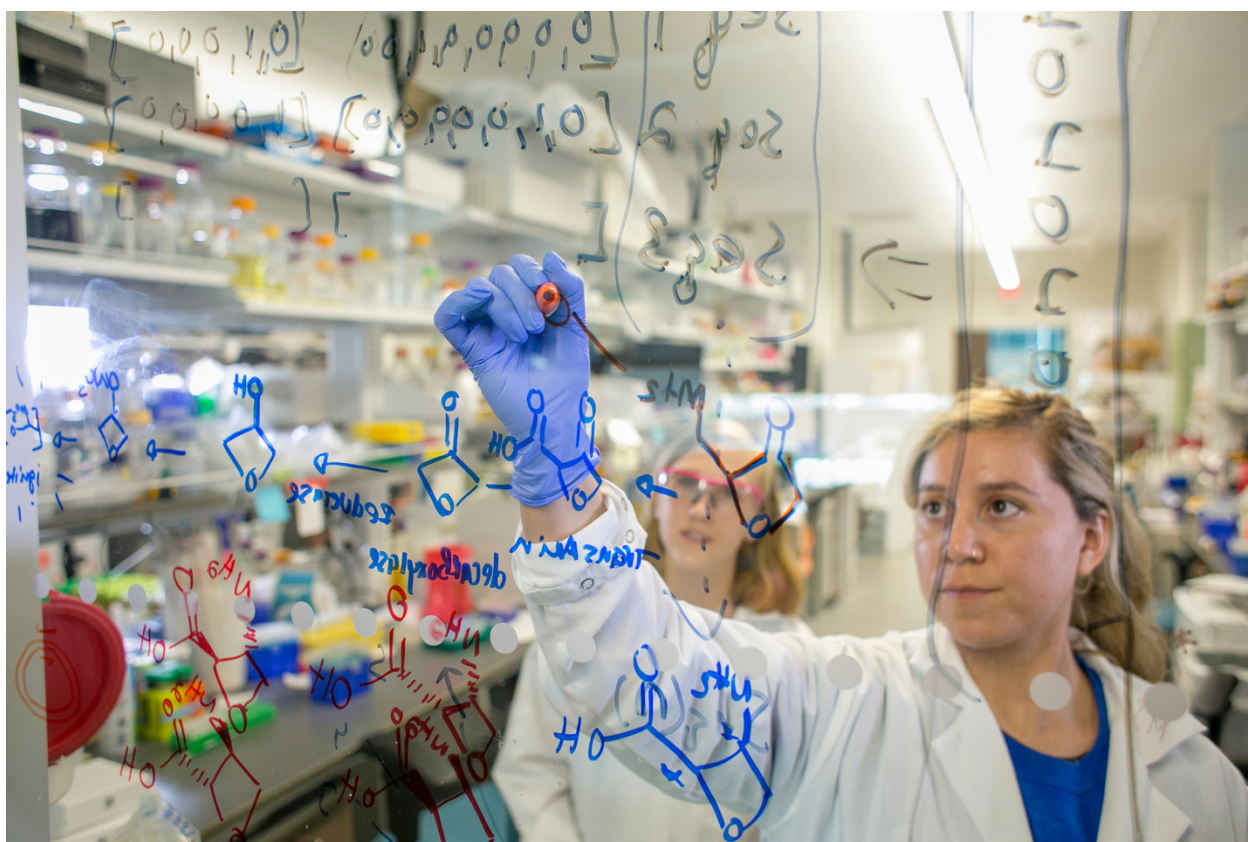


Bulletin of Duke University



School of Medicine
2022-2023

Bulletin of
Duke University

Duke University

Duke University

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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.

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.

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The information in this bulletin applies to the academic year 2022-2023 and is accurate and current, to the greatest extent possible, as of August 2022. 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 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, NC 27708, and can be contacted at (919) 684-8222.

Questions or comments about harassment or discrimination can be directed to the following administrator in the Office for Institutional Equity:

Discrimination in employment or educational programs and activities

Cynthia Clinton, AVP Harassment and Discrimination Prevention and Compliance
Office for Institutional Equity
114 S. Buchanan Blvd., Bay 8
Durham, NC 27708
(919) 668-6214

Additional information, including the complete text of Duke's Policy on Prohibited Discrimination, Harassment, and Related Misconduct and appropriate complaint procedures, may be found by visiting the Office for Institutional Equity's website at oie.duke.edu. For further information, visit ed.gov/about/offices/list/ocr/index.html, or call (800) 421-3481.

Duke University recognizes and utilizes electronic mail as a medium for official communications. The university provides all students with email accounts as well as access to email services from public clusters if students do not have personal computers of their own. All students are expected to access their email accounts on a regular basis to check for and respond as necessary to such communications.

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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 for more details.

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. For additional information about FERPA, see ed.gov/policy/gen/guid/fpco/ferpa/index.html.

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

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

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 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.

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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."

Leadership

Full leadership profiles for those listed below are available at duke.edu/about/leadership.

Executive Leadership

Vincent Price, PhD, President | president.duke.edu

Daniel Ennis, MBA, MPA, Executive Vice President

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

Sally Kornbluth, PhD, Provost

Academic Leadership

Deans of Schools and Colleges

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

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

Mohamed Noor, Interim Dean of Trinity College of Arts and Sciences

Toddi Steelman, Stanback Dean, Nicholas School of the Environment

Vice Provosts

Edward Balleisen, Phd, Vice Provost for Interdisciplinary Studies

Abbas Benmamoun, Phd, Vice Provost for Faculty Advancement

Gary Bennett, Phd, Vice Provost for Undergraduate Education

John Brown, Vice Provost for the Arts

Jennifer Francis, Phd, Executive Vice Provost

Dracine Hodges, Interim University Librarian

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

James S. Roberts, Vice Provost

University Administration

Pamela J. Bernard, Vice President and General Counsel

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, PhD, Vice President for Research & Innovation

Antwan Lofton, Vice President for Human Resources

John J. Noonan, Vice President for Facilities

Rachel Satterfield, Vice President for Finance

Michael J. Schoenfeld, Vice President for Public Affairs & Government Relations and Chief Communications Officer

Russell Thompson, Vice President for Operations

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Neal Triplett, President, DUMAC

Stelfanie 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.

Assessment and Accreditation

Assessment

Academic and programmatic assessment at Duke are central to our institutional mission to provide the highest quality education possible. Assessment efforts include evaluating institutional effectiveness, program quality, faculty quality, and student educational outcomes. To be effective evaluators of our programs, we have developed an assessment relevant to each criteria that includes establishing program goals, setting achievement targets, identifying metrics, establishing data capture regimes, communicating findings to decision makers, documenting data-driven actions taken for program improvement, and adapting program metrics to capture the effects of the new initiatives.

Academic assessment is conducted at the program and the school level. The School Assessment Representatives Group coordinates each school's academic assessment and shares best practices between the schools. The provost-appointed Committee for Assessment of Educational and Administrative Support oversees and provides feedback on assessment of administrative and academic services.

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 (404) 679-4500 for questions about the accreditation of Duke University.

Reaffirmation of accreditation occurs every ten years, with a five year interim review including a report on the progress of the Quality Enhancement Plan. General information on the overall process may be found in the SACSCOC Handbook for Reaffirmation of Accreditation.

Duke's last reaffirmation of accreditation was conducted in 2019.

In addition to the decennial and mid-point reviews, Duke maintains compliance with policies defined and enforced by SACSCOC. Some of these policies require periodic reporting to our accreditor. The most common policy for which we have to report is Substantive Change.

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, 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.

The Context of the Duke Community Standard

The honor code at Duke is named the **community** standard because community is at the center of our conception of what it means to act honorably. Community entails a sense of connectedness to others and their welfare, feeling part of Duke University every day and being responsible for its continual improvement. Community refers as well to a feeling of connection to the city in which we are located. It posits the counterbalancing of group benefit with individual needs and wants, and a Duke identity with the many personal identities based on demographics and interest. The kind of environment we strive to achieve is one in which civility (but not docility) reigns; an environment in which ideas are promulgated, and challenged, in a stimulating give and take; an environment in which learning (whether from peers, faculty, administrators, or others in the Duke and broader communities) is accomplished with openness, honesty, and respect.

Citizens of the Duke community commit to acting with purpose, civility, and intention, both with personal decision-making and with interactions with each member of this community. Choosing to be a citizen of the Duke community means acknowledging the value of each member, participating in active reflection and asking the question, "How do my actions impact others?"

The honor code at Duke is named the **community standard** because it expresses our institution's core values and a concomitant set of expectations for behavior. Because behavior is derivative of fundamental values, the standard applies off campus as well as on. The principles it articulates, while lofty in one sense, are firmly grounded in individual decisions made on the ground every day about every aspect of undergraduate life, in academic and co-curricular activities alike: in the classroom, residence halls, K-ville, off-campus apartment complexes, Myrtle Beach, Paris, and wherever else students may go. In addition, the standard asks that students not only reflect on their own behavior, as important as that is, but that they also act to encourage the integrity of their peers. By inspiring and supporting each other, students can shape their environment so that it reflects the ideals expressed in the Duke Community Standard.

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The Standard, therefore, expresses our goals for undergraduate education in the broadest sense and is foundational to undergraduate life at Duke. It is followed by an equally important pledge that students sign as members of the community.

Duke University seeks to engage all students in its tradition of honor, a tradition that defines the institution and helps to guide students during their college careers and beyond. The students here today, who are the beneficiaries of the efforts of those who preceded them, have an extraordinarily important role to play in perpetuating and strengthening this tradition. We welcome, and count on, your involvement.

The History of the Duke Community Standard

In 1999-2000, Duke participated in a national survey through the Center for Academic Integrity. Through responses from undergraduate students, as well as from faculty and staff, the survey assessed the climate of academic integrity at Duke in comparative context with other institutions. As a result of the findings, the provost formed the Academic Integrity Council (AIC) in 2001 by appointing representatives from across the community whose charge was to review academic integrity policies and practices and make recommendations to improve the climate of integrity on campus.

An early goal of the AIC was to review the existing Honor Code, which had been in effect for the undergraduate community since 1993. The AIC determined that the Honor Code needed revision to make it shorter while embracing all aspects of a student's life at Duke. A major element of the revision was the inclusion of the fundamental values that must inform the definition of a community of honor.

This Duke Community Standard was proposed to the faculty councils of Trinity College of Arts and Sciences and the Pratt School of Engineering, as well as to the Duke Student Government. It was approved for the undergraduate community and implemented in the fall of 2003. The Standard was also incorporated into the code of each graduate and professional school of the university and, thus, represents the values we uphold as an institution.

Duke University is committed to ongoing evaluation of principles, policies, and practices, and to lively conversation about issues of integrity. Thus, Duke participated again in a national survey on academic integrity in the fall of 2005 and in intensive discussions of academic and social integrity from summer 2006 through spring 2007. The result of these continuing and broadened discussions was a revised Community Standard, put before the undergraduate student body in a student government referendum of April 2007 and overwhelmingly approved. Implemented in summer 2007, the new Duke Community Standard differs from its predecessor chiefly in its level of commitment to taking action (see Students Obligation to Act with Respect to the Duke Community Standard above).

In the spring of 2011, Duke University again surveyed undergraduate students about integrity, this time expanding beyond an academic focus to additional questions about integrity in other domains (i.e., social, work, and civic) inside and outside the classroom. In-depth focus interviews were also conducted with a sample of graduating seniors. Results showed a marked reduction in academic dishonesty in three key areas that were identified as problem areas in the 2005 survey: fabricating or falsifying a bibliography, falsifying or fabricating lab data, and copying or paraphrasing a few sentences without appropriate attribution. One area of concern that emerged from the 2011 survey was an increase in reported unauthorized collaboration. There was also a gap between students' perceptions of the prevalence of dishonesty across these multiple domains and student self-reported rates of engaging in dishonest acts within these domains. Duke University will continue efforts to narrow students' perception of the frequency of academic dishonesty and actual self-reported rates of cheating and other dishonest acts.

A Statement of Principles

The Duke Community Standard expresses a standard for behavior a set of expectations of students who claim membership in Duke's learning community. All incoming undergraduates, upon admittance to Duke, are required to sign a pledge to adhere to these values and to conduct themselves in accordance with these values throughout their undergraduate careers. Likewise, upon completion of each academic assignment, students may be asked to reaffirm their commitment to the Duke Community Standard by signing a statement indicating that they have adhered to the Duke Community Standard in completing the assignment.

The Duke Community Standard, thus, is a statement of principles. The specific policies, or rules and regulations of the university, define the conduct for which students can be held accountable.

University Regulations and the Disciplinary Process

Duke University has high expectations for students' scholarship and conduct. Each student is subject to the rules and regulations of the university currently in effect, or which are put into effect from time to time by the appropriate authorities of the university. At the same time, the individual is responsible for decisions and choices within the framework of the regulations of the community, as Duke does not assume in loco parentis relationships.

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Students, in accepting admission, indicate their willingness to subscribe to and be governed by these rules and regulations. They acknowledge the right of the university to take disciplinary action, including suspension or expulsion, for failure to abide by the regulations or for other conduct determined unsatisfactory or detrimental to the university community.

Responsibility for prescribing and enforcing rules and regulations governing student conduct rests ultimately with the Board of Trustees of Duke University and, by delegation, with administrative officers of the university. In the undergraduate schools, and in the university as a whole, many of these rules have been established over the years by cooperative action between students, faculty, and administrative officers. Representative student organizations, such as student governments and conduct boards, and more recently, community-wide bodies of students, faculty, and administrators, have initiated proposals for policies and rules necessary to assure satisfactory standards in academic and nonacademic conduct. These proposals have been accepted by university officers and have become a substantial, if not all-inclusive, body of rules governing student life at Duke. For current regulations, refer to the The Duke Community Standard in Practice: A Guide for Students.

Duke University Policy and Procedures under FERPA

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.

Definitions

Student. An individual who is, or who has become, in attendance at Duke University. It does not include an individual who was an unsuccessful applicant for admission to the University. A student definition also includes alumni/former students.

In Attendance. A student in attendance can be participating in person or by paper correspondence, video conference, satellite, Internet, or other electronic information and telecommunications technologies for students not physically present in a classroom. Attendance could also be the period in which a person is working in a work-study program. Duke University defines attendance to begin the first day a student arrives on campus for an official, organized campus activity (e.g. orientation, athletic practice, class, etc.) or participates in any official, organized activity offered by technology (e.g. orientation, class, etc.).

Education Records. Education records include those records that are personally identifiable and which are maintained by the University or a University official. Records could be information or data recorded in any medium, including but not limited to photos, handwriting, print, tapes, film, microfilm, and microfiche. Appendix A lists commonly held records by Duke University offices. Any University office or official may have an education record about a student, including offices not listed in the appendix.

The following are not considered education records:

- Records about students made by professors and administrators for their own use and not shown to others.
- Campus police records maintained solely for law enforcement purposes and kept separate from the education records described above.
- Employment records, except where a currently-enrolled student is employed as a result of his or her status as a student (i.e. work-study).
- Records of a physician, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment. However, these records may be reviewed by an appropriate professional of the student's choice.
- Records which contain only information relating to a person's activities after that person is no longer a student at the University.
- Application for admissions records to a Duke University school or program in which the student is not currently in attendance.

Personally Identifiable. Data or information that contains the name of a student; the student's parent or other family member's name; the address of the student, parent, or family member; a personal identifier, such as the social security number or student ID number; other information which would make the student's identity easily traceable.

Directory Information. The following categories of information have been designated directory information at Duke University:

- Name(s)
- Addresses
- Duke Unique ID
- Telephone listing(s)
- Email Addresses
- Place of birth
- Photograph(s)
- Major fields of study
- Participation in officially recognized activities and sports
- Weight and height of members of athletic teams
- Dates of attendance
- Enrollment Status (full/part time)
- Degrees and awards received
- Most recent previous educational institution attended

The University will give annual public notice to students of the categories of information designated as directory information and will allow a reasonable period of time after such notice for the student to inform the University that he/she wishes to suppress the

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information from being disclosed. Directory information may appear in public documents and may otherwise be disclosed without student consent unless the student objects as indicated.

Disclosure. Permitting of access or the release, transfer, or other communication of education records orally or in writing, or by electronic means, or by any other means to any party.

School Official. A person employed by the University in an administrative, supervisory, academic, research, or support staff position, including public safety and health care personnel; a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees or a student serving on an official committee or assisting another school official in performing his or her tasks. School officials may only access and use education records as necessary to conduct official University business or for which they have legitimate educational interest.

Legitimate Educational Interest. An interest in reviewing student education records for the purpose of performing an appropriate University research, educational, or administrative function. A school official has legitimate educational interest if the need to see an education record is necessary in order to perform his or her professional responsibilities. Interests essential to the general process of higher education, including teaching, research, public service, and directly supportive activities such as academic advising, general counseling, therapeutic counseling, discipline, vocational counseling and job placement, financial assistance and advisement, medical services, academic assistance activities, and co-curricular activities including varsity and intramural sports, social fraternities, specific interest clubs, and student government.

Right to Inspect Records

Each student has a right of access to his or her education records, with the following exceptions:

- Financial records of the student's parents.
- Confidential letters and confidential statements of recommendation placed in education records of students before January 1, 1975, provided that the letters and statements were used only for the purposes for which they were intended.
- Confidential letters of recommendation and confidential statements of recommendation which were placed in the education records of the student after January 1, 1975, in connection with admission to an institution, an application for employment, or the receipt of an honor or honorary recognition, provided that the student has waived his or her right to inspect and review those letters and statements of recommendation.
 - Persons applying for admission may waive in writing their right to inspect and review confidential letters of recommendation and confidential statements of recommendation. The waiver may apply to confidential letters and statements only if the applicant or student is, upon request, notified of the names of all individuals providing the letters or statements, and such letters and statements are used solely for the purpose for which they were originally intended. The University will not require such waivers as a condition for admission or receipt of any service or benefit normally provided to students. A waiver may be revoked in writing at any time, and the revocation will apply to all subsequent recommendations.
- Education records of other students, if included on the education record of the student. The student may only inspect his/her own information.

Students wishing to review their records should submit a written request to the Office of the University Registrar, 1121 West Main Street, Suite 1200, Durham, NC 27701, or registrar@duke.edu. The request should include the following: full name, Duke student ID or Unique ID, records requested to be reviewed, purpose of review, admit term(s), Duke school/program(s), phone, and home and local addresses. The University will comply with record review requests within 45 days.

For students living locally (within commuting distance of approximately 50 miles), arrangements will be made for the student to read his or her records in the presence of a staff member. Copies are not provided, including copies of transcripts from other institutions. Other arrangements will be made for students not living locally.

A student who exercises the right to review his/her education record is also entitled to a reasonable request for explanation and interpretation of those records. If a student has made the request to review his/her record, none of those records shall be destroyed until the student's request to inspect or review has been honored.

The Provision of Academic Information to Parents and Guardians

Duke University complies with the policies set forth in the Family Educational Rights and Privacy act of 1974 concerning confidentiality, privacy, and release of information as they pertain to students' educational records. It is primarily the responsibility of students to keep parents and guardians informed of their academic standing and progress as well as any difficulties which may affect their performance. The Office of the University Registrar does not release end-of-term or midterm grade information to parents and guardians without

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students' written permission. Suppose a student's academic standing at the university changes, the Office of the Dean may notify parents and guardians in writing. Parents and guardians may also be alerted to the emergency and extraordinary situations which may impinge upon a student's well-being.

Disclosure of Personally Identifiable Information

The University will not release personally identifiable information in education records or allow access to those records without prior consent of the student, other than information deemed "directory information." Unless disclosure is to the student himself or herself, the consent must be written, signed and dated, and must specify the records to be disclosed and the identity of the recipient.

Prior consent may not be required for disclosure of education records to the following:

- School officials of Duke University who have been determined to have legitimate educational interests.
- Officials of other schools in which a student seeks or intends to enroll or is enrolled. Authorized representative of the Comptroller General of the U.S., the Attorney General of the U.S., the U.S. Secretary of Education, and state and local educational authorities, but only in connection with the audit or evaluation of federally supported educational programs, or in connection with the enforcement of, or compliance with, federal legal requirements relating to these programs. These officials will protect information received so as not to permit personal identification of students to outsiders, and the data shall be destroyed when no longer needed for the purposes above.
- In connection with a student's application for, or receipt of, financial aid, but only to the extent necessary for such purposes as determining eligibility, amount, conditions, and enforcement of terms or conditions.
- State and local officials to which such information is specifically required to be reported by effective state law.
- Organizations conducting educational studies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction. The studies shall be conducted so as not to permit personal identification of students to anyone other than representatives of the organizations, and the information will be destroyed when no longer needed for these purposes.
- Accrediting organizations for purposes necessary to carry out their functions.
- Parents of a student who is a dependent for income tax purposes (dependency must be documented).
- Appropriate parties in connection with an emergency, where knowledge of the information is necessary to protect the health or safety of the student or other individuals.
- In response to a court order or subpoena (The University will make reasonable efforts to notify the student before complying with the court order).
- A victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense. This disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding.
- On request, the final results of a disciplinary proceeding where a student has allegedly perpetrated a crime of violence or non-forcible sex offense and has been found to have violated University rules or policies. The names of the victims, witnesses, or other students will not be disclosed without consent.
- Parents of a student under the age of 21 who has been found with an alcohol-related disciplinary violation.

It is Duke University's practice not to provide student education record information to any party outside the institution with the exception of vendors contracted to provide a service to the institution and are considered school officials and a few entities that provide support for major Duke University events, such as commencement.

The University will maintain with the student's education records a record for each request and each disclosure, except:

- disclosures to the student himself or herself;
- disclosures pursuant to the written consent of the student;
- disclosures to instructional or administrative officials of Duke University;
- disclosures of directory information;
- disclosures pursuant to a Federal grand jury's subpoena or other law enforcement subpoenas where the court or other agency issuing the subpoena has ordered the institution to not disclose the existence of the subpoena.

The record of disclosure may be inspected by the student, the official custodian of the records, and other University and governmental officials.

A student wishing to suppress the release of "Directory Information" may do so by completing the Request for Non-Disclosure form. The form may be obtained by contacting the Office of the University Registrar at registrar@duke.edu. The student should weigh the implication of placing the suppression. By withholding the release of "Directory Information" Duke University will:

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- not include the student's name, address, email address, or phone number in the student directory;
- refuse to release any information about the student to the student's insurance company, current or future employers, all forms of media, and any non-institutional persons or organizations;
- give no personal information over the phone;
- will state "do not have any documentation that would support the release of information for a student by that name" to any person/organization/company that would seek information about a student's status.

The Request for Non-Disclosure does not prevent the disclosure of information to University personnel with a legitimate educational interest.

The Request for Non-Disclosure remains in effect until the student rescinds the request. A student who wishes to revoke a Request for Non-Disclosure must complete the Request for Revocation of Non-Disclosure of Directory Information form. A request in place at the time of graduation or at the time of leaving Duke University remains in effect in perpetuity.

Right to Seek Correction of Records

A student who believes that information contained in his or her education records is incorrect, misleading, or violative of privacy or other rights may submit a written request to the Office of the University Registrar, specifying the document(s) being challenged and the basis for the complaint. The request will be sent to the custodian of the record in question. Within a reasonable period of time of receipt of the request, the University will decide whether to amend the records in accordance with the request. If the decision is to refuse to amend, the student will be so notified and will be advised of the right to a hearing.

A student request for a formal hearing must be made within 30 calendar days after the student receives notice from the record custodian that the record(s) will not be amended. The request for hearing must be made in writing to the Office of the University Registrar, signed by the student, and contain: 1) a statement that the student is requesting a formal hearing on a request to amend a record, 2) the date the student received notice from the record custodian, and the name of the record custodian, that the record would not be amended, 3) a summary of the attempts to resolve the matter with the records custodian and the result of those attempts, and 4) a summary of the evidence and arguments the student would present at a hearing.

A hearing will be held within 30 calendar days after the receipt of the student's request, and the student will be given ample advance notice of the date, place, and time of the hearing.

Conduct of the Hearing. The hearing will be conducted by a University official who does not have a direct interest in the outcome. The student will have a full and fair opportunity to present evidence relevant to the issues raised and may be assisted or represented by individuals of his or her choice at his or her own expense, including an attorney. The University official conducting the hearing will, after considering all relevant information, make a recommendation to the University Registrar.

Decision of the Hearing. Within a reasonable period of time after the conclusion of the hearing, the University will notify the student in writing of the decision. The decision will be based solely upon evidence presented at the hearing and will include a summary of the evidence and the reasons for the decision.

If the University decides that the information in the student's records is inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the University will amend the record(s) accordingly.

If, as a result of the hearing, the University decides that the information is not inaccurate, misleading, or violative of the student's right, the student has the right to place, in his or her record, a statement commenting on the information and/or explaining any reasons for disagreeing with the University's decision. Any such explanation will be kept as part of the student's record as long as the contested portion of the record is kept and will be disclosed whenever the contested portion of the record is disclosed.

Limit to FERPA Protection of Records

FERPA's protection of personally identifiable information in a student's education record ends at the time of death.

Complaints

Complaints alleging violation of the provisions of FERPA may be submitted to:

Family Policy and Compliance Office

US Department of Education

400 Maryland Avenue SW

Washington, DC 20202-5920

1-800-872-5327

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 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.

Credit Hour Policy

For purposes of the application of this policy and accord with federal regulations,

1. A semester-course unit is the equivalent of four credit hours.
2. A "contact hour" is defined as a required time in which all students are directly engaged, as a class, in interaction with the instructor(s) of the course, synchronously or asynchronously, either in the classroom or virtually through telepresence, web-conference, or other online platforms.
3. A credit hour is expected to be a reasonable approximation of a minimum amount of student work in a Carnegie unit in accordance with commonly accepted practice in higher education.

University and Divinity Courses

Beginning Fall 1969, credit for Trinity undergraduates, Pratt undergraduates, and the Divinity School has been listed in semester-course units. One semester-course unit is equivalent to four semester hours.

