal cord. Students become acquainted with the various duties assumed by trained Pathologists' Assistants and are introduced to basic tissue dissection techniques taught through participation in the surgical pathology service. Lectures in basic medical terminology are presented with emphasis on pathologic processes. Students are also exposed to educational methodologies in lecture and laboratory settings, medical ethics and professional, and basic laboratory safety. Credit: 2. Johnson, Hennessey, Topper, and staff

## PATHASST203 - Neuroscience and the Autopsy

Subject	Catalog Number	Title
PATHASST	203	Neuroscience and the Autopsy

### Description

Students are introduced to neurologic disease processes and how these processes relate to changes in the brain and spinal cord. Emphasis is placed on neuroanatomy, neurohistology, and the neurological dissection and how these impact the approach taken during surgical pathology and autopsy procedures. The course is paired with an introduction to the autopsy service and the various pathology conferences directed towards the service. Lopez, Cummings, Velkey, Johnson and Hennessey

## PATHASST210 - Introduction to Autopsy Pathology

Subject	Catalog Number	Title
PATHASST	210	Introduction to Autopsy Pathology

### Description

This is a summer rotation given during the first summer session. It is designed to acquaint the student with autopsy prosection and workup training and experience, building on concepts introduced in PATHASST 204. Students work with the PA on service and assist residents in full autopsy dissections. Credit: 4. Hennessey and staff



## PATHASST215 - Histology Techniques

Subject	Catalog Number	Title
PATHASST	215	Histology Techniques

### Description

Students participate in rotations through two histology and immunohistochemistry laboratories. The rotations are designed to acquaint students with the various laboratory techniques used in tissue processing, routine histology, special histochemistry and immunohistochemistry procedures. Credit: 1. Su

## PATHASST217 - Molecular Pathology Techniques

Subject	Catalog Number	Title
PATHASST	217	Molecular Pathology Techniques

### Description

During this one week practical rotation, students are introduced to ancillary diagnostic technologies and techniques used to assess cellular and subcellular pathology, to include immunohistochemistry, flow cytometry, image analysis and electron microscopy in various laboratory settings. Credit: 1. Perkinson and staff.

## PATHASST218 - Anatomic Pathology and Digital Analytics

Subject	Catalog Number	Title
PATHASST	218	Anatomic Pathology and Digital Analytics

### Description

Students participate in rotations through a histology laboratory, and are also introduced to ancillary diagnostic technologies and techniques used to assess cellular and subcellular pathology. The rotations are designed to acquaint students with the various laboratory techniques used in tissue processing, routine histology techniques, and special testing procedures. The specialized testing procedures include rotations through immunohistochemistry, flow cytometry, molecular diagnostic studies and electron microscopy in various laboratory settings.

## PATHASST221 - Introduction to Surgical Pathology - Duke

Subject	Catalog Number	Title
PATHASST	221	Introduction to Surgical Pathology - Duke

### Description

This is the initial practical rotation conducted during the first summer session. It is designed to re-acquaint students with the techniques of gross dissection, descriptions, and submission of tissue samples from surgical specimens, focusing on small biopsy specimens and building on concepts presented in PATHASST 204. It runs concurrently with PATHASST 222, and is designed to introduce students to the variations and differences between a university medical center and a veterans administration medical center's Surgical Pathology Service. Credit: 2. Bentley, Topper and staff

## PATHASST222 - Introduction to Surgical Pathology - VAMC

Subject	Catalog Number	Title
PATHASST	222	Introduction to Surgical Pathology - VAMC

### Description

This is the initial practical rotation conducted during the first summer session complimenting PATHASST 221. It presents students with the techniques of gross dissection, descriptions, and submission of tissue samples from surgical specimens processed at the Durham Veterans Administration Medical Center's (VAMC) Surgical Pathology Service. Emphasis is placed on the close interaction with the attending pathologist, pathology resident and their interactions with the surgical team. Students are introduced to tissue triage, slide preparation, frozen section technique and case sign-out logistics, comparing the variations and differences between a university medical center and a veterans administration medical center's Surgical Pathology Services. Credit: 2. Huening and staff

## PATHASST302 - Forensic Pathology

Subject	Catalog Number	Title
PATHASST	302	Forensic Pathology

### Description

This is a practical rotation at the North Carolina Office of the Chief Medical Examiner observing and participating (on a limited basis) with forensic pathologists performing medical-legal autopsies. Credit: 2. Aurelius and staff

## PATHASST303 - Senior Seminar

Subject	Catalog Number	Title
PATHASST	303	Senior Seminar

### Description

Students complete an independent study under the supervision of a Department of Pathology faculty member or senior Pathology resident. Topics are selected from Surgical Pathology or Autopsy Pathology cases, and are researched, developed and presented to the PA Program administration and the Department of Pathology faculty and staff as a final senior seminar. Credit: 2. Bentley and staff

## PATHASST321 - Surgical Pathology I - Duke

Subject	Catalog Number	Title
PATHASST	321	Surgical Pathology I - Duke

### Description

These courses run concurrently during the fall semester of the second year, and are meant to be complimentary. They are practical rotations on the Duke University and Veterans Administration Medical Center's Surgical Pathology Services respectively, building on the techniques and skills taught in PATHASST 221 & 222. These courses consist of continuing laboratory training in the orientation, description, and dissection of gross surgical specimens with special emphasis on frozen section technique, tissue triage and the role of the PA and their interaction with the attending pathologist and pathology resident following many of the cases through to sign-out by the pathologist at the VAMC. Credit: 4, 4. Bentley, Topper, Huening, and staff

## **PATHASST322 - Surgical Pathology I - VAMC**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	322	Surgical Pathology I - VAMC

### **Description**

These courses run concurrently during the fall semester of the second year, and are meant to be complimentary. They are practical rotations on the Duke University and Veterans Administration Medical Center's Surgical Pathology Services respectively, building on the techniques and skills taught in PATHASST 221 & 222. These courses consist of continuing laboratory training in the orientation, description, and dissection of gross surgical specimens with special emphasis on frozen section technique, tissue triage and the role of the PA and their interaction with the attending pathologist and pathology resident following many of the cases through to sign-out by the pathologist at the VAMC. Credit: 4, 4. Bentley, Deeny, Huening, and staff

## **PATHASST323 - Autopsy Pathology I**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	323	Autopsy Pathology I

### **Description**

A detailed consideration of the morphologic, physiologic, and biochemical manifestations of disease. Includes gross dissection, histologic examinations, processing, and analyzing of all autopsy findings under tutorial supervision. Credit: 4, 4. Glass, Hennessey, and staff

## **PATHASST324 - Autopsy Pathology II**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	324	Autopsy Pathology II

### **Description**

A detailed consideration of the morphologic, physiologic, and biochemical manifestations of disease. Includes gross dissection, histologic examinations, processing, and analyzing of all autopsy findings under tutorial supervision. Credit: 4, 4. Glass, Hennessey, and staff

## **PATHASST330 - Autopsy Practicum**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	330	Autopsy Practicum

### **Description**

This is the final autopsy rotation completed during the summer of the second year of training. Students must perfect their dissection skills, demonstrate the ability to conduct full autopsy prosections in all possible situations, and write full preliminary autopsy reports. In addition, special dissection skills are taught in this course. Credit: 3. Glass, Hennessey, and staff

## **PATHASST331 - Surgical Pathology II - Duke**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	331	Surgical Pathology II - Duke

### **Description**

These courses run concurrently during the spring semester of the second year, and are meant to be complimentary. They are continuing, practical rotations on the Duke University or Veterans Administration Medical Center's Surgical Pathology Services, building on the techniques and skills taught in PATHASST 221, 222, 321 & 322. These courses consist of continuing laboratory training in the orientation, description, and dissection of gross surgical specimens with special emphasis on the role of the PA and their interaction with the attending pathologist and pathology resident, following many of the cases through to sign-out by the pathologist at the VAMC. Students also participate in a two week enrichment experience at an external rotation site during these courses. Credit: 7, 4. Bentley Topper, Huening and staff

## **PATHASST332 - Surgical Pathology II - VAMC**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	332	Surgical Pathology II - VAMC

### **Description**

These courses run concurrently during the spring semester of the second year, and are meant to be complimentary. They are continuing, practical rotations on the Duke University or Veterans Administration Medical Center's Surgical Pathology Services, building on the techniques and skills taught in PATHASST 221, 222, 321 & 322. These courses consist of continuing laboratory training in the orientation, description, and dissection of gross surgical specimens with special emphasis on the role of the PA and their interaction with the attending pathologist and pathology resident, following many of the cases through to sign-out by the pathologist at the VAMC. Students also participate in a two week enrichment experience at an external rotation site during these courses. Credit: 7, 4. Bentley Deeny, Huening and staff

## **PATHASST340 - Photography I**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	340	Photography I

### **Description**

This is an introduction to medical photography. Students become familiar with photography equipment and the fundamentals of gross specimen photography. Credit: 1. Conlon

## **PATHASST341 - Photography II**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	341	Photography II

### **Description**

This is an introduction to medical photography. Students become familiar with photography equipment and the fundamentals of gross specimen photography. Credit: 1. Conlon

## **PATHASST351 - Surgical Pathology Practicum - Duke**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	351	Surgical Pathology Practicum - Duke

### **Description**

These are the final surgical pathology rotations completed during the summer of the second year of training both at Duke University and the Veterans Administration Medical Center. Students must perfect their dissection skills and demonstrate the ability to orient, dissect, describe, and submit appropriate tissue samples from all commonly encountered surgical pathology specimens. Students also participate in a one week enrichment experience at an external rotation site during these courses. Credit: 2, 2. Bentley, Topper, Huening and staff

## **PATHASST352 - Surgical Pathology Practicum - VAMC**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
PATHASST	352	Surgical Pathology Practicum - VAMC

### **Description**

These are the final surgical pathology rotations completed during the summer of the second year of training both at Duke University and the Veterans Administration Medical Center. Students must perfect their dissection skills and demonstrate the ability to orient, dissect, describe, and submit appropriate tissue samples from all commonly encountered surgical pathology specimens. Students also participate in a one week enrichment experience at an external rotation site during these courses. Credit: 2, 2. Bentley, Deeny, Huening and staff

## PATHASST359 - Laboratory Technologies and Management

Subject	Catalog Number	Title
PATHASST	359	Laboratory Technologies and Management

### Description

Students are presented with fundamentals of laboratory management to include regulatory and compliance issues, basic management techniques, laboratory safety and infection control in both lectures and practical applications of fine needle aspiration and bone marrow aspiration biopsy. Credit: 2. Johnson, Wagner, Department of Pathology faculty and staff

## PATHASST361 - Pathological Basis of Clinical Medicine I

Subject	Catalog Number	Title
PATHASST	361	Pathological Basis of Clinical Medicine I

### Description

This course consists of lectures and seminars by the departments of Pathology and Medicine faculty, emphasizing both basic science and systemic pathologic topics. Credit: 3. Department of Pathology and Medicine faculty.

## PATHASST362 - Pathological Basis of Clinical Medicine II

Subject	Catalog Number	Title
PATHASST	362	Pathological Basis of Clinical Medicine II

### Description

This course consists of lectures and seminars by the departments of Pathology and Medicine faculty, emphasizing both basic science and systemic pathologic topics. Credit: 3. Department of Pathology and Medicine faculty.

## PATHASST390 - Senior Seminar

Subject	Catalog Number	Title
PATHASST	390	Senior Seminar

### Description

Students complete a full autopsy case and review the gross findings, microscopic slides, and report compiling with the supervision of a Department of Pathology faculty member or senior pathology resident. Cases are approved by the precepting PA on the autopsy service and/or the program director, and are presented to the Pathologists' Assistant Program administration and the Department of Pathology faculty and staff as a final senior seminar. Credit: 2. Bentley, Johnson and staff

## PATHOL220C - What Does A Pathologist Really Do?

Subject	Catalog Number	Title
PATHOL	220C	What Does A Pathologist Really Do?

### Description

The major objective of this selective is to provide the student with answers to the following questions: 1) What are the major areas that comprise the practice of pathology and laboratory medicine? What is Anatomic Pathology? Clinical Pathology (Laboratory Medicine)? What are the recognized sub-specialties in pathology? 2) How does the pathologist function as part of the health care team? What role does a pathologist play in clinical decision making? 3) If you practice Internal Medicine / Surgery / Pediatrics / Ob-Gyn / Primary Care, etc., what can the pathologist do for you? 4) What is the pathologist's role as a teacher? Students will participate in several learning experiences (1-2 days each) that involve working with faculty and residents in various sub-disciplines of pathology [e.g., surgical pathology (frozen section diagnostic service, specimen accessioning/gross descriptions service, diagnostic services), hematopathology/flow cytometry, neuropathology, dermatopathology, cytopathology/fine needle aspiration service, molecular diagnostics, cytogenetics, immunopathology/transplantation pathology, transfusion medicine, and others]. The exact set of experiences will depend on student interests, faculty availability, and number of learners on the service. In each case, every attempt will be made to give the student the types of experiences that allow for fulfillment of the course objectives. Students will attend selected conferences and seminars. The majority of learning experiences will be in the Department of Pathology at DUMC. A few are located at DVAMC. Contact: Please email Dr. Buckley at [patrick.buckley@duke.edu](mailto:patrick.buckley@duke.edu) should you have questions. Enrollment Max. 2. Dr. Buckley will contact students prior to the start of the selective to provide a brief orientation.

## PATHOL402C - Primer of Clinical Pathology

Subject	Catalog Number	Title
PATHOL	402C	Primer of Clinical Pathology

### Description

This is a four-week elective rotation offered, with 1-week in each of the following disciplines of clinical pathology: transfusion medicine, molecular pathology, microbiology, and hematology/hematopathology. Course Requisite: Permission of the instructor is required for enrollment. Maximum Enrollment: 2; Credit: 4 Nicholas Bandarenko, MD; Eric Carlsen, MD, PhD; Maureane Hoffman, MD, PhD; Nancy Henshaw, MPH, PhD, D(ABMM), Grace Lee, MD; Jessica Poisson, MD; Jadee Neff, MD; Christopher Polage, MD and Christine Sulym BS, CG(ASCP)

## PATHOL423C - Autopsy Pathology

Subject	Catalog Number	Title
PATHOL	423C	Autopsy Pathology

### Description

The course is intended to introduce students to the autopsy as an investigative tool. Anatomic-clinical correlation is emphasized. Students work directly with one or more members of the pathology department. They first view autopsies and then assist in the performance of autopsies under supervision. They work up these cases with particular attention to correlations with clinical and experimental medicine, help prepare the final autopsy reports, and work essentially at the level of a house officer. Students are expected to write up one full autopsy report for an autopsy they participated in as their final project. For more information, please contact: Meridith Hennessey, M.H.S., [meridith.hennessey@duke.edu](mailto:meridith.hennessey@duke.edu). Credit: 4. Enrollment: max 2. Carolyn Glass, MD

## PATHOL448C - Practical Surgical and Cytopathology

Subject	Catalog Number	Title
PATHOL	448C	Practical Surgical and Cytopathology

### Description

This course is intended as an introduction to the practice of diagnostic surgical pathology. Clinical and morphologic aspects of diseases are emphasized in rotations through the different specialty services (Gastrointestinal, Gynecologic, Hematopathology, Neuropathology, Dermatopathology, etc.) Students will participate (with residents and staff) in evaluating surgical specimens, performing microscopic interpretations (with ancillary studies), and preparing the final report. The course can be tailored to individuals planning a career in pathology or those pursuing other specialties. Rotations through the Fine Needle Aspiration and Exfoliative Cytology services can be scheduled depending on the student's interest. Please contact Dr. Rami Al-Rohil at least two weeks prior to starting the rotation at [rami.alrohil@duke.edu](mailto:rami.alrohil@duke.edu). Secondary contact (staff assistant): Maranda Oliver ([maranda.oliver@duke.edu](mailto:maranda.oliver@duke.edu)). Students meet on the first day in the pathology department at 9:00 a.m. Credits: 4. Enrollment: max 2. Rami Al-Rohil, MBBS and staff

## PCLT301B - RESEARCH IN - PRIMARY CARE AND LEADERSHIP TRACK

Subject	Catalog Number	Title
PCLT	301B	RESEARCH IN - PRIMARY CARE AND LEADERSHIP TRACK

### Description

Course Director: Anh N. Tran, PhD, MPH. Overview: The Primary Care Leadership Track (PCLT) offers students committed to primary care an opportunity to develop skills needed for patient centered care and community-engaged, population-based practice. Students explore the causes of health disparities, develop a meaningful population health improvement research focus utilizing community engagement and learn leadership skills useful in redesigning clinical programs to better serve patient needs at the individual and population levels. Curriculum: Research. The principal scholarly component of the PCLT is community-engaged population health improvement research or other forms of investigation of health systems and improvement in collaboration with community partners. Like their peers in the more traditional science track, primary care leadership program students will explore a primary research question, find data to support or refute it, and write a thesis (or a grant or manuscript alternative) that communicates their results. The third year will have a 10, 11 and 12 month option. Proposal: All students are expected to prepare a 3-5 page proposal by the end of spring of the second year outlining the aims of the proposed research in consultation with their mentor. The proposed research is to benefit both the existing research/project team with which the student is collaborating and the educational goals of the student. This proposal will state the problem to be studied, the rationale and relevance of the problem, and include a bibliography of relevant literature and sources. Posters: Students are expected to submit abstracts to present results in poster or oral format at the annual Alpha Omega Alpha research day along with at least one other venue. Final Thesis: Students will prepare a thesis that represents the product of their research, no more than 25 pages in length. This is due on the thesis deadline date set by the Registrar's Office. Students are also allowed to produce, instead, a manuscript or grant alternative, as outlined by the School of Medicine. Students will participate in a series of video-conference meetings throughout the year with other students in the PCLT study program to have an opportunity to engage in peer coaching and reflect on Third Year experiences, challenges and lessons learned. Other elective courses may be taken with the permission of the program director and the student's preceptor. Dual-Degree Option: Yes, as long as it is population health improvement oriented.

## PEDS205C - Pediatrics

Subject	Catalog Number	Title
PEDS	205C	Pediatrics

### Description

The basic course in pediatrics for all students is a six-week clerkship in the second year. Its principal aim is to provide an exposure to the field of child health. The student has a varying series of experiences which should give a grasp of the concepts that underlie the discipline. Goals include acquiring familiarity and competence with the basic tools of information-gathering (history, physical examination, and laboratory data) and developing an approach to the integration of this material for the solution of problems of health and illness in infancy, childhood, and adolescence. This should be accomplished with continuing reference to the basic principles of pathophysiology encountered in the first year courses. Those patients to whom the student is assigned provide the focus for case studies. In addition to the careful history and physical examination which must be recorded, the student is expected to organize an appropriate differential diagnosis and to seek and read pertinent reference material relevant to each patient. The student should learn to present each case verbally in an organized and succinct fashion, to follow the patient's progress, and to interpret all studies which are performed. The student is expected to learn from a number of sources: Internet accessible multimedia clinical cases, standard textbooks and journals, current publications and conferences, and also from people -- house staff, faculty, nurses, parents, and all others with whom contact is made in the clinical setting. Objectives include an understanding of the roles played in pediatrics by other members of the health care team, both in the ambulatory and hospital settings. Patient care may involve nurse, social worker, recreation therapist, psychologist, physiotherapist, dietitian, and others. The six weeks are divided to include time in several of the following settings: (a) Duke outpatient clinics and emergency room, (b) Duke inpatient, (c) Duke Regional Hospital, and (d) DRH nursery. Credit: 6. Samrat Das, MD



## PEDS206C - Primary Care Leadership Track (PCLT) - Pediatrics

Subject	Catalog Number	Title
PEDS	206C	Primary Care Leadership Track (PCLT) - Pediatrics

### Description

The basic course in pediatrics for all students is a six-week clerkship in the second year. Its principal aim is to provide an exposure to the field of child health. The student has a varying series of experiences which should give a grasp of the concepts that underlie the discipline. Goals include acquiring familiarity and competence with the basic tools of information-gathering (history, physical examination, and laboratory data) and developing an approach to the integration of this material for the solution of problems of health and illness in infancy, childhood, and adolescence. This should be accomplished with continuing reference to the basic principles of pathophysiology encountered in the first year courses. Those patients to whom the student is assigned provide the focus for case studies. In addition to the careful history and physical examination which must be recorded, the student is expected to organize an appropriate differential diagnosis and to seek and read pertinent reference material relevant to each patient. The student should learn to present each case verbally in an organized and succinct fashion, to follow the patient's progress, and to interpret all studies which are performed. The student is expected to learn from a number of sources: Internet accessible multimedia clinical cases, standard textbooks and journals, current publications and conferences, and also from people -- house staff, faculty, nurses, parents, and all others with whom contact is made in the clinical setting. Objectives include an understanding of the roles played in pediatrics by other members of the health care team, both in the ambulatory and hospital settings. Patient care may involve nurse, social worker, recreation therapist, psychologist, physiotherapist, dietitian, and others. The six weeks are divided to include time in several of the following settings: (a) Duke outpatient clinics and emergency room, (b) Duke inpatient, (c) Duke Regional Hospital, (d) Duke nursery, and (e) Lincoln Community Health Center. Credit: 6. Samrat Das, MD

## PEDS209C - Longitudinal Integrated Curriculum

Subject	Catalog Number	Title
PEDS	209C	Longitudinal Integrated Curriculum

### Description

The basic course in pediatrics for all students is a 2-week inpatient clerkship and a longitudinal outpatient component in the second year. Its principle aim is to provide an exposure to the field of child health. The student will have a varying series of experiences to give them a grasp of the underlying concepts of the field. Goals include acquiring familiarity and competence with the basic tools of information-gathering (history, physical examination, and laboratory data) coupled with developing an approach to the integration of this material toward the solution of problems of health and illness in infancy, childhood, and adolescence. The course helps integrate the basic principles of pathophysiology encountered in the first year courses. The patients assigned to the student provide the focus for case studies. In addition to the careful recorded history and physical examination, the student is expected to develop an appropriate differential diagnosis and read pertinent reference material relevant to each patient. The student should learn to present each case verbally, in an organized and succinct fashion, to follow the patient's progress, and to interpret all performed studies. The student is expected to learn from a number of sources: Internet accessible multimedia clinical cases, standard textbooks, journals, current publications, conferences, and with the house staff, faculty, nurses, parents, and others with whom contact is made in the clinical setting. Objectives also include an understanding of the roles played in pediatrics by other members of the health care team, both in the ambulatory and hospital settings. Credit: 6. Samrat Das, MD

## PEDS220C - Clinical Genetics and Metabolism

Subject	Catalog Number	Title
PEDS	220C	Clinical Genetics and Metabolism

### Description

The students will join the clinical genetics and metabolism service for DUMC and participate in all the activities of the team - outpatient clinics, inpatient consults, case conferences and didactic presentations. They will perform history-taking, pedigree construction, physical examination (including dysmorphology assessment) and construct a differential diagnosis using reading materials, internet resources and databases. They will observe genetic counseling sessions. Credit: 2. Enrollment Max. 2. Location: Genetics Clinic in Children's Health Center, Level 2, workroom D. Please email Dr. Marie McDonald the week before for the schedule. Marie McDonald, MD