1. A single semester-course unit should require a minimum of 12 hours per week of a student's time and effort, both in and outside of class, over a 15-week term, or 25 hours per week over a 7-week term.
2. All full-credit courses require a minimum number of "contact hours" totaling 150 minutes per week over 15 weeks, or 300 minutes per week over 7 weeks.

Graduate and Professional School Courses

The Graduate and Professional Schools list credit in semester hours. It is expected that the academic work required of Graduate and Professional school students will be the equivalent of:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out of 15 weeks for one semester hour of credit, or the equivalent amount of work over a different amount of time, or
2. At least an equivalent amount of work as required outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

All Courses

1. When a course is offered at two levels (e.g., undergraduate and graduate), workload expectations will differ for the students enrolled at different levels.
2. Instructional units should periodically review course syllabi to determine whether the number of course units/credits is appropriate for the expected student workload.

Student Affairs & Campus Life

Student Affairs

The Division of Student Affairs is critically engaged in all aspects of undergraduate and graduate students' lives and collaborates with students, faculty, staff, alumni, parents, and many others to deliver key services and support to students and all whom the division serves.

Student Affairs provides programs and services that support the optimal growth of Duke students; enhance their intellectual, social, cultural, and physical development; and complement Duke's academic excellence by providing opportunities for students to experience education and explore interests beyond the classroom. For more information, visit studentaffairs.duke.edu.

Campus Life

Campus Life (studentaffairs.duke.edu/campuslife) provides education, advocacy, and support for Duke students through advising, leadership development, and experiential education. Campus Life consists of departments that work with the campus community to promote intellectual understanding, acknowledgement, and appreciation of their differences and similarities; advocate for equal access for students and student groups to participate in campus activities, including an equitable distribution of support resources for those activities; and promote a seamless integration of the academic and cocurricular sides of the university to promote a holistic, educational experience for students.

Outreach programs and services are designed to foster an equitable and engaged university community as well as a culture of broad social and civic understanding.

Campus Life Departments

Find more information about all Campus Life departments at studentaffairs.duke.edu/campuslife/campus-life-departments.

The Center for Sexual and Gender Diversity (CSGD) provides education, advocacy, support, mentoring, academic engagement, and space for lesbian, gay, bisexual, pansexual, transgender, transsexual, intersex, questioning, queer and allied students, staff, and faculty at Duke. The Center for Sexual and Gender Diversity also serves and supports Duke alumni/ae and the greater LGBTQ community.

The Center for Multicultural Affairs (CMA) offers educationally based cross-cultural programs and providing technical support on multicultural issues for the university community.

International House provides educational services, advocacy, and outreach to the international population and the Duke/Durham community.

Jewish Life at Duke works to foster and enrich Jewish life through social, educational, religious and cultural activities.

The Mary Lou Williams Center for Black Culture strives to promote racial understanding, build community, and foster an appreciation for and increase knowledge of Black people, Black history, Black culture, and the vast contributions of people of the African Diaspora.

Muslim Life at Duke is committed to enriching the lives of Muslim students and the whole campus through organizing events and activities that cater to the spiritual, social and intellectual needs of Duke students.

The University Center Activities and Events (UCAE) provides services, support, and opportunities for students to create and engage in co-curricular experiences that result in personal development, transferable skills, and meaningful connections. UCAE also provide event management expertise for groups of all sizes interested in holding events at Duke.

Women's Center is dedicated to helping every woman at Duke become self-assured with a kind of streetwise savvy that comes from actively engaging with the world. It welcomes men and women alike who are committed to gender equity and social change.

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. Their 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 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.

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Visit the GPSG website at gpsg.duke.edu to find out more about graduate and professional student organizations at Duke and for information on upcoming events. Contact GPSG (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 Seminarians 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.

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.

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).

First-year students may participate on all varsity teams. The director of athletics provides departmental leadership and coordinates all athletic policies with the University Athletic Council. The council consists of representatives from the undergraduate student body, the faculty, the administrative staff, the trustees, and the alumni. The council meets with the director of athletics periodically during the school year.

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.

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.

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.

DuWell

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.

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.

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 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.

HRL also manages the facilities operations of all university student residences, which comprise approximately 25 percent of all university space. These responsibilities include all long-range planning, renovations, and major projects, managing housekeeping and maintenance efforts, and ensuring that all residence options are safe, secure, comfortable, and well-maintained. For more information, visit studentaffairs.duke.edu/hdrl.

Graduate and Professional Student Apartments

Limited on-campus housing is available to full-time graduate students. Priority for housing assignment will be awarded to graduate students who arrive from abroad on student visa status and it is their first time attending school outside of their home country. Students applying for the full academic year will be given priority in assignment. All students applying for less than the full academic year will be assigned on a space-available basis after all students applying for the full academic year have been accommodated. International students do not receive priority when applying for less than the full academic year. For more information on graduate student housing application timeline and facility amenities, visit this website. 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.

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.

Duke Dining

Duke is home to one of the most innovative, dynamic, and cutting edge collegiate dining programs in the country. Duke Dining provides access to over 45 dining locations that include 36 on-campus locations, Merchants-on-Points (MOPs-off-campus restaurants that deliver), and food trucks. A community-driven, sustainable, award-winning program, Duke Dining provides opportunities for culinary education and engagement with access to cooking classes, chef demos, nutrition and wellness events and special themed dinners throughout the academic year. For more information, visit studentaffairs.duke.edu/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.

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

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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.

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 the SDAO strives to create an inclusive community for our students. The SDAO strives 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.

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.

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

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.

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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

Perkins & Bostock Libraries (library.duke.edu)

David M. Rubenstein Rare Book & Manuscript Library (library.duke.edu/rubenstein)

Duke University Archives (library.duke.edu/rubenstein/uarchives)

Lilly Library (library.duke.edu/lilly)

Music Library (library.duke.edu/music)

Marine Lab Library (library.duke.edu/marine)

Library Service Center (library.duke.edu/lsc)

Divinity School Library (library.divinity.duke.edu)

Duke Kunshan University Library (dukekunshan.edu.cn/en/academics/library)

Ford Library, Fuqua School of Business (library.fuqua.duke.edu)

Goodson Law Library (law.duke.edu/lib)

Medical Center Library (mclibrary.duke.edu)

Libraries, Institutes, Technology

University Institutes

Duke Institute for Brain Sciences (DIBS)

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. It is an exciting place to be! The DIBS mission is to promote interdisciplinary brain science and translate discoveries into solutions for health and society. Each year, DIBS touches thousands of people, from our 190-member Faculty Network and hundreds of students and trainees to the many who benefit from campus, community, and outreach activities. For more information, visit dibs.duke.edu.

Kenan Institute for Ethics

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. From current policy debates about the ethics of migration, cyber-security, or artificial intelligence to historical interrogations of the rise of a post-secular society and nature of genocide to philosophical puzzles about the limits of individual responsibility or foundations of happiness, the Kenan Institute for Ethics takes seriously the notion that ethical questions and problems are indeed everywhere. For more information, visit kenan.ethics.duke.edu.

Duke Global Health Institute (DGHI)

Formed in 2006 as part of Duke University's commitment to spark innovation in global health research and education, the institute 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. In several of these countries, DGHI has built longstanding, bilateral collaborations with local institutions and organizations, including Duke-affiliated partners such as Duke Kunshan University in China and the Duke-NUS Medical School in Singapore. For more information, visit globalhealth.duke.edu.

John Hope Franklin Humanities Institute (FHI)

Founded in 1999, 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

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conversations, partnerships, and collaborations that continually stimulate creative and fresh humanistic research, writing, teaching, and practice at Duke. Inspired by the scholarly and civic example of John Hope Franklin, we also support work that engages questions of race and social equity in their most profound historical and global dimensions. For more information, visit fhi.duke.edu.

The Social Science Research Institute (SSRI)

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. It promotes multidisciplinary collaboration among such scholars as they work on important social issues that are challenging to address fully from within any given discipline. For more information, visit ssri.duke.edu.

The Nicholas Institute for Environmental Policy Solutions

The Nicholas Institute for Environmental Policy Solutions at Duke University improves environmental policymaking worldwide through objective, fact-based research to confront the climate crisis, clarify the economics of limiting carbon pollution, harness emerging environmental markets, put the value of nature's benefits on the balance sheet, develop adaptive water management approaches, and identify other strategies to attain community resilience.

The Nicholas Institute is part of Duke University and its wider community of world-class scholars. This unique resource allows the Nicholas Institute's team of economists, scientists, lawyers and policy experts to not only deliver timely, credible analyses to a wide variety of decision makers, but also to convene these decision makers to reach a shared understanding regarding this century's most pressing environmental problems. For more information, visit nicholasinstitute.duke.edu.

Bass Connections

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. We support research teams that draw on perspectives and methods from multiple disciplines, as well as robust engagement with communities, stakeholders and decision-makers.

Named in honor of founding donors Anne T. and Robert M. Bass P'97, the program exemplifies Duke's commitment to interdisciplinary, collaborative inquiry. The Besses' \$50 million gift sparked a new approach to integrating research, education and civic engagement within the university; by including a \$25 million matching challenge, their donation has already inspired more than 65 donors to support this innovative program.

Through Bass Connections, Duke is channeling its unique culture of collaboration, ambitious entrepreneurial spirit and established record of applying classroom learning to pressing global problems, to create a distinctive new model for education. For more information, visit bassconnections.duke.edu.

Libraries, Institutes, Technology

Initiatives

Rhodes Information Initiative at Duke (iiD)

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. Started in 2013, the program is led by Robert Calderbank.

Launched as an initiative of Duke University, Rhodes iiD is partnered with the Duke University Quantitative Initiative, which promote cross-pollination of ideas throughout Duke's programs and research projects, and works to increase the number of quantitative faculty in all disciplines on Duke campus. For more information, visit bigdata.duke.edu.

Innovation & Entrepreneurship Initiative (I&E)

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. Whether students are working on their own idea with a mentor, or advancing an exciting faculty innovation through a course, students learn via experiences that are in service of ambitious, worthy goals and offer opportunities for meaningful collaboration. For more information, visit entrepreneurship.duke.edu.

The Duke Initiative for Science & Society

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. Science & Society takes an interdisciplinary approach, with a focus on applied ethics and policy, to advance the responsible use of science and technology for humanity. For more information, visit scienceandsociety.duke.edu.

MEDx

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 as the first part of a Provost initiative to create opportunities at the intersection of academic units, Together Duke. 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.

MEDx fosters the exchange of ideas and creates research opportunities between physicians, engineers, computer scientists, researchers and innovators. We promote the training of the next generation of researchers and clinicians to work symbiotically on new solutions to complex clinical problems, and we develop strategic commercialization opportunities to translate research advances into effective devices, therapeutics and care delivery systems. For more information, visit medx.duke.edu.

Libraries, Institutes, Technology

Centers

Margolis Center for Health Policy

The Robert J. Margolis, MD, Center for Health Policy was established in January 2016 with a \$16.5 million gift from Duke medical school alumnus Robert J. Margolis and his wife Lisa, through the Robert and Lisa Margolis Family Foundation. Duke-Margolis 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.

Duke-Margolis partners with funders and experts in healthcare policy and practice from around the world and is advised by an accomplished board of healthcare leaders representing academia, patients, policy research, payers, and providers. 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.

Duke University Center for International and Global Studies (DUCIGS)

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. The mission of DUCIGS is to:

- Support, engage, and connect researchers, students, departments, and schools to work on international issues
- Promote interdisciplinary research and education to understand and engage with challenging global issues
- Support and coordinate the activities of the area studies centers, councils, and initiatives

DUCIGS is home to various international area studies centers, councils and initiatives including:

- Africa Initiative (AI)
- Asian Pacific Studies Institute (APSI)
- Duke Brazil Initiative (DBI)
- Center for Latin American and Caribbean Studies (CLACS)
- Concilium on Southern Africa (COSA)
- Center for Slavic, Eurasian, and East European Studies (CSEES)
- Slavic and Eurasian Languages Resource Center (SEELRC)
- Duke India Initiative (DII)
- Duke Islamic Studies Center (DISC)
- Duke University Middle East Studies Center (DUMESC)
- Global Asia Initiative (GAI)
- Observatory on Europe

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Visit the DUCIGS website at igs.duke.edu to learn more about the many centers and initiatives it houses.

Center for Documentary Studies

The Center for Documentary Studies (CDS) at Duke University 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. Much more than a traditional educational center, CDS encourages experiential learning in diverse environments outside the classroom, with an emphasis on the role of individual artistic expression in advancing broader societal goals. Programs range widely to include university undergraduate courses, popular summer institutes that attract students from across the country, international awards competitions, award-winning book publishing and radio programming, exhibitions of new and established artists in the center's galleries, an international documentary film festival, nationally recognized training for community youth and adults, and fieldwork projects in the United States and abroad. For more information, visit documentarystudies.duke.edu.

Dewitt Wallace Center for Media and Democracy

The DeWitt Wallace Center for Media & 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. The center offers over twenty undergraduate courses designed to give students a thorough understanding of the principles and the practice of journalism. Together with support from Trinity College of Arts & Sciences, the center hosts the Policy Journalism and Media Studies Certificate, an undergraduate certificate program for students aspiring to become future journalists, or private and public sector leaders who will interact with the media. In addition, the center hosts the Duke Reporters' Lab and administers the undergraduate Melcher Family Award for Excellence in Journalism. For more information, visit dewitt.sanford.duke.edu.

DukeEngage

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. Each year, Duke undergraduates work with communities on a variety of local issues while developing an understanding of their role in affecting social change and gaining a more nuanced perspective of self, purpose & place in the world. For more information, visit dukeengage.duke.edu.

Duke Civic Engagement

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. DCE provides trainings, workshops, and consultations; volunteer and partnership opportunities through the ConnectCommunity platform; and a listing of community-based federal work study opportunities. In these ways, DCE aims to advance civic engagement and promote equitable approaches to strengthen partnerships between Duke and the community. For more information, visit civic.duke.edu.

Libraries, Institutes, Technology

Technology Resources

The Office of Information Technology

The Office of Information Technology (OIT) is responsible for computing and technology services and support for the university community. OIT's searchable website offers access to free software, Duke-supported applications, news and training, technical support, and many other resources to help students, faculty, and staff make the most of information technology at Duke. For more information, visit oit.duke.edu.

Computing and Networking

All campus buildings, including residence halls, as well as the outdoor space near Bryan Center plaza, are equipped with secure high-speed wireless Internet. Residence halls are also wired for access to Duke's network. Members of the Duke community are assigned their own email accounts, which they may access from their own computers, the web or from any mobile device using their NetID and password. For more information, visit wireless.duke.edu.

Printing, Software, and Labs

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The ePrint system enables students to print from computers and mobile devices (using the Pharos print app) to printers distributed throughout campus. Up-to-the-minute status information for all printers is available at the ePrint status page. Dozens of software packages are available for free or at a discount through software.duke.edu. There are also several physical computer labs across campus and a growing array of virtual computer resources as well. Students can also visit specialty labs such as the Multimedia Project Studio and the three Co-Lab Studios (located at the Technology Engagement Center (TEC), the Rubenstein Arts Center, and East Campus), which house 3D printing and other fabrication tools. For more information, visit oit.duke.edu/category/printers-and-labs.

Technology Training

Undergraduate and graduate students can take advantage of free in-person or online training on programming, app development, web design, IT security, Adobe Creative Cloud, and more. Online training is accessed through the LinkedIn Learning online training library. The Roots training series offers in-class workshops via the Innovation Co-Lab (colab.duke.edu). For additional information on available opportunities and to sign up for a monthly newsletter, visit oit.duke.edu/training.

Storage and Backup Services

Duke offers services for securely storing, backing up, and recovering your personal files. Students receive 50 GB of secure cloud storage through Duke Box at box.duke.edu. Box and most Duke services are protected by Duke's Multi-Factor Authentication (MFA) two-step verification. Enroll and set up the Duo app at oit.duke.edu/mfa.

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.

Agreements with other Universities

Neighboring Universities

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), 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. 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.

Bulletin of
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School of Medicine

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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 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. Today, the School of Medicine is ranked sixth in research among 124 medical schools nationally by US News & World Report. Seven clinical departments are ranked among the top ten specialties in the nation: Surgery (third), Anesthesiology (third), Internal Medicine (fifth), Radiology (sixth), Pediatrics (eighth), Obstetrics and Gynecology (eighth), and Psychiatry (ninth). Duke also ranked sixteenth among medical schools nationwide for diversity of students.

The School of Medicine also is ranked third among medical schools for NIH research funding by the Blue Ridge Institute for Medical Research. 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 and the Doctorate of Physical Therapy program as well as nine masters programs, a new Occupational Therapy Program, and eighteen biomedical PhD programs.

The School boasts the research efforts of more than 2,500 basic science and clinical faculty. Their combined efforts make Duke one of the largest biomedical research enterprises in the country, with more than \$800 million in sponsored research annually. The School, along with the School of Nursing and Duke University Health System, create Duke Health, which carries out the tripartite mission of patient care, research and education.

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.

School of Medicine Facts and Figures: medschool.duke.edu/about-us/facts-figures

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.

Duke University

- 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 break-through. 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 with 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 opens.
- 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.
- 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.

Duke University

- 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 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 open.
- 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.
- 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 opens 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.

Duke University

- 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 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.
- 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.

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- 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: The National Institute of Allergy and Infectious Diseases (NIAID) awarded \$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.

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Barbara Griffith, MD, President, Duke Regional Hospital

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School of Medicine Administration

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Scott Gibson, MBA, Executive Vice Dean for Administration

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Barbara Hooper, PhD, Program Director and Division Chief, Doctor of Occupational Therapy

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Daniel Laskowitz, MD, Joint Academic Committee

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Patricia Joseph, MBA, Director, Office of Duke-NUS Affairs (at Duke)

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Hospital Clinical Ethics Consultation Service

To contact the Clinical Ethics Consultation Service, page (919) 970-8209. For more information, visit <https://trentcenter.duke.edu/consultation>.

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Duke University

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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

Drs. R. Alison Adcock, Sarah Armstrong, Marion Broome, Ashley Chi, Donna Niedzwiecki, Elise Olsen, David Pisetsky, Michael Relf, Sidney Simon, Leonard Spicer, James Urbaniak, and Anne West. Misconduct Review Officer, Dr. Donna Kessler

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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, DVD, 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. 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.

Graduate Program Information

Accreditation Council for Graduate Medical Education Accredited Programs 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 professional liability insurance, disability insurance, life insurance, health insurance, parking, and uniforms.

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 one-half of Duke University Hospital's training programs rotate to the Durham VA, which includes approximately one-third of our Graduate Medical Trainees.

Programs offered and the program training director of each service are as follows:

Program	Director
Adult Cardiothoracic Anesthesiology	Brandi Bottiger
Adult Congenital Heart Disease	Cary Ward
Adult Reconstructive Orthopaedics	Michael Bolognesi
Advanced Heart Failure and Transplant Cardiology	Richa Agarwal
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	Sujay Kansagra
Clinical Biochemical Genetics	Sarah Young
Clinical Cardiac Electrophysiology	Donald Hegland
Clinical Informatics	Eric Poon
Clinical Neurophysiology	Saurabh Sinha
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	Sarah Bean
Dermatology	Erin Lesesky
Dermatopathology	Rami Al-Rohil
Diagnostic Radiology	Michael Taylor-Cho
Emergency Medicine	Joshua Broder
Endocrinology, Diabetes and Metabolism	Matthew Crowley
Epilepsy	Saurabh Sinha
Family Medicine	William Bynum
Family Medicine Rural Track	Thomas Koinis
Female Pelvic Medicine and Reconstructive Surgery	Cindy Amundsen
Foot and Ankle Orthopaedics	James De Orio
Gastroenterology	Richard Wood
Geriatric Medicine	Mamata Yanamadala
Geriatric Psychiatry	Tracey Holsinger
Gynecologic Oncology	Brittany Davidson

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Hand Surgery	Marc Richard
Hematology (Hematopathology) Fellowship	Endi Wang
Hematology/Medical Oncology	Richard Riedel
Hospice and Palliative Medicine	Alisha Brenner
Infectious Disease	Eileen Maziarz
Internal Medicine	Aimee Zaas
Internal Medicine (P)	Aimee Zaas
Internal Medicine/Pediatrics	Jane Trinh
Internal Medicine/Psychiatry	Jane Gagliardi
Interventional Cardiology	William 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
Neonatal-Perinatal Medicine	Rachel Greenberg
Nephrology	Matthew Sparks
Neurological Surgery	Michael Haglund
Neurology	Christopher Eckstein
Neuromuscular Medicine	Karissa Gable
Neuropathology	Anne Buckley
Neuroradiology	Michael Malinzak
Nuclear Medicine	Olga James
Nuclear Radiology	Olga James
Obstetric Anesthesiology	Jennifer Dominguez
Obstetrics and Gynecology	Beverly Gray
Ophthalmology	Pratap Challa
Orthopaedic Surgery	Robert Fitch
Orthopaedics Sports Medicine	Dean Taylor
Otolaryngology	Charles Woodard
Pain Medicine	Peter Yi
Pathology - Anatomic and Clinical	Thomas Cummings
Pediatric Anesthesiology	John Eck
Pediatric Cardiology	Michael Jay Campbell
Pediatric Critical Care Medicine	Omar Alibrhim
Pediatric Endocrinology	Laura Page
Pediatric Hematology-Oncology	Jennifer Rothman
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	Michael Kent
Reproductive Endocrinology and Fertility	Thomas Price
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	Lindsay King
Undersea and Hyperbaric Med.-Prev. Med.	Bruce Derrick
Urology	Andrew Peterson
Vascular Neurology	Nada El Husseini
Vascular Surgery	Chandler Long
Vascular Surgery Integrated	Mitchell Cox

Graduate Program Information

Duke Graduate Medical Education Employment Requirements

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

- 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 State 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
- 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 IMG's.)

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- 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.
 - 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 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 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. Questions may be directed to Kim Price (kprice@duke.edu), Director of Summer Session & Special Programs for Duke Continuing Studies.

Graduate 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.

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. 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 or email visahelp@mc.duke.edu.

Resources for Study

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 housestaff 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. 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. The Library is piloting subsidized fees for Duke borrowers through Document Delivery/Interlibrary Loan Services for all requests, including delivery of PDF journal articles and book chapters from Duke and elsewhere. Library services include reference, in-depth consultations, expert database searching including systematic reviews, customized and individual group training, online tutorials, bibliometrics and research impact analysis, 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. A computer classroom for hands-on training is located on Level 1. Archives provides 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 requires a Duke Health badge. Non-Duke individuals do not have access to the building. 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.

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 services and resources may be found on the website at mclibrary.duke.edu. Additional information about Archives can be found at 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, 200 Trent Drive, Room 0001, Durham, NC 27710. The bookstore is open from 8:30 a.m to 5:30 p.m. Monday through Friday. They are open on designated Saturdays specifically just prior to the start of a new semester. Call (919) 684-2717 concerning Saturday dates/hours.

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 or duke.healthcaresh.com.

Medical Center Commons

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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, features gourmet salads, fresh homemade salads, freshly prepared soups, and hot buffet selections. There are weekly specials. Prices range from \$10 to \$13. 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.

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 or 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 TSCH) along with satellite offices on the 1st and 5th floors of TSCH, 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 which 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, 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.

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 individual 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

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

With more than 11,000 team members, our mission is to advance health together and ensure we are caring for our patients, their loved ones and each other.

For 2021-2022, 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.

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 twenty-seven county area of central and eastern North Carolina. The DVAHCS is a 245-bed tertiary care referral, teaching, and research facility affiliated with Duke University School of Medicine. 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. In addition to the main facility in Durham, services are offered at the Health Care Center (HCC) located in Greenville, North Carolina, and three Community Based Outpatient Clinics (CBOCs), one located in Morehead City and two in Raleigh, North Carolina. Two outpatient Clinics are also located on Hillandale Road in Durham, one Mental Health specialty clinic in southern Raleigh, and the Dialysis Clinic and Blind Rehabilitation Outpatient Clinic at Brier Creek in Raleigh. The medical center 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. Special programs at DVAHCS include a comprehensive Women's Health Center, a Home Based Primary Care program, a Telemedicine Home Care program, a Simulation Center, Geriatric Research Education and Clinical Center, the Center for Health Services Research in Primary Care, the VISN 6 Mental Illness Research Education and Clinical Center, and the Epidemiology Research and Information Center. For additional information, visit 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, orthopaedic, 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 and hometown feel 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 more for more than 45 years. To be successful at caring for our community and have a strong reputation among patients who seek our care, 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 for decades in our hospital units.

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 Arrington, Health Services Center, and Duke Behavioral Health Center North Durham. In fiscal year 2021, Duke Regional Hospital admitted 16,422 patients, performed 18,152 surgeries and welcomed 2,673 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 2021-22. The Human Rights Campaign consistently names us a Healthcare Equality Leader, and we are a Joint Commission-accredited and Magnet-designated hospital.

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Duke Raleigh Hospital

Duke Raleigh Hospital offers the world-renowned resources of Duke Health conveniently located in Wake County. Duke Raleigh Hospital has been an important part of the Duke University Health System since 1998 and has provided high-quality, compassionate care to the citizens of Wake County for more than 100 years.

Duke Raleigh Hospital is a 186-bed hospital providing a comprehensive array of services including cancer care, orthopaedics, neurosciences, spine, cardiovascular services, disease management, inpatient care, emergency services, surgical services, outpatient imaging, community education events, and more. Duke Raleigh Hospital has achieved Magnet™ designation for excellence in nursing by the American Nurses Credentialing Center. For more information, call (919) 954-3000 or visit 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 the Duke University. Buildings are divided into The Clinic Zone, The Hospital Zone, The Research Zone, The West Zone, and The North Campus Zone.

Duke University School of Medicine

The School of Medicine comprises eight basic departments, sixteen 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 graduate entry 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.

Duke Kunshan in China offers academic programs and research opportunities for medical students and researchers, in the Master of Science in Medical Physics Program, Master of Science in Global Health Program and Global Health Research Center.

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 to patients. In 2022, the DCI celebrates 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)

In 2018, the Duke Clinical & Translational Science Institute 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 decide how they want to handle such circumstances, what their options are, and to provide mediation if desired. To contact the Ombudsperson, please visit oie.duke.edu/about-us/ombudsperson.

Academic Credit

Doctor of Medicine, Pathologist Assistant, Master of Management in Clinical Informatics, Master of Biomedical Sciences, and Clinical Research Program		
Time	Requirement	Credit
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
Doctor of Occupational Therapy and Doctor of Physical Therapy		
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).		
Master of Biostatistics and Clinical Leadership Program		
Time	Requirement	Credit
3 hours	Prep, assignments, and studying	1 credit
Ophthalmic Technician Certificate Program		
Time	Requirement	Credit
32 hours	Prep, lecture, and clinical time	1 credit
Cardio Ultrasound Certificate Program		
Time	Requirement	Credit
40 hours	Prep, lecture, clinical time, and studying	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 own program (e.g., medical student representative for medical students, DPT student representative for DPT students, etc.). In the event that the student representative is in the same class as the appellant, the student alternate will serve. Students will serve a 1-year term.
- 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 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 upon 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 student 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.
- 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 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. Clearly 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:

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 so as 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 on the basis of 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)

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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 disadvantage 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 him/her 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 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 of actions taken based on the urgency of the situation. If CAT is not satisfied that an 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 that 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 safe-guarding 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

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

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- 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.

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, 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.

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System	Method	Location	Anonymity
Professionalism Notification System (preferred for professionalism issues)	Electronic	Within professional school	Depends on Program No Anonymity: Physician Assistant (PA) Up to Person Reporting: 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: No Anonymity: Physician Assistant (PA) Up to Person Reporting: Doctor of Medicine (MD)
SOM Ombudsperson Email: ombudsman@mc.duke.edu or call Dr. Spaulding's 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). 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
- 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.

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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) at least a month prior to graduation.

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

Certain categories of information are considered to be directory information and do not require the student's prior written consent to

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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.

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/OnlineTraining.

For more information about HIPAA compliance training, visit dukehealth.org/privacy/patient-bill-of-rights.

Immunization and Health Record

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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 <https://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 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 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 or the Duke University School of Medicine Office of Admissions at 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/OnlineTraining, the Learning Management System (LMS) website at hr.duke.edu/training/learning-management-system, and the CITI website, 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. Additional information can be found at safety.duke.edu.

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, or duke.edu/today, or by visiting the School of Medicine, Office of the Registrar's website, 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 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.

Please review the Duke Health Social Media Policy [here](#). The link requires that Shibboleth login with Duke NetID and password.

Transcripts & Diplomas

Transcripts of Academic Record

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. 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 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, 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.

Doctor of Medicine

Website: medschool.duke.edu/education/health-professions-education-programs/doctor-medicine-md-program

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** (**F**oundations, **I**mmersion, **R**esearch, **S**ervice, and **T**ransformation). 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
 - Develop skills using principles of design thinking, data science and technological advances
 - Recognize opportunities where scientific inquiry can advance patient care

References:

The preceding objectives were adapted from the sources below:

Duke University

[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

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, Match Day, Graduation) in the life of the school. Advisory deans also serve on any institutional committees that oversee the interest of the students.

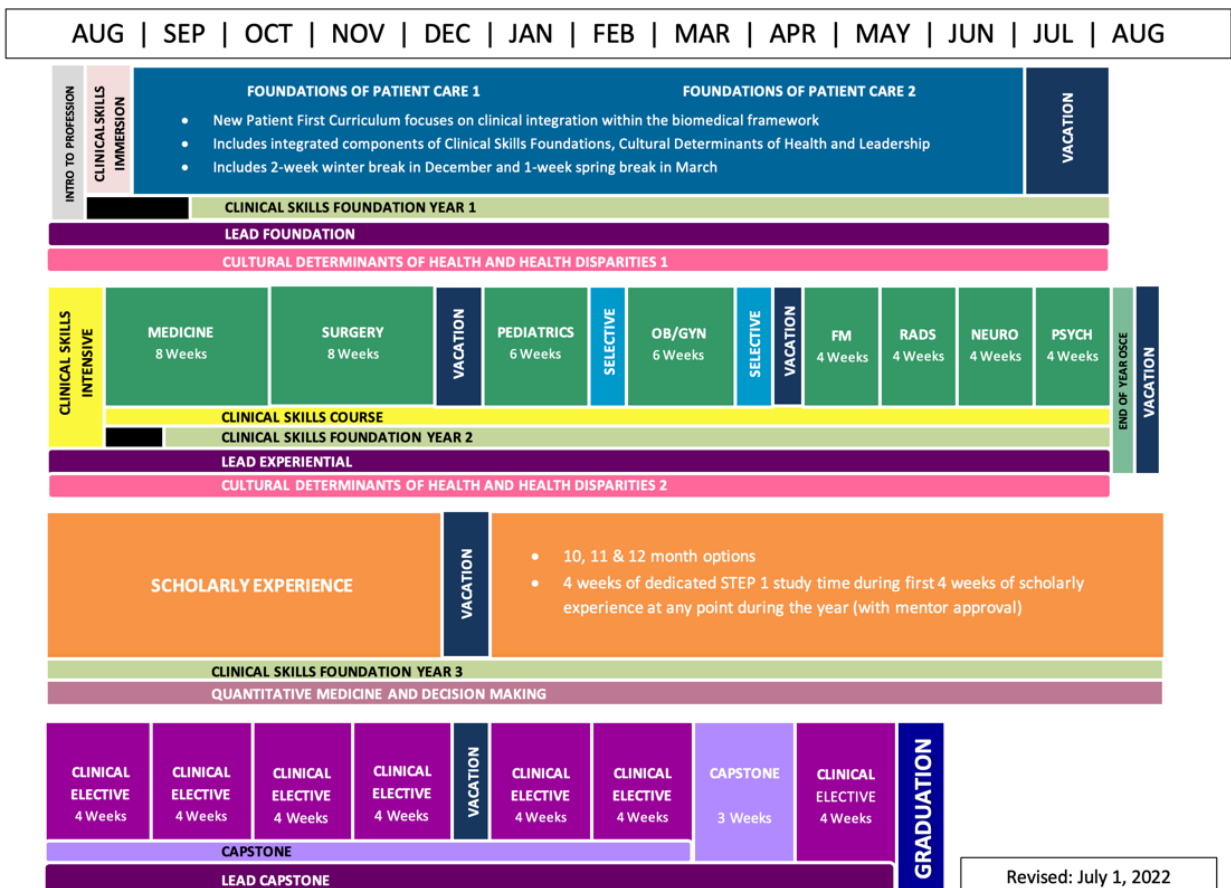
Doctor of Medicine

Academic Calendar

Calendar and registration dates are subject to change.

Academic Calendar Key			
16 – Full length of the term			
21 – 1st two-week selective of term		22 – 2nd two-week selective of term	
23 – 3rd two-week selective of term		24 – 4th two-week selective of term	
25 – 5th two-week selective of term		26 – 6th two-week selective of term	
27 – 7th two-week selective of term		28 – 8th two-week selective of term	
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	
Approved School of Medicine Holidays for Medical Students			
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



Revised: July 1, 2022

Visual timeline of Duke SoM's Patient FIRST Curriculum

First Year

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Fall 2022
August August 1-5 (M-F) Introduction to the Profession—Mandatory attendance August 5 (F) Annual Medical Student Research Symposium—Mandatory attendance August 8 (M) Begin class, Clinical Skills Training Immersion August 19 (F) End class, Clinical Skills Training Immersion August 22 (M) Begin class, Foundations of Patient Care 1
September September 5 (M) Labor Day—student holiday
November November 2 (W, 8:30am) Registration for Spring term opens November 9 (W, 1pm) Registration for Spring term closes November 22 (Tu, 6pm) Begin Thanksgiving student holiday November 28 (M) Resume class, Foundations of Patient Care 1
December December 16 (F, 5pm) Begin Winter Break for first-year Medical Students
January January 2 (M) New Year's Day—holiday observed January 3 (Tu) Resume class, Foundations of Patient Care 1 January 16 (M) Martin Luther King, Jr. Day—student holiday January 30 (M, 12pm) End class, Foundations of Patient Care 1 January 31 (Tu) Begin class, Foundations of Patient Care 2
Spring 2023
March March 18-26 (Sa-Su) Spring Break for MS1 March 27 (M) Resume class, Foundations of Patient Care 2
May May 29 (W) Memorial Day Holiday—student holiday
June June 19 (M) Juneteenth Holiday—student holiday June 30 (F, 5pm) End class, Foundations of Patient Care 2

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

Second Year

Fall 2022
August August 1 (M, 8am) Begin Clinical Skills Course—Intensive August 2 (T) MS2 students register online for fall selectives August 5 (F) Annual Medical Student Research Symposium—Mandatory attendance August 19 (F) End Clinical Skills Course—Intensive August 22 (M) Begin sections 21, 41, and 81 August 24 (W, 3pm) Begin Clinical Skills Course—Longitudinal

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<p>September</p> <p>September 2 (F) End section 21</p> <p>September 5 (M) Labor Day—student holiday</p> <p>September 6 (T) Begin section 22</p> <p>September 14 (W) Begin Cultural Determinants of Health & Health Disparities</p> <p>September 16 (F) End sections 22 and 41</p> <p>September 19 (M) Begin section 23 and 42</p> <p>September 21 (W, 3pm) Begin Clinical Skills Foundation 2</p> <p>September 30 (F) End section 23</p>
<p>October</p> <p>October 3 (M) Begin section 24</p> <p>October 12 (W) End section 81, except PEDS</p> <p>October 14 (F) End sections 24, 42, and 81 PEDS</p> <p>October 17 (M) Begin sections 25, 43, and 82</p> <p>October 28 (F) End section 25</p> <p>October 31 (F) Begin section 26</p>
<p>November</p> <p>November 2 (W, 8:30am) Online registration for MS2 spring selectives opens</p> <p>November 8 (Tu, 1pm) Online registration for MS2 spring selectives closes</p> <p>November 11 (F) End sections 27 and 44</p> <p>November 14 (M) Begin sections 27 and 44</p> <p>November 23 (W, 12pm) Begin Thanksgiving holiday; End section 27</p> <p>November 28 (M) Resume classes; Begin section 28</p>
<p>December</p> <p>December 9 (F) End sections 28, 44, and 82</p> <p>December 10 (Sa) Begin Winter Break</p>
<p>Spring 2023</p>
<p>January</p> <p>January 2 (M) New Year's Day—holiday observed</p> <p>January 3 (Tu) Begin sections 21, 41, and 81</p> <p>January 13 (F) End section 21</p> <p>January 16 (M) Martin Luther King, Jr. Day—student holiday</p> <p>January 17 (Tu) Begin section 22</p> <p>January 27 (F) End sections 22 and 41</p> <p>January 30 (M) Begin classes in sections 23 and 42</p>
<p>February</p> <p>February 10 (F) End classes in sections 23 and 61</p> <p>February 13 (M) Begin section 24</p> <p>February 22 (W) End section 81, except PEDS</p> <p>February 24 (F) End sections 24, 42, and 81 PEDS</p> <p>February 27 (M) Begin section 25, 43, and 82</p>
<p>March</p> <p>March 8-15 (W-Tu) MS2 students register for summer selectives</p> <p>March 10 (F) End section 25</p> <p>March 13 (M) Begin section 26</p> <p>March 25 (F) End sections 26 and 43</p> <p>March 27 (M) Begin sections 27 and 44</p>

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April April 7 (F) End section 27 April 10 (M) Begin section 28 April 19 (W) End section 82 April 21 (F) End sections 28, 44, and 82 PEDS April 22 (Sa) Begin Spring Break April TBD MS3 Registration for fall opens April 30 (Su) End Spring Break
Summer 2023
May May 1 (M) Begin section 21, 41, and 81 May 12 (F) End section 21 May 15 (M) Begin section 22 May 24 (W) End Cultural Determinants of Health & Health Disparities May 26 (F, 12pm) Deadline for rising Third Year (MED3) Registration form to Third Year Coordinator; End sections 22 and 41 May 29 (M) Memorial Day—student holiday May 30 (T) Begin sections 23 and 42
June June 2 (F) Online registration—Third Year, fall ends June 9 (F) End section 23 June 12 (M) Begin section 24 June 14 (W) End Clinical Skills Foundation 2 June 19 (M) Juneteenth Holiday—student holiday observed June 21 (W) End section 81, except PEDS June 23 (F) End sections 24, 42, and 81 PEDS June 26 (M) Begin sections 25, 43, and 82
July July 4 (Tu) Independence Day—student holiday July 7 (F) End section 25 July 10 (M) Begin section 26 July 21 (F) End classes in sections 26 and 43 July 24 (M) Begin sections 27 and 44
August August 4 (F) End section 27; Annual Medical Student Research Symposium—Mandatory attendance August 7 (M) Begin section 28 August 9 (W) End Clinical Skills August 16 (W) End section 82, except PEDS August 18 (F) End sections 28, 44, and 82 PEDS

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

Fall 2022
August August 5 (F) Annual Medical Student Research Symposium—Mandatory attendance August 22 (M) Third Year Begins
September September 5 (M) Labor Day—student holiday
October October 8 (Sa) End section 42 October 10 (M) Begin section 43 October 13 (Th) Begin QMDM—Medical Statistics
November November 2 (W, 8:30am) Registration for spring opens November 5 (Sa) End section 43 November 7 (M) Begin section 44 November 8 (Tu, 1pm) Registration for spring closes November 24-27 (Th-Su) Thanksgiving student holiday November 28 (M) Resume classes
December December 9 (F) End QMDM—Medical Statistics; fall term ends, section 44 December 10 (Sa) Begin Winter Break
Spring 2023
January January 2 (M) New Year's Day—holiday observed; end Winter Break January 3 (Tu) Research resumes; Begin Quantitative Medicine & Decision Making II January 10 (Tu) Begin Quantitative Medicine & Dec. Making II—EBM January 16 (M) Martin Luther King, Jr. Day—student holiday
March March 8-14 (W, 8:30am-Tu, 1pm) Registration for MS3, summer
April April 7 (F) End Quantitative Medicine & Dec. Making II—EBM; end spring term
Summer 2023
May May 1 (M) Begin summer term May 29 (M) Memorial Day—student holiday
June June 19 (M) Juneteenth Holiday—student holiday
July July 4 (Tu) Independence Day—student holiday
August August 4 (F) Annual Medical Student Research Symposium—Mandatory attendance

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

Summer 2022

Duke University

March March 9-15 (W, 8:30am-Tu, 1pm) Registration opens for rising MS4 summer March 16 (Th, 8:30am) Drop/Add begins for summer 43 and 44 March 30 (W, 8:30am) Registration opens for rising MS4 fall
April April 5 (T, 1pm) Registration closes April 6 (W, 8:30am) Drop/Add begins for fall
May May 2 (M) Begin classes in sections 41 and 81 May 27 (F) End classes in section 41 May 30 (M) Memorial Day—student holiday May 31 (Tu) Begin classes in section 42
June June 10 (F, 1pm) Drop/Add ends for summer, sections 82, 43, and 44 June 20 (M) Juneteenth—student holiday June 24 (F) End classes in sections 81 and 42 June 27 (M) Begin classes in sections 82 and 43
July July 4 (M) Independence Day—student holiday July 22 (F) End classes in section 43 July 25 (M) Begin classes in section 44
August August 19 (F) End classes in sections 82 and 44
Fall 2022
August August 5 (F, 1pm) Drop/Add ends for fall sections 41, 42, and 81; Annual Medical Student Research Symposium—Mandatory attendance August 19 (F) End classes in sections 82 and 44 August 22 (M) Begin sections 41 and 81 and Capstone
September September 5 (M) Labor Day—student holiday September 16 (F) End section 41 September 19 (M) Begin section 42 September 23 (F) Grades for section 41 due September 30 (F) Drop/Add ends for fall sections 82, 43, and 44
October October 14 (F) End sections 42 and 81 October 17 (M) Begin sections 43 and 82
November November 2 (W, 8:30am) Registration for spring opens November 8 (Tu, 1pm) Registration for spring closes November 9 (W, 8:30am) Drop/Add for spring opens November 11 (F) End section 43 November 14 (M) Begin section 44 November 24-27 (Th-Su) Thanksgiving student holiday November 28 (M) Resume classes
December December 9 (F) End End section 44 and 82 December 10 (Sa) Begin Winter Break December 16 (F, 1pm) Drop/Add for spring sections 81, 41, and 42 ends

Spring 2023
January January 2 (M) New Year's Day—holiday observed January 3 (Tu) Begin section 41 and 82 January 16 (M) Martin Luther King, Jr. Day—student holiday January 27 (F) End section 41 January 30 (M) Begin section 42
February February 4 (Sa) Drop/Add period for spring sections 82, 43, and 44 closes February 24 (F) End sections 42 and 81 February 27 (M) Begin section 43 Capstone—Mandatory
March March 17 (F) Match Day March 24 (F) End section 43 Capstone March 27 (M) Begin section 44
April April 21 (F) End section 44
May May 3 (W) All grades due May 12-14 (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.

Doctor of Medicine

Admissions

Admission Procedures

Compassion, empathy, a sincere commitment 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), and application to the School of Medicine starts by submitting the electronic AMCAS application. The application may be accessed at the following website: students-residents.aamc.org.

Upon receipt of the application data from AMCAS, all applicants receive a Duke University School of Medicine Supplemental Application. When the Supplemental Application and application fee are submitted, the entire application is reviewed by the admissions committee for the potential of an interview invitation. Applications for Duke School of Medicine must be submitted between June 1 and October 15, the deadline for all materials to be received by AMCAS. 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 application and transcripts. It is the applicant's responsibility to ensure that their 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 with the School of Medicine. Interviews will occur from early September to late January of the application cycle

Academic Expectations

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

Duke University School of Medicine is aware of the constant evolution encompassing the medical education process. Students should be well-versed in the biomedical sciences and attentive of the larger psychosocial context in which medicine is increasingly practiced. The faculty members of the School of medicine are aware that the biomedical sciences and psychosocial context of medicine are both critical to the development of an educational curriculum.

MCAT Examination and Coursework Expectations

For those who are planning to apply to the School of Medicine at Duke University, 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 five years prior to the year for which an applicant is seeking.

Biochemistry: May be fulfilled by a single course in Biochemistry, or through coursework which 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

Duke University

- 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.

The applicant is scheduled for two interviews with either administrative staff or faculty in the School of Medicine. 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 should contact AMCAS to complete a new AMCAS application. Supporting information will be transferred to the new application. To be seriously considered, re-applicants must demonstrate significant additions of experience or coursework to the original application.

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 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 admitted. Since admission is offered in advance of matriculation, it is provisional upon the successful completion of any incomplete, premedical, and required studies as well as the continued demonstration of scholarship in college coursework. Students must 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.

Male students must register with Selective Service before turning age 26 in order to be eligible for Federal student loan and grant programs. Failure to register can have a serious negative impact on the ability to obtain a driver's license, qualify for financial aid, pursue an education, or obtain employment. Applicants can register at the following website: sss.gov/register.

Applicants who are not US citizens or who are not Lawful Permanent Residents (LPR) of the United States are granted equal consideration for admission to the medical school. Financial support is not guaranteed for the international applicants and as such, accepted applicants must be prepared to finance their education either with personal or other funding sources. If an applicant is a Lawful Permanent Resident and holds a Green Card, the Green Card must be in the incoming student's possession at the time an offer of admission is extended. If the Green Card is not in the student's possession, then the student will be required to provide proof of funding in order for the School of Medicine to begin processing the documents required by the US Department of Homeland Security.

Transfer

Transfers are considered only into the clinical year (Year Two) at the School of Medicine and only for the spouses of Duke House staff (i.e., residents, fellows, etc.), medical school faculty, or currently enrolled students in the School of Medicine. If all criteria are met, a student requesting consideration for transfer cannot begin the process until confirmation by the Duke University School of Medicine of

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space availability in the second year of the Duke curriculum is known, usually early to mid-June of the academic year. All required materials and evaluations must be completed by July 15.

The application procedures are as follows:

1. completion of the Duke University School of Medicine Secondary Application and completion of a criminal background check;
2. receipt of the AMCAS application data that was submitted for the applicant's original medical school application;
3. a letter from the dean of the medical school where the student is currently enrolled plus two letters from faculty supporting the applicant's candidacy for transfer;
4. a certified transcript from the institution the student will be transferring from;
5. passing/satisfactory performance on the USMLE Step 1;
6. satisfactory completion of the basic science coursework at the current medical school;
7. if deemed appropriate after review of the above, an interview with at least two members of the Duke University School of Medicine Executive Admissions Committee; and
8. a final decision by the dean of the Duke University School of Medicine.

Questions may be directed to the Duke University School of Medicine, Office of Admissions, DUMC 3710, Durham, NC 27710, medadm@dm.duke.edu.

Only in extraordinary circumstances are transfer students accepted into the Duke program. Upon acceptance to the Duke MD program, the vice dean for education determines what credit the student receives based on the curriculum completed at the prior institution. Tuition waivers for required curriculum completed prior to being admitted to Duke MD Program will be determined by the Vice Dean.

Advanced Standing Matriculants

Upon acceptance to the School of Medicine, applicants who have received a recent quantitative doctoral degree in biomedical or preclinical sciences may apply to be considered for a waiver of the scholarly experience, which is traditionally performed during the third year. This may allow the completion of an MD in three years, which 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. Application to receive credit for the PhD can be obtained at the medical school admissions office, and must be submitted to the Third Year office no later than the end of the first year of enrollment. A subcommittee of the Third year Committee is formed to review the dissertation which is then sent to full committee for recommendation to the Vice Dean of Education, who will make the final decision to approve or disapprove the waiver. Following this action, the student and registrar's office will be notified. Upon approval, a notation will be made to the student transcript to reflect transfer credit. The tuition for the Third Year will be waived.

Doctor of Medicine

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 \$87,417 for a fourth-year student to \$98,112 for a first-year student. These are estimated figures only. Tuition and fees are subject to change without notice.

2022-2023 Estimated Cost of Education

Expense	Amount
Tuition	\$65,526
Technology fee	\$2,100
First year fees (includes microscope rental, first year only)*	\$2,914
Annual cost of books and supplies: first year	\$500
Annual cost of books and supplies: second year	\$300
Annual cost of books and supplies: third year	\$100
Annual cost of books and supplies: fourth year	\$200
Rent, board, miscellaneous, and travel: first year (11 mos.)	\$27,072
Rent, board, and miscellaneous: second year (13 mos.)	\$29,328
Rent, board, and miscellaneous: third year (12 mos.)	\$27,072
Rent, board, and miscellaneous: fourth year (8 mos.)	\$18,048
Continuing Optional Research Study Fee (per semester)**	\$500

*Sphygmomanometer, ophthalmoscope, otoscope, and other equipment required of each student must conform to rigid standards.

**The School of Medicine encourages students to interrupt their studies to pursue approved research that is complementary to the medical curriculum at Duke or elsewhere for no credit. To retain full-time student status for loan deferment purposes, students may seek approval to enroll in the Continuation of Research Study option. Only students eligible to be enrolled at Duke during the applicable time period may participate.

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 (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.

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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

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.

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 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.

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- 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.

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.

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

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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.

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 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.

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.
- **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.

University Loans

The School of Medicine has an emergency loan fund, the Francis and Elizabeth Swett Loan Fund, available in small amounts to any

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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.

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.
- **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: 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. 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:

- **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.

External Research/Scholarship Programs

Criteria for approval: All standards required for students performing research in Duke University Medical Center laboratories/research environments should be met (including, but not limited to the following):

- Students may only work with research mentors approved by the Third Year curriculum committee (approval based on publication record, experience in mentoring, and demonstration of funding for project).
- Procedures and criteria for conduct of research, grading, preparation of thesis, time lines for completion are identical to those at Duke University Medical Center.
- Research project and mentor must be identified as part of an existing research study track.
- In addition, all outside laboratories must also agree to the following:
- A description of the research program and criteria expected of the student should be provided to both the Third Year Committee and the Scholarship Committee for formal approval prior to announcing the opportunity.
- Description of the program and selection criteria should be distributed to all potential recipients by the Duke Student Research Scholarship Committee (so all students have an equal chance at opportunity) and selection criteria determined in advance.
- The Duke third year research study track director will be the official liaison between the outside mentor and the third year committee, providing oversight responsibility (just as at Duke).
- Outside mentors are limited to one student/mentor each year.
- Outside institutions shall not place restrictions on publication of student's research.
- Outside institutions shall not require the student to sign a confidentiality agreement pertaining to any aspect of the student's research project. All other confidentiality agreements must be evaluated and approved by the duke office of technology transfer before being signed by the student; any such agreements must be processed and signed before the student begins their 3rd year research.
- Students may not be employed by an outside institution; only scholarships previously approved by the Third Year Committee and Scholarship Committee are allowed.
- Outside institutions must be willing to recognize Duke's portion of ownership of any patent emerging from the student's research.

American Society of Hematology (ASH). The Society's Physician-Scientist Career Development Award is an opportunity for medical students to gain experience in hematology research and to learn more about the specialty by immersing themselves in a yearlong laboratory, translational, or clinical investigation under the mentorship of an ASH member. The total amount of the award is \$42,000. The award is comprised of \$32,000 to support the trainee, a \$4,000 research allowance for supplies, \$4,000 for insurance and educational expenses (including one course), and \$2,000 for meeting attendance. The award is for a one-year period, generally July 1 to June 30. Applications are due by mid-January. Award notification is in March, 2020. More information is available at hematology.org/awards.