## PEDS221C - Child Abuse and Family Violence

Subject	Catalog Number	Title
PEDS	221C	Child Abuse and Family Violence

### Description

This selective provides students the opportunity to learn about child abuse and family violence, the effect of these issues on individual health needs of patients, the impact of these issues on public health, and the role of the physician to address these issues. Students will participate in the evaluation of patients in an outpatient medical child abuse clinic, observe inpatient child abuse consults, and participate in case reviews to determine medical conclusions and recommendations for patients. Other learning opportunities may include observation of court proceedings and participation in multi-agency case review meetings, when available. Students will choose a topic in child abuse or family violence for further study and present their findings to the Child Abuse team. This selective is appropriate for all students interested in learning more about family violence in adult or pediatric clinical medicine and/or public health. Credit: 2. Enrollment Max. 1. Location: Duke Child Abuse and Neglect Medical Evaluation Clinic located at Duke Medical Plaza North Duke Street 3116 N Duke St Durham, NC 27704. For more information and the meeting time, please contact Scott Snider, LCSW, Clinical Coordinator, at 919-479-2694 or [scott.snider@duke.edu](mailto:scott.snider@duke.edu). Aditee Pradhan Narayan, MD

## PEDS222C - Overview of Pediatric Hematology-Oncology

Subject	Catalog Number	Title
PEDS	222C	Overview of Pediatric Hematology-Oncology

### Description

This selective will be offered through the Division of Pediatric Hematology-Oncology within the Department of Pediatrics. During the two week course, students will experience an overview of pediatric hematology-oncology. Students will be expected participate in outpatient care provided in the Children's Health Center. Students also will be asked to attend conferences, including patient care conferences, psychosocial rounds, and didactic conferences. In addition, students will meet with individual faculty and staff members daily in clinic to discuss specific topics including: sickle cell disease, anemia, leukemia, lymphoma, solid tumors and disorders of the coagulation system as well as psychosocial and ethical issues based on the patients evaluated in clinic each day. Credit: 2. Enrollment Max. 1. Location: 4902 Children's Health Center. Mailing box number: 102382. Contact: For more information please contact Susan Kreissman, M.D., at 684-3401 or via email [susan.kreissman@duke.edu](mailto:susan.kreissman@duke.edu). Susan Kreissman, MD

## PEDS224C - Developmental Care of Sick Newborns - A Multidisciplinary Approach

Subject	Catalog Number	Title
PEDS	224C	Developmental Care of Sick Newborns - A Multidisciplinary Approach

### Description

This selective will introduce the student to the more "general pediatric" aspect of neonatology, including complex convalescent medical and developmental care, as well as promote the importance of teamwork in caring for premature and sick babies. Students will gain an appreciation of the importance of a well-coordinated hospital discharge and early intervention services, both in the hospital and after discharge for high-risk infants. They will participate in the activities of the medical and developmental team in the intensive care and transitional care nurseries and learn the important role played by psychologists, therapists and social workers in caring for these infants and their families both in the inpatient and outpatient setting. They will attend morbidity & mortality and developmental/discharge planning rounds, Special Infant Care Clinic and shadow members of the developmental team. Credit: 2. Enrollment Max. 2. Location: Contact Dr. Malcolm ([william.malcolm@duke.edu](mailto:william.malcolm@duke.edu)) and Dr. Mago Shah ([deesha.mago@duke.edu](mailto:deesha.mago@duke.edu)) for more information about where/who to meet on the first day of the rotation. William Malcolm, MD and Deesha Mago-Shah, MD

## PEDS226C - Pediatric Neurology

Subject	Catalog Number	Title
PEDS	226C	Pediatric Neurology

### Description

Students will partake in the evaluation and management of both hospitalized and ambulatory pediatric patients with neurological disorders. Emphasis is placed on the neurodevelopmental history, neurological examination, the use of laboratory tests and radiological tools and pharmacotherapy in the diagnosis and management of childhood neurological disorders. Students will also attend and participate in conferences, including pediatric neurology conference, pediatric neuroradiology conference, and neuroscience core curriculum. For more information please contact Dr. Shital Patel via email at shital.h.patel@duke.edu. Credit: 2. Enrollment max.: 1. Shital Patel, MD

## PEDS227C - Adolescent Medicine

Subject	Catalog Number	Title
PEDS	227C	Adolescent Medicine

### Description

This selective will provide medical students with an introductory experience in the care of adolescents and young adults. This realm of care encompasses a unique blend of acute care, chronic disease management, prevention, and consultative assessments. A distinct priority is placed on effective interpersonal interactions, patient-centered interviewing, and patient education and counseling. Adolescent Medicine by nature is exquisitely multi-disciplinary, and this selective will provide students with a view into the intricacies of such interdisciplinary care across a variety of outpatient settings. Clinical experiences will be complemented by case-based didactic sessions, supervised reading, and a focused academic project. Credit: 2. Enrollment Max: 1, may not be available during some sections. Location: Duke Health Center at Roxboro Street, 4020 N. Roxboro Street. PERMISSION OF INSTRUCTOR IS REQUIRED. Contact Dr. Chung for more information at richard.chung@dm.duke.edu. Richard J. Chung, MD; Naomi Duke, MD; Gary Maslow, MD; John Moses, MD; Nirmish Shah, MD; Betty Staples, MD; and Charlene Wong, MD

## PEDS228C - Pediatric Gastroenterology

Subject	Catalog Number	Title
PEDS	228C	Pediatric Gastroenterology

### Description

This course offers an excellent clinical and endoscopic exposure in the field of pediatric gastroenterology with significant opportunity for one to one interaction with the pediatric GI faculty. The student spend majority of the time in the outpatient setting and the interested student will be exposed to the inpatient setting. For more information, please call Dr. Venkat 684-5068. Administrative contact is Cheryl Chervinko, 919-684-4831 or Nicole Sall at 919-668-2577. Students should meet on the 3rd floor of the Children's Health Center, Pediatric Gastroenterology clinic, at 9am. Enrollment Max. 1; Credit: 2. Note: Students that take this selective may not take the four week elective, PEDS 402C. Narayanan Venkatasubramani, MD/MRCPH/MBBS; Nancy McGreal, MD; Richard Noel, MD/PhD; Leon Reinstein, MD; Megan Butler, MD; Mary Boruta, MD; and Alisha Mavis, MD

## PEDS229C - Pediatric Congenital Cardiology

Subject	Catalog Number	Title
PEDS	229C	Pediatric Congenital Cardiology

### Description

In Pediatric Congenital Cardiology, medical students will observe and participate in the care of a unique patient population through a multidisciplinary approach. Students will have the unique opportunity of caring for pediatric patients with congenital heart disease from an interventional side, a clinical side, and a surgical side. In doing so, they will get a brief introduction into the importance of a team approach to complicated medical decisions and procedures in a field at the cutting edge of modern medicine. Students should meet at Dr. Fleming's office at 7:30am on the first day, 7506 -B, Duke Hospital North, across from the pediatric cath labs. Please contact Dr. Fleming by email, gregory.fleming@duke.edu prior to the first day to confirm the meeting time. Secondary contact is Amanda Picart CPNP, Amanda.litton@duke.edu Credit: 2. Enrollment: max 1, min 1. Gregory Fleming, MD; Amanda Picart

## PEDS232C - Pediatric Infectious Diseases

Subject	Catalog Number	Title
PEDS	232C	Pediatric Infectious Diseases

### Description

Students will be introduced to the evaluation, diagnosis, management, and follow-up of children with possible and known infectious diseases. Students will work closely with the pediatric infectious diseases team, especially the fellows and attendings, both on the inpatient and outpatient services. They will also attend the weekly clinical case conference with the members of the Division of Pediatric Infectious Diseases, and learn about the varied career pathways within the field. Students meet at the Office of Pediatric Infectious Diseases, Room 373, Hanes House, at 9 am the first day. Pre-Requisite: Permission of the instructor is required. Contact Dr. McGann at kathleen.mcgann@duke.edu. Maximum Enrollment: 1; Credit: 2. Kathleen McGann, MD

## PEDS402C - Pediatric Gastroenterology

Subject	Catalog Number	Title
PEDS	402C	Pediatric Gastroenterology

### Description

This course offers an excellent clinical and endoscopic exposure in the field of pediatric gastroenterology with significant opportunity for one to one interaction with the pediatric GI faculty. The students spend majority of the time in the outpatient setting and the interested student will be exposed to the inpatient setting. For more information, please call Dr. Venkat 9196658017 or Ms. Lesley Stanford at 919-668-4390 for questions. Please report to Children's Health Center, 3rd Floor, GI clinic at Duke University Hospital (2301 Erwin Road, Durham, NC 27710) at 9 AM on the start day of the rotation where you will be given orientation and clinic schedule. Credit: 3-4. Enrollment max: 1. Note: Students that have previously taken the two-week selective, PEDS 228C, are not eligible to enroll in PEDS 402C. Narayanan Venkatasubramani, MD/MRCPH/ MBBS; Richard Noel, MD/PhD

## PEDS401C - Pediatric Sub-Internship

Subject	Catalog Number	Title
PEDS	401C	Pediatric Sub-Internship

### Description

This course is designed to provide the student with an intensive, in-depth exposure to the diagnosis and management of pediatric patients hospitalized at Duke University Hospital. Students are responsible for admissions, management throughout the hospitalization, and discharge planning. The student functions as an intern throughout the rotation; however, notes and orders must be co-signed by the supervising resident or attending physician on the team. Students are evaluated by their residents and attending physicians. This course cannot be taken in conjunction with any other course. Students must obtain the permission of Dr. Jennifer De Coste-Lopez (jennifer.decostelopez@duke.edu) to register for or to drop this course. Prior to the start of the sub-internship, the assigned inpatient team will be provided to the student as well as details regarding sub-internship orientation activities. Credit: 5. Secondary Contact: Elizabeth Futrell (elizabeth.futrell@duke.edu). Enrollment: Max: 4. Jennifer De Coste-Lopez, MD; Dana Clifton, MD; Samrat Das, MD and faculty

## PEDS404C - Advanced Adolescent Medicine

Subject	Catalog Number	Title
PEDS	404C	Advanced Adolescent Medicine

### Description

This elective will provide medical students with a foundational experience in the care of adolescents and young adults -- a unique blend of acute care, chronic disease management, prevention, and consultative assessments. A distinct priority is placed on effective interpersonal interactions, patient-centered interviewing, and patient education and counseling. Adolescent Medicine by nature is exquisitely multi-disciplinary, and this selective will provide students with a view into the intricacies of such interdisciplinary care across a variety of outpatient settings. Clinical experiences will be complemented by case-based didactic sessions and supervised study. Enrollment Max: 1; Credit: 2. Permission of instructor is required. On the first day of classes, students should meet at Duke Health Center, 4020 N. Roxboro Street. Please contact Dr. Richard Chung (richard.chung@duke.edu) to confirm meeting time. Richard Chung, MD; Naomi Duke, MD, PhD; John Moses, MD; Nirmish Shah, MD; Betty Staples, MD, Gary Maslow, MD, and Charlene Wong, MD

## PEDS408C - Child Advocacy Lab

Subject	Catalog Number	Title
PEDS	408C	Child Advocacy Lab

### Description

The lack of understanding and cooperation between the fields of medicine and law lead to missed opportunities to advocate for children's rights and improved health outcomes. The Child Advocacy Lab offers a unique opportunity to join a dynamic, collaborative learning environment where medical and law students engage in team discussion and projects related to child advocacy, with particular focus on recent changes in mandated reporting laws that have greatly affected all professionals working with children. Lessons learned from working cooperatively with other disciplines as interprofessional team members will directly translate to enhanced career skills for interdisciplinary practice. Classes will meet on Wednesday evenings, 5:30p to 7:30p. During spring 2024, classes begin on TBD. Meeting location: TBD based on COVID safety procedures. Scott Snider, LCSW, will contact all enrolled medical students the week prior to class to communicate time and location for the initial meetings. Credit: 1 Non-Direct Patient Care. Maximum enrollment: 8; Minimum Enrollment: 2. Offered during the evenings, spring 81. Note: If the course enrollment is at maximum capacity and you are interested in enrolling, please reach out to Dr. Narayan. Aditee Narayan, MD/MPH; Crystal Grant, JD/MSW; and Scott Snider, LCSW

## PEDS409C - Pediatric Palliative Care and Quality of Life

Subject	Catalog Number	Title
PEDS	409C	Pediatric Palliative Care and Quality of Life

### Description

Peds-409C. Pediatric Palliative Care and Quality of Life- This course provides an introduction to pediatric palliative care for 4th year medical students. The course aims to help students to hone their skill in providing patient and family centered care, in particular communication (breaking bad news) and medical decision making. This course will also provide an opportunity to learn the fundamentals of symptom management such as pain, dyspnea, nausea and constipation. It enables students to identify psychosocial and spiritual distress as well as cultural beliefs that will affect health care decisions. Students meet on the first day of class in Duke South Blue Zone Palliative Care offices at 8:45am - page attending at 970-4357 to verify meeting location. Enrollment max; 2 students per four-week block. Schedule determined by course director and Jennifer Bowen. For more information, please contact Jennifer Bowen at 919-668-2362 or [jennifer.bowen@duke.edu](mailto:jennifer.bowen@duke.edu). Credit 2. Megan Jordan, MD; Other faculty: Ashley Allen, MD; Sarah Gall, MD; Karen Jooste, MD; Amy Yu-Lin Lee, MD; and Rose Sharpe, NP

## PEDS411C - Pediatric Emergency Medicine

Subject	Catalog Number	Title
PEDS	411C	Pediatric Emergency Medicine

### Description

The 4th year elective in Pediatric Emergency Medicine is designed to enhance the medical student's learning by allowing the student to develop a proficient and rational approach to the sick pediatric patient. The student will become familiar with the rapid assessment of ill patients and the development of a knowledge base and technical skills allowing for the management of pediatric emergencies. Also, the student will learn how to prioritize patient care, to recognize patients requiring emergent interventions, and to decide which patients need admission or outpatient care. By the end of the rotation, the student will be capable of (1) obtaining an appropriate problem-oriented history and physical, (2) creating a differential diagnosis based on available information, and (3) developing an appropriate management plan. Students will be contacted by Dr. O'Brian via email 1-to-2 weeks prior to the start date of their rotation with orientation materials. Prompt reply to this email is expected as time-sensitive information will be included. Students are to report to the Pediatric Emergency Department at Duke University Medical Center no later than the time of his/her first scheduled shift. Students will be expected to work four 8-hour shifts per credit. If scheduled, students are expected to attend any required didactic sessions/activities during the entire 4-week block. Required activities may include simulation and didactic lectures on various mornings (depending on the specific month). Requests to drop the course must be approved at least FOUR weeks prior to the start of the scheduled rotation. Failure to do so may result in a failing grade for the course. Please contact Dr. Rachel O'Brian, (course director), for questions. NOTE: It is sometimes possible that the course director may be able to accommodate an additional student for any single term. If the course is shown as 'full' in DukeHub and you are interested, you are encouraged to contact Dr. O'Brian (rao15@duke.edu) to inquire. Variable Credit: 3-4 credits. Enrollment max: 2. Rachel O'Brian, MD; W. Clay Bordley, MD, MPH; James Fox, MD; Emily Greenwald, MD; Mia Mallory, MD, MEd; Emily Sterrett, MD, MS-CTR; Neel Subramanian, MD; Larissa Truschel, MD, MPH; Kyle Cecil, MD and Linton Yee, MD

## PEDS412C - Introduction to Pediatric Pulmonary and Sleep Medicine

Subject	Catalog Number	Title
PEDS	412C	Introduction to Pediatric Pulmonary and Sleep Medicine

### Description

This course provides two weeks of experience in the evaluation, diagnosis, and management of patients with respiratory and sleep related problems. Students will work closely with the pediatric pulmonary team both in the clinic and on the inpatient service. Students will have the opportunity to provide the initial assessment and management plans for patients referred for pulmonary or sleep problems. Please contact Tarig Ali Dinar, (tarig.alidinar@duke.edu) if you have questions. Pre-requisite: Permission of instructor is required. Credit: 2; Enrollment max: 1. Tarig Ali Dinar, MD; Mai El Mallah, MD; Jason Lang, MD; Shatha Yousef, MD; and faculty in the Division of Pulmonary and Sleep Medicine

## PEDS413C - Pediatric Pulmonary and Sleep Medicine

Subject	Catalog Number	Title
PEDS	413C	Pediatric Pulmonary and Sleep Medicine

### Description

This course provides three to four weeks of experience in the evaluation, diagnosis, management of patients with respiratory and sleep related problems. Students will work closely with the pediatric pulmonary team both in the clinic and the inpatient services. Students will have the opportunity to provide the initial assessment and management plans for patients referred for pulmonary or sleep problems. For more information or questions, please contact Tarig Ali Dinar, (tarig.alidinar@duke.edu). Pre-requisite: Permission of the instructor is required for enrollment. Credit: 3-4; Maximum Enrollment: 1. Tarig Ali Dinar, MD; Mai ElMallah, MD; Jason Lang, MD; Shatha Yousef, MD; and faculty in the Division of Pulmonary and Sleep Medicine

## PEDS417C - Pediatric Subspecialty Elective

Subject	Catalog Number	Title
PEDS	417C	Pediatric Subspecialty Elective

### Description

This 3 or 4-week course providing medical students with exposure to three or four subspecialties in pediatrics. Students would spend 1 week each in Pediatric Endocrinology, Child Abuse, Rheumatology, and Genetics. No more than 1 week in each subspecialty will be possible in this course. Reflective summary will be required at the conclusion of the course. Course Requisite: Permission of course director is required for enrollment. Please reach out to Robert Benjamin, course director if interested. His email is robert.benjamin@duke.edu. Students that take Peds 416C are not eligible to take Peds 417C. Three weeks/three subspecialties = 3 credits; Four weeks/four subspecialties = 4 credits. Maximum Enrollment: 2; Credit: 3-4. Robert Benjamin, MD; Priya Kishani, MD; Aditee Narayan, MD; and Heather Van Mater, MD

## PEDS420C - Introduction to Pediatric Infectious Diseases

Subject	Catalog Number	Title
PEDS	420C	Introduction to Pediatric Infectious Diseases

### Description

This two-week course provides an exposure to the evaluation, diagnosis, differential diagnosis, management, and follow-up of patients with potential infectious diseases. Students will work closely with the pediatric infectious diseases team on the general infectious diseases service, especially the fellow and attendings both inpatient service and in clinic. They will have the opportunity to provide the initial assessment and management plans for patients referred to pediatric infectious diseases. Students that elect to take this two credit option are not eligible to enroll in PEDS 421C for the 3-4 credit option. For more information, please contact Dr. Kathleen (Kammy) McGann (Kathleen.mcgann@duke.edu). Secondary contact: Dr. Mike Smith (michael.j.smith@duke.edu; office phone: 919-684-6335). Students should meet on the first day at Dr. McGann's Office – Room 373, Hanes House (please email Dr. McGann the week before for the time of orientation). Peds ID fellow pager: 970-7420. Permission is required. Credit: 2 (including 421C students). Enrollment Max: 2. Kammy McGann, M.D. and division faculty

## PEDS421C - Pediatric Infectious Diseases - Comprehensive

Subject	Catalog Number	Title
PEDS	421C	Pediatric Infectious Diseases - Comprehensive

### Description

This course provides three to four weeks of experience in the evaluation, diagnosis, differential diagnosis, management, and follow-up of patients with potential infectious diseases. Students will work closely with the infectious diseases team on the general infectious diseases service, especially the fellow and attendings both inpatient service and in clinic. They will have the opportunity to provide the initial assessment and management plans for patients referred to pediatric infectious diseases. There may be an opportunity to spend some time with the transplant infectious diseases team, also. Students that take this course are not eligible to enroll in PEDS 420C. For more information, please contact Dr. Kammy McGann (Kathleen.mcgann@duke.edu). Secondary contact: Dr. Mike Smith (michael.j.smith@duke.edu; office phone: 919-684-6335). Students should meet on the first day at Dr. McGann's Office – Room 373, Hanes House (please email Dr. McGann the week before for the time of orientation). Peds ID fellow pager: 970-7420. Permission is required. Credit: 3-4. Enrollment Max: 3-4 (including 420C students). Kammy McGann, M.D. and division faculty



## PEDS424C - Introduction to Pediatric Endocrinology and Diabetes

Subject	Catalog Number	Title
PEDS	424C	Introduction to Pediatric Endocrinology and Diabetes

### Description

Students attend in the Pediatric Endocrine, Diabetes, Lipid, Gender and Insulin Resistance/Obesity Clinics and assume active roles in the evaluation and management of in-patients admitted to the Endocrine Service. Emphasis is placed upon the evaluation of growth and sexual development, thyroid function, Gender care, and diabetes mellitus. Students will complete a pediatric endocrine handout during their rotation, which will cover core topics. Students also participate in a weekly endocrine division conference and monthly diabetes journal club. Students will receive a schedule with their days and clinic locations on the Thursday before their rotation begins. They should email Dr. Robert Benjamin, course director, to confirm their rotation one week prior to their rotation. His contact email is robert.benjamin@duke.edu. Enrollment Max: 1; Credit: 1-2, with 1 credit for every week of the course. Robert Benjamin, MD; Deanna Adkins, MD; Michael Freemark, MD; Elizabeth Greene, MD; Pinar Gumus, MD; Olga Gupta, MD and Laura Page, MD

## PEDS425C - Endocrine Disorders in Children

Subject	Catalog Number	Title
PEDS	425C	Endocrine Disorders in Children

### Description

Students participate in the Pediatric Endocrine, Diabetes, Lipid, Gender and Insulin Resistance/Obesity Clinics and assume active roles in the evaluation and management of in-patient consultations and of in-patients admitted to the Endocrine Service. Emphasis is placed upon the evaluation of several endocrine issues, including diagnosis and management of Type 1 and Type 2 Diabetes Mellitus, growth and sexual development, gender care, lipid disorders, thyroid disorders, pituitary disorders, and calcium and vitamin D disorders. Students will complete a pediatric endocrine handout during their rotation, which will cover core topics. Students also participate in a monthly diabetes journal club and in weekly intra- and interdepartmental endocrine clinical and research conferences. Students will make a presentation to the endocrine group at the end of the rotation. Students will receive a schedule with their locations and responsibilities along with handouts the week prior to their start of rotation. They should email Dr. Robert Benjamin, course director, to confirm this the week prior to their rotation. His contact email is robert.benjamin@duke.edu. Credit: 3 to 4, with 1 credit for every week of the course. Enrollment: max 1. Robert Benjamin, MD; Michael Freemark, MD; Deanna Adkins, MD; Laura Page, MD; and Pinar Gumus, MD

## PEDS426C - Neonatology

Subject	Catalog Number	Title
PEDS	426C	Neonatology

### Description

Students have patient care responsibilities as well as exposure to a broad range of clinical problems in the Duke Intensive Care Nursery. The course involves direct participation in patient care under the supervision of the faculty and house staff. Emphasis is placed understanding the pathophysiologic approach to the assessment and management of the critically ill neonate, with special attention to ethical and psychosocial issues surrounding their care. This is a sole-enrollment course and, as such, cannot be taken in conjunction with any other course. The exception is INTERDIS 401C - Acute Care Curriculum. Prerequisite: PEDS and contact Dr. Susan Izatt at [susan.izatt@dm.duke.edu](mailto:susan.izatt@dm.duke.edu) or by phone at 919-681-6035. Secondary contact: Dr. Ronald Goldberg, 681-6035. Students are to meet on the first day at the Neonatal Intensive Care Unit, Duke North, 5th floor. Meet promptly at 7:00 a.m. The course director will contact the student prior to the start date to clarify meeting location, attending service, and additional information. Credit: 5. Enrollment: max 1. Susan Izatt, MD; Ronald Goldberg, MD; Samia Aleem, MD; Kamlesh Athavale, MD; Eric Benner, MD/PhD; Trevor Burt, MD; C. Michael Cotten, MD; Jeffrey Ferranti, MD/MS; Keyaria Gray, MD; Rachel Greenberg, MD; Lakshmi Katakam, MD; Sharla Rent, MD; Brian Smith, MD; David Tanaka, MD; Kirstin Weimer, MD/PhD; and Noelle Younge, MD