The Fogarty Global Health Fellowship. The Global Health Fellowship Program is a one-year clinical research training program for pre- and post-doctoral candidates, sponsored by the Fogarty International Center (FIC) and several collaborating institutes and centers at the National Institutes of Health (NIH). The purpose of the program is to support a one-year mentored research fellowship for clinical investigators studying diseases and conditions in developing countries. Several training sites are available through the Vanderbilt-Emory-Cornell-Duke (VECD) Consortium. Apply through the Consortia Programs-deadline 11/1/2022. For more information, see vumc.org/vecd or contact Cecelia Pezdek of the Hubert Yergan Center for Global Health at Duke.

Gertrude B. Elion Award. The Gertrude B. Elion Mentored Medical Student Research Award will provide annual awards in the amount of \$10,000. These awards will support women medical students who are interested in pursuing health-related research projects. Students must have an interest in health research, and must have the support of a faculty mentor. Find more information at trianglecf.org/award/gertrude-b-elion-mentored-medical-student-research-award.

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Intramural Research Program at the National Institute of Environmental Health Science (NIEHS). The NIEHS Medical Student Research Fellowships one-year research training opportunity for third-year medical students will be available for the academic year. Details on how to apply can be found below. Interested students should email the Program Director, Janet E. Hall, M.D. with inquiries about potential projects and mentors. Fellowships will begin in late summer/early fall. Research should have an “environmental medicine” theme. For more information go to niehs.nih.gov/careers/research/med-students/index.cfm.

National Institute of Health (NIH) Medical Scholars Program. This program offers research experiences with intramural investigators from across NIH in basic science laboratories, and in clinical and translational research conducted at the NIH Clinical Center, the world’s largest hospital dedicated to patient-oriented research. The deadline for complete applications is in January. Student support will include a \$36,000 stipend, and resources for education enrichment, such as travel to scientific meetings. For more information on the NIH Medical Research Scholars Program, please visit the NIH Clinical Center’s Office of Clinical Research Training and Medical Education website at cc.nih.gov/training/mrsp or contact mrsp@mail.nih.gov.

Sarnoff Cardiovascular Research Foundation. The Sarnoff Fellowship Program offers medical students enrolled in accredited US medical schools the opportunity to spend a year conducting intensive work in a biomedical research laboratory. Applications are encouraged from all interested medical students, whether or not they have prior research experience. Applicants enrolled in an MD/PhD program are not eligible for a Sarnoff Fellowship. Fellowship awardees receive an annual stipend of \$32,000 in addition to an allowance for travel to select a Preceptor and Fellowship laboratory, moving expenses, health insurance, computer and laboratory supplies, and travel to scientific meetings. For more information, contact Dr. Neil Freedman at neil.freedman@duke.edu. Applications must be submitted online at sarnofffoundation.org. The application deadline is in January.

Internal Scholarship Programs

The following is a list of internal scholarships available to Duke Third Year Medical Students. For general questions, contact thirdyear@dm.duke.edu. For scholarship specific questions, contact the assigned coordinator.

Application Process

Applications for the Internal Third Year Scholarships are processed through MyResearchProposal online application software.

- To apply visit bit.ly/myresearchproposal, click on “Create New User” (or log in if you already have an account).
- A step-by-step user’s guide for applying via the MyResearchProposal software is available. Review the guide [here](#).
- Enter Access Code “MEDSTUDENT” and follow the instructions.

Applicants will enter general project information via the web-based form or via pdf upload as indicated.

General Application Requirements

The following are general requirements for all applications. Some applications may require additional information

- Applicant’s Current Curriculum Vitae (CV)
- Personal Statement (Half page limit). Explain your goals and objectives for your career development, to include:
 - How this research project fits into your plans
 - How you identified your mentor
- Student Proposal (2 Page limit unless otherwise noted). Describe your proposed research, including:
 - Project title
 - Background
 - Hypotheses
 - Proposed methods
- Mentor Information
 - Mentor’s NIH Biosketch
 - Mentor’s Letter of Support

Duke-Singapore Student Scholar Fellowship. Duke-Singapore Student Scholars are expected to spend 10 months doing mentored clinical or basic science research in Singapore, a country on the cutting edge of biomedical and health services. This research will take up around 80% of the scholars’ time. The scholars are also expected to serve on various curriculum committees, and engage fully with the Duke-NUS student community. Ideally, there would be a paired mentorship collaboration between the Duke-NUS mentors and Duke mentors for the scholars.

Additional Application Requirements: Write a brief (1-2 page) essay on “How, if at all, will being in Singapore enhance my research?”

Duke-Singapore Student Scholars will receive:

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- SGD20,000 tuition support which will be paid directly to Duke University
- Two round trip economy (coach) class airline tickets from Duke University/home city to Singapore (one for initial arrival in Singapore and one for home/holiday trip). The maximum amount will be set annually, based on prevailing lowest airfares at the time of the award. If the tickets are not purchased directly by Duke University or Duke-NUS Medical School, students will need to submit original receipts for reimbursement.
- Monthly stipend of SGD3,200 (subject to change) for the required period of the 3rd Year research, or up to 10 months, whichever is shorter.
- Any mandatory NUS-related charges including but not limited to the following:
 - Student Services Fee: S\$ 63.11 per semester
 - Health Services Fee: S\$ 68.35 per semester
 - Mandatory NUS-related charges are subject to revision. Check here for current information.
- Temporary living expenses to assist the move to Singapore will be reimbursed up to SGD80 per day for up to two weeks. (These amounts are stated as Singapore dollars; see x-rates.com for conversion.) Support will be for the 10 months of their research project.

The scholarship will not be re-awarded to existing recipients of the scholarship, in the event that they extend their period of research beyond 10 months.

For additional information, contact Sulochana Naidoo, PhD.

Duke Physician Scientist Institutional Award (BWF) Research Fellowship for Medical Students. The Duke Physician Scientist Institutional Award (BWF) Research Fellowship for Medical Students is designed to encourage rising third year medical students to undertake a basic/bench research project at Duke University, with preference given to those who plan to commit to doing a second third year. \$10,000 will be awarded as a scholarship for students in their first third year. \$25,000 will be awarded as a scholarship for medical students in their second third year. This program is made possible through a grant from the Burroughs Wellcome Fund (BWF). For additional information, please contact Cyndi Duke-Terry.

Poindexter Award. The Poindexter Scholars in Basic Sciences Program is designed to encourage rising third year medical students to participate in research projects under the guidance of basic science faculty members in the School of Medicine. This program is focused on basic science research, and priority will be given to those who identify laboratories in basic science departments, though applicants doing basic research in Clinical departments are also encouraged to apply. \$10,000 will be awarded as a scholarship for students in their first third year. \$25,000 will be awarded as a scholarship for medical students in their second third year. This program is made possible through the generosity of Dr. John Poindexter, an alumnus of the School of Medicine. For more information, contact Cyndi Duke.

Margolis Scholars in Medicine. The Duke-Margolis Health Policy Center offers a one-year scholarship to MS3 medical students that demonstrate a strong interest and leadership potential in health policy and a commitment to conducting their Scholarly Research Project on a topic at the intersection of health policy and clinical practice. Selected students will become Margolis Scholars in Medicine and part of the university-wide, interdisciplinary Margolis Scholars program. Margolis Scholars is a prestigious program designed to prepare promising students with the necessary knowledge, skills, and abilities to improve health, health equity, and the value of health care and become the next generation of health care leaders in practice and research. The program was named in honor of Robert Margolis, M.D., the founder of Duke-Margolis, a pioneer of innovative integrated care delivery models, and a Duke SOM alum.

As part of the program, Margolis Scholars in Medicine will be mentored under the direction of a Duke-Margolis-affiliated faculty member (for their 3rd year project) and are expected to engage in Margolis Scholars program activities, such as health policy coursework, Scholars Skills Labs, Margolis seminars, peer mentorship network, and journal club. Scholars will also become part of the broader Duke-Margolis Center community of faculty, research staff, and external experts working on the cutting edge of health policy and health care transformation.

Additional Application Requirements:

- Margolis Scholars Interest Statement (300 words or less). What interests you about the Margolis Scholars program, and how would the program benefit you during your Duke program of study and with regards to your immediate and long-term career goals?
- Health Policy Training Ideas (200 words or less). As a Scholar, you will have access to funds to support additional training in health policy to complement your degree program. What kind of activities would you want to pursue (in research or professional development, for example), and how might you use these funds? (If accepted, it's OK to change your mind; you will not be held to the initial idea(s) you include here).

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- Health Policy Event Idea (200 words or less). If you were in charge of organizing a Margolis Center symposium or community service event related to a current health policy topic that interests you, what topic would you choose, why would you choose it, and how might you thoughtfully design a one-day event?
- Personal Uniqueness Statement (150 words or less). The Margolis Scholars are a vibrant and interdisciplinary community. What will you bring to this group? In contrast to questions that ask you to describe your skills, accomplishments, and future goals, we are asking you here to discuss your personal uniqueness.
- Optional: Barriers Discussion (150 words or less). We believe that students of diverse backgrounds will positively contribute to the intellectual, social, and cultural enrichment of the Margolis Center. This section is optional, but it provides you with the opportunity to discuss how you may have navigated any economic, social, cultural, educational, or other barriers, and what you have learned from those experiences.
- Optional: Anything Else (150 words or less). We recognize your responses to the questions we have asked on this application may not capture everything important about you as it relates to your suitability for the Margolis Scholars program. This section is optional, but you may use it to tell us anything else you would like us to know about you.

Margolis Scholars in Medicine will receive a financial award of \$12,500 and will also be eligible for a fund of up to \$6,000 to support professional development activities related to health policy and/or research support (e.g., access to data sets, participant incentives).

For more information, or for a list of eligible mentors, contact Corinna Sorenson, PhD and visit the Margolis Scholars webpage.

Eugene A. Stead Student Research Scholarships. Dr. Eugene A. Stead, Jr. served as Chairman of the Department of Medicine at DUMC from 1947-1967. The Stead Scholarships, funded by donations from grateful patients and former colleagues, are the oldest of the Duke intramural medical student research scholarships. This endowment was established in 1988 to support a student in basic cardiovascular research. The Stead Committee typically awards 3-5 scholarships annually with a focus on third-year students who are working with mentors with a primary appointment in the Department of Medicine, or with basic science mentors. The research stipend for the Stead Scholarship is typically \$35,000. A brief proposal for your research topic is followed by interviews by invitation. For additional information, please contact Rhonda Bartley.

Dr. Bernard J. Carroll Research Scholarship in Psychiatry. The Department of Psychiatry and Behavioral Sciences offers a research scholarship for one (1) MS3 student who is conducting research under the direction of a full-time faculty member whose primary appointment is within the Department of Psychiatry and Behavioral Sciences. Scholars will be awarded a \$15,000 scholarship for a 10-month research experience. Students will be encouraged to publish their findings in peer-reviewed journals. For more information, please contact Third Year Behavioral Neuroscience Program Director, Chris Marx, MD and copy Julie Penzner, MD.

The Duke CTSA Pre-Doctoral Scholarship. This is a two-year scholarship funded by the Clinical and Translational Science Award (CTSA). CTSA scholars will complete two years of mentored clinical research and complete the Master of Health Sciences in Clinical Research (through the Duke Clinical Research Training Program).

Additional Application Requirements:

- Name, position/title, and email address of three (3) individuals other than your primary mentor who are knowledgeable about your accomplishments and/or research interests.
- A brief description clarifying the applicant's role on the study.
- A paragraph indicating to which Master's program the applicant would apply and why.
- Applicants may also provide up to two (2) additional pages of information to the proposed research program question in the application.

The Duke CTSA TL1 scholarship provides full tuition for scholars to complete the Master's program, a stipend for each full year of study, and additional funds that may be applied towards insurance costs, research expenses, and travel expenses to scientific meetings. CTSA scholars will graduate from Duke Medical School a year late. For additional information, contact Stephanie Molner.

Gynecologic Cancer Research Fellowship. The Gynecologic Cancer Research Fellowship is offered to third-year Duke University Medical Students annually. This award is intended to support students who choose to spend their third year involved in some aspect of gynecologic cancer research under the supervision of a Duke Gynecologic Cancer Program faculty member. This includes research in ovarian, uterine and cervical cancer. The Fellowship carries an annual stipend of \$10,000. This includes \$5,000 directly to the student, \$2,500 for research expenses and \$2,500 for travel to meetings to present their research. For additional information, contact Andrew Berchuck, MD.

The Donald B. Hackel Fellowship in Cardiovascular Pathology. This fellowship provides for research in vascular biology under the direction of a full-time faculty member whose primary appointment is in the Department of Pathology. This ten-month fellowship includes a financial stipend. For additional information, contact Shannon J. McCall, MD (shannon.mccall@duke.edu).

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R. Randall Bollinger Surgical Scholarship. This scholarship fund was established to honor the legacy of Dr. Ralph Randal Bollinger, a surgical leader whose love of science and surgery has made a significant contribution to medical research and teaching at Duke University. The Department of Surgery offers research scholarships for MS3 students conducting research within the department and are mentored by Department of Surgery faculty. Research should be focused on general/thoracic surgery. Applicants are reviewed competitively. Funding is variable, but has ranged from \$3,000-\$10,000 per year in the recent past. Ideally, students will be expected to publish their findings in peer-reviewed journals and to present their research at regional or national scientific meetings. For more information, contact Ben Latta (Thomas.latta@duke.edu)

Duke Global Health Institute. The Third-Year Global Health Study Program takes advantage of the Duke School of Medicine's unique curriculum to allow medical students to take their entire third year for research activities. For additional information, contact Lysa MacKeen.

Additional Application Requirements:

- Site Based Mentor Letter of Support (if applicant's site-based mentor is different from their Duke Mentor)
- Detailed Budget (Click here for form)

Duke Institute for Health Innovation (DIHI) Clinical Research and Innovation Scholarship. The DIHI is a platform and resource for Duke University/Duke Health faculty, staff and students to advance transformative innovations in health and healthcare delivery. The DIHI clinical research and innovation scholarship will support a student to join an innovation pilot project team for the duration of third year. The student will be expected to pose an original research question that pertains to the project, and must attend and lead team meetings. Awards are up to \$15,000 but vary year to year. For additional information, contact Ebony Nash.

Barr-Spach Medicine and Engineering Scholarship. The Barr-Spach Medicine and Engineering Scholarship was endowed to honor the work of Dr. Roger C. Barr, PhD, Professor of Biomedical Engineering and Associate Professor in Pediatrics, and Dr. Madison Stockton Spach, MD, James B. Duke Professor Emeritus of Medicine and Chief Emeritus of the Division of Pediatric Cardiology. Students supported by this endowment will be designated Barr-Spach Medicine-Engineering Fellows.

Additional Application Requirements: Applicants should use the short answer essay questions required for the master's application in lieu of a personal statement.

Recipients of the scholarship are expected to actively engage with the MEDx community, including, but not limited to, attendance to MEDx meetings at least quarterly, working with MEDx leadership on specific projects such as articles for the website, newsletter, or content for social media. Scholarship recipients are considered ambassadors for this program (administered through MEDx), which may include activities such as introducing the program to interested medical students.

Discover the various disciplines available at meng.pratt.duke.edu/disciplines. Contact Donna Crenshaw, PhD, Executive Director of MEDx, to express interest in the scholarship in advance of submitting a formal application.

Basic Science Research Track Scholarship for the MHS Degree. 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)

Eva J. Salber Award. The Eva J. Salber Award is awarded to a third-year medical student(s) to investigate and improve the health of a defined, disadvantaged population group. The award is named for Eva J. Salber, MD, an early pioneer in Duke's efforts to partner with Durham County on community health projects. It provides financial support of \$5,000 for students working to address an unmet need in the community. Up to 50% of the awards may be used to defray tuition expenses and expenses incurred while carrying out the project. Click here for more information. Applications must be directly emailed to Nikeya Goodson.

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Michael R. Nathan Memorial Fund Award. The Michael R. Nathan Memorial Fund is awarded to a third-year medical student who undertakes a project in community health, occupational health, or international health. The fund is named for Michael R. Nathan, MD, a 1973 graduate of Duke University School of Medicine. Funding is \$5,000 and awarded to a deserving third-year medical student who undertakes a project in community health, occupational health, or international health. A portion of the award (up to 50 percent) can be used to offset tuition expenses and the rest will be used for travel and project expenses. The award is made annually on a competitive basis. Projects carried on under the award will be supervised by the Department of Family Medicine and Community Health. Click here for more information. Applications must be directly emailed to Nikeya Goodson.

Snyderman/Moore Scholars In Health Care. The Duke Center for Personalized Health Care (DCPHC) in collaboration with the Duke Cancer Institute (DCI) is offering a one-year scholarship to outstanding Duke MS3 students that demonstrate a strong interest in new approaches to health care delivery that are personalized, proactive, precise, and patient-centered. Health care is in the midst of a transformation from a reactive, uncoordinated focus on disease to coordinated, predictive, preventative, and precision care that addresses the broad needs of the individual. The DCPHC is well-recognized as a leading creator and developer of such care models while the DCI is a nationally recognized leader in precision cancer care. The awardees will have demonstrated excellence in their medical school training and a deep commitment to improving health care. Scholars will serve as interns in the DCPHC and assigned research projects to develop and test innovative new models of care for individuals with chronic disease. As part of this experience, awardees will rotate through the DCI to learn the basis and practice of precision cancer care. Scholars will participate in selective activities of DCPHC and DCI including seminars, research presentations, manuscript preparation, and mentorship by key faculty. Dr. Ralph Snyderman and Dr. Joseph Moore will also serve as direct mentors.

The overall purpose of the program is to enable students to understand and contribute to new approaches to care that are transforming medicine. It is our hope that Scholars will emerge as not only better practitioners, but better prepared to be leaders in health care. The award is made possible through a generous contribution from Julie and Bill Esrey. Bill was CEO of Sprint and Julie was an esteemed member of the Duke Board of Trustees and a valued advisor to the Medical Center.

Each Snyderman/Moore Scholar typically receives up to \$3,000 in award funds. For more information, please contact Cindy Mitchell.

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.

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

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

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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: Credit Hour Requirement, Grade Point Average and Maximum Time Frame. 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.

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 email to their University email account.

A student who fails to meet any of the standards will be placed on a Financial Aid Warning for the next semester. (Students already on a Financial Aid Warning will lose federal aid eligibility.)

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, and the email 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.

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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:

- 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 email account.
- 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.
- 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 probation. Academic progress will be evaluated at the conclusion of each enrolled term for students on academic probation.

Students who fail to meet the requirements for academic progress for their probationary semester or do not complete the requirements of their academic plan will again be ineligible for financial aid and subject to the appeal process.

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

Doctor of Medicine

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:

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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 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.

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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

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.

Promotion

The Promotions committee will periodically review the academic performance of all medical students on a quarterly basis. The committee members and the chair will be appointed by the vice dean for education. The advisory deans will serve as ex-officio capacity. Serving on the Promotions Committee will be a four-year commitment.

The Promotions Committee will recommend to the vice dean for education to:

1. Promote students whose work is satisfactory;
2. 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;
3. Place on probation or suspension students whose work is unsatisfactory or who have demonstrated unprofessional behavior;
4. Request the resignation of any student who is considered an unpromising candidate for the degree of Doctor of Medicine;

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5. Recommend dismissal

The student wishing to appeal a decision may do so to the vice dean within two weeks of notification. 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

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.

Academic Dismissal Policy

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

- Failure of any combination of three classroom-based/clinical setting-based/clerkships/electives (including clerkships, electives, and selectives) courses.
- Failure of two (clinical setting-based courses) clinical courses.
- Failure of the same course twice.

Academic Probation/Suspension Policy

Academic Probation places a student on notice that their academic performance or behavior has created considerable cause for concern and requires critical ongoing evaluation for a period of time. The probation period will be determined by the vice dean for education. It will allow sufficient time for correction 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.

If a student was placed on Academic Probation at the recommendation of the Promotions Committee and the student has not satisfied all the conditions of the Academic Probation specified by the vice dean, the Promotions Committee may recommend to the vice dean that the student be placed on Academic Suspension. The suspension is noted on the academic transcript.

Advance Standing

Students electing to complete a PhD after matriculation may request a waiver of third year. The request must be received and approved prior to enrolling in the PhD program. Application to receive credit for the PhD can be obtained at the Third Year Office. A subcommittee of the Third Year Committee will review the research experience to make sure the School of Medicine research requirements will be fulfilled prior to being sent to full committee for recommendation to the vice dean for education who will make the final decision to approve or disapprove. Upon approval, a notation will be made to the student transcript to reflect transfer credit. Students will be required to pay full third year tuition. The third year tuition will be charged the term prior to the student returning to begin the fourth year. Students are not eligible to apply for federal or institutional aid for transfer credit.

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

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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) or Clyde Meador (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 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

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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-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.

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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 are 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.

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 students 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. 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.

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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

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.

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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

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.

[Click here for the full policy on Appropriate Treatment of Learners at Duke University School of Medicine.](#)

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.

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- 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.

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.

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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.

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 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

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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.

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 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.

Doctor of Medicine

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—21 weeks

Semester 2

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

Year One Courses

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)—21 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)

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.

Course Requirements—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, eight core clerkship rotations, two two-week selectives, 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	8 weeks, 8 course credits
Surgery	8 weeks, 8 course credits
Obstetrics and Gynecology	6 weeks, 6 course credits
Pediatrics	6 weeks, 6 course credits
Family Medicine	4 weeks, 4 course credits
Psychiatry	4 weeks, 4 course credits
Neurology	4 weeks, 4 course credits
Radiology	4 weeks, 4 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	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 2-week selectives, 2 course credits each

Students are required to choose two different selective opportunities in specialty or subspecialty areas in the required clinical skills assessment for career exploration (except those students in the Primary Care Leadership Track). These two-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.

Course Requirements—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 and in the third semester, there are enrolled in Thesis 301B (3 credits). Students must also satisfy the Continuity Experience (listed below). Third year students may take one MS4 clinical elective/subinternship prior to the submission of their thesis/manuscript. However, the time missed for the elective/ subinternship, 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 subinternship, 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 approved elective if they are exempt (see Number 1 below). Exemptions are posted on BlueDocs 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. For example, if a student starts in Fall, they will enroll in Fall and Spring; if a student starts in Spring, they must enroll in Spring and Summer terms. Grade will be entered and 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 on the next page 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

The purpose of the scholarly research experience is to provide the student with an opportunity to focus in an area of interest and to

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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 subspecialty 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 advisees' elective course selections and encourage students to take a broad range of courses even if they plan to subspecialize. 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:

- Subinternship
- Critical/Acute care
- Clinical Skills Continuity clinic (only if not completed in 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 Course Requirements

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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.

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 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

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 440C
 - ANESTH 441C
 - EMERGMED 405C
 - MEDICINE 404C
 - MEDICINE 405C
 - MEDICINE 406C
 - NEURO 401C
 - PEDS 411C
 - PEDS 426C
 - PEDS 440C

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- SURGERY 441C
- SURGERY 443C
- **Courses that count toward Subinternship requirement**
 - ANESTH 401C
 - ANESTH 441C
 - COMMFAM 401C
 - EMERGMED 401C
 - MEDICINE 401C
 - MEDICINE 402C
 - MEDICINE 404C
 - MEDICINE 405C
 - MEDICINE 406C
 - MEDICINE 407C
 - NEURO 401C
 - NEUROSUR 401C
 - OBGYN 405C
 - OBGYN 407C
 - OBGYN 447C
 - ORTHO 429C
 - OTOLARYN 401C
 - PEDS 401C
 - PEDS 426C
 - PSYCHTRY 401C
 - PSYCHTRY 407C
 - SURGERY 401C
 - SURGERY 403C
 - SURGERY 441C
 - SURGERY 451C

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.

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 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.

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- **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 is \$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 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

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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
- INTERDIS 112B—(Foundations of Patient Care 1) 21 credits—twenty-one 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, eight core clerkship rotations, two two-week selectives, Cultural Determinants of Health and Health Disparities course, Clinical Skills Foundation 2, the practice course, and a summative clinical skills assessment. 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:

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- MEDICINE 205C, 206C, or 209C—Medicine: eight weeks, eight course credits
- SURGERY 205C, 206C, or 209C—Surgery: eight weeks, eight course credits
- OBGYN 205C, 206C, or 209C—Obstetrics and Gynecology: six weeks, six course credits
- PEDS 205C, 206C, or 209C—Pediatrics: six weeks, six course credits
- COMMFAM 205C, 206C, or 209C—Family Medicine: four weeks, four course credits
- PSYCHTRY 205C, 206C, or 209C—Psychiatry: four weeks, four course credits
- NEURO 205C, 206C, or 209C—Neurology: four weeks, four course credits
- RADIOL 205C, 209—Radiology: four weeks, four 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 two-week selectives. These elective periods provide an opportunity before the fourth year for students to learn about clinical subspecialties 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, 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

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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.

Primary Care Leadership Track

Director: Fatima Syed, MD, MD; Co-Director: Elizabeth Erickson, MD, and Anh Tran, PhD. 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. Clinical Skills Foundation 2 course continues through Year Two. PCLT students complete a Quality Improvement Project. Students will complete one two-week selective in the summer term.
- **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 career in primary care. Students in the PCLT track are required to complete RADIOL 429C during their fourth year. Students will also complete the required subinternship, the critical care didactics, and the capstone course.