## PEDS427C - Pediatric Hematology/Oncology

Subject	Catalog Number	Title
PEDS	427C	Pediatric Hematology/Oncology

### Description

This course includes all aspects of clinical and laboratory hematology (with a focus on sickle cell disorders) as well as the diagnostic evaluation, care, and treatment of patients with malignant diseases (childhood leukemia, lymphoma, osteosarcoma, neuroblastoma, Wilm's tumor). Emphasis will be placed on fundamental concepts of pediatric hematology/oncology. Students will spend their time in the pediatric hematology-oncology and pediatric neuro-oncology outpatient clinics evaluating new patients and seeing established patients. Students will be expected to attend divisional teaching conferences. Location: Hanes House, room 382; Box number 102382. For more information, please contact Dr. Kreissman via email at [susan.kreissman@duke.edu](mailto:susan.kreissman@duke.edu). Prerequisite: Interested students must contact the course director. For questions, please contact Christine Duke ([Christine.g.duke@duke.edu](mailto:Christine.g.duke@duke.edu)) Credit: 4. Enrollment: max 1. Susan Kreissman, MD; Dan Landi MD; Corinne Linardic MD/PhD; Joanna Robles MD, Jennifer Rothman MD; Nirmish Shah MD, Kristin Schroeder MD; Jessica Sun MD; David Van Mater, MD/PhD; and Lars Wagner, MD

## PEDS428C - Introduction to Pediatric Rheumatology

Subject	Catalog Number	Title
PEDS	428C	Introduction to Pediatric Rheumatology

### Description

This course provides a two-week introduction to the evaluation, diagnosis, management, and follow-up of patients with possible rheumatologic diseases. Students will work closely with the pediatric rheumatology team, especially the fellow and attendings, both in the clinic and inpatient service. They will have the opportunity to provide the initial assessment and management plans for patients referred to pediatric rheumatology. Enrollment Max.: 2; Credit: 2. Pre-requisite: Permission of Instructor is required for Enrollment. Two-credit course is graded Credit/No Credit. Students should meet at 8:00am the first morning. They must contact Dr. Dvergsten for the location. The class meets M-F. For more information, please contact Dr. Dvergsten at [jeffrey.dvergsten@duke.edu](mailto:jeffrey.dvergsten@duke.edu). Jeffrey Dvergsten, MD and faculty in the Division of Pediatric Rheumatology

## PEDS429C - Pediatric Rheumatology - Comprehensive

Subject	Catalog Number	Title
PEDS	429C	Pediatric Rheumatology - Comprehensive

### Description

This course provides three to four weeks of experience in the evaluation, diagnosis, management, and follow-up of patients with possible rheumatologic diseases. Students will work closely with the pediatric rheumatology team, especially the fellow and attendings, both in the clinic and inpatient service. They will have the opportunity to provide the initial assessment and management plans for patients referred to pediatric rheumatology. Enrollment Max: 2; Credit: 3-4. Permission of the Instructor is required for enrollment. Students should meet at 8:00am on the first day and they must contact Dr. Dvergsten in advance to confirm meeting location. The class meets M-F. For more information, students must contact Dr. Dvergsten at [jeffrey.dvergsten@duke.edu](mailto:jeffrey.dvergsten@duke.edu). Jeffrey Dvergsten, MD; Rebecca Sadun MD; and all faculty in the Division of Pediatric Rheumatology

## PEDS430C - Healthy Lifestyles Program: A Clinical, Family-Based Approach to Pediatric Obesity

Subject	Catalog Number	Title
PEDS	430C	Healthy Lifestyles Program: A Clinical, Family-Based Approach to Pediatric Obesity

### Description

Comprehensive outpatient treatment for childhood obesity. Through observed and direct interactions with families, children and adolescents in an outpatient clinical setting, students will learn the causes and complications of pediatric obesity, and the approach to management. Healthy Lifestyles is a multidisciplinary clinic which allows students to interact with and observe pediatricians, nutritionists, physical therapists and mental health providers. Students are expected to attend clinic Monday through Friday, according to a calendar which will be provided by the course director at the start of the rotation. While students will receive training in motivational interviewing (MI), an evidence-based communication technique to achieve effective behavior change during this rotation, a familiarity with MI and good communication skills are strongly preferred as the clinical environment is considered an advanced communication skills rotation. Students will be expected to participate actively in weekly noon team learning seminar (Thursdays) and to present a topic of the student's choice near the end of the rotation. Lastly, the course director will provide students with a reading list on pertinent topics to be completed by the end of the rotation and discussed with course director during final feedback session. Report to Duke Children's Primary Care Clinic, 4020 Roxboro Road, second level. Students will be required to attend and participate in ONE session of a community fitness program for children, called Bull City Fit. Students will play games, sports, and/or participate in cooking classes with families. From this experience, students will gain an understanding of community engagement, health advocacy and program planning. For questions, email the course director, Dr. Sarah Armstrong ([sarah.c.armstrong@duke.edu](mailto:sarah.c.armstrong@duke.edu)) and secondary contact support staff Kim Yancey ([Kim.yancey@duke.edu](mailto:Kim.yancey@duke.edu)) Credit: 4. Enrollment: max. 1. Sarah Armstrong, MD; Naomi Duke MD; Martha Nelson, PA-C; Katherine Caro, PA-C; Jenny Favret, MS, RD, LDN; Stephanie Bryant, MPH, RD, LDN; Heidi Pongracz, MPH, PT; Victoria Smith, PT, DPT, PCS; Lisa Honeycutt, LPC

## PEDS431C - Clinical Pediatric Cardiology

Subject	Catalog Number	Title
PEDS	431C	Clinical Pediatric Cardiology

### Description

This Medical Student rotation provides a learning experience in the clinical diagnosis and management of heart disease in children. The student will have the opportunity to see and participate in the management of children referred for cardiology evaluation or follow-up via clinic or consultation. There are also experiences available observing cardiovascular procedures in the Pediatric Cardiac Catheterization and Electrophysiology Laboratory, the Pediatric Echocardiography Laboratory and the operating room. Cardiology clinics are located in Creekstone, Greensboro, in addition to the Children's Health Center, and assignments can be expected in many of these clinics to create a diverse experience. This is primarily an outpatient rotation, but there is the option of attending inpatient rounds in the Pediatric Cardiac Intensive Care Unit if desired. Experiences in subspecialty clinics such as Pediatric Heart Failure/Transplant and Inherited Arrhythmia clinic are generally available if interested. Please note that procedural experiences are all observational due to complexity (participation is generally a Fellow level experience). Scope: history, physical examination, and special diagnostic techniques (echocardiography, electrocardiography, cardiac catheterization, and cineangiography). Students participate in outpatient clinics or procedural observational experiences five days per week as well as weekly cardiology/cardiovascular surgery conference. Prerequisite: PEDS 205C. For more information, please call the course director, Dr. Zebulon Spector, at 919-681-6772 or by email, [zebulon.spector@duke.edu](mailto:zebulon.spector@duke.edu). Secondary Contact: Dr. Michael J. Campbell, [michael.campbell2@duke.edu](mailto:michael.campbell2@duke.edu), or 919-684-3574. Credit: 4. Enrollment: max 1. Zebulon Spector, MD; Other faculty: Piers C.A. Barker, MD; Michael G.W. Camitta, MD; Michael J. Campbell, MD; Michel P. Carboni, MD; Reid Chamberlain, MD; Gregory Fleming, MD; Kevin Hill, MD; Salim F. Idriss, MD/PhD; Andrew Landstrom, MD, PhD; Jennifer S. Li, MD; Andrew McCrary, MD; Angelo Milazzo, MD; Stephen Miller, MD; Patsy Park, MD; Neeta Sethi, MD; Erin Shea, MD; Jason Williams, MD; McAllister Windom, MD

## PEDS433C - Allergy and Clinical Immunology

Subject	Catalog Number	Title
PEDS	433C	Allergy and Clinical Immunology

### Description

Clinical appraisal and practice in use of methods of diagnosis and treatment of allergic and immunologic disorders including the atopic diseases, immunologic deficiency states, and bone marrow transplantation. Scope: in-depth seminars, history, physical examination, skin testing, a variety of clinical immunologic tests, and Clinical Research Unit experience. For more information, please contact the Program Director, Dr. Amy Stallings via email at amy.stallings@duke.edu. Please contact Dr. Stallings at least one week prior to the start of your rotation to set up a meeting to receive information packet and information about where to go on first day Credit: 4. Enrollment: max 2. John Sleasman, MD (Division Chief), Amy Stallings, MD; Rebecca Buckley, MD; Talal Mousallem, MD, M. and Julie Kim-Chang, MD

## PEDS436C - Pediatric Neurology

Subject	Catalog Number	Title
PEDS	436C	Pediatric Neurology

### Description

Students will partake in the evaluation and management of both hospitalized and ambulatory pediatric patients with neurological disorders. Emphasis is placed on the neurodevelopmental history, neurological examination, the use of laboratory tests and radiological tools and pharmacotherapy in the diagnosis and management of childhood neurological disorders. Administrative contacts: Kristin Johnson (kristin.johnson@dm.duke.edu) at 681-4658. Students should report to the PEDS Neuro office in the CHC room T0913. Please meet promptly at 8:00 a.m. Pre-requisite: students must contact Dr. Shital Patel (shital.h.patel@duke.edu) prior to enrollment. Credit: 4. Enrollment: max 2. Shital Patel, MD

## PEDS434C - Clinical Genetics/Metabolism

Subject	Catalog Number	Title
PEDS	434C	Clinical Genetics/Metabolism

### Description

The student becomes familiar with evaluation and management of various genetic disorders including malformation syndromes and biochemical disorders. History-taking, pedigree construction and analysis, specialized aspects of the dysmorphological physical examination, diagnostic techniques, routine and specialized laboratory methods (cytogenetic, biochemical, molecular), and reference materials (texts and computer programs) are covered. Students participate in weekly teaching and clinical conferences. For more information and to obtain a schedule and directions for where to meet on the First Day of Classes please email marie.mcdonald@duke.edu. Credit: 4. Enrollment: max 2. Marie McDonald, MD

## PEDS440C - Advanced General Pediatrics-Intensive Care

Subject	Catalog Number	Title
PEDS	440C	Advanced General Pediatrics-Intensive Care

### Description

This advanced course is designed to allow students a four-week experience in the Pediatric Intensive Care Unit (PICU). Clinically, students will first have a several day period of shadowing non-physician ICU staff (RNs, RTs, SWs), followed by several weeks of participating in the physician team caring for PICU patients. Overnight and weekend call is not expected. Academically, students are asked to choose a project (written case presentation or critical appraisal of a published study) to be completed by the end of the rotation. Emphasis is placed on the development of the pathophysiologic approach to the diagnosis and therapy of a broad spectrum of pediatric illnesses as they present in acute care settings. Pre-requisite: PEDS 205C. Credit: 4. Enrollment: max 1. For more information, please contact Dr. Straube via email at tobias.straube@duke.edu.

## PEDS441C - Pediatric Nephrology

Subject	Catalog Number	Title
PEDS	441C	Pediatric Nephrology

### Description

Students actively participate in assigned patient care, and prepare didactic presentations as a part of instruction. Clinical work provides the students with exposure to clinical nephrology and basic renal physiology. The course will provide experience in diagnosis, interpretations of laboratory tests, natural history, and treatment of acute and chronic disorders of the kidney in children. The student will participate in the management of fluid and electrolyte disorders in infants and children. Consultative services are provided for inpatients and outpatients from general and subspecialty disciplines in pediatrics, intensive care units, and the transplant services. For more information, please contact Dr. TBD at 668-0237 or via email at candice.sheldon@duke.edu. Credit: 4. Enrollment: max 1. Candice Sheldon, MD; Eileen Chambers, MD; Annabelle Chua, MD; R. Gbadegesin, MD; Reeti Kumar, MD; and Shashi Nagaraj, MD/MBBS

## PEDS446C - Pediatric Stem Cell Transplant Unit

Subject	Catalog Number	Title
PEDS	446C	Pediatric Stem Cell Transplant Unit

### Description

This four-week elective is designed to give medical students experience in all aspects of clinical hematopoietic stem cell transplantation including the diagnostic evaluation, care, and treatment of transplant patients. Emphasis is placed on fundamental concepts of hematopoietic stem cell transplantation. Students will accompany the inpatient team on the ward rounds for 3 weeks of the rotation with the remaining time spent in the clinic evaluating new patients and seeing established patients. Students also are expected to attend divisional teaching conferences and give informal presentations on topics in hematopoietic stem cell transplantation. Students should join the Division meeting on Monday at 8:00 a.m. in the Division offices on the first floor of the Old Duke Credit Union (1400 Morreene Rd) on the first day of classes. For more information, contact Dr. Martin at paul.martin@duke.edu, or pager, 970-3758. Secondary contact: Tim Driscoll, 668-1120. Credit: 4. Enrollment: max 2. Paul Martin, MD/PhD; Joanne Kurtzberg, MD; Tim Driscoll, MD; Suhag Parikh, MD; Vinod Prasad, MD; and Kristin Page, MD

## PHSR701 - Applied Analytic Methods for Population Health Sciences I

Subject	Catalog Number	Title
PHSR	701	Applied Analytic Methods for Population Health Sciences I

### Description

This is an introductory course in statistical analysis and inference methods useful for Population Health Sciences. Topics include descriptive statistics, analysis of contingency tables, one- and two-way analysis of variance, simple linear regression, measures of uncertainty, and hypothesis testing. Both parametric and nonparametric techniques are explored. Core concepts are taught through team-based case studies and analysis of research datasets taken from the population health sciences literature and demonstrated in concert with Population Health Sciences 703. Computational exercises will primarily use the SAS Statistical Computing Platform.

## PHSR702 - Applied Analytic Methods for Population Health Sciences II

Subject	Catalog Number	Title
PHSR	702	Applied Analytic Methods for Population Health Sciences II

### Description

This course is the second course in a two-course sequence that provides students a foundation in methods for analyzing clinical, health and economic outcomes often encountered in population health studies. Through course readings, in-class discussions, and data analysis, students will develop research skills and competencies related to understanding, conducting and interpreting regression analyses. Prerequisite: Population Health Sciences 701 and 703

## PHSR703 - Introduction to Statistical Programming for Population Health Sciences I

Subject	Catalog Number	Title
PHSR	703	Introduction to Statistical Programming for Population Health Sciences I

### Description

Introduction to statistical software packages (i.e., SAS Software System, R Statistical Computing Platform) to provide an introduction to the core ideas of programming including data preparation, input/output, debugging, and strategies for program design. Students will learn to write code to perform descriptive, statistical, and graphical analyses, and write maintainable code, to test for correctness and to apply basic principles of reproducibility. Programming techniques and their applications will be closely connected with the methods and examples presented in the concurrent course Population Health Sciences 701. This course assumes minimal programming knowledge.

## PHSR704 - Statistical Programming for Population Health Sciences II

Subject	Catalog Number	Title
PHSR	704	Statistical Programming for Population Health Sciences II

### Description

Students will build on programming learned in Population Health Sciences 703 using the SAS Software System and R Statistical Computing Platform. Students will continue to learn to write code to perform descriptive, statistical, and graphical analyses; write maintainable code to test for correctness and to apply basic principles of reproducibility. Programming techniques and their applications will be closely connected with the methods and examples presented in the concurrent course Population Health Sciences 702. Prerequisite: Population Health Sciences 703.

## PHSR705 - Topics in Population Health Sciences I

Subject	Catalog Number	Title
PHSR	705	Topics in Population Health Sciences I

### Description

This course is designed to introduce students to the transdisciplinary field of population health sciences and provide students with a greater understanding of the general theories, concepts, and measures often used in population health sciences.

## PHSR706 - Topics in Population Health Sciences II

Subject	Catalog Number	Title
PHSR	706	Topics in Population Health Sciences II

### Description

This course introduces the key components of the US health-care system—the organization, financing, and delivery of services; the role of prevention and other non-medical factors in population health outcomes; key management and policy issues in contemporary US health care. These components are one of the foundations from which we can understand contemporary challenges and questions to address within population health. Topics include the overall structure of the US health-care system, financing (insurance and payment models), health system and providers, the Affordable Care Act, mental health, health economics, and quality of care. Prerequisite: Population Health Sciences 705.

## PHSR707 - Population Health Sciences Research Design and Study Methods I

Subject	Catalog Number	Title
PHSR	707	Population Health Sciences Research Design and Study Methods I

### Description

This is the first in a two-course sequence that gives students a strong foundation in population health research methods. The course introduces critical concepts in research methods, including varying types of validity, reliability, and causal inference. Topics include sampling and interpretation of probability and nonprobability sampling; an introduction to measurement theory; threats to internal validity; experimental designs; and quasi-experimental designs.

## PHSR708 - Population Health Sciences Research Methods II

Subject	Catalog Number	Title
PHSR	708	Population Health Sciences Research Methods II

### Description

This is the second in a two-course sequence where students establish a strong foundation in population health research methodology, including randomized and non-randomized study design. Prerequisite: Population Health Sciences 707.

## PHYASST200 - Basic Medical Sciences

Subject	Catalog Number	Title
PHYASST	200	Basic Medical Sciences

### Description

The basic facts, concepts, and principles which are essential in understanding the fundamental mechanisms of immunology, pathology, genetics and microbiology and nutrition. This course presents the basic methods of clinical problem solving and serves as a prerequisite to the clinical medicine course by emphasizing the underlying principles of the etiology, management, and prevention of disease processes. Credits: 2. Streilein

## PHYASST201 - Physiology

Subject	Catalog Number	Title
PHYASST	201	Physiology

### Description

The basic concepts and principles that are essential to comprehending the fundamental mechanisms of human physiology at the cellular, tissue and organ levels and the requirements for the maintenance of homeostatic control. This course lays the foundation for understanding the underlying principles of the etiology, management and prevention of human disease processes. Credit 2. Gardner

## PHYASST205 - Anatomy

Subject	Catalog Number	Title
PHYASST	205	Anatomy

### Description

Functional and applied anatomy stressing normal surface landmarks and common clinical findings. Topics for this course are sequenced with the physical diagnosis components of Patient Assessment and Counseling I (PHYASST-231). Cadaver dissections, anatomic models, lectures, and computer software are utilized in teaching this course. Credit: 4. Holmes.

## PHYASST210 - Diagnostic Methods I

Subject	Catalog Number	Title
PHYASST	210	Diagnostic Methods I

### Description

The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (PHYASST 220, 221, 222) and Pharmacology and Therapeutics, I, II, III (PHYASST 223, 224, 225). Lectures, small group discussions, and hands-on laboratory sessions are the teaching strategies utilized in this course. Credit: 2. Anglin



## PHYASST211 - Diagnostic Methods II

Subject	Catalog Number	Title
PHYASST	211	Diagnostic Methods II

### Description

The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (PHYASST 220, 221, 222) and Pharmacology and Therapeutics, I, II, III (PHYASST 223, 224, 225). Lectures, small group discussions, and hands-on laboratory sessions are the teaching strategies utilized in this course. Credit: 3. Anglin

## PHYASST212 - Diagnostic Methods III

Subject	Catalog Number	Title
PHYASST	212	Diagnostic Methods III

### Description

The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (PHYASST 220, 221, 222) and Pharmacology and Therapeutics, I, II, III (PHYASST 223, 224, 225). Lectures, small group discussions, and hands-on laboratory sessions are the teaching strategies utilized in this course. Credit: 1. Anglin

## PHYASST220 - Clinical Medicine I

Subject	Catalog Number	Title
PHYASST	220	Clinical Medicine I

### Description

This course sequence explores the essentials of diagnosis and management of the most common clinical problems seen by primary care practitioners using an organ systems and life stages approach. Clinical information is presented in lectures, small group learning experiences, modules, and practicums. Content covered in this course is correlated with preceding courses on physiology, anatomy, and basic medical science to build upon and develop a learner's foundational understanding of pathophysiology and related mechanisms of health and disease. This course supports the development of clinical reasoning and problem-solving skills applied to inform preventative, emergent, chronic, and rehabilitative care. Patient cases are used in modules, practicums, and small group settings to enhance readings and lectures. These core courses serve as the foundation of clinical medicine and most other courses are organized and built around the curricular content provided. The course sequence is a co-requisite for Pharmacology I, II, III (PHYASST 223, 224, 225) and Diagnostic Methods, I, II, III (PHYASST 210, 211, 212). Credit: 5; 10;10. Melcher.

## PHYASST221 - Clinical Medicine II

Subject	Catalog Number	Title
PHYASST	221	Clinical Medicine II

### Description

This course sequence explores the essentials of diagnosis and management of the most common clinical problems seen by primary care practitioners using an organ systems and life stages approach. Clinical information is presented in lectures, small group learning experiences, modules, and practicums. Content covered in this course is correlated with preceding courses on physiology, anatomy, and basic medical science to build upon and develop a learner's foundational understanding of pathophysiology and related mechanisms of health and disease. This course supports the development of clinical reasoning and problem-solving skills applied to inform preventative, emergent, chronic, and rehabilitative care. Patient cases are used in modules, practicums, and small group settings to enhance readings and lectures. These core courses serve as the foundation of clinical medicine and most other courses are organized and built around the curricular content provided. The course sequence is a co-requisite for Pharmacology I, II, III (PHYASST 223, 224, 225) and Diagnostic Methods, I, II, III (PHYASST 210, 211, 212). Credit: 5; 10;10. Melcher.

### PHYASST222 - Clinical Medicine III

Subject	Catalog Number	Title
PHYASST	222	Clinical Medicine III

#### Description

This course sequence explores the essentials of diagnosis and management of the most common clinical problems seen by primary care practitioners using an organ systems and life stages approach. Clinical information is presented in lectures, small group learning experiences, modules, and practicums. Content covered in this course is correlated with preceding courses on physiology, anatomy, and basic medical science to build upon and develop a learner's foundational understanding of pathophysiology and related mechanisms of health and disease. This course supports the development of clinical reasoning and problem-solving skills applied to inform preventative, emergent, chronic, and rehabilitative care. Patient cases are used in modules, practicums, and small group settings to enhance readings and lectures. These core courses serve as the foundation of clinical medicine and most other courses are organized and built around the curricular content provided. The course sequence is a co-requisite for Pharmacology I, II, III (PHYASST 223, 224, 225) and Diagnostic Methods, I, II, III (PHYASST 210, 211, 212). Credit: 5; 10;10. Melcher.