Doctor of Medicine

Courses of Instruction

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

Anesthesiology

Second Year, Two-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

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. Subinternship 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, Two-Week Clinical Selective

DERMATOL220C INTRO TO DERMATOLOGY. Introduction to Dermatology

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Clinical Science Electives

DERMATOL401C DERMATOLOGY INPATIENT CONSULTS. Dermatology Inpatient Consults

DERMATOL450C CLINICAL DERMATOLOGY. Clinical Dermatology

Emergency Medicine

Second Year, Two-Week Clinical Selective

EMERGMED220C EMERGENCY MEDICINE. Early Experiences in Emergency Medicine

Second Year, Two-Week Clinical Elective (PCLT/LIC Students)

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

Clinical Electives

EMERGMED401C EMERGENCY MEDICINE SUB-I. Emergency Medicine Subinternship

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

COMMFAM209C LIC - FAMILY MEDICINE. Longitudinal Integrated Curriculum (LIC) - Family Medicine

Second Year, Two-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

COMMFAM101C COMMUNITY CLINIC IMMERSION. Community Clinic Immersion Elective - Fremont

COMMFAM102C COMMUNITY CLINIC IMMERSION. 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

COMMFAM448C INTRO TO INFORMATICS. Introduction to Informatics

Free Time

FREETIME450C FREETIME. Free Time

Head and Neck Surgery and Communication Sciences

Second Year, Two-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

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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

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

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

INTERDIS175C CLIN EXP - CANCER CARE YEAR 1. Clinical Experience - Cancer Care Experience Year 1

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, Two-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)
MEDICINE406C INTENSIVE CARE MED SUB-I-VA. 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
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

Duke University

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

Neurology

Required Courses

NEURO205C NEUROLOGY. Neurology

NEURO206C PCLT-NEURO. Primary Care Leadership Track (PCLT)-Neurology

NEURO209C LIC-NEUROLOGY. Longitudinal Integrated Curriculum - Neurology

Second Year, Two-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 Subspecialties

NEURO404C CONSULTATIVE NEUROLOGY. Consultative Neurology

NEURO405C THE NEUROBIOLOGY OF AGING. The Neurobiology of Aging

Neurosurgery

Second Year, Two-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

OBGYN206C PCLT-OBSTETRICS AND GYNECOLOGY. Primary Care Leadership Track (PCLT) - Obstetrics and Gynecology

OBGYN209C LIC-OBGYN. Longitudinal Integrated Curriculum - Obstetrics and Gynecology

Second Year, Two-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

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OBGYN409C BENIGN GYNECOLOGY SUB-I. Benign Gynecology Subinternship

OBGYN447C MATERNAL-FETAL MED SUB-I. Maternal-Fetal Medicine Sub-Internship

Ophthalmology

Second Year, Two-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, Two-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, Two-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

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, Two-Week Clinical Selective

PEDS220C CLIN GENETICS & METABOLISM. Clinical Genetics and Metabolism

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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
PEDS403C MED-PEDS AMBULATORY. 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
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, Two-Week Clinical Selective

PSYCHTRY221C CLIN INTRO CHILD PSYCHIATRY. Clinical Intro to Child Psychiatry

Duke University

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, Two-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

RADIOL209C LIC-RADIOLOGY. Longitudinal Integrated Curriculum - Radiology

Second Year, Two-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

RADIOL429C BASIC RAD CLERKSHIP. Basic Radiology Clerkship. Fourth Year Basic Radiology Clerkship for the Primary Care Leadership Track

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

Duke University

SURGERY205C SURGERY. Surgery

SURGERY206C PCLT-SURGERY. Primary Care Leadership Track (PCLT) - Surgery

SURGERY209C LIC-SURGERY. Longitudinal Integrated Curriculum - Surgery

Second Year, Two-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

SURGERY227C UROLOGY. Urology

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)

SURGERY242C EMERGENCY MED: LONG. EXP. 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)

SURGERY420C GEN SURGICAL ONCOLOGY. General Surgical Oncology

SURGERY423C ADV SUR CARDIOVAS THOR. 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

SURGERY451C SUBI IN UROLOGIC SURGERY. 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

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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

MOLMED302B RESEARCH IN MOLMED- REGEN MED. Research in MOLMED - Regenerative Medicine

MOLMED303B RESEARCH IN MOLMED-MOL BAS DIS. Research in MOLMED - Molecular Basis of Disease

MOLMED304B RESEARCH IN MOLMED-NUTRIT/META. Research in MOLMED - Nutritional & Metabolic Mechanisms of Chronic Diseases

Neurosciences Study Program

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

Dual-Degree Programs

Medical Scientist Training Program

Duke University

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.

Master of Arts in Clinical Psychology

After successful completion of the first two years in the School of Medicine, students may apply for a master's degree in clinical psychology. Interested applicants must be second year medical school students with a demonstrated aptitude and established interest in behavioral medicine. Students enrolled in this program must complete a minimum of 30 course credits, which must include 24 course credits of graded courses. This must be approved by the psychology department and School of Medicine mentors and school administrators. The work will be reported in a document that will serve as a third-year thesis for the School of Medicine and area paper for the Department of Psychology. Students will be required to defend their paper to a committee composed of three members, which will include at least one individual from the School of Medicine and from the Department of Psychology. The members will be chosen by the program administrators. Students are required to meet all requirements of the School of Medicine third year curriculum (e.g., completion of IRB modules).

Applications: All applications must be submitted to the Department of Psychology during the second year of medical school by December 1 (the year prior to beginning the program). Letter of intent recommended to be submitted by September 1.

Tuition: Students will be required to pay one-year tuition to The Graduate School as well as their four years of medical school tuition.

For more information, please contact Christine Marx, MD, christine.marx@duke.edu.

MD/Master of Arts in Liberal Studies—MD/MALS

This joint degree program of the Duke University Graduate Liberal Studies department and the School of Medicine would begin in the third year of a student's medical degree and is a two-year program. Options for creating a one-year program to be situated in the third year of medical school will be explored in the future.

The Master of Arts in Liberal Studies 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 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 more comprehensive thinkers 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 open to MALS students only. In addition, MALS students may take other courses of interest in The 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, Box 90095, Durham, NC 27708-0095; (919) 684-3222; dzapf@duke.edu; or Margaret Humphreys, MD, PhD, Medical Humanities Third Year Program Director (919) 684-2285; meh@duke.edu.

MD/MA in Bioethics & Science Policy

Name of Degree: Master of Arts in Bioethics & Science Policy

Curriculum: The MA teaches students how to thoughtfully identify, analyze, and propose solutions to address cutting edge and historical developments in science, medicine, technology and policy. The program provides a foundation in the history, philosophy, legal, social, and theoretical approaches to bioethical analysis, as well as an introduction to science and health policy.

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Options/Tracks within the Degree Program: Genomics, Neuroscience, Public Impact & Engagement, Self-Designed track

Degree Requirements: Four core courses, four electives, and a capstone project. Students generally enroll in two semesters of coursework and then in one semester (or summer) devoted to the capstone project, which can be a practicum or a research paper.

Location: North Building, Research Drive, Duke University Campus

Length of Program: Usually one year taken before or after the third year of medical school

Total Time to Graduation: Typically five years

Tuition Arrangements: Students pay tuition to the MA program during the time enrolled in the program, generally the equivalent of one full year, or three semesters.

Financial Aid: A select number of merit-based awards may help offset the costs of tuition.

Contact: Lauren Dame, JD, MPH, Associate Director of Graduate Studies, (919) 668-0792; Third Year Study Program: Medical Humanities, Margaret Humphreys, MD, PhD, Director, meh@duke.edu, (919) 684-2285 or visit scienceandsociety.duke.edu.

MD/MHS in Clinical Research (CTSA)

Name of Degree: Master of Health Sciences in Clinical Research (two years)

The Duke CTSA Scholarship is a two-year scholarship funded by the Clinical and Translational Science Award (CTSA). CTSA scholars will complete two years of mentored clinical research and the Duke Clinical Research Training Program (CRTP). Upon successful completion of all CRTP degree requirements, CTSA scholars will graduate from Duke University with a Master of Health Sciences in Clinical Research (MHSc). The scholarship provides a stipend for each full year of study. Additional funds are applied towards CRTP tuition, insurance costs, and travel expenses to scientific meetings. CTSA scholars will graduate from Duke Medical School a year late and the second year will be classified Continuation of Research Studies.

David Edelman, MD, Program Director, david.edelman@duke.edu

Stephanie Molner, MSW, Program Administrator, stephanie.molner@duke.edu

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. 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. In the fourth year, students work on development of new technologies or engineering approaches (including optimization/system analysis or feasibility analysis, etc.) for improving healthcare, improving public health, or reducing health hazards and write a 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

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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.

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.

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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: Two to three semesters of coursework, a field experience to apply learned research methods, and a research-based thesis are required. The first year is leave of absence and the second year is the official Third Year.

Location: Duke Global Health Institute (DGHI)—must be approved by third year committee prior to start of program

Length of Program: Typically four semesters

Total Time to Graduation: Typically five years, could be accomplished in four and a half 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.

Contact for more information: Dennis Clements, MD, PhD, MPH, Study Program Director, or Lysa MacKeen, lisa.mackeen@duke.edu; or visit globalhealth.duke.edu/programs/master-science-global-health.

Master of Management in Clinical Informatics: MD/MMCi (Duke or UNC)

The School of Medicine offers this one-year degree program to develop the expertise needed by health care as information technology becomes more critical to the delivery of quality patient care and research. Through this unique multi-disciplinary program, students acquire the knowledge and skills to merge technology with research and patient care and help improve human health. The MMCi program is tightly linked with informatics leadership and practice within Duke Medicine. The program meets every other Friday and Saturday for twelve months, from August to August, over four 12-week academic terms. A research experience and project that fulfills third year requirements is substituted for the applied practicum. Tuition for MMCi is paid in addition to medical school tuition. For more information, contact Lawrence Crawford, MD, lawrence.crawford@duke.edu, Third Year Program Director for MMCi, or visit mmci.duke.edu. Alternative contact is Randy Sears, MBA, r.sears@duke.edu.

Master of Professional Science in Biomedical and Health Informatics (UNC) - CHIP (Carolina Health Informatics Program)

The dual-degree program in informatics at The University of North Carolina at Chapel Hill is available to third-year medical students. With a focus on implementation science, the MPS is designed to be terminal degree—i.e. a PhD is not required as in other Medical Informatics programs. The Carolina Health Informatics Program (CHIP) coordinates with Library School, Computer Sciences, Nursing, Public Health, School of Medicine, and Kenan Business School.

Name of Degree: Master of Professional Science in Biomedical and Health Informatics

Options/Tracks within the Degree Program: 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.

Application Process: Follow normal process applying through Graduate School and CHIP. Physicians/medical students can use their MCAT scores instead of GREs.

Length of Program: 12 to 18 months with a practicum—12 months can be done by Duke students with a full load. Starts at end of August.

Required Research: Project paper that could become a thesis. Presentations and posters (online) are required.

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

The program is more residential as opposed to commuter; it is very hands-on, with students working closely with faculty throughout the program.

Assigned mentors, as well as faculty advisors, work with students on the practicum. Students begin identifying a mentor and project in their first semester. Mentors can be from UNC, industry, or other relevant settings, including Duke—others have been from SASS, RTI, Quintiles, and BCBS.

Compared to Duke's MMCi degree, which is 50 percent business school courses and 50 percent 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.

For more information, contact Larisa Rodgers, CHIP Coordinator, or 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.

The Medical Historian Program

The Medical Historian Program is conducted under the auspices of the School of Medicine and The Graduate School. Individuals earning the PhD degree in history from Duke may petition the Vice Dean to receive transfer credit that can be applied to the medical school degree if the major subject area is one that is related to the discipline of medicine, health policy, or public health. The combined MD/PhD program typically extends for six years. Students complete the first two academic years in the School of Medicine (the required core basic and clinical courses) prior to taking a leave of absence to enroll in The Graduate School. A range of appropriate courses is available there through the Department of History. Following the completion of the PhD degree, the student resumes requirements for the MD degree.

Application and Admissions Procedures

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Applicants must meet the requirements for admission to the School of Medicine and The Graduate School in the Department of History. Candidates who have completed two years of medical school are also considered. In addition to the minimum requirements established by the School of Medicine and The Graduate School, courses in history and in the history and philosophy of science count in the selection of candidates.

Applicants should complete and submit an application form to the Duke University School of Medicine and to The Graduate School for admission to the Department of History.

For more information, contact Margaret Humphreys, MD, PhD, Box 90719, Department of History, Duke University, Durham, NC 27708; meh@duke.edu.

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: The Fuqua School of Business or an approved 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 of program for first year at any location except Duke Fuqua School of Business.

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: Students are responsible for full tuition at the School of Medicine and at Fuqua. Students who are simultaneously enrolled and being charged tuition through Fuqua and the School of Medicine are required to take 65 credits rather than the 79 normal credits. The first year, students are charged Fuqua tuition only, while taking classes at Fuqua and Fuqua handles the financial aid for that year. The second year, the student is charged full Medical School tuition and a reduced Fuqua tuition while taking classes at both the School of Medicine and Fuqua. The Medical School financial aid office handles the financial aid for that year.

Financial Aid: Eligible and can apply for financial aid as indicated above. For more information, contact Kevin P. Shah, MD, kevin.shah@duke.edu, Study Program Director or (919) 684-3841.

MD/JD

Name of Degree: Juris Doctor (three years)

Options/Tracks within the Degree Program: Varies

Course of Study: Six semesters of coursework

Location: Duke University School of Law. Must be approved by third year committee

Length of Program: usually three years, with requirements of third year medical school accomplished in third year of degree program (students are on leave of absence status while completing the first year of the JD)

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 For more information, contact David Edelman, MD, MHS, dedelman@duke.edu, Study Program Director.

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.

Duke University

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): sph.unc.edu/resource-pages/master-of-public-health
 - 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
 - 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 the most up to date information, including application deadlines is known.
 - 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.
 - 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).
 - 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.
 - 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/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).
 - UNC School of Global Public Health has their own programs of scholarship and other support; students should apply as interested.
2. A Master of Public Health NOT at the University of North Carolina Gillings School of Global Public Health:
 - 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

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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 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 ten to twelve 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. A list of faculty can be found on the Third Year website.

MD/MPP

Name of Degree: Master of Public Policy (one to two years) but must be organized and discussed early in second year to allow time for applications and approvals.

Options/Tracks within the Degree Program: Varies

Course of Study: Three to four semesters of coursework; master's thesis is required in both schools.

Location: Duke Sanford School of Public Policy (must be approved by the Third Year Committee prior to the start of the program)

Length of Program: Usually two years (leave of absence the first year), 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 sixteen months.

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.

Tuition Arrangements (at a MBA study away institution): 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 For more information, contact David Edelman, MD, Study Program Director, at dedelman@duke.edu.

Doctor of Occupational Therapy

Division Chief and Program Director: Barb Hooper, PhD, OTR/L, FAOTA

Academic Fieldwork Coordinator: Sheila Moyle, OTD, MOT, OTR/L

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'Agostine, 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

Website: 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

The entry-level occupational therapy doctoral degree program has been granted Applicant 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.

Doctor of Occupational Therapy

Academic Calendar

Fall 2022
August 15 (M) Classes begin for 1st and 2nd year December 9 (F) Classes end for 1st and 2nd year
Spring 2023
January 3 (Tu) Classes begin for 1st and 2nd year May 5 (F) Classes end for 2nd year May 19 (F) Classes end for 1st year
Summer 2023
May 30 (Tu) Classes begin for 1st year June 5 (M) Classes begin for 2nd year July 28 (F) Classes end for 1st year August 4 (F) Classes end for 2nd year

Doctor of Occupational Therapy

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

Financial Information

Tuition and Expenses

The OTD Program practices a holistic, need-blind admissions process. Full cost of attendance, as calculated by the Duke School of Medicine Financial Aid office is outlined below. Fees are specified on the Occupational Therapy Doctorate website.

Expense	Amount
Tuition	\$42,000
Fees	\$9,219
Estimated cost of books	\$1,471
Estimated cost of living (housing, utilities, transportation, miscellaneous)	\$25,680
Loan Fee	\$1,980
Total	\$80,350

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.

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

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 his/her/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.

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

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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 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.

Computer and Technology

Students enrolled in the Occupational Therapy Doctorate curriculum at Duke University are provided support service for any issued computing devices from the Medical Education IT Department—OTD Division (MedEDIT-OTD). The MedEDIT provides administrative, professional, and technical expertise to the students of the School of Medicine. The School of Medicine values an open, collaborative, and congenial environment where safety is paramount. Efficient and dependable service to support state-of-the-art medical education is the goal. All matriculating students in the School of Medicine are assessed a mandatory technology fee. This includes students enrolled in the Occupational Therapy Program. The fee will not only cover hardware such as laptop or handheld device, but service, software, and technical updates to comply with all Duke Health System compliance guidelines.

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.

A. Academic Performance

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.

Incomplete Grades

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An incomplete grade is given when, at the time the grades are reported, some portion of a student's work in a course is lacking for an acceptable reason. Incomplete grades may be given at the instructor's or Program Director's discretion. Example situations for issuing an incomplete grade include:

A documented illness that prevents completion of the required work in the semester in which the course is offered.

An illness of the student's immediate family member(s), which prevent completion of the required work in the semester in which the course is offered.

Required maternity or paternity leave or time to provide elder care.

Incomplete (I) grades remain on a student's transcript for one year only. Coursework must 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 is placed alongside the incomplete on the permanent and official transcript.

If a student's 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.

B. 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.

C. Determination of Academic Standing and Promotion in the OTD Program

Faculty members of the Occupational Therapy Doctorate Division are responsible for defining and communicating minimum acceptable standards for academic performance and professional conduct. There are two levels of standards: one refers to broad, general program standards for academic performance and professional conduct; the second refers to standards for success in each course. Broad standards are defined in the OTD Student Handbook. Course standards are communicated in the course syllabus and reviewed at the beginning of each course. Students must receive a pass in the appropriate courses in order to progress in the curriculum. Occupational Therapy Doctorate faculty have the responsibility of notifying students who are not meeting minimal standards of a course as soon as this becomes apparent.

The OTD Promotions Committee will review all students' records at the conclusion of each semester, and more frequently if needed. At that meeting, each student's academic standing and promotion status is determined.

The following table provides an overview of the categories of academic standing and the correlate decisions of how and if to promote. Detailed descriptions of each category follow below.

Academic Standing (includes Professional Conduct Standing)	Promotion-related Determinations
In good academic standing	Promote OR Issue written council to improve scholastic endeavors
Initiating academic probation	Issue Written Counsel on conditions of probation and place on probation
Remediating probation	Satisfactory progress to date on conditions of probation
Good academic standing - Restored	Probation satisfactorily completed; restore to good standing
On academic suspension	Advise resignation; conditions of probations are not met
Dismissed	Dismissal

A student is considered to be in Good Academic Standing if they have

1. Earned no more than three Low Pass grades on assignments in all courses.
2. There are no academic concerns identified.
3. Demonstrated satisfactory professional conduct, as established by Duke University, the School of Medicine, and the OTD Division, in all didactic and fieldwork education learning environments, and at all times as an enrolled student in the program.

Students determined to be in good academic standing will receive a decision to promote. In cases where students are marginally in good standing, written council may be issued to support students in improving their scholastic skills and continued success.

Academic Probation

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A student is placed on probation if their academic performance or professional conduct has created cause for concern and requires critical ongoing evaluation for a period. Academic Probation is noted on the academic transcript. The OTD Promotions Committee will use the following standards for placing students on academic probation:

1. A student who has earned a final grade of LP in any course.
2. A student who receives more than three LP grades on assignments across all courses taken in a given semester.
3. A student who has received one written professional conduct notice.
4. A pattern of concerning professional conduct emerges or one particularly egregious behavior is reported through the fieldwork evaluation rubric or the Professional Behavior Reporting System.

Students determined to be on academic probation, either for academic performance or professional conduct, will receive a decision to issue written council outlining the conditions for remediation and removal of probation. Some students may also receive at this stage a decision to advise resignation.

Remediation

If a student was placed on Academic Probation at the recommendation of the Promotions Committee, at the next review, they are placed on Remediating Probation status if

1. The probation period is still in effect and the student is making good progress. Remediation is a process through which the Promotions Committee in collaboration with appropriate others and the student determines the content and conduct a student must demonstrate to return to good academic status.
2. There is reasonable justification to extend the probation period.

Students determined to be in remediation of probation will be reviewed and those making satisfactory progress will receive a decision of satisfactory progress on remediation.

Grade Appeal Process

A student may appeal a final course grade by submitting in writing evidence for the justification of a grade change to the Program Director within two weeks of the grade being submitted. The Program Director will make a decision and respond in writing within two weeks of receiving the appeal.

Academic Suspension

A student who fails to demonstrate successful progress on remediating probation, in academics or professional conduct, will be placed on academic suspension. The Vice Dean for Education is responsible for placing individuals on suspension (or dismissal) upon recommendation from the OTD Promotions Committee of unsatisfactory academic or fieldwork performance after a probation period.

The OTD Promotions Committee will use the following standards to recommend placing a student on suspension from the program.

- A student who fails any one course in the curriculum;
- A student who earns two final LP grades in a didactic and a Sim & Practice courses;
- A student who earns three LP grades in any didactic courses;
- A student has received two written professional conduct notifications, or demonstrated egregious conduct.
- Students determined to be on academic suspension will receive a decision of advise resignation

Dismissal

- The OTD Promotion Committee will use the following standards for recommending that a student be dismissed from the program.
- Failure of any combination of two didactic courses/fieldwork setting-based courses.
- Failure of the same course twice.
- A student may be dismissed for a serious violation of professional conduct as outlined in the School of Medicine Code of Professional Conduct or the AOTA Code of Ethics.

Students determined to be dismissed from the OTD program will receive a decision of dismissal. If students are dismissed from the program, the Vice Dean for Education will notify them in writing. Students may appeal this decision by indicating in writing to the Vice Dean for Education: (a) reasons why they did not achieve minimum academic standards and (b) reasons why the academic standing should be changed. Each appeal will be considered on its merit. Individual cases will not be considered as precedent.

Appeals of Academic Status

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Academic standing and promotion determinations can be appealed following the procedures detailed in the OTD Student Handbook.

Academic Good Standing Restored

If the OTD student has satisfied all the conditions of the Academic Probation specified by the Promotions Committee, the committee can recommend that the student be restored to good academic standing. Removal from Academic Probation status will be noted on the transcript.

D. 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 towards degree requirements.

Requirements to Participate in the OTD Hooding and Recognition Ceremony

Only students who are on track to have their degree conferred in May will be able to participate in the OTD Hooding and Recognition 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.

E. 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.

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 the student's written request. Working with the Program Director, a mutual decision is reached with regard to the effective date of the withdrawal and associated implications. The Office of the Registrar will process the withdrawal and the student will be removed from enrollment. A student's permanent academic record will reflect enrollment for the term and the specific effective date of withdrawal.

Grades

Assignment of grades if students have voluntarily withdrawn or taken a leave of absence is made based on current grading policies detailed in the OTD Student Handbook.

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

Program Requirements

Year 1 Fall

OT-D 500. Occupation as a Mechanism of Health – Students explore what it means to understand themselves, others, and human health from an occupational perspective. They analyze the factors that influence how people engage in and experience occupations, the everyday activities of life. Students begin to consider how to help optimize people's health by improving their engagement in meaningful life occupations. Students explain the relationships between what people do and health determinants. 3 Credits

OT-D 501. Occupation, Occupational Therapy, & Care Systems I (7 weeks) – In part I of this 2-part series, students examine occupational therapy's history--its core concepts, key players, and societal conditions that shaped the profession over time-- with particular attention to contemporary understandings of occupational therapy and how to advance those understandings through occupation-based practice. 2 Credits

OT-D 502. Occupational Science (7 weeks) – Students examine the science by which some knowledge of occupation is generated, including the evolution of occupational science, the core phenomena of interest to the science, the research questions explored, the methodological approaches and the levels of investigation most targeted in the science, as well as the contributions of occupational science to occupational therapy and other fields. 2 Credits

OT-D 504. Enabling Occupation Skills I – In Part 1 of this 4-part series students practice ten key skills for enabling occupation: adapting, advocating, coaching, collaborating, consulting, coordinating, designing/building, educating, engaging, and specializing. Part I explores the meaning of client-centered enablement focused on occupation. 3 Credits

OT-D 505. Assembling, Creating, & Translating Knowledge I – Across this 2-part series, students design, implement, and disseminate a research project. In part I, students select an area of research at the intersections of Diversity, Occupation, & Health. They conduct a literature review, establish research questions, and select qualitative and quantitative methods appropriate to the research questions. Data collection will begin in Part I and conclude in Part II. 3 Credits

OT-D 506. Formation for Service I – This course is Part One of a series that occurs every session. 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. In Part One of the formation series, students will clarify their values, beliefs, assumptions, and innate strengths. Once clarified, students will explore how these innate strengths impact interactions in group and team environments. In particular, students will hone skills to carefully observe, listen to, and support others with overlapping similarities and distinct differences who are also being formed for service as occupational therapists. Students will also examine the alignment between who they are, their vocation, and what occupational therapy exists to address in societies as a profession. To do this, students will explore philosophical reflections on occupational therapy, critiques of the field, and accounts of the professional identity of occupational therapists. 2 Credits

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OT-D 507. 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 settings. 1 Credit

Year 1 Spring

OT-D 508. Occupational Transitions I – Students will become proficient in administering the OT process with clients whose occupations are in transition because of developmental and life course transitions. Students will apply the occupational therapy process to occupational transitions that occur throughout the life course. This course is part of a four-course series. As students move through the series, they must connect developmental transitions and the resulting impact on occupation to the whole situation of which the client is part. 3 Credits

OT-D 509. Occupational Transitions II – Students apply 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. 3 Credits

OT-D 510. Occupational Transitions III – Students apply the occupational therapy process to situations in which occupations are disrupted by personal and social issues such as occupational imbalance, life transitions, trauma, aging, or stress, among others. 3 Credits

OT-D 511. Enabling Occupation Skills II – Students integrate content from each occupational disruption course to complete the occupational therapy process for individuals across the lifespan, from infancy to advanced old age. They also complete the occupational therapy process for communities and populations of children, adolescents, adults, and older adults. 3 Credits

OT-D 512. Assembling, Creating, & Translating Knowledge II – Students complete the research project they began in Part I. They collect, analyze, interpret data, and discuss implications. Students present their work publicly at the end of the course. 3 Credits

OT-D 513. Formation for Service II – Students explore the influences socio-cultural factors have on one's formation of self, in one's relationship to others, and as a professional. Students are formed for service as occupational therapists in this course by developing foundational skills to relate with diverse individuals and communities across tensions, conflicts, and differences. This course continues the focus from Formation for Service I on helping students explore their identity as well as the identities of their peers, clients, and other community members with openness, empathy, authenticity, and care. Professional behaviors are emphasized. 2 Credits

OT-D 514. 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. 1 Credit

Year 1 Summer

OT-D 515. 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 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. 2 Credits

OT-D 516. 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. They create theory- and research-driven education plans that are centered on occupation for patients, clients, fieldwork students, academic students, and the public. 2 Credits

OT-D 517. 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 across the lifespan, from infancy to advanced old age, communities, and populations. 2 Credits

OT-D 518. Formation for Service III – 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. 1 credit

OT-D 519. 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. 1 Credit

Year 2 Fall

Needs Assessment and Programming to Support Occupation – Students discover methods for conducting needs assessments

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and designing programs in collaboration with organizations and agencies seeking to enhance services that improve people's access to and participation in occupation. They gain skills for demonstrating occupational therapy's value and contributions to organizational metrics. 3 Credits

Occupation and Technology – Students discover and engage with digital health, including the electronic medical record, telehealth, virtual reality, wearables, and more. They frame technology use as an occupation and critically evaluate its relationships to health and well-being and their role in contributing to the design of devices to optimize successful engagement. Students identify when mainstream and assistive technology can improve access to and participation in occupation. 3 Credits

Occupation, Occupational Therapy, & Care Systems II – In part II of this series, students examine the U.S. medical and non-medical model systems. Students explore how these systems shape current occupational therapy practice and support emerging practices. Students examine reimbursement models and the roles of inter-professional colleagues. They learn theoretical models appropriate to different settings and gain skills for demonstrating occupational therapy's value and contributions to organizational metrics. 2 credits

Enabling Occupation Skills IV – 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. 3 Credits

Formation for Service IV – Students are empowered as ethical and authentic leaders in everyday situations. Throughout this course, students explore their own leadership skills and styles, participate in activities that form their capacity and skills to interact effectively with diverse groups of people to make meaningful occupational change. Students further develop approaches to manage conflict in professional settings with confidence, courage, and integrity, with fidelity to their professional identity as OTs and to the profession of OT as a whole. 2 Credits

Capstone I – Students design and initiate a capstone project and experience in one of eight advanced areas of practice within occupational therapy: advocacy, research, policy, entrepreneurship, education, administration, program development and theory development. 3 Credits

Applied Practice Experience (APEX) ID – In this two-week experiential, student apply content from fourth semester coursework to simulated practice scenarios, followed by application to practice settings. 1 Credit

Year 2 Spring

Advanced Practice Courses I-III – This series of modules allows students to go deeper into specific areas of practice. Students must complete all 3 APC courses. 3 Credits Total

Advanced Practice Course: Customized Learning Project – Students who have completed a minimum of 20 hours of a pre-approved learning experience will synthesize and critically evaluate the experience and create a digital portfolio to capture the experience via Portfolium. They will assess the accomplishment of learning objectives and reflect on their personal development in relation to the project.