### PHYASST223 - Pharmacology I

Subject	Catalog Number	Title
PHYASST	223	Pharmacology I

#### Description

The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine I, II and III (PHYASST 220, 221, 222) and are provided in lecture format. Credit: 1. Mesaros

### PHYASST224 - Pharmacology II

Subject	Catalog Number	Title
PHYASST	224	Pharmacology II

#### Description

The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine I, II and III (PHYASST 220, 221, 222) and are provided in lecture format. Credit: 1. Mesaros

### PHYASST225 - Pharmacology III

Subject	Catalog Number	Title
PHYASST	225	Pharmacology III

#### Description

The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine I, II and III (PHYASST 220, 221, 222) and are provided in lecture format. Credit: 1. Mesaros

## PHYASST230 - Fundamentals of Surgery

Subject	Catalog Number	Title
PHYASST	230	Fundamentals of Surgery

### Description

The course focuses on the basic surgical concepts needed for the PA to function in primary care settings as well as major surgical areas. The course emphasizes surgical concepts, topics and surgical technique. A substantial part of this course consists of essential hands-on laboratory exercises emphasizing surgical skills required in a primary care setting. Credits: 3. Howard

## PHYASST231 - Patient Assessment and Counseling I

Subject	Catalog Number	Title
PHYASST	231	Patient Assessment and Counseling I

### Description

An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. Emphasis is placed on acquiring the skills, knowledge and sensitivity needed to communicate and intervene effectively in a wide variety of patient encounters. Teaching methods include lecture, small group demonstrations and practice sessions as well as clinical assignments to examine and/or interview standardized patients and patients in hospital, and outpatient settings. Students also access standardized patients in a controlled setting. Audiovisuals and asynchronous learning are also used. Credit: 3. Bludorn

## PHYASST232 - Patient Assessment and Counseling II

Subject	Catalog Number	Title
PHYASST	232	Patient Assessment and Counseling II

### Description

An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. Emphasis is placed on acquiring the skills, knowledge and sensitivity needed to communicate and intervene effectively in a wide variety of patient encounters. Teaching methods include lecture, small group demonstrations and practice sessions as well as clinical assignments to examine and/or interview standardized patients and patients in hospital, and outpatient settings. Students also access standardized patients in a controlled setting. Audiovisuals and asynchronous learning are also used. Credit: 3. Bludorn

## PHYASST233 - Patient Assessment and Counseling III

Subject	Catalog Number	Title
PHYASST	233	Patient Assessment and Counseling III

### Description

An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. Emphasis is placed on acquiring the skills, knowledge and sensitivity needed to communicate and intervene effectively in a wide variety of patient encounters. Teaching methods include lecture, small group demonstrations and practice sessions as well as clinical assignments to examine and/or interview standardized patients and patients in hospital, and outpatient settings. Students also access standardized patients in a controlled setting. Audiovisuals and asynchronous learning are also used. Credit: 3. Bludorn

## PHYASST251 - Practice and the Health System I

Subject	Catalog Number	Title
PHYASST	251	Practice and the Health System I

### Description

The Practice & the Health System courses (PHS 1 and 2) provide an overview of the U.S. health care system with a focus on the PA profession. An interprofessional faculty will provide lectures and lead conversations on various aspects of PA practice and the health care system, including topics such as: the history of the PA profession, population health, health disparities, and health policy. The first part of the course (PHS 1) will focus on sociocultural influences on health, wellness, and health care. The second portion of the course (PHS 2) will continue discussion of the PA professional role, including interactions in the health care system and health policy, and practical application of content in professional settings. Credit: 1 Porter, Holmes, Railey, Stouder

## PHYASST252 - Practice and the Health System II

Subject	Catalog Number	Title
PHYASST	252	Practice and the Health System II

### Description

The Practice & the Health System courses (PHS 1 and 2) provide an overview of the U.S. health care system with a focus on the PA profession. An interprofessional faculty will provide lectures and lead conversations on various aspects of PA practice and the health care system, including topics such as: the history of the PA profession, population health, health disparities, and health policy. The first part of the course (PHS 1) will focus on sociocultural influences on health, wellness, and health care. The second portion of the course (PHS 2) will continue discussion of the PA professional role, including interactions in the health care system and health policy, and practical application of content in professional settings. Credit: 1 Porter, Holmes, Railey, Stouder

## PHYASST255 - Evidence-Based Practice I

Subject	Catalog Number	Title
PHYASST	255	Evidence-Based Practice I

### Description

A lecture and seminar course that provides a practical approach to making sound medical decisions on the basis of current evidence in the medical literature. Through a series of didactic presentations, group exercises, and reading, students will learn the basic principles of evidence-based medicine. Basic skills in using MEDLINE and other medical databases will be emphasized and practiced. Research principles, research ethics, and basic statistical review are introduced. Credits: 2. Hallquist

## PHYASST261 - Beginning Medical Spanish

Subject	Catalog Number	Title
PHYASST	261	Beginning Medical Spanish

### Description

This elective course is designed to improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on learning conversational skills in order to take clinical histories, conduct physical examinations and give instructions to Spanish speaking patients. For students with very little or no previous Spanish language training or experience. Credit: 1. Pinheiro

## PHYASST262 - Intermediate Medical Spanish

Subject	Catalog Number	Title
PHYASST	262	Intermediate Medical Spanish

### Description

This elective course is designed to improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on strengthening conversational skills in order to improve students' ability to take clinical histories, conduct physical examinations and give instructions to Spanish speaking patients. For students with previous, but not extensive, Spanish language training or experience. Credit: 1. Pinheiro

## PHYASST263 - Advanced Medical Spanish

Subject	Catalog Number	Title
PHYASST	263	Advanced Medical Spanish

### Description

This elective course is designed to refine students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on strengthening conversational skills specific to taking clinical histories, conducting physical examinations and giving instructions to Spanish speaking patients. For students with extensive previous experience speaking Spanish. Credit 1. Pinheiro

## PHYASST299 - Bridge: The Path to Patient Care

Subject	Catalog Number	Title
PHYASST	299	Bridge: The Path to Patient Care

### Description

This two-week course provides physician assistant students with preparation to begin the clinical year rotations. Topics covered include: preceptor expectations, self-care, electronic medical records access, professionalism and formative and summative assessment of readiness to enter the clinical training environment. Credit: 2. Macon-Davis

## PHYASST300A - Primary Care

Subject	Catalog Number	Title
PHYASST	300A	Primary Care

### Description

This four-week rotation is an opportunity for physician assistant students to understand the principles of Family Medicine and their application in community practice. Students are introduced to problems commonly encountered by family physicians and physician assistants, as well as to the unique aspects of community practice. Students confront the diversity of community and family health care needs, as well as occupational and environmental issues impacting health and learn about some of the resources to meet those needs. Many of the training sites provide care for underserved populations in rural North Carolina communities. Credit: 4. Staff

### PHYASST300B - Primary Care

Subject	Catalog Number	Title
PHYASST	300B	Primary Care

#### Description

This four-week rotation is an opportunity for physician assistant students to understand the principles of Family Medicine and their application in community practice. Students are introduced to problems commonly encountered by family physicians and physician assistants, as well as to the unique aspects of community practice. Students confront the diversity of community and family health care needs, as well as occupational and environmental issues impacting health and learn about some of the resources to meet those needs. Many of the training sites provide care for underserved populations in rural North Carolina communities. Credit: 4. Staff

### PHYASST300E - Primary Care

Subject	Catalog Number	Title
PHYASST	300E	Primary Care

#### Description

This rotation emphasizes the outpatient evaluation and treatment of conditions common at the primary care level and the appropriate health maintenance measures for different age groups. Topics include: 1) Family Medicine, 2) Urgent Care, 3) Health Care For The Homeless. Credits: 4. Staff

### PHYASST301 - Occupational Medicine

Subject	Catalog Number	Title
PHYASST	301	Occupational Medicine

#### Description

This rotation offers experiences in occupational medicine which includes assessment of workplace injuries and problem management. Credit: 4. Staff

### PHYASST302 - Geriatrics

Subject	Catalog Number	Title
PHYASST	302	Geriatrics

#### Description

This rotation emphasizes the evaluation and management of geriatric patients in out-patient long-term care or hospital setting. Credits: 4. Staff

### PHYASST303 - Global Health

Subject	Catalog Number	Title
PHYASST	303	Global Health

#### Description

This rotation offers clinical experience in international rotation sites. Public health, health system and common clinical conditions will be emphasized. Additional costs will be incurred by the student for immunizations, travel, housing and educational fees for the host country. Credit: 4. Staff

### PHYASST304 - Prevention and Health Promotion

Subject	Catalog Number	Title
PHYASST	304	Prevention and Health Promotion

#### Description

This rotation is an intensive experience in health maintenance and disease prevention. Direct care of patients constitutes approximately 50% of the clinical rotation. The remaining effort will be focused on activities designed to learn and incorporate health promotion and disease prevention activities into clinical practice. Credit: 4. Staff

## PHYASST305 - Evidence-Based Medicine II

Subject	Catalog Number	Title
PHYASST	305	Evidence-Based Medicine II

### Description

During this four-week course, PA students complete an evidence-based review paper on a clinical question of interest. They present their findings to faculty and student colleagues. Credit: 3. Hallquist, Hudak

## PHYASST307 - Medical Informatics

Subject	Catalog Number	Title
PHYASST	307	Medical Informatics

### Description

This elective provides the students with an opportunity to explore the integration of medicine and information technologies. Through a combination of lecture, observation, and project participation, students will gain an understanding of the role informatics plays in point of care management, patient safety, and healthcare quality improvement. Credits: 4. Staff

## PHYASST309 - Public Health and Healthcare in Cuba

Subject	Catalog Number	Title
PHYASST	309	Public Health and Healthcare in Cuba

### Description

This elective provides an opportunity for students to examine the strengths and weaknesses of a health system that emphasizes primary care and the integration of public health with primary care. The course consists of preparatory seminars designed to provide an overview of the Cuban public health and healthcare systems, a one-week experience in Cuba, and a reflective project upon return. Credit: 1. Morgan.

## PHYASST306 - Integrative Medicine

Subject	Catalog Number	Title
PHYASST	306	Integrative Medicine

### Description

This elective provides an evidenced-based didactic and experiential understanding of integrative medicine. The core focus is on key overlaps between patient-centeredness, prevention, mindfulness, health behaviors, long-range health planning, patient empowerment, and complementary/alternative health practices. Credit: 4. Staff

## PHYASST308 - Pediatric Health Lifestyles Program

Subject	Catalog Number	Title
PHYASST	308	Pediatric Health Lifestyles Program

### Description

In this elective, students will explore the myriad of causes and complications of pediatric obesity, and the approach to the overweight child and family. Students will participate in direct patient care with a multidisciplinary team in the Healthy Lifestyles Program, as well as have opportunities for community involvement. Credits: 4. Staff

## PHYASST310 - Behavioral Medicine

Subject	Catalog Number	Title
PHYASST	310	Behavioral Medicine

### Description

This four-week rotation provides physician assistant students with an opportunity to participate in the care of patients with psychiatric illness and/or behavioral disorders. Rotation sites may provide students with inpatient, outpatient, or mixed experiences. This rotation facilitates the acquisition of communication and behavioral modification skills which are useful in the primary care setting. Credits: 4. Staff

## PHYASST310E - Behavioral Medicine

Subject	Catalog Number	Title
PHYASST	310E	Behavioral Medicine

### Description

This rotation provides additional emphasis on communication and behavioral modification skills, which are useful in the primary care setting. Topics include: 1) General Behavioral Medicine, 2) Pediatric Behavioral Medicine. Credit: 4. Staff

## PHYASST311 - Clinical Research

Subject	Catalog Number	Title
PHYASST	311	Clinical Research

### Description

This rotation provides an opportunity for students to learn about clinical research with a concentration on early phase studies conducted at an inpatient research unit. Students will learn about all aspects of clinical research including study design, funding, recruitment, clinical operations, data management and statistical analysis. The experience includes both hands-on patient care activities as well as didactic instruction by the interprofessional clinical research team. Credit: 4. Staff.

## PHYASST312 - Community Health

Subject	Catalog Number	Title
PHYASST	312	Community Health

### Description

This elective introduces students to the concepts and practice of community-engaged and population-based health care. Population-based care is becoming increasingly important in addressing the health needs of the United States. This elective helps students understand how Duke University Health System serves communities through collaborative, innovative, interdisciplinary clinical services, educational programs, and applied research. By allowing students to participate in actual programs, role modeling and experiential learning are used to supplement and apply what is learned in the required text-based materials of the course. Because the specific course activities depend upon the student's particular interests and the community health activities ongoing at the time of the elective, each student's experience will be individually designed. Credits: 4. Staff.

## PHYASST313 - LGBTQ Health

Subject	Catalog Number	Title
PHYASST	313	LGBTQ Health

### Description

This elective rotation is a four-week opportunity for physician assistant students to understand the principles of providing care to lesbian, gay, bisexual, transgender and gender-expansive children and adults and patients with differences of sex development. Students will build upon their knowledge of human development, anatomy, and physiology and learn various treatments for patients seeking gender related healthcare. Credit: 4



### PHYASST320A - Internal Medicine

Subject	Catalog Number	Title
PHYASST	320A	Internal Medicine

**Description**

This four-week rotation provides the opportunity for physician assistant students to understand the principles of general internal medicine and their application in clinical practice. Students are introduced to problems commonly encountered in inpatient and/or community internal medicine practice. Students confront a diversity of health care needs and issues impacting general medical health and learn about resources required to meet those needs. Credits: 4. Staff

### PHYASST320B - Internal Medicine

Subject	Catalog Number	Title
PHYASST	320B	Internal Medicine

**Description**

This four-week rotation provides the opportunity for physician assistant students to understand the principles of general internal medicine and their application in clinical practice. Students are introduced to problems commonly encountered in inpatient and/or community internal medicine practice. Students confront a diversity of health care needs and issues impacting general medical health and learn about resources required to meet those needs. Credits: 4. Staff

### PHYASST320E - Internal Medicine

Subject	Catalog Number	Title
PHYASST	320E	Internal Medicine

**Description**

This rotation provides the student with an opportunity to apply basic medical knowledge to the problems and situations encountered in an internal medicine setting. Credit: 4. Staff

### PHYASST321 - Cardiology

Subject	Catalog Number	Title
PHYASST	321	Cardiology

**Description**

This rotation offers experiences in cardiovascular assessment and problem management. Credits: 4. Staff

### PHYASST322 - Dermatology

Subject	Catalog Number	Title
PHYASST	322	Dermatology

**Description**

This rotation offers experiences in dermatological assessment and problem management. Credits: 4. Staff

### PHYASST323 - Endocrinology

Subject	Catalog Number	Title
PHYASST	323	Endocrinology

**Description**

This rotation offers experiences in the evaluation and treatment of a variety of endocrine problems. Credits: 4. Staff

### PHYASST324 - Pain Medicine

Subject	Catalog Number	Title
PHYASST	324	Pain Medicine

**Description**

This elective provides students with an opportunity to learn about the evaluation and treatment of acute and chronic pain issues, utilizing multi-faceted therapeutic approaches. Credit: 4. Staff.

### PHYASST325 - Hematology and Oncology

Subject	Catalog Number	Title
PHYASST	325	Hematology and Oncology

**Description**

This rotation offers exposure to the principles of hematology and oncology and their application in clinical practice. Topics include: 1) General Oncology, 2) Breast Oncology, 3) Gynecological Oncology, 4) Neuro-oncology, 5) Hematologic malignancies and bone marrow transplant. Credits: 4. Staff

### PHYASST327 - Infectious Medicine

Subject	Catalog Number	Title
PHYASST	327	Infectious Medicine

#### Description

This rotations emphasizes the evaluation and treatment of various infectious diseases. Topics include: 1) General Infectious Disease, 2) HIV. Credits: 4. Staff

### PHYASST328 - Gastroenterology

Subject	Catalog Number	Title
PHYASST	328	Gastroenterology

#### Description

This rotation emphasizes the evaluation and treatment of various gastrointestinal problems. Credits: 4. Staff

### PHYASST329 - Palliative Care

Subject	Catalog Number	Title
PHYASST	329	Palliative Care

#### Description

The elective rotation offers experience in palliative care / symptom management and end of life care. Credits: 4. Staff.

### PHYASST331 - Nephrology

Subject	Catalog Number	Title
PHYASST	331	Nephrology

#### Description

This rotation emphasizes renal assessment and problem management. Credits: 4. Staff

### PHYASST332 - Neurology

Subject	Catalog Number	Title
PHYASST	332	Neurology

#### Description

This rotation emphasizes experiences in neurological assessment and problem management. Credits: 4. Staff

### PHYASST333 - Pulmonary Medicine

Subject	Catalog Number	Title
PHYASST	333	Pulmonary Medicine

#### Description

This rotation emphasizes prevention, cause, diagnosis and treatment of various pulmonary diseases. Credits: 4. Staff

### PHYASST334 - Rheumatology

Subject	Catalog Number	Title
PHYASST	334	Rheumatology

#### Description

This rotation emphasizes experience with the assessment of joint, connective tissue and autoimmune disorders. Credit: 4. Staff

### PHYASST336 - Medical Intensive Care Unit

Subject	Catalog Number	Title
PHYASST	336	Medical Intensive Care Unit

#### Description

This rotation offers an opportunity to understand the principles of medicine in an intensive care setting. Credits: 4. Staff

### PHYASST338 - Radiology

Subject	Catalog Number	Title
PHYASST	338	Radiology

#### Description

This rotation offers exposure to the variety of diagnostic and radiologic methods. Topics include: 1) General Radiology, 2) Interventional Radiology, 3) Neuro-radiology. Credits: 4. Staff

### PHYASST339 - Genetics

Subject	Catalog Number	Title
PHYASST	339	Genetics

#### Description

This rotation offers experiences with patients at risk for or diagnosed with various hereditary syndromes. Credit: 4, Staff

### PHYASST340 - Principles of Surgery

Subject	Catalog Number	Title
PHYASST	340	Principles of Surgery

#### Description

This four-week rotation is an opportunity for physician assistant students to understand the general principles of surgery and develop surgical skills. Special emphasis is placed on preoperative evaluation and preparatory procedures, assisting at the operating table, and management of patients through the postoperative period. Credits: 4. Staff

### PHYASST340E - General Surgery

Subject	Catalog Number	Title
PHYASST	340E	General Surgery

#### Description

This rotation emphasizes preoperative evaluation and preparatory procedures, assisting at the operating table, and management of patients through the postoperative period to discharge. Credits: 4. Staff

### PHYASST341 - Cardiothoracic Surgery

Subject	Catalog Number	Title
PHYASST	341	Cardiothoracic Surgery

#### Description

This rotation offers experiences in cardiothoracic surgery. Credits: 4. Staff

### PHYASST342 - Otolaryngology

Subject	Catalog Number	Title
PHYASST	342	Otolaryngology

#### Description

This rotation offers experiences in otolaryngology in outpatient and surgical settings. Credits: 4. Staff

### PHYASST343 - Neurosurgery

Subject	Catalog Number	Title
PHYASST	343	Neurosurgery

#### Description

This rotation offers surgical experiences in neurological problems. Credit: 4. Staff

### PHYASST344 - Orthopaedics

Subject	Catalog Number	Title
PHYASST	344	Orthopaedics

#### Description

This rotation offers experiences in the evaluation and treatment of orthopaedic problems. Credits: 4. Staff

### PHYASST345 - Plastic Surgery

Subject	Catalog Number	Title
PHYASST	345	Plastic Surgery

**Description**

This rotation offers experiences in the plastic and reconstructive surgery setting. Credits: 4. Staff

### PHYASST346 - Sports Medicine

Subject	Catalog Number	Title
PHYASST	346	Sports Medicine

**Description**

This rotation offers experiences in the evaluation and treatment of sports medicine problems. Credits: 4. Staff

### PHYASST347 - Urology

Subject	Catalog Number	Title
PHYASST	347	Urology

**Description**

This rotation offers experiences in the evaluation and treatment of urologic problems in outpatient and operative settings. Credits: 4. Staff

### PHYASST348 - Pre-Operative Screening Unit

Subject	Catalog Number	Title
PHYASST	348	Pre-Operative Screening Unit

**Description**

This rotation offers the opportunity to evaluate pre-operative patients who require medical clearance prior to their procedure. Credits: 4. Staff

### PHYASST349 - Surgical Oncology

Subject	Catalog Number	Title
PHYASST	349	Surgical Oncology

**Description**

This rotation offers exposure to patients with malignancies who require surgical evaluation and management, and includes experiences in outpatient and surgical settings. Credit: 4. Staff

### PHYASST350 - Emergency Medicine

Subject	Catalog Number	Title
PHYASST	350	Emergency Medicine

**Description**

This four-week rotation is an opportunity for physician assistant students to understand the principles of emergency medicine. Students are introduced to medical and surgical problems commonly encountered in the emergency department setting. The emphasis is on gaining outpatient procedural skills, triage of patients, and learning to recognize and begin treatment of emergent medical and surgical problems. Credit: 4. Staff

### PHYASST350E - Emergency Medicine

Subject	Catalog Number	Title
PHYASST	350E	Emergency Medicine

**Description**

This rotation provides opportunity for students to increase their knowledge of the triage and management of medical emergencies. Credit: 4. Staff

### PHYASST352 - Trauma

Subject	Catalog Number	Title
PHYASST	352	Trauma

**Description**

This rotation offers the opportunity to evaluate and treat trauma patients. Credits: 4. Staff

## PHYASST353 - Surgical Intensive Care Unit

Subject	Catalog Number	Title
PHYASST	353	Surgical Intensive Care Unit

### Description

This rotation offers exposure to the problems commonly encountered in a surgical intensive care setting. Topics include: 1) Surgical Intensive Care Unit, 2) Cardiothoracic Intensive Care Unit. Credits: 4. Staff

## PHYASST354 - Vascular Surgery

Subject	Catalog Number	Title
PHYASST	354	Vascular Surgery

### Description

This rotation offers experiences in the evaluation and treatment of vascular problems. Credit: 4. Staff

## PHYASST355 - Transplant Surgery

Subject	Catalog Number	Title
PHYASST	355	Transplant Surgery

### Description

This elective provides an opportunity to participate in the evaluation and management of patients requiring organ transplant. Credit: 4. Staff.