Credit is determined by how extensive experience was and course completion.

20 hours = 1 credit

40 hours = 2 credits

Comprehensive Assessment and Management of Practice (CAMP) I-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, and implement and assess outcomes. Students must enroll in 3 CAMP courses. Each CAMP is 1 credit; 3 credits total.

Electives. Students may choose to take electives related to their capstone projects, an area of interest, and supplemental certificates offered or supported by the Duke OTD.

Formation for Service V – Students are formed for service as OTs through the development of discrete professional skills, behaviors, and competencies. Students build on their skills in self-reflection and reflexivity to identify core areas for improving and expanding their own professional skills and competencies. Students focus on giving and receiving charitable and critical feedback as part of professional responsibility. 2 Credits

Capstone II – Students design and initiate a capstone project and experience in one of eight advanced areas of practice within occupational therapy: advocacy, research, policy, entrepreneurship, education, administration, program development and theory development. 3 Credits

Year 2 Summer

OTD Level II Fieldwork IIA – Students complete a 12-week full-time fieldwork experience. 12 Credits

Year 3 Fall

OTD Level II Fieldwork IIB – Students complete a 12-week full-time fieldwork experience. 12 Credits

Year 3 Spring

Capstone Experience – Students complete a 14-week Capstone Experience. 12 Credits

Doctor of Occupational Therapy

Courses of Instruction

CODE	NAME	DESCRIPTION
OT-D500	Occupation as a Mechanism of Health	Students explore what it means to understand themselves, others, and human health from an occupational perspective. They analyze the factors that influence how people engage in and experience occupations, the everyday activities of life. Students beg...
OT-D501	Occupation, Occupational Therapy, & Care Systems I	In part I of this 2-part series, students examine occupational therapy's history--its core concepts, key players, and societal conditions that shaped the profession over time-- with particular attention to contemporary understandings of occupational...
OT-D502	Occupational Science	Students examine the science by which some knowledge of occupation is generated, including the evolution of occupational science, the core phenomena of interest to the science, the research questions explored, the methodological approaches and the le...
OT-D504	Enabling Occupation Skills I	In Part 1 of this 4-part series students practice ten key skills for enabling occupation: adapting, advocating, coaching, collaborating, consulting, coordinating, designing/building, educating, engaging, and specializing. Part I explores the meaning...
OT-D505	Assembling, Creating, & Translating Knowledge I	Across this 2-part series, students design, implement, and disseminate a research project. In part I, students select an area of research at the intersections of Diversity, Occupation, & Health. They conduct a literature review, establish research qu...
OT-D506	Formation for Service I	This course is Part One of a series that occurs every session. 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...
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 settings. 1 Credit
OT-D508	Occupational Transitions I	Students apply the occupational therapy process to situations in which occupations are disrupted by person factors across the lifespan. Attention is given to the impact of person factors, such as cognition or strength, on occupation. Attention is als...
OT-D509	Occupational Transitions II	Students apply 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 environ...
OT-D510	Occupational Transitions III	Students apply the occupational therapy process to situations in which occupations are disrupted by personal and social issues such as occupational imbalance, life transitions, trauma, aging, or stress, among others. 3 Credits
OT-D511	Enabling Occupation Skills II	Students integrate content from each occupational disruption course to complete the occupational therapy process for individuals across the lifespan, from infancy to advanced old age. They also complete the occupational therapy process for communitie...
OT-D512	Assembling, Creating, & Translating Knowledge II	Students complete the research project they began in Part I. They collect, analyze, interpret data, and discuss implications. Students present their work publicly at the end of the course. 3 Credits
OT-D513	Formation for Service II	This course is Part Two of a series that occurs every session. 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...

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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. 1 Credit
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 they...
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. They create theory- and research-driven education plans that are centered on occupation for patients, cl...
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 three of a series that occurs every session. Formation refers to developing the groundwork for professional identity as an occupational therapist. Developing a professional identity means intentionally forming in oneself the ways...
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. 1 Credit
OT-D600	Needs Assessment and Programming to Support Occupation	Students discover methods for conducting needs assessments and designing programs in collaboration with organizations and agencies seeking to enhance services that improve people's access to and participation in occupation. They gain skills for demon...
OT-D601	Occupation and Technology	Students discover and engage with digital health, including the electronic medical record, telehealth, virtual reality, wearables, and more. They frame technology use as an occupation and critically evaluate its relationships to health and well-being...
OT-D602	Occupation, Occupational Therapy, & Care Systems II	In part II of this series, students examine the U.S. medical and non-medical model systems. Students explore how these systems shape current occupational therapy practice and support emerging practices. Students examine reimbursement models and the r...
OT-D603	Enabling Occupation Skills IV	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-D604	Formation for Service IV	Students are empowered as ethical and authentic leaders in everyday situations. Throughout this course, students explore their own leadership skills and styles, participate in activities that form their capacity and skills to interact effectively wit...
OT-D606	Capstone I	Students design and initiate a capstone project and experience in one of eight advanced areas of practice within occupational therapy: advocacy, research, policy, entrepreneurship, education, administration, program development and theory development..
OT-D607	Advanced Practice Course I	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-D608	Advanced Practice Course II	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-D609	Advanced Practice Course III	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-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	Students who have completed a minimum of 20 hours of a pre-approved learning experience will synthesize and critically evaluate the experience and create a digital portfolio to capture the experience via Portfolium. They will assess the accomplish...

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OT-D612	Comprehensive Assessment and Management of Practice (CAMP) I	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-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...
OT-D616	Formation for Service V	Students are formed for service as OTs through the development of discrete professional skills, behaviors, and competencies. Students build on their skills in self-reflection and reflexivity to identify core areas for improving and expanding their ow...
OT-D617	Capstone II	Students design and initiate a capstone project and experience in one of eight advanced areas of practice within occupational therapy: advocacy, research, policy, entrepreneurship, education, administration, program development and theory development..
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, student apply content from fourth semester coursework to simulated practice scenarios, followed by application to practice settings.

Doctor of Physical Therapy

Division Chief and Program Director: W. Todd Cade, PT, PhD

Tiffany N. Adams, PT, DPT, MBA; Laura Case, PT, DPT; 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; Adam Goode, PT, DPT, PhD; Jamie Greco, PT, DPT, EdD; Tiffany Hilton, PT, PhD; Jeffrey M. Hoder, PT, DPT; Maggie Horn, DPT, MPH, PhD; Gary E. Johnson, PT, DPT; Katie Myers, PT, DPT; Amy Pastva, PT, MA, PhD, CHSE; 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

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.

Mission Statement of the Doctor of Physical Therapy Division

The Duke Doctor of Physical Therapy (DPT) Program is committed to enhancing the health, wellness, function, and participation in the social and civic lives of all individuals. As a community of scholars engaged in discovery, dissemination, and utilization of knowledge in the best care of patients, our mission is to educate the next generation of clinical and scientific leaders through active learning experiences that promote critical thinking, so that our graduates will be engaged professionals, experts in movement science, and grounded in the discovery of knowledge for best physical therapy practice.

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 for patients with neuromusculoskeletal dysfunction, 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), 1111 North Fairfax Street, Alexandria, VA 22314; telephone: (703) 706-3245; email: accreditation@apta.org; website: capteonline.org.

Doctor of Physical Therapy

Academic Calendar

All calendars are subject to change.

Year One

Duke University

Fall 2022 - Session 1 17 weeks (16 didactic, 1 clinical)
August August 9-12 (Tu-F) Orientation August 15 (M) Session 1 begins
September September 5 (M) Labor Day—student holiday
October October 22-30 (Sa-Su) STEPs® I
November November 23-25 (W-F) Thanksgiving break
December December 9 (F) Session 1 ends; 3-week intersession break begins
Spring 2023 - Session 2 21 weeks (18 didactic, 2 clinical, 1 vacation)
January January 2 (M) Session 2 begins January 16 (M) Martin Luther King, Jr. Day—student holiday
March March 11-26 (Sa-Su) STEPs® II March 27-31 (M-F) Spring break
May May 26 (F) Session 2 ends; 1-week intersession break begins
Summer 2023 - Session 3 16 weeks (14 didactic, 1 clinical, 1 vacation)
June June 3 (M) Session 3 begins June 3-11 (Sa-Su) STEPs® III
July July 4 (T) Independence Day—student holiday
August August 7-11 (M-F) Summer break
September September 4 (M) Labor Day holiday September 22 (F) Session 3 ends

Year Two

<p>Fall 2022 - Session 4 11 weeks (9 didactic, 2 clinical)</p>
<p>September September 24 (M) Session 4 begins September 24-October 9 (Sa-Su) STEPs® IV</p>
<p>November November 23-25 (W-F) Thanksgiving break</p>
<p>December December 9 (F) Session 4 ends</p>
<p>Spring 2023 - Session 5 13 weeks (12 didactic, 1 vacation)</p>
<p>January January 2 (M) Session 5 begins January 16 (M) Martin Luther King, Jr. Day—student holiday</p>
<p>February February 20-24 (M-F) Spring break (CSM)</p>
<p>March March 31 (F) Session 5 ends; 1-week intersession break begins</p>
<p>Summer 2023 - Session 6 9 weeks (9 didactic)</p>
<p>April April 10 (M) Session 6 begins</p>
<p>May May 29 (M) Memorial Day holiday</p>
<p>June June 9 (F) Session 6 ends; 3-week intersession break begins</p>

Year Three

<p>Summer 2022 & Fall 2022 - Sessions 7 & 8 26 weeks (23 clinical, 2 vacation)</p>
<p>July July 4 (M) PT 801 TCE I begins</p>
<p>September September 23 (F) PT 801 TCE I ends; 1-week break begins</p>
<p>October October 3 (M) PT 802 TCE II begins</p>
<p>December December 23 (F) PT 802 TCE II ends; 2-week intersession break</p>
<p>Spring 2023 - Session 9 17 weeks (12 clinical, 1 professional, 3 vacation, 1 graduation)</p>
<p>January January 9 (M) PT 803 TCE III begins</p>
<p>April April 7 (F) PT 803 TCE III ends; 3-week break</p>
<p>May May 10 (W) Graduation week activities begin May 14 (Su) Graduation</p>

Doctor of Physical Therapy

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 2022-2023 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 dpt.duhs.duke.edu/application-requirements.

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.

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Applications received after October 15 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

All candidates for a DPT degree must possess the intellectual ability to learn, integrate, analyze, and synthesize data. Candidates 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 perform all activities required for a complete physical therapist education. Candidates must have motor-function capabilities and the emotional health to meet the demands of entry-level physical therapist education and the demands of total patient care. The candidate for the DPT degree must possess the following abilities and skills:

- **Observation:** The ability to observe is required for demonstrations and visual presentations in lectures and laboratories. A candidate must be able to observe patients accurately and completely, both at a distance and closely. This ability requires functional vision and somatic sensation and that are enhanced by a sense of smell.
- **Communication:** A candidate should be able to speak, hear, and observe patients in order to elicit information, perceive nonverbal communications, describe changes in mood, and communicate effectively and sensitively with patients and their families, as well as instruct patients and their families. Communication should include not only speech but also reading and writing. Communication in oral and written form with the health care team must be effective and efficient.
- **Motor Function:** A candidate should have sufficient motor function to elicit information from patients by palpation, auscultation, percussion, and movement of limbs, as well as to perform treatment maneuvers, which may include exercising, lifting, and transferring of patients, and assuring their safety during ambulation. 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.
- **Intellectual-Conceptual, Integrative, and Quantitative Abilities:** Problem solving is a critical skill demanded of physical therapists and this requires conceptual, integrative, and quantitative thinking abilities. The candidate must also be able to comprehend three-dimensional relationships and the spatial and functional relationships of structures.
- **Behavioral and Social Skills:** A candidate must have the emotional health to fully use their intellectual ability, to exercise good judgment, and to complete all responsibilities attendant to the evaluation and treatment of patients.

A DPT candidate must be able to develop mature, sensitive, and effective relationships with patients, families, and colleagues. The candidate must be able to tolerate physical, and emotional stress and continue to effectively function. A candidate must possess qualities of adaptability and flexibility and be able to function in the face 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 people from all levels of society, all ethnic backgrounds, and all belief systems.

The faculty of the Duke University DPT Division recognizes its responsibility to present candidates for the DPT degree with knowledge and skills 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 DPT Admissions Committee to select entering physical therapy students who will become candidates for the DPT degree.

Doctor of Physical Therapy

Financial Information

Tuition and Expenses

The DPT Program practices a “need-blind admissions process.” Full cost of attendance budgets may be found on the Office of Financial Aid website: medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student.

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 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.

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

Program Policies

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

Criminal Background Check Policy

For Admissions

All applicants to the 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, nonadmission 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.

For 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 Program Director. Nondisclosure or falsification may be grounds for dismissal or degree revocation.

Students enrolled in the DPT Division will be required to undergo annual CBCs. In addition, sites conducting clinical education may require students to undergo additional background checks prior to undertaking their clinical experience. 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 releases 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 Program Director will evaluate all background checks and will make the determination if the individual student can participate in clinical experiences.

Drug Screen Policy

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Students enrolled in the DPT Division will be required to undergo annual drug screens from a DPT approved facility. Results from any other agency will not be recognized. A clear drug screen is also required of students by many clinical education sites.

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 releases 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.

Standards of Academic Conduct and Examinations

The faculty of the DPT 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 your name to your work, you are indicating that you neither gave nor received assistance during the examination. All examinations administered by the department 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 students.

Computer and Technology

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 (MedEDIT-DPT).

The MedEDIT provides administrative, professional, and technical expertise to the students of the School of Medicine. The School of Medicine values an open, collaborative, and congenial environment where safety is paramount. Efficient and dependable service to support state-of-the-art medical education is the goal.

All matriculating students in the School of Medicine are assessed a mandatory technology fee. This includes students enrolled in the Doctor of Physical Therapy Program. The fee will not only cover hardware such as laptop or handheld device, but service, software, and technical updates to comply with all Duke Health System compliance guidelines.

Doctor of Physical Therapy Academic Progression

Graduate students in the DPT Program are participants in a professional educational program whose graduates assume positions of responsibility as primary clinical care practitioners. Accordingly, students are evaluated on their academic and clinical performance and also on their interpersonal communication abilities, their appearance, 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 probation or withdrawal from the program.

The faculty of the Doctor of Physical Therapy Division has the responsibility to define minimum acceptable standards for academic and professional behaviors performance. In all courses, minimum passing standards are defined by the course director in collaboration with the Division Chief/Program Director and faculty. These standards are communicated to the students at the beginning of each course. Doctor of Physical Therapy 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.

A. Promotion

All students' records are reviewed as needed and at the conclusion of each semester by the DPT Student Promotions Committee. The committee members and the chair will be appointed by the Division Chief/Program Director.

The Promotions Committee may recommend to the Division Chief/Program Director:

- Promoting students whose work and professional behavior are satisfactory.
- Warning 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 undertake other actions that may assist in the correction of deficiencies.
- Placing on suspension students whose work is unsatisfactory or who have demonstrated significant lapses in professional behavior, including recommending an immediate delay in further progression in the curriculum and that the student repeat

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coursework the following year.

- Requesting the resignation of any student who is considered an unpromising candidate for the degree of doctor of physical therapy.
- Removing a student on Academic Probation that has satisfactorily demonstrated scholastic requirements or professional behavior either through repeating coursework or demonstration of corrected professional behavior.
- Recommending dismissal.

The student is considered to be in Good Academic Standing if they have earned no more than one LP grade in all courses, there are no academic or professional behavior issues impacting a student's progression in the program, and have satisfactorily completed previously designated requirements of Academic Probation. When deficiencies are identified in a student's academic or professional performance, the student may be placed on academic probation, remediation, suspension, or dismissal. The Division Chief/Program Director can place students on academic probation or remediation. The Vice Dean for Education is responsible for placing individuals on suspension or dismissal.

The Vice Dean for Education, 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 Doctor of Physical Therapy Program.

B. Academic Performance

Grading Standards

The grading system for the DPT Program consists of two scales.

Didactic and STEPs® Courses

For all non-APC didactic and STEPs® courses in the curriculum, the following grading system will be used:

P	Pass
LP	Low Pass
F	Fail
I	Incomplete

Advanced Practice Courses and Terminal Clinical Experience Courses

For all second-year Advanced Practice Courses (APC) and third-year terminal clinical experience (TCE) courses in the curriculum, the following grading system will be 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 will be 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, once the course director has notified the Registrar that failing work has been performed by the student. 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 remediate a failing course grade, the passing grade will be placed next to the failing grade on the student's transcript. If the student fails a remediation attempt, the failing grade will be placed next to the original failing grade.

P	Pass
LP	Low Pass
F	Fail
I	Incomplete

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The four Clinical STEPs® courses present an integrated progression of clinical skill and professional behavior development. For integrated clinical education courses, the Director of Clinical Education who serves as course director, based upon documented student performance, will assign a grade.

A student may earn no more than one final course grade of LP in Clinical STEPs® I and Clinical STEPs® II in order to progress in the curriculum. A student who earns two final course grades of LP in Clinical STEPs® I and Clinical STEPs® II will be automatically withdrawn from the program.

A student may earn no more than one final course grade of LP in Clinical STEPs® III and Clinical STEPs® IV in order to progress in the curriculum. A student who earns two final course grades of LP in Clinical STEPs® III and Clinical STEPs® IV will be automatically withdrawn from the program.

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 their 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 Program Director 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.

C. 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 faculty retains the responsibility and authority to determine a student's fitness to continue in the program.

A student who demonstrates unprofessional behavior will receive specific feedback and instruction from faculty to assist with correction of their behavior. A pattern of professional behavior concerns may result in formal verbal and written warnings. Professional behavior that is not corrected by the student following this policy may result in withdrawal from the program.

D. Determination of Academic Standing

All students' records are reviewed at the conclusion of each semester, and more frequently if needed, by the faculty, and each student is assigned to one of the following categories of Academic Standing listed below.

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.

Academic Probation

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A student is put on notice that their academic performance or behavior has created considerable cause for concern and requires critical ongoing evaluation for a period of time. The probation period will be determined by the Division Chief/Program Director. It will allow sufficient time for correction 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 Division Chief/Program Director, the Promotions Committee can make a recommendation to the Division Chief/Program Director to change the student's academic status. Upon approval by the Division Chief/Program Director, removal from Academic Probation status will be noted on their academic transcript.

The faculty of the DPT Program will use the following standards for placing students on Academic Probation:

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 (The student will return to Good Academic Standing at the end of the semester if the student does not meet any of the above warning criteria).
4. A student has received 1 written professional behavior warning.

If a student was placed on Academic Probation at the recommendation of the Promotions Committee and the student has not satisfied all the conditions of the Academic Probation specified by the Division Chief/ Program Director, the Promotions Committee may recommend to the Division Chief/Program Director that the student be placed on Academic Suspension. The suspension is noted on the academic transcript.

Any student on Academic Probation is ineligible to serve in positions of student leadership or employment within the division such as class officer, SIG leader, or graduate assistant.

Remediation

Remediation is a process through which the Promotions Committee recommends that the course director provides a student an opportunity to remediate content that the student failed to master. The Promotions Committee is responsible for outlining the criteria for the remediation process.

Academic Suspension

A student who fails to demonstrate successful progress in academics or professional behavior will be withdrawn from the program. The Vice Dean for Education is responsible for placing individuals on suspension or dismissal upon finding of unsatisfactory academic or clinical performance:

The faculty of the DPT Division will use the following standards for placing a student on suspension from the program.

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 behavior as defined by the Promotions Committee.

Dismissal

The faculty of 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.

E. Determination of Professional Behavior Standing

Good Professional Behavior Standing

The student is considered to be in Good Professional Behavior Standing if they show mastery of professional behavior in all didactic and clinical education learning environments, and at all times as an enrolled student 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 faculty retains the responsibility and authority to determine a student's fitness to continue in the program. Faculty will utilize the DPT Professional Behavior Reporting System to track specific issues. They will also provide specific feedback and

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instruction to assist with correction of the student's behavior.

Good Professional Behavior Standing with Warning

If a pattern of concerning professional behavior emerges or one particularly egregious behavior is reported through the Professional Behavior Reporting System, the Promotions Committee may recommend the student receive a verbal warning that will indicate the reasons for the warning. The warning will include the specific Generic Abilities/Behavioral Criteria and/or Professional Core Values that require improvement. (verbal warning 1) If an additional professional behavior concern or behavior is reported, the Promotions Committee may recommend a formal written notification that will indicate the reasons for the warning. The warning will include the Generic Abilities/Behavioral Criteria and/or Professional Core Values that require improvement. (written warning 1). The DPT Division Chief/ Program Director will notify the student that their behavioral performance will be monitored, and that future poor performance may result in withdrawal from the program. A third concerning professional behavioral event (written warning 2) is grounds for dismissal from the program.

Appeals of Academic Status (Withdrawal)

A student placed on withdrawn status from the program will be notified in writing by the Vice Dean for Education. Students may appeal this decision by indicating in writing to the Vice Dean for Education: (a) reasons why the student did not achieve minimum academic standards, and (b) reasons why the student's 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 appeals committee, the student's advisor, and the appropriate course director. The Vice Dean for Education will determine if the appeal of withdrawal should be granted. If the student's appeal of their withdrawal is approved, the Vice Dean for Education will document the student's change in status and communicate in writing the conditions and plans for the student's reinstatement. If the student's appeal of their academic status is not approved, the decision of the faculty is upheld. The Vice Dean for Education will notify the student of the decision on the appeal in writing within three weeks of receipt of the appeal.

F. 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 practice phase of the curriculum. In order to pass the written comprehensive exam, a student must achieve a minimum score of 70%. If a student scores below 70%, the student will be required to re-take the exam 1 time within two weeks of the exam in order to demonstrate competency. If the student scores below 70% a second time, a comprehensive remediation plan will be developed for the student under the oversight of the Promotions Committee.

The second comprehensive exam is a practical exam that is administered toward the end of phase two, the student-centered advancement phase of the curriculum. 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 1 time 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.

G. Progression and Academic Standing

All first-year courses and the first comprehensive exam must be satisfactorily completed before a student may enroll in the second-year courses, and all second-year 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 Program Director. Altered sequences for students who require remediation may be considered for approval by the Program Director.

Earned grades and professional behavior are considered in determination of the student's academic standing.

H. 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 Program Director 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

Only students on track to have their degree conferred in May will be able to participate in the DPT Hooding and Recognition Ceremony. DPT leadership 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.

I. Voluntary Withdrawal and Leave of Absence Policy

Voluntary Withdrawal Policy

Students who voluntarily withdraw or take a leave of absence from the DPT Division will be required to submit a written request, via certified United States Mail, to the Program Director of the Division. The postmark date of the request will be the date used in determining the official date of the withdrawal or leave of absence and in determining the refund of tuition and fees and the assignment of grades.

Once the request is received, via certified United States Mail, by the Program Director, the Program Director will inform the Curriculum Coordinator who will then notify the Offices of the Registrar and Financial Aid in the School of Medicine. The student is required to contact these offices to ensure that they have completed all required interviews and have fulfilled any responsibilities with regard to this process. The Student Exit Interview/Meeting Form needs to be signed and dated by representatives from the Offices of the Registrar and Financial Aid. The student's permanent academic record will reflect that they were enrolled for the term and that they withdrew or took a leave of absence on the effective date of request.