## PHYASST360 - Pediatrics

Subject	Catalog Number	Title
PHYASST	360	Pediatrics

### Description

This four-week rotation provides the opportunity for physician assistant students to understand the principles of pediatric care in the outpatient setting. Students are introduced to problems commonly encountered by pediatric primary care providers, as well as unique aspects of community based pediatric medicine. Special emphasis is placed on communication skills and relating sensitively to both children and parents. The student gains familiarity with normal growth and development, pediatric preventive medicine, and evaluation and management of common childhood illnesses. Credits: 4. Staff

## PHYASST360E - Pediatrics

Subject	Catalog Number	Title
PHYASST	360E	Pediatrics

### Description

The rotation provides familiarity with normal growth and development, pediatric preventive medicine, and evaluation and management of common childhood illnesses. Topics include 1) Outpatient Pediatrics, 2) Inpatient Pediatrics. Credit: 4. Staff

## PHYASST361 - Pediatric Cardiology

Subject	Catalog Number	Title
PHYASST	361	Pediatric Cardiology

### Description

This rotation offers experiences in pediatric cardiovascular assessment and problem management. Credit: 4. Staff

### PHYASST362 - Pediatric Surgery / Cardiothoracic Surgery

Subject	Catalog Number	Title
PHYASST	362	Pediatric Surgery / Cardiothoracic Surgery

**Description**

This rotation offers experiences in cardiothoracic surgery for pediatric patients. Credits: 4. Staff

### PHYASST363 - Pediatric Hematology and Oncology

Subject	Catalog Number	Title
PHYASST	363	Pediatric Hematology and Oncology

**Description**

This rotation offers exposure to the principles of hematology and oncology and their application for pediatric patients. Credits: 4. Staff

### PHYASST364 - Pediatric Allergy and Respiratory

Subject	Catalog Number	Title
PHYASST	364	Pediatric Allergy and Respiratory

**Description**

This rotation offers exposure to evaluation and treatment of allergy and respiratory problems in the pediatric patient. Credits: 4. Staff

### PHYASST365 - Pediatric Endocrinology

Subject	Catalog Number	Title
PHYASST	365	Pediatric Endocrinology

**Description**

This rotation offers exposure to the evaluation and management of endocrine problems in the pediatric patient. Credits: 4. Staff

### PHYASST366 - Pediatric Infectious Diseases

Subject	Catalog Number	Title
PHYASST	366	Pediatric Infectious Diseases

**Description**

This rotation emphasizes the evaluation and treatment of various infectious diseases in the pediatric patient. Credits: 4. Staff

### PHYASST367 - Intensive Care Nursery

Subject	Catalog Number	Title
PHYASST	367	Intensive Care Nursery

**Description**

This rotation emphasizes the care of the children in the intensive care setting. Topics include: 1) Neonatal Intensive Care Unit, 2) Pediatric Intensive Care Unit. Credits: 4. Staff

### PHYASST368 - Pediatric Emergency Medicine

Subject	Catalog Number	Title
PHYASST	368	Pediatric Emergency Medicine

**Description**

This rotation offers opportunity to manage the problems and needs of the pediatric patient in the emergency department. Credits: 4. Staff

### PHYASST369 - Pediatric Orthopaedic Surgery

Subject	Catalog Number	Title
PHYASST	369	Pediatric Orthopaedic Surgery

**Description**

This rotation offers exposure to pediatric orthopaedic care in the outpatient and surgical settings. Credit: 4. Staff

## PHYASST370 - Obstetrics and Gynecology

Subject	Catalog Number	Title
PHYASST	370	Obstetrics and Gynecology

### Description

This rotation is a four-week opportunity for physician assistant students to understand the principles of obstetrics and gynecology. Special emphasis is placed on preventive gynecologic care, common gynecologic complaints, and prenatal care. Credits: 4. Staff

## PHYASST370E - Obstetrics and Gynecology

Subject	Catalog Number	Title
PHYASST	370E	Obstetrics and Gynecology

### Description

This rotation provides students with the opportunity to learn about common gynecological problems and preventative care. Credit: 4. Staff

## PHYASST371 - Maternal and Fetal Medicine

Subject	Catalog Number	Title
PHYASST	371	Maternal and Fetal Medicine

### Description

This rotation emphasizes prenatal and postpartum care of patients with high-risk pregnancies. Credits: 4. Staff

## PHYASST372 - Reproductive Endocrinology and Infertility

Subject	Catalog Number	Title
PHYASST	372	Reproductive Endocrinology and Infertility

### Description

This elective provided students an opportunity to learn about the evaluation of infertility and the assisted reproductive treatment options that are available for couples experiencing difficulty achieving pregnancy. Credit: 4. Staff.

## PHYASST377 - Humanism In Health and Health Care

Subject	Catalog Number	Title
PHYASST	377	Humanism In Health and Health Care

### Description

This one-week course is designed to provide a foundation for PA students to appreciate and apply humanism in health and healthcare in their professional practice. Topics covered in this course include the history and future of humanism in medicine, medicalization and over diagnosis, the science of empathy, and the intersection of marginalization, otherness and cultural competency. This is a self-directed course. Students will engage with multiple learning modalities such as articles, videos, interactive group activities, and short written reflections and quizzes. 1 credit.

## PHYASST381 - Ophthalmology

Subject	Catalog Number	Title
PHYASST	381	Ophthalmology

### Description

This rotation offers exposure to the evaluation and treatment of a variety of disorders involving the eye. Credits: 4. Staff

## PHYASST390 - Practice and the Health System III

Subject	Catalog Number	Title
PHYASST	390	Practice and the Health System III

### Description

The Practice & the Health System courses (PHS 1, 2, and 3) provide an overview of the U.S. health care system with a focus on the PA profession. PHS 3 is the culmination of the course sequence and spans the duration of the clinical year. An interprofessional faculty approach provides lectures and leads discussions on various aspects of PA practice and the health care system, including topics such as: transition to professional practice, social and cultural determinants of health, medical billing and coding, advanced clinical medicine, licensure and certification, medication-assisted therapy training (MAT), professional ethics, team skills and communication, leadership development, and prescription writing/medication errors. The program's final summative evaluation is part of this course, which also serves as preparation for the PA National Certifying Examination (PANCE). Credit: 2. Melvin

## PHYASST398 - Visiting Student Elective

Subject	Catalog Number	Title
PHYASST	398	Visiting Student Elective

### Description

This course is an opportunity for PA students from non-Duke institutions who have been accepted through the Duke PA Visiting Student Policy to participate in supervised clinical practice experiences within the Duke Health System.

## PHYASST399 - INDEPENDENT STUDY

Subject	Catalog Number	Title
PHYASST	399	INDEPENDENT STUDY

### Description

This course is a two, four, or eight-week, term-based, non-credit bearing enrollment status used when the student is engaged in educational activities relevant to the degree or program requirements (e.g. structured remediation activities, additional clinical time, self-study, and/or assessments). The course must be approved by the PA Program Director. Staff

## PSP301B - Research in PSP

Subject	Catalog Number	Title
PSP	301B	Research in PSP

### Description

Program Director: Shannon J. McCall, MD. Pathology is the study of disease through the utilization of structural and functional changes to gain information about the human organism's response to injury. The goal of the Pathology Study Program is to provide the medical student with a thorough learning experience in pathology and laboratory medicine under the guidance of a senior faculty preceptor. The essential elements of this program are: a) independent, but guided, research experience (bench or library), and b) active participation in small group seminars.



## PSYCHTRY205C - Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	205C	Psychiatry

### Description

This course is a required four-week clerkship in clinical psychiatry for second year medical students. Students assume limited responsibility with supervision for the diagnosis and treatment of patients with common and severe psychiatric illnesses. Educational settings include inpatient psychiatry services at three different hospitals, psychiatry consultation services in three different hospitals, psychiatry outpatient clinics, and the psychiatry emergency room in one hospital. Students participate in a series of core didactic lectures and didactic modules which expose them to basic psychopathologic entities, differential diagnosis of psychiatric symptoms, practical application of treatment modalities, and issues of cost effectiveness in diagnosis and treatment. Students also participate in lectures, rounds, and clinical case conferences particular to their rotation site. Students are encouraged to observe psychotherapy and to participate in supervised psychological treatments wherever appropriate opportunities can be provided. Secondary Contact: Cathy Lefebvre (cathy.lefebvre@duke.edu). Credit: 4. Kathy Niu, MD

## PSYCHTRY206C - Primary Care Leadership Track (PCLT) - Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	206C	Primary Care Leadership Track (PCLT) - Psychiatry

### Description

This course is a required four-week clerkship in clinical psychiatry for second year medical students. Students assume limited responsibility with supervision for the diagnosis and treatment of patients with common and severe psychiatric illnesses. Educational settings include inpatient psychiatry services at four different hospitals, psychiatry outpatient clinics, and the psychiatry emergency rooms of two hospitals. Students participate in a series of core didactic lectures and didactic modules which expose them to basic psychopathologic entities, differential diagnosis of psychiatric symptoms, practical application of treatment modalities, and issues of cost effectiveness in diagnosis and treatment. Students also participate in lectures, rounds, and clinical case conferences particular to their rotation site. Students are encouraged to observe psychotherapy and to participate in supervised psychological treatments wherever appropriate opportunities can be provided. For more information about the PCLT program, please contact Melissa Graham, (melissa.graham@duke.edu). Credit: 4. Cerrone Cohen, MD

## PSYCHTRY209C - Longitudinal Integrated Curriculum - Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	209C	Longitudinal Integrated Curriculum - Psychiatry

### Description

LIC students will complete 3 weeks of inpatient psychiatry. Students assume limited responsibility with supervision for the diagnosis and treatment of patients with common and severe psychiatric illnesses. Educational settings include inpatient psychiatry services and the psychiatry emergency rooms. Student participate in a series of core didactic lectures and didactic modules which expose them to basic psychopathologic entities, differential diagnosis of psychiatric symptoms, practical application of treatment modalities, and issues of cost effectiveness in diagnosis and treatment. Students also participate in lectures, rounds, and clinical case conferences particular to the rotation site. Students are encouraged to observe psychotherapy and to participate in supervised psychological treatments wherever appropriate opportunities can be provided. LIC students will participate in a 16-week Behavioral Health Seminar during the LIC portion of the year. This seminar is run by psychiatry faculty and includes case presentations by students of patients they are seeing in the LIC outpatient settings. Secondary Contact: For more information about the LIC schedule or program, please contact Melissa Graham (melissa.graham@duke.edu). Credit: 4. Cerrone Cohen, MD

## PSYCHTRY221C - Clinical Intro to Child Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	221C	Clinical Intro to Child Psychiatry

### Description

This two-week course will be an opportunity to learn about the specialty of child and adolescent psychiatry. A series of clinical experiences with children and adolescents who are experiencing mental health concerns will be offered with exposures to both outpatient and inpatient settings. Medical Students will have opportunities to observe comprehensive psychiatric assessments using a biopsychosocial approach. We frequently provide care to medically complex children with psychiatric comorbidities. The primary service location will be on the inpatient pediatric psychiatry consultation and liaison service. Participation in weekly multidisciplinary care conferences will be made available and didactic sessions in child psychopathology will be included with an emphasis on evidence-based medicine. Secondary contact: Cathy Lefebvre (cathy.lefebvre@duke.edu). Enrollment Max. 1. Location: Duke University Hospital North, 5100 unit- 8:30 a.m. Emmalie Stay, MD (emmalie.stay@duke.edu)

### PSYCHTRY222C - Geriatric Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	222C	Geriatric Psychiatry

**Description**

Objective: To provide exposure to the psychiatric care of geriatric patients. Students can rotate through a variety of settings, depending on clinical interests. Settings can include memory disorders clinic, outpatient geriatric psychiatry clinic at Duke, inpatient unit at Central Regional Hospital, VA geropsychiatry clinic, and Geriatric Evaluation and Treatment Clinic. Students will learn about comprehensive psychiatric evaluation of older patients with a variety of psychiatric diagnoses including mood disorders, dementia, psychotic disorders, and personality disorders, usually in the context of significant medical co-morbidity. Students will also learn the bio-psycho-social approach to managing various disorders. Students will participate in ongoing weekly didactic seminars. NOTE: Students must contact Dr. Holsinger via email (tracey.holsinger@duke.edu) Tracey Holsinger, M.D. at least two weeks in advance for meeting time, location, more information, etc. Enrollment Max. 2. Location: . Tracey Holsinger, MD

### PSYCHTRY401C - Sub-Internship in Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	401C	Sub-Internship in Psychiatry

**Description**

This course is an intensive clinical experience in the diagnosis and treatment of severe and incapacitating psychiatric disorders. The student is given more clinical responsibility than the comparable second year inpatient rotation. Patient care responsibilities include management of ward milieu. Treatment approaches emphasizing psychotropic medication, individual, and family psychotherapy are part of the clinical experience. Participation at patient care conferences and didactic lectures is expected. Call is taken on the weekend. For more information, please contact Dr. Julie Penzner via email at julie.penzner@duke.edu. Pre-requisites: instructor approval and satisfactory completion of PSC-205C (or equivalent for visiting students). Secondary contact: Cathy Lefebvre, email at cathy.lefebvre@duke.edu or phone at 684-2274. Credit: 5. Enrollment: max 2. Julie Penzner, MD

## PSYCHTRY402C - Cultural Contexts of Substance Use Disorder Treatment

Subject	Catalog Number	Title
PSYCHTRY	402C	Cultural Contexts of Substance Use Disorder Treatment

### Description

This course will help students to develop a foundational knowledge in the historical and cultural contexts of substance use, the impact of systemic bias on treatment and criminalization of substance use disorders, explore the intersection of substance use with wide-ranging medical specialties, and to develop strategies to advocate for the care of patients suffering from SUD through treatment and harm-reduction strategies. Course participants will participate in buprenorphine waiver training ('X waiver') and will engage in self-reflection and advocacy activities. Maximum Enrollment: 15; Minimum: 4. Credit: 1 Non-Direct Patient Care. Classes will be held once a week, two hours per week, 5:30p-7:30p, Wednesday evenings, via ZOOM. Classes will be held during the first 8 weeks of the spring (evenings) term, section 81, effective spring 2023. Nicole Helmke, MD

## PSYCHTRY407C - Sub-Internship in Internal Medicine-Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	407C	Sub-Internship in Internal Medicine-Psychiatry

### Description

This course is an intensive clinical experience in the diagnosis and treatment of acute co-morbid medical and psychiatric disorders requiring acute hospitalization. Students participating in this four-week elective based in Duke North Hospital are expected to function at intern-level, assuming care of a small census of complex patients. The Medicine/Psychiatry faculty on the GenMed 12 service provides direct supervision. The goal of the elective is to refine and then clinically apply basic knowledge from the fields of Internal Medicine and Psychiatry. Participation at selected case conferences and didactic sessions is expected. Students are invited to attend the intern lecture series during Psychiatry Academic Half-day and educational offerings in Internal Medicine, including Intern Report. For more information, please contact Dr. Kristen Shirey, kristen.shirey@duke.edu; secondary contact: Cathy Lefebvre, cathy.lefebvre@duke.edu. Preference is given to students considering a career in combined Medicine-Psychiatry. Prerequisite: successful completion of PSYCHTRY-205C and MEDICINE-205C. C-L MEDICINE 407C. Permission is required. Credit: 5. Enrollment: max 1. Kristen Shirey, MD

## PSYCHTRY443C - Addiction Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	443C	Addiction Psychiatry

### Description

Students are based at the Durham VA Health Care System's Substance Use Disorders Clinic. Experiences include diagnostic evaluation, pharmacological management, and individual, group, and family psychotherapy. Emphasis is placed on motivational interviewing, medication-assisted treatment for alcohol- and opioid-use disorders, and understanding the relationships between addictive disorders and other psychiatric and medical conditions. Students function as members of the multidisciplinary treatment team. For more information, please contact Dr. Teresa Purdy, [teresa.purdy@va.gov](mailto:teresa.purdy@va.gov). For permission to enroll, please contact Cathy Lefebvre, ([cathy.lefebvre@duke.edu](mailto:cathy.lefebvre@duke.edu)). Credit: 4. Enrollment max 1. Prerequisites: obtain verbal or email approval from the instructor at least 4 weeks in advance and satisfactory completion of PSYCHTRY 205C. Students must complete required VA paperwork 60 days prior to the first day of their scheduled rotation. For questions about the paperwork, please contact Clyde Meador ([clyde.meador@va.gov](mailto:clyde.meador@va.gov)). Teresa Purdy, MD

## PSYCHTRY445C - Consultation-Liaison Psychiatry

Subject	Catalog Number	Title
PSYCHTRY	445C	Consultation-Liaison Psychiatry

### Description

The Psychiatry Consultation-Liaison Service at Duke Medical Center offers a clinical clerkship in the evaluation and management of psychiatric disorders in the medical and surgical setting. The student performs psychiatric consultations for medical and surgical services under direct supervision of residents and senior staff. Topics in psychosomatic medicine, psychopharmacology and medico-legal issues are discussed. Unique issues in psychiatric presentations of medical illness and adaptation to illness are reviewed. Students may attend an outpatient psychiatric consultation clinic in addition, upon request and pending availability. Students attend the weekly MedPsych conference and Psychiatry Academic Half-day educational offerings. Hours are generally 8am-6pm M-F. Call the consult pager to arrange meeting place on first day (970-PSYC). Students need to check with Dr. Shirey in advance via email at [kristen.shirey@duke.edu](mailto:kristen.shirey@duke.edu), or the secondary contact, Cathy Lefebvre, [cathy.lefebvre@duke.edu](mailto:cathy.lefebvre@duke.edu), to confirm the availability of this rotation. Prerequisites: instructor approval and satisfactory completion of PSC-205C. Credit: 4. Enrollment: max 1. Kristen Shirey, MD

## PT-D601 - Clinical Steps I

Subject	Catalog Number	Title
PT-D	601	Clinical Steps I

### Description

Clinical Student Team Experience in Practice (STEPS®) is the first in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clinical setting to apply skills, demonstrate clinical problem-solving, and assume professional roles with various patient populations. In each course, students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1.

## PT-D611 - Clinical Steps II

Subject	Catalog Number	Title
PT-D	611	Clinical Steps II

### Description

Clinical Student Team Experience in Practice (STEPS®) is the second in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clinical setting to apply skills, demonstrate clinical problem-solving, and assume professional roles with various patient populations. In each course, students will be expected to demonstrate skills and knowledge gained from the current and previous coursework.

### PT-D621 - Clinical Steps III

Subject	Catalog Number	Title
PT-D	621	Clinical Steps III

**Description**

Clinical Student Team Experience in Practice (STEPS®) is the third in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clinical setting to apply skills, demonstrate clinical problem-solving, and assume professional roles with various patient populations. In each course, students will be expected to demonstrate skills and knowledge gained from the current and previous coursework.

### PT-D631 - Professional Practice I

Subject	Catalog Number	Title
PT-D	631	Professional Practice I

**Description**

The Professional Practice series threads throughout the curriculum. In this course, learners focus on the history of our profession and the legal and ethical aspects that align with the roles and responsibilities of being a physical therapist. Learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through an understanding of the profession's history and governance students will have experiences in professional and patient advocacy initiatives. Students will master the crucial skills of patient and professional communication in order to operate effectively in practice. Students will also be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. This course series seeks to develop leadership skills necessary to be change agents in healthcare practice, management, education, research and advocacy.

## PT-D632 - Structure and Function of the Human Body

Subject	Catalog Number	Title
PT-D	632	Structure and Function of the Human Body

### Description

Structure and Function of the Human Body provides the anatomic and basic science foundation necessary for physical therapists' understanding of the human body. The course emphasis is on the gross anatomy of the body. We will explore the relationships between the musculoskeletal, neurological, and vascular systems of the human body, including a critical examination of the morphology and function of the axial skeleton, upper and lower limbs, and cardiac, pulmonary, gastrointestinal, urogenital, reproductive, and neuronal systems. This course covers the biomechanics of various organ tissues, and the response of muscle, bone, joints, and soft tissue to disease and injury pertinent to the practice of physical therapy. This course will provide an introduction to the neuroanatomy of the central nervous system. Learners will command knowledge regarding how the nervous system governs human movement and the impact of vascular structures on brain function. Through this course, learners will gain the foundational knowledge to understand how the anatomy of the human body, as well as introductory neuroanatomy, impact the care of patients/clients in the physical therapy profession. Credit: 7

## PT-D633 - Movement Science

Subject	Catalog Number	Title
PT-D	633	Movement Science

### Description

This course is an introduction to the elements and principles fundamental to the study of human movement. Included are: a foundation of kinesiology and biomechanics, biomechanics of biological tissues, joint structure and function, typical and pathological joint movement, typical human development, motor learning, and observational gait analysis of typical and pathological gait patterns. Concepts of kinetics, kinematics, length-tension relationships, joint classification, and functional movement will be discussed. These concepts will be focused on the application to the patient population. The basic understanding of human movement provides a foundation for developing assessment and intervention strategies to improve and restore mobility and function.

## PT-D634 - Introduction to The Patient Examination

Subject	Catalog Number	Title
PT-D	634	Introduction to The Patient Examination

### Description

Introduction to the Patient Examination will cover foundational concepts of the physical therapy patient examination. This course exposes students to the initial steps in the patient/client professional relationship. It will focus on the following skills: patient history, observation, obtaining consent, performing a systems review, vital signs, palpation, range of motion, goniometry, muscle performance testing, safe patient handling, and functional mobility. This course requires the student to integrate knowledge from pre-requisite courses and concurrent Duke DPT courses to apply to patient care scenarios. We will emphasize integration of core values of the PT profession into practice. Our goal is that each student develops the necessary examination skills to assure both patient/client and student safety in the clinical environment. By the end of this course, the student will be able to perform a comprehensive, accurate and appropriately prioritized patient examination on a standardized patient in a practical examination format. Students will also complete a summative, comprehensive written final examination.

## PT-D636 - Healthcare Systems

Subject	Catalog Number	Title
PT-D	636	Healthcare Systems

### Description

Healthcare Systems will provide the student with an understanding of the components of the health system that the physical therapist must integrate and facilitate. Included in this course will be a focus on interpreting health systems research including the translation of findings into practice. Students in this course will be introduced to all aspects of the health care system and will be provided the foundations to serve as leaders in a collaborative health system model.

## PT-D635 - Professional Practice II

Subject	Catalog Number	Title
PT-D	635	Professional Practice II

### Description

The Professional Practice series threads throughout the curriculum. In this course, learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through an understanding of the interprofessional nature of health care, learners will be prepared to work as a team player in the clinic. Students will master the crucial skills of patient and professional communication in order to operate effectively in practice. Students will continue to apply clinical reasoning skills to solve patient cases in a real world context. This course series seeks to develop leadership skills necessary to be change agents in healthcare practice, management, education, research and advocacy.

## PT-D637 - Foundational Integumentary Practice

Subject	Catalog Number	Title
PT-D	637	Foundational Integumentary Practice

### Description

This course will introduce the practice management model for patients with pathology or impairments to their integumentary system. The histology of the skin and pathologies of the integument are the foundation from which the assessment and management of pathological processes and wounds of various etiologies will be discussed. The continuum of impairment through functional limitation and disability will be presented as a result of primary and secondary pathologies of the integument. The students will understand primary & secondary management of the integumentary system in many physical therapy settings and across the lifespan.



## PT-D638 - Exercise Prescription in the Continuum of Care

Subject	Catalog Number	Title
PT-D	638	Exercise Prescription in the Continuum of Care

### Description

Exercise prescription is an integral part of the rehabilitation process and physical therapists are qualified to appropriately prescribe and dose exercise interventions for a variety of populations, including individuals with injuries, impairments, co-morbidities, and additional risk factors. Exercise prescription involves careful screening including history and physical examination to determine a patient's capacity for physical activity as well as their risk factors and goals. This course introduces the science and theory of exercise prescription in the continuum of care. An overall goal of the course is to provide the foundational basis for understanding the body's physiological responses to physical activity as well as understand the acute responses and chronic physiologic adaptations to physical activity, including some of the static and dynamic factors ('moderating variables') that influence such responses and adaptations. Students will be introduced to cardiorespiratory, strength, and mobility testing, exercise prescription, and special population considerations. Clinical correlations and case-study applications will be used throughout the course.

## PT-D639 - Foundational Cardiovascular and Pulmonary Practice

Subject	Catalog Number	Title
PT-D	639	Foundational Cardiovascular and Pulmonary Practice

### Description

Physical therapists commonly encounter clients with cardiovascular and/or pulmonary systems dysfunction, either as a primary problem or co-morbidity. This course gives an overview of cardiovascular and pulmonary-related pathologies, examination procedures, diagnostic procedures, goal setting, and interventional strategies. Successful completion of the course requires the ability to synthesize and integrate information from this course with prerequisite and other related courses in a variety of cardiovascular and pulmonary case-based problem-solving experiences. The didactic portion of the course provides the background to make evidence-based clinical decisions in examination, evaluation, and treatment of patients with a wide variety of cardiovascular and pulmonary conditions. The practicum portion focuses on the integration of these decision-making capabilities with the necessary psychomotor skills required for the examination and treatment of patients with cardiovascular and pulmonary conditions.

## PT-D640 - Pain Science

Subject	Catalog Number	Title
PT-D	640	Pain Science

### Description

Persistent pain affects 100 million Americans each year, and accounts for hundreds of billions of dollars in health care costs. Despite its profound impact, persistent pain is poorly understood and poorly managed across medical disciplines. In 2016, the U.S. Department of Health and Human Services released the National Pain Strategy, which exposed a key reason for poor understanding and management of persistent pain: 'Most health care professions' education programs devote little time to education and training about pain and pain care.' In this course, learners gain a robust theoretical foundation to understand pain through the lens of biological, physiological, psychological, cognitive, social, and cultural factors. At the completion of the course, learners will have the skills to not only comprehensively assess pain and its influences, but to initiate evidence-based pain modulatory interventions which future Duke DPT courses will build upon. Importantly, course content is annually revised to align with current guidelines from the International Association for the Study of Pain (IASP) and cutting-edge pain research.

## PT-D642 - Physical Therapy for the Older Adult

Subject	Catalog Number	Title
PT-D	642	Physical Therapy for the Older Adult

### Description

The number of Americans 65 years and older is projected to double within the next 40 years which will result in more older adults seeking medical care. The goal of this course is to provide students with the foundational knowledge and skills for optimal physical therapy management of older adults. Students will learn key concepts related to aging, age-related diseases and disorders, multimorbidity, and frailty. Students will also learn about age-related stereotypes, the influence of the physical environment, and caregiver roles. Lastly, students will gain expertise in the measurement of physical performance and falls risk and gain competency in optimizing exercise and physical activity for common post-operative conditions, falls prevention, and overall health and wellness.

## PT-D641 - Professional Practice III

Subject	Catalog Number	Title
PT-D	641	Professional Practice III

### Description

The Professional Practice series threads throughout the curriculum. In this course, learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through interactive case conferences, learners will apply foundational practice management knowledge to complex patient scenarios. Students will also begin to develop skills to provide effective educational content to learners of all kinds. They will apply these skills in an educational session related to patient care. Students will also be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. This course series also seeks to develop skills necessary to be change agents in health care practice, management, education, research and advocacy.

## PT-D643 - Evidence Based Practice

Subject	Catalog Number	Title
PT-D	643	Evidence Based Practice

### Description

In this course, students will be introduced to the science of clinical reasoning in health care and physical therapy. The integration of clinical reasoning and evidence-based practice will be developed. Students will learn how to access knowledge for practice and learn the methods of scientific inquiry, including research theory, design, methods, and measurement. Students will learn how to: 1) determine the statistical conclusion of research evidence for practice, 2) provide the logic of hypothesis testing, and 3) utilize specific statistical tests used for the descriptive and inferential analysis of experimental research data. Epidemiological statistics that enhance the understanding of diagnostic tests and treatment options will also be covered and the analytical components of systematic reviews and meta-analyses. Students will read research literature weekly and participate in a critical appraisal of the selected research methods and the meaningfulness of the findings for clinical decisions.

## PT-D644 - Adaptive Technologies

Subject	Catalog Number	Title
PT-D	644	Adaptive Technologies

### Description

This course covers foundational content related to assistive and adaptive technology used in improving functional capabilities of patients/clients. Learners are introduced to orthoses and orthotic prescription based on clinical exam findings. Clinical skills in management of individuals with limb loss and limb difference are learned with a focus on a biopsychosocial approach to care. Learners are exposed to prosthetic componentry and how to interact and collaborate with prosthetists and orthotists to best treat the needs of patients/clients. Basic wheelchair seating and mobility content includes patient/client evaluation and prescription of equipment to improve mobility and meet an individual's personal needs. Throughout this course we interact with peer mentors, community volunteers, and assistive technology end-users to better understand the role of the physical therapist in using technology to improve function of our patients/clients.

## PT-D646 - Foundational Neurologic Practice I

Subject	Catalog Number	Title
PT-D	646	Foundational Neurologic Practice I

### Description

The Foundational Neurologic Practice course series includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply examination procedures to identify impairments, activity limitations, and participation restrictions and develop a plan of care for adults with neurological dysfunction. Learners will differentiate between central (CNS) and peripheral (PNS) nervous system dysfunction based on clinical characteristics, apply advanced skills in examination and task analysis to distinguish typical from pathological responses, and develop evidence-informed intervention strategies. The course series will emphasize diagnosis-specific examination and evaluation techniques, PT diagnoses, pharmacological management of neurological conditions, clinical decision-making, prognosis, standardized assessments, outcome measures, and interventions. Diagnoses highlighted in Foundational Neuro Practice I will include Stroke, Spinal Cord Injury (SCI), Acquired Brain Injury (ABI), and Multiple Sclerosis (MS). Management across the lifespan and in various clinical settings will be addressed.

## PT-D645 - Foundational Musculoskeletal Practice I

Subject	Catalog Number	Title
PT-D	645	Foundational Musculoskeletal Practice I

### Description

This course introduces the student to musculoskeletal examination, evaluation, diagnosis, prognosis, and intervention for impairments, functional limitations, and disability in clients with pathologies of the cervical, thoracic and lumbar spine, as well as the upper extremity. The course series will emphasize diagnosis-specific examination, evaluation, diagnosis, prognosis, referral, diagnosis, standard assessments, outcome measures & intervention. Diagnoses specific to the entire spine, shoulder, elbow, wrist and hand will be addressed. Students will demonstrate learning/understanding of course content via practical and written examinations.

## PT-D647 - Structure and Function of the Human Brain

Subject	Catalog Number	Title
PT-D	647	Structure and Function of the Human Brain

### Description

This course completes the two-session exploration of the human body and brain through a variety of learning experiences. This course provides the anatomic and basic science foundation necessary for physical therapists' understanding the human nervous system. This course will provide a comprehensive survey of the neuroanatomy and neurophysiology of the central and peripheral nervous systems, which will provide a framework for understanding the form and function of the neuronal systems in the brain and spinal cord that motivate bodily actions and behaviors. Learners will command comprehensive knowledge concerning the form and function of the nervous system, and the means by which the nervous system governs human behavior. Through this course, learners will gain the foundational knowledge to understand how neuroanatomy and neurophysiology impact the care of patients/clients in the profession of physical therapy.

## PT-D650 - Cultural Determinants of Health and Health Disparities in PT I

Subject	Catalog Number	Title
PT-D	650	Cultural Determinants of Health and Health Disparities in PT I

### Description

Cultural Determinants of Health and Health Disparities (CDHD) I is the first in a series of two courses embedded in the first year of the DPT curriculum. Students will be equipped with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity, and socioeconomic difference. Course facilitators and lecturers will guide students in provocative conversations around health disparities, structural competency, bias, and the impact of implicit associations on interactions with peers and patients. Through skills building exercises and experiential opportunities, students will be challenged to explore individual, cultural, and social determinants of health and wellness. In addition, students will gain knowledge about the evidence and economics of health disparities, the Durham community, and the history of Duke Medicine's role in that community. Through the evaluation of peer-reviewed literature regarding health disparities, students will gather knowledge and skills to mitigate provider influences on disparities and ultimately improve the quality of healthcare.

## PT-D651 - Cultural Determinants of Health and Health Disparities in PT II

Subject	Catalog Number	Title
PT-D	651	Cultural Determinants of Health and Health Disparities in PT II

### Description

Cultural Determinants of Health and Health Disparities (CDHD) II is the second in a series of two courses embedded in the first year of the DPT curriculum. Students will be equipped with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity, and socioeconomic difference. Course facilitators and lecturers will guide students in provocative conversations around health disparities, structural competency, bias, and the impact of implicit associations on interactions with peers and patients. Through skills building exercises and experiential opportunities, students will be challenged to explore individual, cultural, and social determinants of health and wellness. In addition, students will gain knowledge about the evidence and economics of health disparities, the Durham community, and the history of Duke Medicine's role in that community. Through the evaluation of peer-reviewed literature regarding health disparities, students will gather knowledge and skills to mitigate provider influences on disparities and ultimately improve the quality of healthcare.

## PT-D701 - Clinical Steps IV

Subject	Catalog Number	Title
PT-D	701	Clinical Steps IV

### Description

Clinical Student Team Experience in Practice (STEPS®) is the fourth in a series of four courses embedded in the first four didactic semesters of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor in the clinical setting to apply skills, demonstrate clinical problem-solving, and assume professional roles with various patient populations. In each course, students will be expected to demonstrate skills and knowledge gained from the current and previous coursework.

## PT-D731 - PT Professional Practice IV

Subject	Catalog Number	Title
PT-D	731	PT Professional Practice IV

### Description

The Professional Practice series threads throughout the curriculum. In this course, learners will delve deeper into the topics of leadership development, clinical leadership, outcomes management, and higher-level ethics and legal implications on practice. In this course, learners will develop the professional behaviors, knowledge, and values crucial to be leaders in a dynamic health care environment. Through an understanding of the profession's history and governance, students will have experiences in professional and patient advocacy initiatives. Students will master the crucial skills of patient and professional communication in order to operate effectively in practice. Students will be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. This course series also seeks to develop leadership skills necessary to be change agents in healthcare practice, management, education, research, and advocacy.

## PT-D732 - Foundational Pediatrics Practice

Subject	Catalog Number	Title
PT-D	732	Foundational Pediatrics Practice

### Description

Foundational Pediatrics introduces the practice management model for pediatric patients. The theoretical basis of pediatric development, typical and atypical development, movement, and function, along with compassion and high standards of care will be the foundation from which the assessment and management of various pediatric diagnoses will be discussed. The students will be introduced to the wide range of pediatric diagnoses, within the context of an individual child's life and their family, in order to optimize the child's ability to thrive across their lifespan. The etiology, pathology, pathophysiology, pathokinesiology, and clinical presentation of common pediatric disorders will be covered as well as the typical alterations in motor development that can accompany neurological, neuromuscular, genetic, and orthopedic disorders in children. Examination, evaluation, diagnosis, clinical reasoning, clinical decision-making, prognosis, and the use of standardized assessments, outcome measures and evidence-based interventions will be emphasized. Management across the lifespan across the ICF in various clinical settings will be addressed, including outpatient, school, early intervention, acute care, and home health settings. Students will participate in Pediatric Movement Matters Program in which they will learn from children with neurological and neuromuscular impairments and disabilities.

## PT-D733 - Management of the Complex Patient

Subject	Catalog Number	Title
PT-D	733	Management of the Complex Patient

### Description

Management of the Complex Patient will introduce the student to the assessment and management of complex patient cases across the lifespan and the continuum of care. An emphasis will be placed on clinical decision-making related to the physical therapy management of individuals with multimorbidity and polypharmacy. Furthermore, collaborative navigation of the complex patient through the health care system will be underscored.

## PT-D734 - Professional Practice V

Subject	Catalog Number	Title
PT-D	734	Professional Practice V

### Description

The Professional Practice series threads throughout the curriculum. In this course, learners engage with job roles and clinicians that impact practice broadly, including data management, legislative and regulatory advocacy, and population health. Furthermore they engage in substantive debate about issues facing the profession through a mock debate process. In this course, learners will develop the professional behaviors, knowledge, and values crucial to be leaders in a dynamic health care environment. Through an understanding of the profession's history and governance, students will have experiences in professional and patient advocacy initiatives. Students will master the crucial skills of patient and professional communication in order to operate effectively in practice. Students will also be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. This course series seeks to develop leadership skills necessary to be change agents in healthcare practice, management, education, research, and advocacy.

## PT-D736 - CAMP I

Subject	Catalog Number	Title
PT-D	736	CAMP I

### Description

The Comprehensive Assessment and Management of Practice (CAMP) I course will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of adult musculoskeletal conditions. This course will build upon earlier foundational and STEPs experiences to further develop clinical reasoning. During CAMP, students will be mentored by DPT program faculty and physical therapists as they work in small groups to provide care to community members who have a variety of diagnoses causing movement dysfunction or pain. The students in this course will be involved in developing and documenting a plan of care based on the ICF model that includes goals, skilled intervention, and progression.

## PT-D735 - Professional Practice VI

Subject	Catalog Number	Title
PT-D	735	Professional Practice VI

### Description

Professional Development and Leadership threads throughout the entire DPT curriculum. In this course, learners will develop the professional behaviors, knowledge and values crucial to be leaders in a dynamic health care environment. Through and understanding of the profession's history and governance students will have experiences in professional and patient advocacy initiatives. Students will master the crucial skills of patient and professional communication in order to operate effectively in practice. Students will also be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. This course series also seeks to develop leadership skills necessary to be change agents in healthcare practice, management, education, research and advocacy. Credit: 2

## PT-D737 - Practice Management (CAMP) II

Subject	Catalog Number	Title
PT-D	737	Practice Management (CAMP) II

### Description

The Comprehensive Assessment and Management of Practice (CAMP) II course will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of adult complex and neurological conditions. This course will build upon earlier foundational and STEPs experiences to further develop clinical reasoning. During CAMP II, students will be mentored by DPT program faculty and physical therapists as they work in small groups on applied skills pertinent to patient case management including examination and interventions including progressions. The students in this course will be involved in developing and documenting a plan of care based on the ICF model that includes goals, skilled intervention, and progression.

### PT-D738 - Advanced Practice Course (APC) I

Subject	Catalog Number	Title
PT-D	738	Advanced Practice Course (APC) I

**Description**

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D739 - Advanced Practice Course (APC) II

Subject	Catalog Number	Title
PT-D	739	Advanced Practice Course (APC) II

**Description**

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D740 - Advanced Practice Course (APC) III

Subject	Catalog Number	Title
PT-D	740	Advanced Practice Course (APC) III

**Description**

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D741 - Advanced Practice Course (APC) IV

Subject	Catalog Number	Title
PT-D	741	Advanced Practice Course (APC) IV

**Description**

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D742 - Advanced Practice Course (APC) V

Subject	Catalog Number	Title
PT-D	742	Advanced Practice Course (APC) V

**Description**

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D743 - Advanced Practice Course (APC) VI

Subject	Catalog Number	Title
PT-D	743	Advanced Practice Course (APC) VI

**Description**

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.



### PT-D744 - Advanced Practice Course (APC) VII

Subject	Catalog Number	Title
PT-D	744	Advanced Practice Course (APC) VII

#### Description

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D745 - Advanced Practice Course (APC) VIII

Subject	Catalog Number	Title
PT-D	745	Advanced Practice Course (APC) VIII

#### Description

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D746 - Advanced Practice Course (APC) IX

Subject	Catalog Number	Title
PT-D	746	Advanced Practice Course (APC) IX

#### Description

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D747 - Advanced Practice Course (APC) X

Subject	Catalog Number	Title
PT-D	747	Advanced Practice Course (APC) X

#### Description

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D748 - Advanced Practice Course (APC) XI

Subject	Catalog Number	Title
PT-D	748	Advanced Practice Course (APC) XI

#### Description

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

### PT-D749 - Advanced Practice Course (APC) XII

Subject	Catalog Number	Title
PT-D	749	Advanced Practice Course (APC) XII

#### Description

Students are required to take 9 APC courses during their second year to deepen their knowledge base in various practice content areas. These areas include: Community and Global Engagement, Complex Patient Management, Geriatrics, Leadership, Neurorehabilitation, Orthopedic/ Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 12, 1 each course.

## PT-D750 - Cultural Determinants of Health and Health Disparities in PT III

Subject	Catalog Number	Title
PT-D	750	Cultural Determinants of Health and Health Disparities in PT III

### Description

The CDHD III experience is provided during the students' second year to align with the professional practice course focus on advocacy and to contribute to meeting our divisional objective for our learners to 'be influential leaders, advocates, and change agents for their patients, community, and the profession.' Students will be provided opportunities to develop real-world skills to address disparities at the interpersonal and community levels. This content is offered during the DPT second year as a continuation of the first-year CDHD I and II courses to drive the clinical application of skills and offer opportunities for direct engagement. The course is offered in parallel with our integrated clinical experiences in CAMP to solidify our learners' abilities to grapple with these complex issues. The expectation is that learners will enter their summative third-year terminal clinical experiences competently prepared to identify and reduce healthcare disparities.

## PT-D751 - Foundational MSK Practice II

Subject	Catalog Number	Title
PT-D	751	Foundational MSK Practice II

### Description

This course introduces the student to musculoskeletal examination, evaluation, diagnosis, prognosis, and intervention for impairments, functional limitations, and disability in clients with pathologies of the lower extremities. The course series will emphasize diagnosis-specific examination, evaluation, diagnosis, prognosis, referral, diagnosis, standard assessments, outcome measures & intervention. Diagnoses specific to the hip, knee and lower leg, ankle and foot will be addressed. Students will demonstrate learning/understanding of course content via practical and written examinations.

## PT-D752 - Foundational Neurologic Practice II

Subject	Catalog Number	Title
PT-D	752	Foundational Neurologic Practice II

### Description

The Foundational Neurologic Practice course series includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply examination procedures to identify impairments, activity limitations, and participation restrictions and develop a plan of care for adults with neurological dysfunction. Learners will differentiate between central (CNS) and peripheral (PNS) nervous system dysfunction based on clinical characteristics, apply advanced skills in examination and task analysis to distinguish typical from pathological responses, and develop evidence-informed intervention strategies. The course series will emphasize diagnosis-specific examination and evaluation techniques, PT diagnoses, pharmacological management of neurological conditions, clinical decision-making, prognosis, standardized assessments, outcome measures, and interventions. Diagnoses highlighted in Foundational Neuro Practice II will include concussion, vestibular pathologies, cerebellar dysfunction, Parkinson's Disease (PD), Amyotrophic Lateral Sclerosis (ALS), Huntington's disease (HD), Neuromuscular disease (NMD), and Guillain-Barre Syndrome (GBS). Management across the lifespan and in various clinical settings will be addressed.

## PT-D801 - Terminal Clinical Experience I

Subject	Catalog Number	Title
PT-D	801	Terminal Clinical Experience I

### Description

The Terminal Clinical Experience (TCE) course series includes three, 12-week full-time supervised clinical experiences with emphasis on student management of patients across the lifespan and continuum of care. In addition, students engage in online learning resources throughout the TCE course series. During the clinical experiences, one or more selected and trained clinical instructors (CIs) will supervise students as they learn skills in all components of the physical therapy practice management model, including conducting patient examinations and evaluations, establishing patient diagnoses and prognoses, conducting patient interventions, and measuring patient outcomes. When possible, students will engage patients in practice patterns across the range of acute to chronic conditions. Students will participate in administrative aspects of ethical and efficacious practice. Performance expectations will include progression in level of independence in demonstrating competent, proficient, safe and effective examination, evaluation, diagnosis, prognosis, intervention and professional practice skills. Credits 12

## PT-D802 - Terminal Clinical Experience II

Subject	Catalog Number	Title
PT-D	802	Terminal Clinical Experience II

### Description

The Terminal Clinical Experience (TCE) course series includes three, 12-week full-time supervised clinical experiences with emphasis on student management of patients across the lifespan and continuum of care. In addition, students engage in online learning resources throughout the TCE course series. During the clinical experiences, one or more selected and trained clinical instructors (CIs) will supervise students as they learn skills in all components of the physical therapy practice management model, including conducting patient examinations and evaluations, establishing patient diagnoses and prognoses, conducting patient interventions, and measuring patient outcomes. When possible, students will engage patients in practice patterns across the range of acute to chronic conditions. Students will participate in administrative aspects of ethical and efficacious practice. Performance expectations will include progression in level of independence in demonstrating competent, proficient, safe and effective examination, evaluation, diagnosis, prognosis, intervention and professional practice skills.

## PT-D803 - Terminal Clinical Experience III

Subject	Catalog Number	Title
PT-D	803	Terminal Clinical Experience III

### Description

The Terminal Clinical Experience (TCE) course series includes three, 12-week full-time supervised clinical experiences with emphasis on student management of patients across the lifespan and continuum of care. In addition, students engage in online learning resources throughout the TCE course series. During the clinical experiences, one or more selected and trained clinical instructors (CIs) will supervise students as they learn skills in all components of the physical therapy practice management model, including conducting patient examinations and evaluations, establishing patient diagnoses and prognoses, conducting patient interventions, and measuring patient outcomes. When possible, students will engage patients in practice patterns across the range of acute to chronic conditions. Students will participate in administrative aspects of ethical and efficacious practice. Performance expectations will include progression in level of independence in demonstrating competent, proficient, safe and effective examination, evaluation, diagnosis, prognosis, intervention and professional practice skills.

### PT-D810 - Continuation

Subject	Catalog Number	Title
PT-D	810	Continuation

#### Description

This course is designed for students who need additional time to satisfactorily complete coursework to progress in the DPT curriculum. This course is designed to provide a customized learning plan to address students' deficiencies in didactic or clinical coursework and/or progression in expected professional behaviors.

### PT-D901 - Foreign Educated PT Course (FEPT-C): Healthcare Policy, Practice and Regulation in the United States

Subject	Catalog Number	Title
PT-D	901	Foreign Educated PT Course (FEPT-C): Healthcare Policy, Practice and Regulation in the United States

#### Description

The US has been an attractive and desirable destination for many internationally educated physical therapists for decades, and although internationally trained physical therapists are often well trained and skilled, they frequently do not have the background or knowledge of the nuances and unique complexities that exist within the US health care systems, and the multiple roles that physical therapists can and do perform along the continuum of care. A better understanding of these complexities, and creating opportunities to discussion and debates, can improve the probability of success as the internationally educated clinician transition towards licensure within the US, and would also promote a welcoming environment for further growth for internationally educated physical therapists in our country. As such, we propose an on-line course that we have titled 'Healthcare Policy, Practice and Regulation in the United States: A Course for Internationally Educated Physical Therapists.' The main objective of this course is to provide foundational knowledge of the complexities and nuances of US-based physical therapy policy, practice and regulation that are critical to moving forward towards licensure and effective practice in the US. Credit: 2.