Grades

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.

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 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.

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Financial Aid

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 DPT

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.

DPT Foreign Educated Physical Therapist Course

Director of Foreign Educated Physical Therapist Course (FEPTC): Christopher J. Fiander, DPT, CSCS, OCS, PT

The Duke Doctor of Physical Therapy (DxPT) Foreign Educated Physical Therapist course provides internationally educated and licensed physical therapists with an overview of the health care system across the United States, and the culture and context in which physical therapy is practiced. It is assumed that participants in this online course are individuals who are seeking to establish physical therapy educational equivalency in the United States, and who subsequently are planning to sit for the National Physical Therapy licensure exam. The course is offered in the fall, spring and summer semesters.

Admission Requirements

This course is open to internationally educated physical therapists that meet the English Language requirements below. Proof of graduation from a physical therapy education program, and/or licensure if applicable, is a requirement to participate in this course. Participants will also need to ensure that they will have full access to a laptop or desktop computer during the course (using a phone or tablet is not sufficient), and full 24/7 access to high speed internet.

Language Requirements

English proficiency is an absolute minimum standard and is critical for success in this course and for practice as a physical therapist across the United States. While there are no specific requirements for English language proficiency to participate in this course (i.e. TOEFL), it is expected that all applicants will be fluent in reading, writing, and speaking in the English language. There will not be any special provisions given to participants who fail to keep pace with the course, or with their fellow participants, because of English language difficulties. All participants are expected to self-assess their competency in English prior to beginning this course.

Application

Detailed instructions and the online application can be found on the program's website at dpt.duhs.duke.edu/education/foreign-educate-d-physical-therapy-course.

Attendance

Students are required to participate in all modules. However, because this program is completely online with all lecture material pre-recorded, it is the student's responsibility to ensure all lectures are viewed. All online coursework such as discussion boards are to be completed by the date provided in the course syllabus.

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 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. These absences should be negotiated in writing (email or letter) as far in advance as possible and a plan established for 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.

Any absence without prior notification of the course director 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 may have a negative impact on the student's grade or evaluation if so specified in the course syllabus.

Code of Conduct

Students enrolled in the Duke DPT Foreign Educated Physical Therapist course 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.

Grading

This course utilizes a Pass/Fail grading scale. The passing threshold is 70%.

Withdrawals and Refunds

A course may be dropped at the student's discretion during the first week 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).

Doctor of Physical Therapy

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.

Session 1

- **PT-D 601 Clinical STEPs® I.** Clinical Student Team Experience in Practice (STEP) is the first in a series of four courses that are embedded in the first phase of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1.
- **PT-D 631 PT Professional Practice I.** 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: 1
- **PT-D 632 Structure and Function of the Human Body.** Normal Human Body provides the anatomic and basic science foundations necessary for physical therapists' understanding the human body. The course emphasis is on gross anatomy and 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 and reproductive systems. This course also covers the microanatomy of the major organs and the functions of their constituent cells, the embryological origins of organ systems, 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. Credit: 7
- **PT-D 633 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, normal and pathological joint movement, normal human development, and observational gait analysis of normal and pathological gait patterns. Concepts of kinetics, kinematics, length-tension relationships, joint classification, and functional movement will be discussed. While these concepts seem very specific in nature, they will always 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. Credit: 4
- **PT-D 634 Introduction to the Patient Examination.** This course provides contact with patients and patient care techniques. It exposes students to the initial steps in the patient/client professional relationship. Emphasis is placed on the following skills: patient history, vital signs, palpation, range of motion, goniometry, muscle performance testing. The emphasis throughout the course is to develop the skills necessary to assure patient/client and student safety in the clinical environment. Credit: 5
- **PT-D 650 Cultural Determinants of Health and Health Disparities in PT I.** This curriculum will equip Duke Doctor of Physical Therapy Students with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity and socioeconomic difference. Course facilitators and guest 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 outside traditional classroom settings, 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. Credit: 1

Session 2

- **PT-D 611 Clinical STEPs® II.** Clinical Student Team Experience in Practice (STEP) is the second in a series of four courses that are embedded in the first phase of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 2.
- **PT-D 635 PT Professional Practice II.** 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 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. Credit: 1.5
- **PT-D 636 Healthcare Systems.** Introduction to the healthcare system 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. Credit: 2
- **PT-D 637 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 will be 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 look at secondary management of the integumentary system in many physical therapy settings and across the lifespan. Credit: 1
- **PT-D 638 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, 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. Credit: 2
- **PT-D 639 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 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. Credit: 4
- **PT-D 640 Pain Science.** Persistent pain is more prevalent than heart disease, cancer, and diabetes combined; and is responsible for over \$600 billion in healthcare and lost productivity costs. Importantly, persistent pain is not a symptom, but a health disorder. For optimal pain management, clinicians must understand and identify a multitude of biological, psychological, cognitive, and social factors. The course will educate students on acute and persistent pain mechanisms and influences. In addition, students will be introduced to evidence-based approaches for optimal pain management. Credit: 2
- **PT-D 642 Physical Therapy for the Older Adult.** The number of Americans 65 years and older is projected to double within the next forty 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. Credit: 2

- **PT-D 643 Evidence Based Practice.** In this course students will be introduced to the science of clinical reasoning in health care and physical therapy, and, the integration of clinical reasoning and evidence-based practice will be developed. Students will learn how to access knowledge for practice, and will learn the methods of scientific inquiry, including research theory, design, methods, and measurement. Students will focus on learning how to determine the statistical conclusion validity of research evidence for practice, learn the logic of hypothesis testing and specific statistical tests used for descriptive and inferential analysis of experimental research data. Epidemiological statistics that enhance the understanding of diagnostic tests and treatment options will also be covered, as well as 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. Credit: 2
- **PT-D 644 Adaptive Technologies.** This course covers foundational content related to mobility assistive technologies including: orthoses, prostheses, and wheelchairs. Additionally, patient management for individuals with amputations will be covered. Credit: 2
- **PT-D 647 Structure and Function of the Human Brain.** This course provides the anatomical and physiological foundations necessary for physical therapists' understanding of the human brain. 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, how the nervous system governs human behavior and how neuroanatomy and neurophysiology impact the care of patients/clients in the profession of physical therapy. Credit: 3
- **PT-D 651 Cultural Determinants of Health and Health Disparities in PT II.** This curriculum will equip Duke Doctor of Physical Therapy Students with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity and socioeconomic difference. Course facilitators and guest 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 outside traditional classroom settings, 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. Credit: 2

Session 3

- **PT-D 621 Clinical STEPs® III.** DPT STEPs® is the third in a series of four courses that are embedded in the first phase of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students are expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1
- **PT-D 641 PT Professional Practice III.** 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 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. Students will also be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. Credit: 1
- **PT-D 645 Foundational Musculoskeletal Practice.** 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; upper extremities, pelvis and lower extremities. Credits: 12
- **PT-D 646 Foundational Neurologic Practice.** The Neurological Practice Management (NPM) course includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply assessment procedures to define impairments and limitations across activities and participation, and develop a plan of care for adults with neurological dysfunction. The course will cover the management of central nervous system

(CNS) dysfunction, peripheral nervous system dysfunction, vestibular pathologies, and motor unit diseases. Examination, evaluation, diagnosis, pharmacological management, clinical decision-making, prognosis, standardized assessments, outcome measures and interventions will be emphasized. Credit: 8

Sessions 4-6

- **PT-D 701 Clinical STEPs® IV.** DPT STEPs® is the fourth in a series of four courses that are embedded in the first phase of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students are expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 2
- **PT-D 731 PT Professional Practice IV.** 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-D 732 Foundational Pediatrics Practice.** This course will introduce the practice management model for pediatric patients. The theoretical basis of pediatric development, normal and pathological development will be the foundation from which the assessment and management 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. The students will look at secondary management of the pediatric patient in many physical therapy settings and across the lifespan. Credit: 4
- **PT-D 733 Management of the Complex Patient.** Complex patient management 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 multiple system involvement. Furthermore, collaborative navigation of the complex patient through the health care system will be underscored. Credit: 2
- **PT-D 734 PT Professional Practice V.** 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-D 735 PT 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 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-D 736, 737 Practice Management (CAMP) I & II.** Comprehensive Assessment and Management of Practice (CAMP) are two courses that will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of conditions across all specialty practice areas. These courses will build upon earlier foundational and clinical experiences to further develop clinical reasoning. During CAMP, students will be mentored by DPT Program faculty 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. Credit: 1.5 each, 3 total
- **PT-D 738-749 Advanced Practice Course (APC) I - 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, Neurorehabilitation, Orthopedics, Sports, Pain Science, Pediatrics, Research, Teaching, Vestibular Rehabilitation and Obstetric and Pelvic Health. Credit: 1 each, 9 total
- **PT-D 750 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 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 1 and 2 courses to drive clinical application of skills and offer opportunities for direct engagement. The course is offered in parallel with our integrated clinical experiences of STEPs and 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. Credit: 0.5

- **PT-D 801, 802, 803. TCE I, II, III.** This is a series of three consecutive clinical experiences occurring in the third year. Each is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice settings in which physical therapy is commonly practiced. Clinical sites will have the opportunity to offer 12 week, 24 week or 36 week rotations when they are able to meet curriculum requirements. Credit: 12 each, 36 total

Doctor of Physical Therapy

Courses of Instruction

CODE	NAME	DESCRIPTION
PT-D601	Clinical Steps I	Clinical Student Team Experience in Practice (STEP) is the first in a series of four courses that are embedded in the first phase of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor to apply skills, demons...
PT-D602	Body and Brain I	This course begins a two-session exploration of the human body and brain through a variety of learning experiences, including cadaver dissection, laboratory presentations, examination and dissection of brain specimens, classroom presentation and disc...
PT-D603	Applied Physiology I	This course begins a two-course sequence of Applied Physiological concepts through a variety of learning experiences, including classroom presentation and discussion and laboratory experiences. The overall goal of this course and the next in this seq...
PT-D604	Movement Sciences I	This course is an introduction to the elements and principles fundamental to the study of human movement. Included are basic kinesiology and biomechanics, biomechanics of biological tissues, muscle and joint structure and function, normal and patholo...
PT-D605	Professional Development I	Professional Development I is the first in a three-course series that has as its focus the development of professional behaviors, knowledge, and values in the student. In this course students will discover and develop their understanding of the oblig...
PT-D606	Health Promotion Across the Lifespan	This course introduces issues related to health and wellness across the lifespan from birth to death, including physical, psychological, social, and economic aspects. Life stages from prenatal, childhood, adolescence, adulthood, and old age are cover...
PT-D611	Clinical Steps II	Clinical Student Team Experience in Practice (STEP) is the second in a series of four courses that are embedded in the first phase of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor to apply skills, demon...
PT-D612	Body and Brain II	This course completes the two-session exploration of the human body and brain through a variety of learning experiences, including cadaver dissection, laboratory presentations, examination and dissection of brain specimens, classroom presentation and...
PT-D613	Applied Physiology II	The overall goal of the Applied Physiology two-course sequence (PT-D 603 and PT-D 613) is to provide the foundational basis for understanding the body's physiological responses to physical activity. At the completion of the sequence, the student will...
PT-D614	Movement Sciences II	This course is a continuation of PT-D 604 Movement Science I. Where PT-D 604 focused on how we move, this course focuses on how we control movement. The first portion of the course builds on the student's knowledge of previous movement science course...
PT-D615	Professional Communication I	This course introduces and develops the critical communication skills that are integral to the practice of physical therapy. Students will learn about patient-centered interviewing, aspects of personal communication, written and electronic documentat...
PT-D616	Foundational Physical Therapist Examinations	In this course, students are taught to screen, measure, and examine problems associated with basic physiological dysfunction, movement dysfunction, and disability. Basic skills are presented in an applied, problem-solving learning environment, which...

Duke University

PT-D617	Foundational Physical Therapist Interventions	In this course, students are introduced to the basic physical therapist patient interventions used to ensure safe patient-interaction. Interventions include: patient safety and first aid, safe and effective patient positioning and movement, transfers...
PT-D621	Clinical Steps III	DPT STEPs® is the third in a series of four courses that are embedded in the first phase of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume pro...
PT-D622	Evidence-Based Practice I	In this course students will be introduced to the science of clinical reasoning in health care and physical therapy, and, the integration of clinical reasoning and evidence based practice will be developed. Students will learn how to access knowledge...
PT-D623	Cardiopulmonary Management Patient	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 and e...
PT-D624	Integumentary Management Patient	This course introduces the practice management model for patients with pathology or impairment of their integumentary system. The histology of the skin and pathologies of the integument are the foundation from which the assessment and management of...
PT-D625	Diagnostic Imaging	This course introduces the student to a spectrum of diagnostic imaging techniques used for musculoskeletal, neurological, pulmonary, cardiovascular systems. An overview of principles, techniques, purpose, process, and interpretation of diagnostic im...
PT-D626	Assessing Outcomes of Care	PT 626 has two specific foci. Firstly, the course introduces the metrics associated with outcomes assessment (e.g., reliability, validity, dimensionality, and interpretability), whereas the second aspect of the course introduces the learner to the mo...
PT-D627	Physical Therapist Interventions I	This course continues to build on Foundational Physical Therapist Interventions by adding to therapeutic exercise techniques including wrapping and compression garments, thermal modalities, cryotherapy, mechanical traction, soft tissue mobilization a...
PT-D631	Professional Practice I	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 und...
PT-D632	Structure and Function of the Human Body	Normal Human Body provides the anatomic and basic science foundations necessary for physical therapists' understanding the human body. The course emphasis is on gross anatomy and the relationships between the musculoskeletal, neurological, and vascul...
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, normal and patholo...
PT-D634	Introduction to The Patient Examination	This course provides contact with patients and patient care techniques. It exposes students to the initial steps in the patient/client professional relationship. Emphasis is placed on the following skills: patient history, vital signs, palpation, ra...
PT-D635	Professional Practice II	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 an unders...
PT-D636	Healthcare Systems	Introduction to the healthcare system 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 syst...
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 will be the foundation from which the assessment and manage...
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,...
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 is more prevalent than heart disease, cancer, and diabetes combined; and is responsible for over \$600 billion in healthcare and lost productivity costs. Importantly, persistent pain is not a symptom, but a health disorder. For optima...
PT-D641	Professional Practice III	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 interacti...
PT-D642	Physical Therapy for the Older Adult	The number of Americans 65 years and older is projected to double within the next forty 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...
PT-D643	Evidence Based Practice	In this course students will be introduced to the science of clinical reasoning in health care and physical therapy, and, the integration of clinical reasoning and evidence-based practice will be developed. Students will learn how to access knowledge...
PT-D644	Adaptive Technologies	This course covers foundational content related to mobility assistive technologies including: orthoses, prostheses, and wheelchairs. Additionally, patient management for individuals with amputations will be covered.
PT-D645	Foundational Musculoskeletal Practice	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; uppe...
PT-D646	Foundational Neurologic Practice	The Neurological Practice Management (NPM) course includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply assessment procedures to define...
PT-D647	Structure and Function of the Human Brain	This course provides the anatomical and physiological foundations necessary for physical therapists' understanding of the human brain. This course will provide a comprehensive survey of the neuroanatomy and neurophysiology of the central and peripher...
PT-D650	Cultural Determinants of Health and Health Disparities in PT I	This curriculum will equip Duke Doctor of Physical Therapy Students with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity and socioeconomic difference. Course facilitators and guest lecturers wi...
PT-D651	Cultural Determinants of Health and Health Disparities in PT II	This curriculum will equip Duke Doctor of Physical Therapy Students with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity and socioeconomic difference. Course facilitators and guest lecturers wi...
PT-D701	Clinical Steps IV	DPT STEPs® is the fourth in a series of four courses that are embedded in the first phase of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume pr...
PT-D702	Professional Communication II	This course builds on the skills introduced in Professional Communication I by expanding the student's communication experience and preparing the student for the clinical application of advanced communication skills in the helping relationships with...
PT-D703	Evidence-Based Practice II	In this course, students focus on learning how to determine the statistical conclusion validity of research evidence for practice. Students learn the logic of hypothesis testing and specific statistical tests used for descriptive and inferential ana...
PT-D704	Musculoskeletal Patient Management I	This course is designed to expand the knowledge base of the student in the specialized area of Musculoskeletal Practice Management. Direct physical therapist intervention for patient examination, evaluation, diagnosis, prognosis, and intervention wil...
PT-D705	Neurological Patient Management I	Advanced clinical knowledge and skills are needed for physical therapy evaluation and management of complex neurological disorders. The Neurological Practice Management (NPM) Series includes the etiology, epidemiology, pathogenesis, clinical presenta...
PT-D706	Physical Therapist Interventions II	This course supports the patient management courses that have been completed or are concurrently occurring. The course provides an opportunity for students to learn about a variety of interventions that are appropriate for patients with musculoskelet...

Duke University

PT-D711	Clinical Steps V	DPT STEPs is a series of five courses that are embedded in the six didactic semesters of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving and assume profes...
PT-D712	Health Policy and Health System Design	In this course, we will explore the local, regional, national and international health care and policy landscapes. Students will learn about the evolution and complexities that exist within the health care system (or non-systems) in the United States...
PT-D713	Professional Development II	Professional Development II is the second in a three-course series that has as its focus the development of professional knowledge, values and behaviors, in the student. In this course students will revisit aspects of the Profession's Core Values as...
PT-D714	Musculoskeletal Patient Management II	This course is designed to expand the knowledge base of the student into the specialized area of Musculoskeletal Patient Management. Direct physical therapist intervention for patient examination, evaluation, diagnosis, prognosis, and intervention w...
PT-D715	Neurological Patient Management II	This is the second part of a two-semester course and will continue coverage of physical therapy for individuals with neurological and neuromuscular impairments and dysfunction, with an emphasis shifting towards the pediatric population. Advanced cli...
PT-D716	Physical Therapist Interventions III	In this course, students continue to add to their knowledge of varied Physical Therapist interventions. Special topics related to interventions for neurological and musculoskeletal issues include: chronic pain management, interventions and education...
PT-D721	Clinical Step VI	DPT STEP is a series of six courses that are embedded in the six didactic semesters of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving and assume professi...
PT-D722	Management of Health Care Delivery	This course introduces concepts that support the administration of a physical therapy practice setting. Using a developmental sequence beginning with the skills required to pursue a professional position, moving through the administrative and managem...
PT-D723	Health Promotion and Primary Care Practice	In this course, the physical therapist's role as a primary care practitioner for neuromusculoskeletal dysfunction will be presented. Students will master content that will allow successful screening of patients for medical referral, including applica...
PT-D724	Evidence-Based Practice Capstone	In this third course in the sequence, the student will finalize his/her Evidence-based Practice Capstone project in paper and professional poster session format. The role of critical inquiry and evidence-based practice will be discussed, including th...
PT-D725	Elective I	In these courses, students choose two electives in which to deepen their knowledge base for practice. Practice electives are offered in: Global Health, Manual Therapy, Pediatrics, Sports PT, Vestibular Rehabilitation, Women's Health, Neurological Ga...
PT-D726	Elective II	In these courses, students choose two electives in which to deepen their knowledge base for practice. Practice electives are offered in: Global Health, Manual Therapy, Pediatrics, Sports PT, Vestibular Rehabilitation, Women's Health, Neurological Ga...
PT-D730	Independent Study	Independent Study is a semester long course focused on mentored research in physical therapy practice, education, administration or policy. Students will work with an assigned mentor on an approved research project. This course is available only to...
PT-D731	PT Professional Practice IV	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-D732	Foundational Pediatrics Practice	This course will introduce the practice management model for pediatric patients. The theoretical basis of pediatric development, normal and pathological development will be the foundation from which the assessment and management of various etiologies...
PT-D733	Management of the Complex Patient	Complex patient management 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 mana...

PT-D734	Professional Practice V	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-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	Practice Management (CAMP) I	Comprehensive Assessment and Management of Practice (CAMP) are two courses that will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of conditions across all...
PT-D737	Practice Management (CAMP) II	Comprehensive Assessment and Management of Practice (CAMP) are two courses that will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of conditions across all...
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...
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...

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PT-D801	Terminal Clinical Experience I	This is a series of three consecutive internships occurring in the third year. Each internship period is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice se...
PT-D802	Terminal Clinical Experience II	This is a series of three consecutive internships occurring in the third year. Each internship period is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice se...
PT-D803	Terminal Clinical Experience III	This is a series of three consecutive clinical experiences occurring in the third year. Each is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice settings in...
PT-D804	Professional Development III	Professional Development III is the third in a three-course series that has as its focus the development of professional behaviors, knowledge, and values in the student. The course will be conducted to coincide with the Fall and Spring semester of t...
PT-D810	Continuation	The course is intended for students who need additional time to complete their internship course work. Assistant Program Director permission is required. No credit.
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: Leonor A. Corsino, MD, MHS; Maureen D. Cullins, AM; Anthony T. Fuller, MD, MScGH; Judith C. Holder, PhD; Alexa K. Namba, DO, MPH; Leonard E. White, PhD

Program Manager: Christie T. McCray, MEd

Program Coordinator: Anthony Garza, MA

Staff Assistant: Kaylyan Parker

Website: 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.

Its mission is to transform the future of health care professions by educating and mentoring a diverse group of individuals in an interprofessional and biomedical environment. It aims to enhance the academic preparation of students interested in pursuing a career as a healthcare professional, biomedical scientist, or a career in a related field.

The MBS Program values diversity, self-awareness, service, learner well-being and teamwork. It aspires to foster curiosity, innovation, a joy and passion for learning, and individual and collective professionalism.

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. medical student, nursing, physician assistant, physical therapist, doctor of pharmacy, 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

Academic Calendar

Fall 2022
<p>July July 5 (Tu) Orientation July 6 (W) Fall semester classes begin</p>
<p>August August 26-September 9 (F-F) Fall recess and EMT Training</p>
<p>September September 5 (M) Labor Day. No classes</p>
<p>November November 23-27 (W-Su) Thanksgiving recess. No classes</p>
<p>December December 19 (M) Classes end</p>
Spring 2023
<p>January January 9 (M) Spring semester classes begin January 16 (M) Martin Luther King, Jr. Day holiday. No classes</p>
<p>March March 11-19 (Sa-Su) Spring recess. No classes</p>
<p>May May 5 (F) Classes end May 12 (F) Commencement begins May 13 (Sa) MBS graduation exercises May 14 (Su) University graduation exercises; conferring of degrees</p>

Master of Science in Biomedical Sciences

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 Master of Biomedical Sciences (MBS) Program. Upper-level division courses in genetics, molecular biology, and/or cell biology 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) are strongly encouraged to complete prematriculation requirements specified by the relevant professional associations (e.g., Association of American Medical Colleges) 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. However, if you are applying for the Bridges to Excellence Pathway, there will be a place to record your scores, though scores are not required for consideration of admission. 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 neither 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 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.

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). 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

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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.

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

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Financial Information

The MBS Program practices a need-blind admissions process. Applicants to the MBS Program are evaluated for admission without regard to their family's ability to pay. A full cost of attendance budget may be found on the Office of Financial Aid website: medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student.

Tuition and Fees

Tuition for the 2022-2023 academic year is \$48,745 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. Upon matriculation, additional fees (e.g. health insurance, student health, criminal background and drug/alcohol screen, graduate student activity and services, recreation, technology, transcript, and parking permit) will be due.

Health Insurance

All students are required to carry full major medical health insurance throughout their enrollment in the 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: 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.

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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, or by visiting the Duke University SOM Office of Financial Aid website at medschool.duke.edu/education/student-services/office-financial-aid.

Full cost of attendance budgets may be found on the Office of Financial Aid website: medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student.

Scholarships

All applicants accepted for full-time study in the MBS Program are automatically considered for limited tuition scholarships from the program. 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 among Duke University School of Medicine, East Carolina/Brody 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 East Carolina/Brody School of Medicine or the University of South Carolina School of Medicine (depending on their state residency). In collaboration with their East Carolina/Brody School of Medicine or the 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

1. residents of North or South Carolina; and
2. willing to apply only to East Carolina/Brody School of Medicine (North Carolina residents) or the University of South Carolina School of Medicine (South Carolina residents), and accept an admission to these schools (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 either East Carolina/Brody School of Medicine (North Carolina residents) or the University of South Carolina School of Medicine (South Carolina residents) if satisfactory completion of MBS and fulfillment of the other criteria developed by the respective Admissions Committees of the two medical schools;
5. participate in additional mentoring provided by the partner medical schools;
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); and
7. be offered a minimum of \$9,000 scholarship support to be applied to the Duke Master of Biomedical Sciences tuition.

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 East Carolina/Brody School of Medicine (North Carolina residents) or the University of South Carolina School of Medicine (South Carolina residents), and if offered acceptance, will matriculate there.

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Program Policies

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

Registration

Registration in the Master of Biomedical Sciences 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 this program is designed for full-time study, withdrawal from

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any course is at the discretion of the Program Director upon consultation with the student's advisor. Please note that courses taken outside the program must be approved by the student's advisor (and, in some cases, by the Program Director) prior to enrollment.

Attendance Policy

Students are expected to be punctual and to attend all 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. Absences and tardiness may result in a lower course grade.

Students who are unable to complete a class assignment/assessment due to being out of compliance with a program requirement will receive a zero for that assignment/assessment.

Dress Code

Students should be aware of the dress codes of the various curricular components. Student activities involving patient care require appropriate professional dress.

Students are required to wear their Duke-issued photo identification card above the waist, and it must remain visible at all times. This includes the secondary card identifying the individual's role at Duke School of Medicine (i.e., student).

Masking and other face coverings are to be consistent with federal, state, county, city, and Duke Health and Duke University School of Medicine policies, whichever the most stringent.

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

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.