## RADIOL205C - Radiology

Subject	Catalog Number	Title
RADIOL	205C	Radiology

### Description

The core clerkship in Radiology will emphasize evidenced-based strategies for optimized utilization of imaging, teach diagnostic skills for the interpretation of medical images, and provide an understanding of the costs (financial and health risks), benefits, and signature characteristics of radiography, computed, tomography, magnetic resonance, sonography, angiography, fluoroscopy, and nuclear medicine as applied in routine clinical care across the disciplines of abdominal, breast, cardiothoracic, neurological, musculoskeletal, pediatric, and interventional radiology and nuclear medicine. Students will learn basic principles of image acquisition, working in the Department of Radiology and will be taught normal and both common and emergent abnormal imaging findings. Course Coordinator: Deborah Griffin (deborah.griffin@duke.edu) Credits: 4. Jonathan Martin, MD and Robert French, MD

## RADIOL209C - Longitudinal Integrated Curriculum - Radiology

Subject	Catalog Number	Title
RADIOL	209C	Longitudinal Integrated Curriculum - Radiology

### Description

Students in the Longitudinal Integrated Curriculum program will have the opportunity to have specific patient-centered education in radiology. This holistic approach to radiology education allows for students to follow patients on their census through the clinical discussion regarding ordered imaging exams, the performance of said radiology exams, discussing the imaging findings/conclusions with members of the radiology department, and finally reporting back to clinical mentors with a summary and plan for next steps in management. The expectation would be for the student to complete this exercise for a total of 40 patient centered radiology encounters over the course of their second year. Course Coordinator: Bridgit Holmes (bridgit.holmes@duke.edu) or Deborah Griffin (Deborah.griffin@duke.edu). Credit: 4. Robert French, MD; Jonathan Martin, MD

## RADIOL222C - Vascular & Interventional Radiology

Subject	Catalog Number	Title
RADIOL	222C	Vascular & Interventional Radiology

### Description

Vascular and Interventional Radiology (VIR) has established a residency program. The 2nd-year selective in VIR is designed to provide medical students an opportunity to learn more about the practice of Vascular and Interventional Radiology. The students will be involved in: (1) pre-procedural patient care: via focused inpatient and outpatient patient assessment, review of imaging, and informed consent process; (2) intra-procedural care: devices, terminology, and technique; (3) post-procedural patient care: focused patient assessment in the radiology recovery room, as well as in the inpatient setting, (4) procedural documentation/reporting, and (5) patient follow-up care planning. By the end of the rotation, the students will be knowledgeable about the most common procedures performed by VIR, and pre- and post-procedure patient care. NOTE: Students that take this two week selective may not take the fourth year course equivalent, RADIOL 404C but may still take the 4-week elective RADIOL 406C. For more information about the course or if you have registered for the course, please contact Dr. Martin at [jonathan.g.martin@duke.edu](mailto:jonathan.g.martin@duke.edu) or Wendy Perry ([wendy.perry@duke.edu](mailto:wendy.perry@duke.edu)). Enrollment Max: 2; Credit 2. Jonathan G. Martin, MD

## RADIOL402C - Breast Imaging

Subject	Catalog Number	Title
RADIOL	402C	Breast Imaging

### Description

The 4th year elective in Breast Imaging is designed to enhance the medical student's learning by teaching a rational approach to symptoms and concerns involving the breast, and the implementation of oncologic and surgical care after biopsy proven pathology is identified. The student will be exposed to full field digital mammography, breast ultrasound, breast MRI, and image guided interventional procedures such as needle localization prior to surgical biopsy, and stereotactic, ultrasound, and MRI-guided core biopsies. Students will also observe and have opportunity to practice skills at providing compassionate patient care through patient interactions to promote breast health, during tense encounters such as breast biopsy, and potentially high-anxiety situations such as discussing potentially abnormal mammographic results. The elective can be customized based on the student's interests and plans for residency. This course would be beneficial to students interested in Radiology, Family Medicine, or Obstetrics & Gynecology. For questions please contact Dr. Kim via email at [connie.kim@dm.duke.edu](mailto:connie.kim@dm.duke.edu). Students may also contact Bridgit Holmes ([bridgit.holmes@duke.edu](mailto:bridgit.holmes@duke.edu)) and Deborah Griffin ([deborah.griffin@duke.edu](mailto:deborah.griffin@duke.edu)). Credits: 2. Enrollment max: 2 (1 student per two-week period). This two-week course is not available to visiting students. Permission of instructor is required. Connie Kim, MD; Jay A. Baker, MD; Sujata Ghatge, MD; Lars Grimm, MD; Karen S. Johnson, MD; Eun Langman MD; Ruth Walsh, MD; and Sora Yoon, MD; Dorothy Lowell, MD and Michael Taylor-Cho MD

## RADIOL403C - Genitourinary Imaging

Subject	Catalog Number	Title
RADIOL	403C	Genitourinary Imaging

### Description

The 4th year elective in Genitourinary Imaging (GUI) is designed to educate medical students pursuing a career in urology about the most common procedures within the field of GUI. The students will be involved in: (1) education about the diverse imaging modalities used in GUI; (2) imaging indications and techniques unique to GUI; and (3) review and interpretation of various studies.

Documentation skills will be taught. By the end of the rotation, the student should be capable of preliminary interpretation of GU imaging studies. Permission of the instructor is required for enrollment. Credit: 4. Enrollment max: 1. Direct questions about the course to Dr. Leder, richard.leder@dm.duke.edu. Secondary contacts: Bridgit Holmes (bridgit.holmes@duke.edu) and Deborah Griffin (deborah.griffin@duke.edu). Richard Leder, MD; Other Abdominal Imaging Faculty

## RADIOL404C - Vascular and Interventional Radiology

Subject	Catalog Number	Title
RADIOL	404C	Vascular and Interventional Radiology

### Description

All physicians will encounter patients who will undergo interventional procedures. This 2 week 4th year elective in Interventional Radiology is designed to educate medical students not planning on going into a career in radiology about the most common procedures performed by IR. The students will be involved in: (1) pre-procedural patient care: focused patient assessment (in the inpatient consult setting), review of imaging, and informed consent process; (2) intra-procedural care: devices, terminology, and technique; and (3) post-procedural patient care: focused patient assessment (in the inpatient setting) and patient follow-up planning. By the end of the rotation, the student should be capable of determining whether a procedure is needed routinely, urgently, or emergently; will be able to select the most indicated procedure based on patient presentation (develop a management plan); and will be knowledgeable about pre- and post-procedure patient care. This two-week, two-credit course is not available to visiting medical students. For more information about the course or if you have registered for the course, please contact Bridgit Holmes (bridgit.holmes@duke.edu) and Deborah Griffin (deborah.griffin@duke.edu). Students that took Radiol 222C during the second year are not eligible to take RADIOL 404C. Credits: 2. Enrollment max: 1. Jonathan G. Martin, MD. Course Faculty: Nicholas Befera, MD; Brendan Cline, MD; Charles Kim, MD; Waleska Pabon-Ramos, MD/MPH; James Ronald, MD/PhD; Alan Sag MD; Tony Smith, MD; and Paul Suhocki, MD



## RADIOL405C - Fourth Year Subspecialty Radiology Rotation for the Longitudinal Integrated Curriculum

Subject	Catalog Number	Title
RADIOL	405C	Fourth Year Subspecialty Radiology Rotation for the Longitudinal Integrated Curriculum

### Description

This course is for students in the Longitudinal Integrated Curriculum track only. The course completes the LIC student's final two weeks of the educational requirement in the field of radiology. The student will select a subspecialty area for study and clinical experience based on their personal interest. Choices may include imaging within the following divisions: Nuclear Medicine, Neuroradiology, and Pediatric, Abdominal, Cardiothoracic, Musculoskeletal, and Interventional Radiology. OF NOTE: Not all divisions will have availability in all rotation blocks. Students will have two weeks of clinical experience in which they will participate in imaging examination preparation, acquisition and interpretation. Prerequisite: Permission of the instructor is required. Students must contact the coordinators to schedule their rotation and select from available division rotations. Subsequently, the student will receive instructions prior to beginning their rotation. Please contact Bridgit Holmes (bridgit.holmes@duke.edu) or Deborah Griffin (deborah.griffin@duke.edu). Credit: 2; Maximum enrollment: 1. Course Directors: Robert French, MD and Jonathan G. Martin, MD. Course Faculty: Pediatric Radiology: Logan Bisset, M.D.; Abdominal Imaging: Lisa Ho, MD; and Chad Miller, MD; Musculoskeletal Imaging: Robert French, MD; Nuclear Medicine: Terence Wong, MD; and Brandon Howard, MD; Neuroradiology: Michael Malinzak, MD; Interventional Radiology: Jonathan G. Martin MD; Cardiothoracic imaging: Travis Henry MD

## RADIOL406C - Advanced Vascular and Interventional Radiology

Subject	Catalog Number	Title
RADIOL	406C	Advanced Vascular and Interventional Radiology

### Description

The 4 week 4th-year elective in Interventional Radiology is designed for students interested in pursuing interventional and/or diagnostic radiology and is an immersive experience with the Interventional Radiology team. Students will be involved in: (1) pre-procedural patient care: focused patient assessment (in a clinic setting, as well as in the inpatient consult setting), review of imaging, and informed consent process; (2) intra-procedural care: devices, terminology, and technique; and (3) post-procedural patient care: focused patient assessment (in the radiology recovery room, as well as in the inpatient setting), procedural documentation/reporting, and patient follow-up planning. Documentation skills will be taught. By the end of the rotation, the student should be capable of determining whether a procedure is needed routinely, urgently or emergently; will be able to select the most indicated procedure based on patient presentation (develop a management plan); and will be knowledgeable about pre- and post- procedure patient care. Pre-requisites: Permission of the instructor is required. Students that take the two-credit Vascular & Interventional Radiology (VIR) course are not eligible to take this four credit elective. Enrollment Max. 2; Credit: 4. For more information about the course, please contact Bridgit Holmes (bridgit.holmes@duke.edu) and Deborah Griffin (deborah.griffin@duke.edu). Jonathan G. Martin, MD. Course Faculty: Nicholas Befera, MD; Brendan Cline, MD; Charles Kim, MD; Waleska Pabon-Ramos, MD/MPH; James Ronald, MD/PhD; Alan Sag MD; Tony Smith, MD; and Paul Suhocki, MD

## RADIOL420C - Pediatric Radiology

Subject	Catalog Number	Title
RADIOL	420C	Pediatric Radiology

### Description

RADIOL 420C. Pediatric Radiology. Pediatric radiology is unique from other radiology subspecialties in that almost all imaging modalities (plain film, ultrasound, fluoroscopy, CT, MR examinations) and organ systems (e.g. brain and spine, chest, gastrointestinal tract, musculoskeletal system) are evaluated on a daily basis. Moreover, there are many disease processes and presentations that are unique to children. The importance of understanding normal vs abnormal development is also unique to pediatric imaging. Students can learn by observing patients, nurses, technologists and radiologists during image acquisition in pediatric fluoroscopy, ultrasound, CT and MRI as well as in the reading room observing and helping the radiology residents, fellows and attendings protocol, interpret, and discuss pediatric imaging cases. The imaging modalities used to evaluate a child's injury or illness are openly discussed, during film interpretation. Each history is reviewed, clinical question addressed, and the exams are formulated to optimize obtainable information while minimizing patient risks (e.g. radiation exposure or need for sedation). Other learning tools include computer access to teaching file cases, online teaching files, daily case conferences and subspecialty multispecialty case conferences. Medical students are encouraged to ask questions and participate in preliminary film interpretation and to dictate several live cases that will be staffed by an attending radiologist. Two cases are to be selected and briefly presented at an interesting case conference. A rubric for the case presentation expectations will be provided. This case will be added to the division's electronic teaching file. There is an extensive 'to do' list to guide study and encourage physician and patient interaction. This 'to do' list is to be completed and turned in for assessment. A copy of Pediatric Radiology by Lane Donnelly is available for loan during the rotation, assigned reading also includes some selected articles from the pediatric radiology literature. A written or oral exam may be given at the end of the course. Two days of absence are allowed. For more information, please contact Dr. Caroline Carrico at 919-684-7514 or carri026@mc.duke.edu or her assistant Candie Stewart. Course begins at 8:30 a.m. in Pediatric Radiology Division, 1st Floor Children's Health Center - 1905B. Credit: 4. Enrollment: max 1 (more than one is possible with special permission some months. Please email her at caroline.carrico@duke.edu for special requests). Pediatric Radiology Faculty include: Caroline Carrico, MD; Charles Maxfield, MD, Michael Fadell, MD Division Chief, Donald Frush, MD, Logan Bisset, MD, Ana Gaca, MD, Joe Cao, MD

## RADIOL421C - Clerkship in Neuroradiology

Subject	Catalog Number	Title
RADIOL	421C	Clerkship in Neuroradiology

### Description

A specialized program of detailed instruction in neuroradiology. The program includes participation in many interdepartmental conferences and the performance and interpretation of a variety of examinations including cerebral angiography, computerized axial tomography, magnetic resonance images, and myelography. This is mainly an observational rotation. There is an optional honors presentation available for credit. Grade is based on reading room attendance and conference attendance. For more information, please contact Dr. James Eastwood at (919)684-7466 or via email at eastw004@mc.duke.edu. Secondary contact: Babbie Williams, (919) 684-7406 or via email at babbie.williams@duke.edu. The student will receive a welcome email from Wendy Perry, providing details regarding an Orientation on their first day. Thereafter, the student can report to the Neuroradiology reading room DMP1W98 in Duke Medicine Pavilion. Credit: 4. Enrollment: max 2. James Eastwood, MD and staff

## RADIOL437C - Musculoskeletal Imaging

Subject	Catalog Number	Title
RADIOL	437C	Musculoskeletal Imaging

### Description

During this four-week elective, the student will be exposed to conventional x-rays in bone radiology, emergency room bone films, bone tumor films and musculoskeletal MRI. At the conclusion, the student will be able to identify fractures and have a working knowledge of musculoskeletal radiology. Several presentations will be required. Reading will be required. There is a test at rotation's end. For more information, please contact Dr. Charles Spritzer via email at [chuck.spritzer@duke.edu](mailto:chuck.spritzer@duke.edu). Secondary Contact: Deborah Griffin ([deborah.griffin@duke.edu](mailto:deborah.griffin@duke.edu)). Credit 4. Enrollment: max. 2. Charles Spritzer, MD; Robert French, MD; Drs. Roy Colglazer., MD; Leah Waldman, MD; Jay Willhite, MD; Nick Said, MD; and Emily Vinson, MD

## RADONC220C - Brief Experience in Clinical Radiation/Oncology

Subject	Catalog Number	Title
RADONC	220C	Brief Experience in Clinical Radiation/Oncology

### Description

Radiation therapy plays an important role in the care of patients with cancer. Students will begin this course with an orientation lecture, review of an educational syllabus, and several audio-visual educational programs. This will be followed by clinical instruction in the ambulatory clinics of the radiation oncology department at Duke. Students will have an opportunity to observe/participate in the evaluation, treatment planning, and care of patients before, during, and after their radiation. Credit: 2. Enrollment Max. 3. Location: Room 05121A Basement level, Morris Clinic. Meet promptly at 8:00 a.m. For more information, please contact Bette Walker at 668-7432. Nicole Larrier, MD

## RADONC415C - Clinical Radiation Oncology

Subject	Catalog Number	Title
RADONC	415C	Clinical Radiation Oncology

### Description

Radiation oncology plays a crucial role in the management of patients with cancer. The student begins this course with lectures, individual tutorials, and audio-visual education programs to review the crucial elements of radiation biology, medical radiation physics, and dosimetry. This is followed by clinical instruction based in the ambulatory clinics of the Radiation Oncology Department as well as participation in brachytherapy procedures, care of inpatients, and new patient consultations. This course provides an introduction to the role of radiation therapy in the treatment of malignant disease. For more information, please contact Dr. Larrier at 668-7342 or via email at [larri003@mc.duke.edu](mailto:larri003@mc.duke.edu). Secondary contact: Bette W. Clack, email, [wake098@mc.duke.edu](mailto:wake098@mc.duke.edu) or phone, 668-6693. NOTE: This elective does require student to complete rotations at the VA Medical Center. Students applying for this rotation MUST complete all VA paperwork no later than one month prior to the first day of classes. Students should report to Room 005113 [Sub-basement, White Zone, Duke Clinic] at 7:45am on the first day of the rotation. Credit: 4. Enrollment: max 2. Nicole Larrier, MD and staff

## RROMP301B - Radiology, Radiation Oncology & Medical Physics

Subject	Catalog Number	Title
RROMP	301B	Radiology, Radiation Oncology & Medical Physics

### Description

Program Director: Joseph Lo, PhD. The research in this program focuses primarily on radiology and radiation oncology, including all types of research:•Clinical trials/evaluation: interventional radiology procedures; adaptive radiotherapy; stereotactic radiosurgery; multi-parametric MRI; hyperpolarized gas MRI for lung function•Translational science: machine learning and radiogenomics; Alzheimer's imaging markers; optical imaging and 3D dosimetry; intra-operative imaging•Basic laboratory science: epigenetics of radiotherapy; lung cancer proteomics; mechanisms of radiation injuryStudents have the opportunity to work with a diverse group of research and clinical faculty from radiology, radiation oncology, biomedical engineering, and physics. The program emphasizes the use of quantitative methods to solve clinically significant problems. Prior experience in sciences (e.g., physics, engineering) are helpful, but the program also welcomes students of all backgrounds. Program students have published approximately 70 papers over the past 5 years in many of the field's top journals, including: Radiology; AJR American Journal of Roentgenology; and Int J Radiation Oncology, Biology, Physics.

### **STDYAWAY410C - Extra-Mural Clinical**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
STDYAWAY	410C	Extra-Mural Clinical

**Description**

Approved fourth year experience at another location.

### **STDYAWAY411C - Study Away at UNC**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
STDYAWAY	411C	Study Away at UNC

**Description**

Fourth year clinical elective at UNC. Upon receipt of the acceptance letter from UNC, and approval of the 4th Year Visiting Student application, the School of Medicine Registrar's Office staff will process the enrollment for study away at UNC.

### **STDYAWAY421C - Study Away at Wake Forest University School of Medicine**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
STDYAWAY	421C	Study Away at Wake Forest University School of Medicine

**Description**

Fourth year clinical elective at Wake Forest University (WFU). Upon receipt of the acceptance letter from WFU, and approval of the 4th Year Visiting Student application, the School of Medicine Registrar's Office staff will process the enrollment for study away at WFU.

### **STDYAWAY431C - Study Away at East Carolina University School of Medicine**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
STDYAWAY	431C	Study Away at East Carolina University School of Medicine

**Description**

Fourth year clinical elective at East Carolina University School of Medicine (ECU). Upon receipt of the acceptance letter from ECU, and approval of the 4th Year Visiting Student application, the School of Medicine Registrar's Office staff will process the enrollment for study away at ECU.

## STDYAWAY440C - Externship in Inpatient Care at Teaching Hospital Karapitiya and Mahamodara Galle in Sri Lanka

Subject	Catalog Number	Title
STDYAWAY	440C	Externship in Inpatient Care at Teaching Hospital Karapitiya and Mahamodara Galle in Sri Lanka

### Description

Management of patients admitted to the Medicine/Surgical wards at Teaching Hospital Karapitiya and Teaching Hospital Mahamodara Galle in Sri Lanka. The student will function under the guidance of Professor P.L. Ariyananda. The extern would assist with admissions, and day to day care of patients. Outpatient care will also be important. Independence and innovation by the student will be particularly important. Truls Ostbye, MD, MPH, MBA, PhD. Credit: 4 Max: 2

## SURGERY205C - Surgery

Subject	Catalog Number	Title
SURGERY	205C	Surgery

### Description

The required course in surgery is given in the second year and consists of a seven-week clinical clerkship. The primary goal is to provide a rich experience in the discipline of surgery while introducing students to the practice and principles of surgery. The objectives of this course are satisfied in a variety of ways. Students are actively incorporated into the surgical services. Students work with Duke Surgical residents and members of the surgical faculty in the traditional surgical disciplines and surgical specialties. Students are assigned patients on the surgical wards where they serve a crucial role in the care, diagnosis, management, and follow-up of their patients. Clinical rounds are made daily and provide real-time patient care experience and instruction. The fundamental topics which form the foundation of surgical practice are presented at bi-weekly seminars with presentations by senior staff of the Duke University Department of Surgery. The subjects discussed include a broad range of topics in general, thoracic, transplant and vascular surgery. Students are also given an opportunity to reinforce their knowledge of anatomy and physiology. Students are also given an opportunity to test their hand eye coordination in the Surgical Education and Activities Lab. For questions, please contact Thomas Latta, Program Coordinator, via email, [thomas.latta@duke.edu](mailto:thomas.latta@duke.edu). Credit: 7. Alisan Fathalizadeh, MH

## SURGERY206C - Primary Care Leadership Track (PCLT) - Surgery

Subject	Catalog Number	Title
SURGERY	206C	Primary Care Leadership Track (PCLT) - Surgery

### Description

The required course in surgery is given in the second year and consists of an eight week clinical clerkship. The primary goal is to provide a rich experience in the discipline of surgery while introducing students to the practice and principles of surgery. The objectives of this course are satisfied in a variety of ways. Students are actively incorporated into the surgical services. Students are divided into two groups, one at Duke University and the other at the Veterans Administration Medical Center, and each works with Duke Surgical residents and members of the surgical faculty in the traditional surgical disciplines and surgical specialties. Students are assigned patients on the surgical wards where they serve a crucial role in the care, diagnosis, management, and follow-up of their patients. Clinical rounds are made daily and provide real-time patient care experience and instruction. The fundamental topics which form the foundation of surgical practice are presented at bi-weekly seminars with presentations by senior staff of the Duke University Department of Surgery. The subjects discussed include a broad range of topics in general, thoracic, transplant and vascular surgery in addition to the surgical specialties encompassing neurosurgery, orthopaedics, otolaryngology, plastic surgery, and urology/ Students are also given an opportunity to re-inforce their knowledge of anatomy and physiology. These fundamental principles are discussed during dissections of fresh tissue performed in the Duke University of Surgery Fresh Tissue Laboratory. Students are also given an opportunity to test their hand eye coordination in the Surgical Education and Activities Lab. The entire experience is consolidated during various sessions in experimental surgery, during which each student serves as the anesthesiologist, first assistant, and operating surgeon in performance of surgical procedures on experimental animals. For questions, please contact Thomas Latta, Program Coordinator, via email, thomas.latta@duke.edu. Credit: 7.. Alisan Fathalizadeh, MD

## SURGERY209C - Longitudinal Integrated Curriculum - Surgery

Subject	Catalog Number	Title
SURGERY	209C	Longitudinal Integrated Curriculum - Surgery

### Description

The required course in surgery is given during the second year and consists of a two-week inpatient clinical clerkship and a longitudinal outpatient component. The primary goal is to provide a rich experience in introducing students to the practice and principles of surgery. The objectives of this course are satisfied in a variety of ways. Students are actively incorporated into the surgical services at Duke Regional Hospital inpatient service. Students work with Duke Surgical residents and members of the surgical faculty in the traditional surgical disciplines and surgical specialties. Students are assigned patients on the surgical wards where they serve a crucial role in the care, diagnosis, management, and follow-up of their patients. Clinical rounds are made daily and provide real-time patient care experience and instruction. LIC students will participate when possible in the bi weekly seminars presented by senior staff of the Duke University Department of Surgery. The subjects discussed include a broad range of topics in general, thoracic, transplant and vascular surgery in addition to the surgical specialties encompassing neurosurgery, orthopedics, otolaryngology, plastic surgery, and urology. Students are also given an opportunity to reinforce their knowledge of anatomy and physiology. For questions, please contact Thomas Latta, Program Coordinator, via email, thomas.latta@duke.edu. Credit: 8. Cory Vatsaas, MD

## **SURGERY223C - From Cosmesis to Reconstruction, from Infants to the Elderly**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	223C	From Cosmesis to Reconstruction, from Infants to the Elderly

### **Description**

This plastic surgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive plastic surgery, including the subspecialties (hand, aesthetics, extremity salvage, soft tissue coverage, craniomaxillofacial, reconstructive microsurgery). There will be didactic instruction with patient care exposure in the clinic setting, outpatient surgery center and the operating room. Permission is required for enrollment. Students must contact Dr. Sisk (geoffroy.sisk@duke.edu) or Chris Duke (christine.g.duke@duke.edu) to request permission to enroll and to obtain a permission number. Clinical Contact for students: Erica Sudyk, (erica.sudyk@duke.edu). Credit: 1. Enrollment Max. 1, unless otherwise noted. Location and time: Duke North 6300 ward at 6:00am. Geoffroy Sisk, MD

## **SURGERY224C - Surgical Critical Care in the Modern Era**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	224C	Surgical Critical Care in the Modern Era

### **Description**

The Surgical Critical Care Selective introduces the second year medical student to the comprehensive care of the critically ill surgical patient. Students participate in the care of: the postoperative patient, the septic patient, the patient after multiple trauma, the patient suffering from multi-system organ failure, and the patient with acute lung injury/acute respiratory distress syndrome. Students are part of the Surgical Critical Care team. Students present on rounds, participate in didactic sessions, and experience direct patient care exposure in the Surgical Intensive Care Unit (SICU) setting. Students will be able to learn from attendings, fellows, residents, PA/NPs, and other ancillary staff. Usual shifts are 6am-6pm including signout. Students are advised to experience one week of night call during the selective in order to maximize one's experience. Please plan on attending fellow lectures, journal club, critical care grand rounds, and other opportunities during your time in the SICU. Credit: 2. Enrollment Max. 3. Location: DMP - 6W, SICU- 6:00 a.m. Please report to the resident at the computer stations on the high-numbered side of the SICU for sign out at 6:00am. The fellow and attendings rotate weekly and will help facilitate your first day. For more information and to confirm meeting location and time, please contact: Dr. Cory Vatsaas via email, cory.vatsaas@duke.edu. Students should contact Dr. Vatsaas one week prior to the selective to discuss expectations and to clarify their first day plan. Cory Vatsaas, MD

## **SURGERY225C - Modern General Thoracic Surgery: Multidisciplinary Approach to Complex Thoracic Disorders**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	225C	Modern General Thoracic Surgery: Multidisciplinary Approach to Complex Thoracic Disorders

### **Description**

This thoracic surgery selective is designed to introduce the second year medical student to the multidisciplinary approaches to thoracic surgery, with a focus on minimally invasive surgery, thoracic surgical oncology, and robotics. Students will be involved in the evidence-based evaluation and management of lung cancer, esophageal cancer, mediastinal tumors, and other malignant as well as benign thoracic disorders. There will be extensive exposure to patient care in the operating room, the hospital and the clinic, in addition to didactic instruction. Credit: 2. Enrollment Max.3. Location: DMP, time to be arranged. Contact: Students should contact Dr. D'Amico at Phone (919) 681-0491 or via email at thomas.damico@duke.edu. for the first day of classes several days before to learn where and when rounds will start. Thomas A. D'Amico, MD

## **SURGERY226C - Modern Cardiac Surgery: From CABG to Gene Therapy**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	226C	Modern Cardiac Surgery: From CABG to Gene Therapy

### **Description**

This cardiothoracic surgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive cardiothoracic surgery, including some of the most commonly performed heart operations in adults such as coronary artery bypass grafting (CABG) and aortic valve replacement (AVR). There will also be opportunities to be exposed to other cardiothoracic operations, such as mitral valve surgery, heart and lung transplantation, minimally invasive cardiothoracic surgery, congenital cardiac repair, redo cardiothoracic surgery, and robotic cardiac surgery. Students will be provided didactic instructions, with patient care experience in the clinic setting, hospital wards, and the operating room. Credit: 2. Enrollment Max. 4. Course Director: Shu S. Lin, M.D; PhD. Contact: Please email Dr. Lin at shu.lin@duke.edu and copy Melissa Nystrom (melissa.nystrom@duke.edu) for more information and to find out the time and location for the first day of classes. Shu S. Lin, MD/PhD



## **SURGERY230C - Trauma and Acute Care Surgery**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	230C	Trauma and Acute Care Surgery

### **Description**

This course is designed to provide students interested in trauma and acute care surgery with further experience in the emergency department and the operating room. The course emphasizes patient care in the areas of trauma and emergency general surgery. Students will be able to assist and observe the triage and resuscitation of leveled trauma patients in the emergency department, operative care of patients with multi-system trauma injuries, operative care of patients with acute surgical problems, and participate in overall patient care of these critically ill patients. Students will work closely with attendings, fellows, residents, and PA/NPs to care for our patient's in a multi-disciplinary manner. Operative exposures vary but will be numerous during the course. Other educational opportunities will include M/W/F multidisciplinary rounds, 7:00am morning report, and Thursday morning trauma lecture educational series. Students will work alongside residents with a 6:00am-6:00pm shifts plus sign out. Students are encouraged to consider participating with night call from 6:00pm-6:00am at some time during the rotation. Students will be expected to participate and present educational topics during our weekly trauma educational series. Credit: 2. Enrollment: max 1. Please report to the general surgery resident workspace on Duke North 2100 at 6:00am. You will meet and work closely with the trauma chief. Attendings rotate weekly and residents rotate monthly but the trauma chief will help facilitate your first day. For more information and to confirm meeting location and time, please contact: Dr. Cory Vatsaas via email, [cory.vatsaas@duke.edu](mailto:cory.vatsaas@duke.edu). Cory Vatsaas, MD

## **SURGERY231C - Essentials of Pediatric Surgery**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	231C	Essentials of Pediatric Surgery

### **Description**

The objective of this course is to present the student to a wide array of pediatric surgical conditions. The student will be introduced to various congenital anomalies and pediatric surgical pathophysiology. Curriculum consists of exposure to inpatient (operating room, wards, intensive care units), emergency room, and outpatient care. The student is expected to attend all conferences, lectures, and become an integral part of the surgical team. Credit: 2. Enrollment Max: 2. Location: Pediatric Surgery Office (HAFS 6680), 6:00am. Course contact: Tamara Fitzgerald, MD/PhD ([tamara.fitzgerald@duke.edu](mailto:tamara.fitzgerald@duke.edu)); Other faculty: Henry Rice, MD; and Elisabeth Tracy, MD

## SURGERY232C - Introduction to Endocrine Surgery

Subject	Catalog Number	Title
SURGERY	232C	Introduction to Endocrine Surgery

### Description

The Endocrine Surgery Selective will allow second year medical students to be exposed to, and participate in, the preoperative, intraoperative, and postoperative care of endocrine surgery patients. This patient population encompasses a wide variety of benign, malignant, hormonally active, and hereditary endocrine diseases of the thyroid, parathyroid, adrenal, and neuro-endocrine pancreas/systems which are evaluated in a multidisciplinary clinic along with medical endocrinology, oncology, pathology, genetics, and radiology. A working knowledge of these diseases and their multidisciplinary management is critical to a career in internal medicine or surgery, in particular. Credit: 2. Enrollment: max 2, min 1. Randall P. Scheri, MD; Hadia Kazaure, MD; Michael Stang, MD

## SURGERY401C - Advanced Surgical Clerkship

Subject	Catalog Number	Title
SURGERY	401C	Advanced Surgical Clerkship

### Description

The course aims to provide an intense educational experience with graded responsibility of surgical care. The student selects a specific surgeon mentor and is expected to attend multidisciplinary conferences, e.g. gastrointestinal, vascular, transplant, endocrine, oncology, etc. The student is expected to evaluate surgical patients in an outpatient setting as well as participating in inpatient and operative patient care. Attendance at clinical research conferences, case conferences, grand rounds, and sub-specialty conferences is required. Graded patient care responsibility under supervision is encouraged to prepare the student for future assumption of duties as a house officer able to diagnose and treat surgical diseases. Students must verify with the specific attending that he/she is available during the time the student wishes to enroll in Surgery 401C. Only one student can work with a specific attending during any one-time period. Permission of instructor is required. For information about the course, please contact Dr. Kevin Shah at kevin.n.shah@duke.edu or by phone at 684-6553. To obtain permission (and permission numbers) to enroll in the course, students should contact Ben Latta via email at thomas.latta@duke.edu. Credit: 5. Enrollment: min. 1, max 8. Kevin Shah, MD. Available mentors: Suresh Agarwal, MD; Peter Allen, MD; Andrew Barbas, MD; Trey Blazer, MD; Benjamin Bryner, MD; Mitchell Cox, MD; Thomas D'Amico, MD; Georgia Beasley, MD; Jeffrey Gaca, MD; Donald Glower, MD; Rachel Greenup, MD; John Haney, MD; David Harpole, Jr., MD; Sandhya Lagoo, MD/PhD; Shelly Hwang, MD/MPH; Stuart Knechtle, MD; Michael Lidsky, MD; Andrew Lodge, MD; Christopher Mantyh, MD; John Migaly, MD; Theodore Pappas, MD; Dana Portenier, MD; Kadiyala Ravindra, MD; Henry Rice, MD; Laura Rosenberger, MD; Randall Scheri, MD; Jacob Schroder, MD; Cynthia Shortell, MD; Julie Thacker, MD; Elisabeth Tracy, MD; Betty Tong, MD; Steven Vaslef, MD/PhD; Cory Vatsaas, MD; and Sabino Zani, MD

## **SURGERY403C - Sub-Internship Plastic Surgery Integrated Program**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	403C	Sub-Internship Plastic Surgery Integrated Program

### **Description**

This course is designed for students who have an interest in plastic surgery as a career. Duties are similar to a first year resident. This course provides the student with an in-depth overview of clinical activities, emergency room call, inpatient care and assisting in the operating room, ward rounds and conference participation. This course will also provide primary responsibility for patient care similar to an internship in a supervised fashion. This rotation will involve more time commitment than our regular rotation with additional call and work responsibilities of up to 80 hours a week. Pre-requisite: Permission is required for enrollment. For more information and/or to obtain a permission number, students must contact or Chris Duke, (christine.g.duke@duke.edu) to obtain a permission number.. The course director or the clinical contact do not assign permission numbers. Clinical Contact for Students: Erika Sudyk (erika.sudyk@duke.edu) Enrollment Max: 3, unless otherwise noted. Credits: 5. Geoffroy Sisk, MD and Erika Sudyk, PA-C

## **SURGERY405C - Introduction to Point of Care Ultrasound**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	405C	Introduction to Point of Care Ultrasound

### **Description**

The 4th year elective in Point of Care Ultrasound aims to educate medical students in the core applications of bedside ultrasound. The students will be introduced to both the skills of image acquisition and image interpretation. The course will consist of: (1) education about uses and indications for point of care ultrasound with didactics; (2) hands on teaching about the acquisition of images with both simulators and live emergency department patients; (3) time dedicated to learning image interpretation of bedside ultrasounds. By the end of rotation, the student will have an introductory understanding of the indications for, skills to perform, and the clinical integration of bedside ultrasound into patient care. During spring 2020 section 42, the course will be offered in one-week periods. Students will rank their preferred weeks once enrollment has ended to determine their final schedules. No permission number is required. For more information, please contact Dr. Peethumnongsin via email, erica.peethumnongsin@duke.edu. Credit: 1. Enrollment: max: 9 (new max); min: 2. If the minimum number of students do not enroll in the course, that section or sections will be cancelled. Course is graded 'Credit/No Credit'. Erica Peethumnongsin, MD, PhD; Kevin Gurysh, MD; Brandon Ruderman, MD; Karthik Rao, DO; Rebecca Theophanus, MD

## **SURGERY406C - Endocrine Surgery**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	406C	Endocrine Surgery

### **Description**

The Endocrine Surgery Elective will allow fourth year medical students to be exposed to and participate in the preoperative, intraoperative and postoperative care of endocrine surgery patients. This patient population encompasses a wide variety of benign, malignant, hormonally active, and hereditary endocrine diseases of the thyroid, parathyroid, adrenal and neuro-endocrine pancreas/systems which are evaluated in a multidisciplinary clinic along with medical endocrinology, oncology, pathology, genetics, and radiology. A working knowledge of these diseases and their multidisciplinary management is critical to a career in internal medicine or surgery. For more information about the course students should contact Dr. Randall Scheri at r.scheri@duke.edu. Students should report to Dr. Scheri's office located at 463 Seeley Mudd Building on the first day of class. Credit: 4. Enrollment max: 2. Randall P. Scheri, MD; Hadiza Kazaure, MD; and Michael Stang, MD

## **SURGERY409C - Surgical Technique and Review Course (STAR)**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	409C	Surgical Technique and Review Course (STAR)

### **Description**

Surgical Technique and Review (STAR) Course. This course will provide formal instruction to prepare 4th year medical students for their upcoming duties as interns in general surgery. Students will be exposed to common diagnostic scenarios, pre- and post-operative patient care, extensive technical skill training, surgical anatomy, wound management, and how to interpret surgical literature critically. This course will also feature mock pages to challenge students to respond to common surgical scenarios. It concludes with two full days performing surgery on fresh frozen human tissue under resident and attending guidance. The Department of Surgery fully funds this course with housestaff and faculty serving as instructors throughout the two weeks. Students will receive a welcome email detailing the schedule and locations including where to meet on the first day of classes. The course will be offered during spring section 44. Permission is required for enrollment. To obtain a permission number during registration for spring 2023, please email Alex Bartholomew, and include the following information: name, email address, cell phone number and wireless company, (e.g. Verizon, AT&T, etc.) - needed for the mock pages, and include what residency you applied for or will apply for (e.g. general surgery, urology, etc.) Credit: 2. Enrollment max.: 20. John Migaly, MD and Elisabeth Tracy, MD

## **SURGERY411C - Vascular & Endovascular Surgery Elective**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	411C	Vascular & Endovascular Surgery Elective

### **Description**

The elective curriculum is flexible depending on student's interest. Students will spend four weeks on the inpatient vascular surgery service at Duke Main campus. This will involve seeing inpatient consults, rounding on the inpatient service, and scrubbing into both open and endovascular cases in the operating room and cath lab. If you have questions about the elective course, please contact the course director, Dr. Adam Johnson, (adam.johnson@duke.edu). Please reach out to Lee Hines (lee.hines@duke.edu), Program Coordinator, to obtain information regarding schedule and meeting time/location. Pre-requisite: Permission of the course director is required for enrollment. The course is scheduled M-F; overnight call is optional. Maximum Enrollment: 1; Credit: 4. Adam Johnson, MD; Chandler Long, MD; Heather Waldrop, MD; and Zach Williams

## **SURGERY420C - General Surgical Oncology**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	420C	General Surgical Oncology

### **Description**

The course is designed for the student interested in surgical oncology. Students will typically spend 1-2 weeks on 2-3 different services. Students will rotate on services with a focus on Hepatobiliary, Pancreas, Breast, Endocrine, Colorectal, Soft Tissue Sarcoma, and Melanoma disease sites. The students are involved in patient care with a specific surgeon but, in addition, are expected to attend multidisciplinary conferences related to the disease site of interest that week. These multidisciplinary conferences involve medical and radiation oncology as well as surgical oncology. The student is also expected to evaluate surgical patients in an outpatient setting as well as participating in inpatient and operative patient care. There is no overnight call responsibility. For more information, please contact Dr. Trey Blazer via email, trey.blazer@duke.edu or contact Ben Latta at (thomas.latta@duke.edu). Permission is required. Credit: 4. Enrollment: min 1, max 4. Trey Blazer, MD

## SURGERY426C - Advanced Clerkship in Pediatric Surgery

Subject	Catalog Number	Title
SURGERY	426C	Advanced Clerkship in Pediatric Surgery

### Description

This course is designed to familiarize the student with the whole range of surgical problems in children, but with emphasis on the pathophysiology of surgical and related problems in the newborn infant and the total care of the child with a malignancy. The student is encouraged to participate fully in the patient care aspects of the service and is considered an integral part of the patient care team. At the end of the clerkship, the student is required to give a formal presentation of a pediatric surgical topic of his or her choice. The student may tailor the clerkship month to include various aspects of pediatric surgery (neonatology, cardiac surgery, etc.) depending on the interests of the student. For more information, please contact Camille Wells at 681-5077 or via email at maria.fryar@duke.edu. Credit: 4. Enrollment: max 1. Tamara Fitzgerald, MD/PhD; Henry Rice, MD; Obinna Adibe, MD; Elisabeth Tracy, MD

## SURGERY441C - Sub-Internship in Surgical Intensive Care

Subject	Catalog Number	Title
SURGERY	441C	Sub-Internship in Surgical Intensive Care

### Description

This course is designed to broaden the student's knowledge and experience in dealing with a wide array of critically ill patients. Under supervision, students function as sub-interns in the Surgical Intensive Care Unit (SICU). Students are assigned their own patients and actively participate in daily rounds as part of the SICU team which includes intensivists, fellows, APPs, and residents. There are on-line didactic lectures which are expected to be completed during the month on core aspects of critical care, as well as weekly Critical Care Grand Rounds and ICU fellow conferences. Students rotate among the different teams with typically 3 weeks of daytime service coverage and a week of overnight coverage to maximize your education and experience. Shifts are 12 hours not including sign out of the service to the oncoming team. Students will work with SICU fellows and house staff in the supervised management of critically ill patients. Four weeks are spent in the SICU at Duke University Medical Center (trauma, vascular surgery, liver-kidney-pancreas transplantation, general surgery, surgical subspecialties, MICU and NICU overflow). There is emphasis on teaching of procedures and techniques necessary for the management of all critically ill patients including hemodynamic assessment and monitoring, cardiovascular resuscitation and use of vasoactive drugs, ventilator management including ARDS, prevention and management of nosocomial infections, and nutritional support. Students are formally evaluated by the SICU house staff and the attending physician. For more information, please contact Dr. Cory Vatsaas at 684-3636 or via email, cory.vatsaas@duke.edu. Further information and direction may be provided by the SICU fellow and attending of the week. The schedule is available in the SICU or by calling the SICU at 681-2241 to find out who is rounding that week. House staff sign out begins at 6:00 a.m. in the SICU. C-L: ANESTH-441C. Credit: 5. Enrollment: max 3. Cory J. Vatsaas, MD and staff

## **SURGERY443C - Trauma Service**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	443C	Trauma Service

### **Description**

This course is designed to provide students interested in trauma care and emergency general surgery with further experience both in the Emergency Department and on the Inpatient Trauma Service. The course emphasizes both triage and resuscitation for major and minor emergency problems in the Emergency Department and also pre- and postoperative care on the Inpatient Trauma Service. There are opportunities to enhance the student's education by participating with the acute care surgery service, emergency general surgery consultation, and coverage of acute care general surgery operations. The student has a full-time experience by assuming duties and responsibilities similar to a sub-intern. Emphasis is placed on developing skills in the care of patients with multi-system injuries in the Emergency Department, Inpatient Service, and Operating Room. Students work in conjunction with the attending staff, residents on the Trauma Service, and our advanced practice providers. Students will typically spend three weeks covering daytime trauma service obligations and one week of night coverage to maximize your education and experience. For more information, please contact Dr. Cory Vatsaas at 684-3636 or via email at [cory.vatsaas@duke.edu](mailto:cory.vatsaas@duke.edu). Additional information can be obtained by the Trauma Chief, who is the senior resident on the service, pager 970-9995. Students should meet in the General Surgery Resident bunker/lounge on the 3rd floor DMP across from the DMP OR entrance at 6:00 a.m. on the first day of the rotation. Credit: 4. Enrollment: max 3. Cory Vatsaas, MD; and staff

## **SURGERY444C - Introduction to Plastic, Reconstructive and Maxillofacial Surgery**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
SURGERY	444C	Introduction to Plastic, Reconstructive and Maxillofacial Surgery

### **Description**

This course is designed for students who may have a future interest in plastic surgery. Duties include the preoperative evaluation of patients, assisting in the operating room, making daily ward rounds, and participation in conferences. Permission is required for enrollment. For more information and to request a permission number to enroll, students must contact Chris Duke via email [christine.g.duke@duke.edu](mailto:christine.g.duke@duke.edu). Clinical Contact for Students: Erika Sudyk ([erika.sudyk@duke.edu](mailto:erika.sudyk@duke.edu)). Credit: 4. Enrollment: max 2, unless otherwise noted. Geoffroy Sisk, MD and Erika Sudyk, PA-C

## THESIS301B - Thesis

Subject	Catalog Number	Title
THESIS	301B	Thesis

### Description

Graduation from Duke School of Medicine (or continuation with fourth year rotations after completion of third year research) requires completion of an acceptable thesis describing quantitative research. The thesis is in the form of a scientific manuscript of approximately 3,000 to 6,000 words (15-25 double-spaced pages). Length does not include figure legends, cover page, reference citations or tables. Tables and figures may be included in line with the text, or gathered into separate sections at the end. For either option, captions should always accompany each table and figure. The requirement can also be fulfilled with the submission of a Manuscript Alternative (including a 3-5 page addendum) to a peer review journal. Proof of submission is also required, but it does not actually have to be accepted or by a Grant Proposal. It should include an abstract, introduction with hypothesis, materials and methods, discussion, results and references. The cover page is signed by the student, the mentor and the study program director, and must be submitted to the Third Year Coordinator prior to submission of the Thesis. Theses submission dates vary depending on the original starting date of the Scholarly Experience. In addition, instructions and details on the formatting of the thesis are located on the Thesis Requirements section in Duke Box. The thesis will receive a separate grade and number of credits from the research course. The student's third year is not complete until the thesis and cover page have been submitted. Promotion to the fourth year and graduation may be delayed if the thesis is not received on time. Also, students' registration in fourth year clinical courses will be revoked if the thesis is not turned in on time. Credit: 3. Daniel Laskowitz, MD

## UROLOGY220C - Urology

Subject	Catalog Number	Title
UROLOGY	220C	Urology

### Description

This urology selective is designed to introduce the second year medical student to the medical and surgical aspects of a broad range of Urologic conditions and subspecialties to include stone disease, trauma, reconstruction, trauma, voiding dysfunction, sexual dysfunction, pediatric urology, and benign disease and malignant disease of the urogenital tract. There will be didactic instruction with patient care exposure in the operating room, inpatient, consult service, and clinic settings. Course Director: Dr. Karen Baker karen.baker@duke.edu. Administrative contact: Apryle Graham apryle.graham@duke.edu. Students should receive an email from Urology about 1 to 2 weeks prior to the beginning of their rotation. Students who do not receive their orientation email should email Ms. Graham and Dr Baker. Credit: 2. Enrollment Max. 2.



## **UROLOGY401C - Sub-internship in Urologic Surgery**

<b>Subject</b>	<b>Catalog Number</b>	<b>Title</b>
UROLOGY	401C	Sub-internship in Urologic Surgery

### **Description**

Students will participate in the diagnosis, management, and surgical treatment of a broad range urologic disorders in adults and children. In addition to a busy general urology practice, Duke provides state-of-the-art, specialized care for urinary stones, infertility, reconstruction, oncology and pediatric urology. Surgical experiences include open, endoscopic, robotic, microscopic, and minimally invasive surgical techniques. The goal of our sub-internship is to provide motivated students with a rich and authentic experience in the breadth and rewards of a Urology career. To that end, students will assume intern-level responsibilities to include managing inpatients, seeing clinic, actively participating in surgery, and evaluating, treating and dispositioning consult and on-call patients. Please contact Dr. Baker at [Karen.Baker@duke.edu](mailto:Karen.Baker@duke.edu) for more information and to obtain your permission number. Secondary contact: Apryle Graham ([apryle.graham@duke.edu](mailto:apryle.graham@duke.edu)). Prerequisite: Permission is required. Credit: 5. Enrollment max: 4. Karen Baker, MD and urology staff