Activities Outside of the MBS

Due to the rigors of the curriculum, most students will find it difficult or impossible to be employed. 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 assignments.
- 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.
- Activities done to fulfill MBS course credit are considered academic requirements and not "volunteer" activities.

Transfer of Credit

Course work taken outside of Duke University is not transferable to the Master of Biomedical Sciences Program.

Grading

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Grades in the Master of Biomedical Sciences Program consist of A, A-, B+, B, B-, C+, C, C-, F, or P (Pass)/F (Fail).

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 Program 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.

In most cases, a student's enrollment as a degree candidate is terminated if she or he receives a single grade of F. For these purposes, both a WF (see below) and a permanent I are considered failing grades.

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. 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, probation or dismissal from the program.

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 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 reflected on a student's transcript. They will be designated as audit courses with no grade provided. The audit grade will not factor into the student's GPA.

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 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 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 Master of Biomedical Sciences 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 MBS Program, during Orientation.

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. 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 criminal background check and drug screening.

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 he/she/they automatically releases 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 clinical experiences.

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 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.

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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. Annual influenza vaccination or an approved medical or religious exemption is required. For questions or concerns about immunization requirements, please contact the Student Health Department at 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 course scheduling 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 for the most current detailed immunization information.

An immunization and additional health records may be required for the EMT-B course and clinical sites.

Code of Professional Conduct

Students enrolled in the Master of Biomedical Sciences 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.

Standards of Academic Conduct and Academic Assessments

The faculty of the 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 as described elsewhere in this bulletin.

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 assistance during the examination. 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 students.

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 Program 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 Program Director should be informed of this decision by the faculty member.

The Master of Biomedical Sciences 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 this link: duke.qualtrics.com/SE/?SID=SV_0xINCG6gxBow5Rr. These are reviewed by a School-wide community of faculty and learners.

Professionalism Council (PC)

Background: The Professionalism Council (PC) will consist of faculty, students and staff of the Master of Biomedical Sciences 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 PC will consist of both active voting and non-voting members. The council will include both student and faculty members. Student representatives will be selected by class vote to serve a yearlong term. MBS faculty and staff will also be recruited to serve for a yearlong term.

Aims:

- To serve as a consulting body for professionalism matters involving students enrolled in the MBS Program.
- To facilitate hearings, surveys, and reports related to professionalism matters within the academic community.
- To acknowledge 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). 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

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minimum of 5 voting members including students and faculty identified from existing PC membership. 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. In addition to the hearings from the PHC, the Professionalism Council Chair will also lead administrative hearings when appropriate.

Process: In the event that a professionalism concern is reported, the student's advisor and/or designee will speak directly with the identified student(s). If the advisor deems it necessary, then a request can be shared with the Professionalism Council Chair or Executive Director. 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 include individuals who have been identified 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 of MBS. All decisions by the PHC are subject to appeal (described below).

If a student is recommended for dismissal, that recommendation will be forwarded to the Executive Director of the MBS 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 of the MBS from making an independent recommendation to the Vice Dean.

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 recommendation 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 of the MBS 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 professionalism, 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 ad hoc committee (PHC) shall deliberate and decide whether the accused student has violated the Duke Code of Professional Conduct in the SOM. 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) sanction(s). The accused student will also receive information on the rights and process of appeal.

Sanctions

The following sanctions, singularly or in combination, may be imposed upon any student found to have violated the School of Medicine Conduct Code:

- **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 School of Medicine.

Any sanction may include mandatory referral to university-based resources for medical or mental health evaluation and treatment if necessary.

Appeals

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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 of MBS stating grounds for the appeal and any supporting information. Grounds for appeals are limited to:

- New information, the nature of which would 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 to include all required courses, clinical and other experiential learning requirements. 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

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)

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- 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, and community-engaged research)/focused study (4)
- **Option 2:** Selected coursework (“selectives”). With permission of instructor/department and advisor approval (4)

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.

Students are strongly encouraged to consider completing the following two selectives to complete their 4 selective credits: HLTHSCI 533 and 535. Students are strongly discouraged from “overloading” so as not to dilute the academic performance in their required courses. Students who wish to take additional credits beyond the 38 credits require permission from both their advisor and the Executive Director.

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.

- 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

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	The goal of this course is to build a basic understanding of the molecular and cellular principles of tissue organization, organ function, and human disease. The course will include a survey of several perspectives on cellular sciences, including bio...

HLTHSCI503	Organ Systems	The goal of this course is to develop a conceptual model for understanding the integrated function of major organ systems in the body, building upon the integration of human anatomy, embryology, histology, and the molecular and cellular sciences. The...
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 and...
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 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...
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...

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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 (1-4) 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. Exam...
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...
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 an area of health systems such as population health, health policy, chronic disease management, and health law. Interested students will work one-on-one with the instructor t...

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

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.

Summer 2022
<p>February February 14 (M) Registration begins for all summer sessions</p>
<p>May May 11 (W) Term 1 classes begin (Monday class meeting schedule is in effect on this day) May 13 (F) Drop/Add for Term 1 ends May 30 (M) Memorial Day holiday. No classes</p>
<p>June June 17 (M) Term 1 classes end June 20 (M) Juneteenth holiday. No classes June 21 (Tu) Reading period June 22-23 (W-Th) Final exams June 27 (M) Term 2 classes begin June 29 (W) Drop/Add for Term 2 ends</p>
<p>July July 4 (M) Independence Day holiday. No classes</p>
<p>August August 4 (Th) Term 2 classes end August 5 (F) Reading period August 6-7 (Sa-Su) Final exams</p>
Fall 2022
<p>August August 23 (Tu) New graduate student orientation begins August 24 (W, 4pm) Convocation for new graduate and professional school students August 29 (M) Fall semester classes begin</p>

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September September 5 (M) Labor Day. Classes in session September 9 (F) Drop/Add ends for fall September 29-October 2 (Th-Su) Founders' Weekend
October October 8-11 (Sa-Tu) Fall break October 24 (M) Shopping carts open for Spring 2023
November November 2 (W) Registration begins for Spring 2023 November 23-27 (W-Su) Thanksgiving recess
December December 2 (F) Graduate classes end December 3-13 (Sa-Tu) Graduate reading period December 14-19 (W-M) Final exams
Spring 2023
January January 11 (W) Spring semester classes begin (Monday class meeting schedule is in effect on this day) January 16 (M) Martin Luther King, Jr. Day holiday. No classes January 25 (W) Drop/Add ends for spring
February February 20 (M) Registration begins for Summer 2023
March March 11-19 (Sa-Su) Spring recess March 27 (M) Shopping carts open for Fall 2023
April April 5 (W) Registration begins for Fall 2023 April 19 (W) Graduate classes end April 20-30 (Th-Su) Graduate reading period
May May 1-6 (M-Sa) Final exams May 12 (F) Commencement begins May 14 (Su) Graduation exercises; conferring of degrees
Summer 2023
February February 20 (M) Registration begins for Summer 2023
May May 17 (W) Term 1 classes begin (Monday class meeting schedule is in effect on this day) May 19 (F) Drop/Add for Term 1 ends May 29 (M) Memorial Day holiday. No classes
June June 19 (M) Juneteenth holiday. No classes June 26 (M) Term 1 classes end June 27 (Tu) Reading period June 28-29 (W-Th) Final exams
July July 3 (M) Term 2 classes begin July 4 (Tu) Independence Day holiday. No classes July 6 (Th) Drop/Add for Term 2 ends

August

August 10 (Th) Term 2 classes end

August 11 (F) Reading period

August 12-13 (Sa-Su) Final exams

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: 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. 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.

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) or the International English Language Testing Service (IELTS) (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.

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Financial Information

Tuition and Fees (2022-2023)

First-year tuition	\$38,993
Second-year tuition	\$39,773

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Budget estimates of the full cost of attendance 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.

Financial Support

Students are responsible for ensuring they have the means to support themselves and the ability to pay tuition and fees due 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: biostat.duke.edu/education/master-biostatistics/financial-support.

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; Website: 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

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 that attendance is expected and that absences require 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

Any student who wishes to audit a course in the Master of Biostatistics Program must receive permission of the instructor as well as the director of graduate studies.

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 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.

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 qualifying examination, plus a master's project for which 6 course credits are given. Candidates for

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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 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 qualifying 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 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 which will lead to either removal of academic probation or dismissal from the program. The terms of the remediation plan will be based upon 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 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 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

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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

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 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 Ombudsperson
- 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 type setting software that is compatible with .docx files)
- Running the R software (r-project.org)
- Running the SAS software (support.sas.com/en/documentation/system-requirements.html)

Master of Biostatistics

Program Requirements

Core Courses

Foundational courses required of all degree-seeking students.

BIOSTAT 701	Introduction to Statistical Theory and Methods I (3 course credits)
BIOSTAT 702	Applied Biostatistics Methods I (3 course credits)
BIOSTAT 703	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 705	Applied Biostatistical Methods II (3 course credits)
BIOSTAT 706	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 722**	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, student must take either BIOSTAT 704 or BIOSTAT 709.

**To meet program requirements, students must take either BIOSTAT 722 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.

Qualifying Examination

All candidates for the Master of Biostatistics degree are required to pass a written Qualifying 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 Qualifying 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 Qualifying Examination. The Qualifying 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 and on the opposite page. 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.

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 714	Categorical Data Analysis (3 course credits)
BIOSTAT 718	Analysis of Correlated and Longitudinal Data (3 course credits)
BIOSTAT 719	Generalized Linear Models (3 course credits)
BIOSTAT 823	Statistical Programming for Big Data (3 course credits)
BIOSTAT 822	R for Data Science
BIOSTAT 824	Case Studies in Biomedical Data Science (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)
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 590-03	Quantitative Methods for Biomedical Data (3 course credits)
MATH 731	Introduction to Real Analysis (3 course credits)

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)	Qualifying 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)	-	
Total: 13 credit hours	Total: 13 credit hours	

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)
+ 3 of the following: <ul style="list-style-type: none"> • BIOSTAT 707 (3) • BIOSTAT 710 (3) • BIOSTAT 713 (3) • BIOSTAT 719 (3) • BIOSTAT 823 (3) • BIOSTAT 906 (3) • BIOSTAT 911 (3) • BIOSTAT 914 (3) • BIOSTAT 915 (3) • MATH 531 (3) • MATH 590-3 (3) • MATH 731 (3) 	+ 3 of the following: <ul style="list-style-type: none"> • BIOSTAT 708 (3) • BIOSTAT 709 (3) • BIOSTAT 714 (3) • BIOSTAT 718 (3) • BIOSTAT 824 (3) • BIOSTAT 905 (3) • MATH 531 (3) • MATH 731 (3)
<p>Computational Biology (3): Any 500 and 600 level except 510S, 511, or 591</p> <p>Computer Science (3): Any 500 and 600 level</p> <p>Statistical Science (3): Any 500 level except 501s Any 600 level except for 693 Any 700 level except for 701S, 790, 791. Any 800 level except for 851 Any 900 level except for 993, 994, and 995</p>	<p>Computational Biology (3): Any 500 and 600 level except 510S, 511, or 591</p> <p>Computer Science (3): Any 500 and 600 level</p> <p>Statistical Science (3): Any 500 level except 501s Any 600 level except for 693 Any 700 level except for 701S, 790, 791. Any 800 level except for 851 Any 900 level except for 993, 994, and 995</p>
Total: 3 required credit hours plus 9 elective credit hours	Total: 3 required credit hours plus 9 elective credit hours

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

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differentiated by content emphasis. The second-year curriculum is personalized and approved by the DGS. The DGS 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
BIOSTAT701	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...
BIOSTAT701K	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...
BIOSTAT701L	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...
BIOSTAT702	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...
BIOSTAT702K	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...
BIOSTAT703	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...
BIOSTAT703L	Introduction to the Practice of Biostatistics I Lab	The lab will be an extension of the course. The lab will be run like a journal club. The lab will instruct how to dissect a research article from a statistical and scientific perspective. The lab will also give students the opportunity to present on...
BIOSTAT704	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...
BIOSTAT704K	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...
BIOSTAT704L	Advanced Statistical Theory and Method II Lab	Students who enroll in BIOS 704 may opt to enroll in this advanced lab designed to extend the material presented in BIOS 704. This course will be run as a mixture of lecture and recitation. Each session will start with a short presentation by the ins...
BIOSTAT705	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...

BIOSTAT705K	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...
BIOSTAT706	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 reading of both the textbook and research papers. Students will lea...
BIOSTAT707	Statistical Methods for Learning and Discovery	This course surveys a number of techniques for high dimensional data analysis useful for data mining, machine learning and genomic applications, among others. Topics include principal and independent component analysis, multidimensional scaling, tree...
BIOSTAT708	Clinical Trial Design and Analysis	Topics include early phase through late phase clinical trials, including two-stage, Simon's optimal design, parallel group, crossover, cluster randomized, and adaptive designs. Objectives such as endpoint selection, dose range, maximum tolerated dose...
BIOSTAT709	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. Prerequ...
BIOSTAT710	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...
BIOSTAT712	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...
BIOSTAT713	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, applications to clinical trials. Interval censoring, informative censoring, c...
BIOSTAT714	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...
BIOSTAT715	Methods in Non-Parametric Statistics	An introduction to the theory and application of classical non-parametric methods with emphasis on applications to design and analysis of clinical and molecular studies: Classical rank tests; permutation resampling based inference; estimation of stat...
BIOSTAT716	Integration of Biomarkers from Molecular and Cell Assays in Clinical Biostatistics	Statistical and computational issues associated with identification and clinical characterization of biomarkers, and integration of molecular and cell assays, including RNA and protein probe expressions, SNPs, copy-number variants, flow-cytometry dat...
BIOSTAT717	Stochastic Processes	An introduction to classical stochastic processes with an emphasis on applications in population genetics, molecular and cell biology and evolutionary biology: Random walks; Conditional probability and expectation; discrete Markov chains, branching t...
BIOSTAT718	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: Biostatistics 701, 702, 704 and 705 or permission of the Director o...
BIOSTAT719	Generalized Linear Models	This class introduces the concept of exponential family of distributions and link function, and their use in generalizing the standard linear regression to accommodate various outcome types. Theoretical framework will be presented but detailed practi...
BIOSTAT720	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: Biostatistics 701, 702, 703,704, 705...
BIOSTAT721	Introduction to Statistical Programming I (R)	This class is an introduction to programming in R, targeted at statistics majors with minimal programming knowledge, which will give them the skills to grasp how statistical software works, tweak it to suit their needs, recombine existing pieces of c...

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BIOSTAT722	Introduction to Statistical Programming II (SAS)	This class is an introduction to programming in SAS, targeted at statistics majors with minimal programming knowledge, which will give them the skills to grasp how statistical software works, tweak it to suit their needs, recombine existing pieces of...
BIOSTAT723	Biostatistics Practicum	All candidates for the masters 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 kno...
BIOSTAT732	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.
BIOSTAT740	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
BIOSTAT801	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...
BIOSTAT801K	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...
BIOSTAT802	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...
BIOSTAT821	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...
BIOSTAT822	Data Science With R	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...
BIOSTAT823	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...
BIOSTAT824	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...

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

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 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 two 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

Academic Calendar

Dates for the Academic Terms			
July 28-July 31, 2022		Boot Camp and Orientation	
August 3-October 22, 2022		Fall Term 01	
October 26, 2022-January 21, 2023		Fall Term 02	
January 25-April 15, 2023		Fall Term 03	
April 26-July 22, 2023		Fall Term 04	
Class Weekend Dates			
August 13	November 5	February 4	May 6
August 26-27	November 18-19	February 17-18	May 19-20
September 10	December 3	March 4	June 3
September 23-24	December 16-17	March 17-18	June 23-24
October 8	January 5	April 1	July 8
October 21-22	January 20-21	April 14-15	July 21-22
Exams: October 24-28	Exams: January 23-27	Exams: April 17-21	Exams: July 24-28

Master of Management in Clinical Informatics

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
- three 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
- 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

Financial Information

Tuition and Fees

MMCi Tuition	\$62,800
Health Fee*	\$1,160
Health Insurance*	\$3,605
Recreation Fee*	\$326
MMCi Events and Student Association	\$900
Graduate Student Activity Fee	\$37
Graduate Student Services Fee	\$20
Transcript Fee	\$120
Total Tuition and Student Fees	\$65,363
Books/Course Packs (estimated)	\$500
Program Cost (without living expenses, insurance, and loan fees)	\$65,863

*Additional Fees applicable to International Students.

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.

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

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

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. He/she/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 he/she/they receives 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

Duke University

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

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

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

Courses of Instruction

CODE	NAME	DESCRIPTION
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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...
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	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 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...

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MMCI557	Principles Strategy	of	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...
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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

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.

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

Academic Calendar

Summer 2022 – Term 2	July 11, 2022-August 11, 2022
Fall 2022	August 29, 2022-December 2, 2022
Spring 2023	January 9, 2023-April 21, 2023
Summer 2023 – Term 1	May 17, 2023-June 26, 2023

Master of Health Sciences in Clinical Leadership

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

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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 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, 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**
 - **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

Program enrollment in MHS-CL courses for nondegree students is available to qualified individuals who want to acquire specific knowledge or skills but who do not want to pursue the master's degree. This group of individuals may include health professionals, faculty members, post-doctoral fellows or graduate students. For each course, a limited number of nondegree students are allowed to enroll. Nondegree program applicants must have a baccalaureate degree (or equivalent) from an accredited institution, unless otherwise given approval by the program director to enroll.

Applicants seeking admission must submit the Nondegree Student application. All program applications and forms can be downloaded from the program website: clinical-leadership.mc.duke.edu. The completed application may be emailed to 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

Financial Information

Tuition and Fees

Tuition for the 2022-2023 academic year:

1. Degree program courses. \$1500 per credit unit.
2. Non-degree program courses. \$1500 per credit unit.

Duke employees may be eligible for the University's Employee Tuition Assistance Program (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, or online at medschool.duke.edu/education/student-services/office-financial-aid.

Master of Health Sciences in Clinical Leadership

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

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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.

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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

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

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.

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

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...

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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...
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

Program Coordinator: Gail D. Ladd

Website: 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.

The track requires eighteen (18) credits of graded coursework and eighteen (18) credits for an approved research project. Five (5) courses (241, 253, 275, 276, and 279) constitute twelve (12) credits that are required for all BSRT candidates. Students may choose from other offered courses for the remaining required six (6) credits. The first year includes ten (10) credit hours of required core courses. Trainees begin work on the required research project to provide a deep immersion in basic and laboratory research methods. The second year includes eight (8) credits of combined 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. The courses in years one and two may be switched to accommodate the candidate's schedule.

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.

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 the 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.

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 2022	
Wednesday, June 1	Fall course registration begins
Monday, August 29	First day of class. New student orientation
Monday, September 5	Labor Day Holiday. No class
Friday, September 9	Drop/Add ends
Wednesday, November 2 (TBD)	Registration begins for Spring Semester 2023
Tuesday, November 22	Thanksgiving recess begins
Monday, November 28	Classes resume
Monday, December 19	Last day of class
Spring 2023	
Monday, January 9	Spring Semester begins. First day of Drop/Add
Monday, January 16	Martin Luther King, Jr. Day. No class
Friday, January 20	Drop/Add ends
Monday, April 24	Last day of class
Sunday, May 14	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.

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.** A 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 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 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 when 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 a certificate candidate 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

Tuition

Tuition for the 2022-2023 academic year is \$827 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. Full cost of attendance budgets may be found on the Office of Financial Aid website at medschool.duke.edu/education/student-services/office-financial-aid.

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 a certificate candidate may also request to change their status and become a degree candidate. 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. Students are expected to attend live classes regularly on-site or remotely and complete assigned coursework in a timely fashion in accordance with the expectations of their instructors. 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 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. These absences should be negotiated in writing (email or letter) as far in advance as possible and a plan established for 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 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.

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

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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.

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 nondegree 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 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 of 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.

Examining Committee

Three faculty members constitute an examining committee to certify that 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.

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 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:

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- 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 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

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 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, 276, and 279) constitute twelve (12) credits that are required for all BSRT candidates. Students may choose from other offered courses for the remaining required six (6) credits. The first year includes ten (10) credit hours of required core courses. Trainees begin work on the required research project to provide a deep immersion in basic and laboratory research methods. The second year includes eight (8) credits of combined 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. The courses in years one and two may be switched to accommodate the candidate's schedule.

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...
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 repor...
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...

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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...
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. Credits: 1-2.
CRP269	Independent Study	Only for students who wish to remain active in the program, i.e. you do not plan on enrolling in classes this spring, and you are not enrolling in CRP 299 – Continuation of Research.
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 researc...
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 throu...
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...

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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. Instructor Jillian Hurst, PhD, M...
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

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

Associate Director, Pathologists' Assistant Program: Michelle P. Johnson, MHS, PA (ASCP)

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: Meredith 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: Michael Huening, MD, PhD

VA Surgical Pathology Training Coordinator: Michael Huening, MD, PhD

Website: 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. It provides a broad, graduate-level background in medical sciences in support of intensive training in anatomic pathology. With the 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.

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). Graduates are qualified to sit for the American Society of Clinical Pathology Board of Certification examination.

Master of Health Sciences Pathologists' Assistant

Academic Calendar

First Year	
August 8, 2022-January 30, 2023	Fall Semester 2022
November 23-27, 2022	Thanksgiving Break
December 17, 2022-January 2, 2023	Holiday Break
January 31-June 30, 2023	Spring Semester 2023
March 11-19, 2023	Spring Break
July 1-9, 2023	Summer Break
July 10-September 1, 2023	Summer Semester 2023
Second Year	
September 12-December 16, 2022	Fall Semester 2022
November 19-27, 2022	Thanksgiving Break
December 17, 2022-January 2, 2023	Holiday Break
January 3-May 12, 2023	Spring Semester 2023
April 22 - 30, 2023	Spring Break
May 16-July 13, 2023	Summer Semester 2023

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 ten 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 via 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;

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- 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;
 - 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

Financial Information

Tuition and Fees

First-year tuition	\$36,418
Second-year tuition	\$36,368

Full cost of attendance budgets may be found on the Office of Financial Aid website: [medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student \(refunds\)](https://medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student-refunds).

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

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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

Program Policies

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) and PATHASST 222 (Introduction to Surgical Pathology-VAMC) which is graded as P (pass), L (low pass), and 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

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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 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 he/she/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

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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:

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

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
Term Total	20
Year 1 Spring	
PATHASST 102 (Foundations of Patient Care 2)	16
Term Total	16
Year 1 Summer	
PATHASST 210 (Introduction to Autopsy Pathology)	2
PATHASST 221 (Introduction to Surgical Pathology-Duke)	2
PATHASST 222 (Introduction to Surgical Pathology-VAMC)	2
Term Total	6
Year 2 Fall	
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
Term Total	20
Year 2 Spring	
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
Term Total	22
Year 2 Summer	
PATHASST 330 (Autopsy Practicum)	3
PATHASST 351 (Surgical Pathology Practicum-Duke)	2
PATHASST 352 (Surgical Pathology Practicum-VAMC)	2
PATHASST 390 (Senior Seminar)	2
Term Total	9
Certificate and Academic Degree Awarded	93

Master of Health Sciences Pathologists' Assistant

Courses of Instruction

CODE	NAME	DESCRIPTION
PATHASST100	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...

PATHASST101	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...
PATHASST102	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...
PATHASST103	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...
PATHASST203	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...
PATHASST204	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...
PATHASST210	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...
PATHASST215	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...
PATHASST217	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...
PATHASST218	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...
PATHASST221	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...
PATHASST222	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...
PATHASST302	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
PATHASST303	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...
PATHASST321	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,...
PATHASST322	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,...
PATHASST323	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...

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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 prosections 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 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 presente...

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

Director Preclinical Education: Annamarie Streilein, MHS, PA-C

Academic Coordinator: Betsy Q. Melcher, MS, ATC, MHS, PA-C

Academic Coordinator: Lorraine Anglin, MHS, PA-C

Academic Coordinator: Janelle Bludorn, MS, PA-C

Director of Clinical Education: Alicia Bolden, DMSc, MPH, PA-C

Clinical Coordinator: Nicholas M. Hudak, MEd, MPAS, NCC, PA-C

Clinical Coordinator: Quincy Jones, MSW, LCSW, MHS, PA-C

Clinical Coordinator: Jacquetta Melvin, MPH, PA-C

Director of Curriculum: Peggy R. Robinson, MS, MHS, PA-C

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

Surgery Course Coordinator: Kim Howard, MHS, PA-C

Pharmacology Course Coordinator: Jean Mesaros, PharmD, BCPS

Anatomy Course Coordinator: Megan Holmes, PhD

Pediatric Unit Coordinator: Martha Nelson, MHS, PA-C

Senior Education Specialist: Sandro Pinheiro de Oliveira, MA, MRE, PhD

Senior Education Strategist: Rachel Porter, PhD

Senior Faculty: Patricia M. Dieter, MPA, PA-C

Website: 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 approximate 140,000 certified PAs in the United States, 25 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

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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).

Because the clinical teaching is carried out in many practice settings throughout North Carolina, students should plan on being able to travel away from the Durham area for at least two of their clinical experiences. Housing will be made available for out-of-town clinical placements.

Master of Health Sciences Physician Assistant

Academic Calendar

Preclinical Year Calendar — Academic Year 2022-2023 (Class of 2024)

Fall 2022	
August 15	Program Orientation Week begins
August 22	Fall Semester classes begin
September 5	Labor Day Holiday
October 7	5 p.m.—Begin Fall Break
October 12	Classes resume
November 22	5 p.m.—Begin Thanksgiving Holiday
November 28	Classes resume
December 16	5 p.m.—End of Fall Semester; Winter Break begins
Spring 2023	
January 3	Spring Semester classes begin
January 16	Martin Luther King, Jr. Holiday—no classes
February 10	5 p.m.—Begin Mid-Semester Break
February 15	Classes resume
April 7	5 p.m.—End of Spring Semester; Spring Break begins
Summer 2023	
April 17	Summer Term classes begin
May 19	5 p.m.—End classes for AAPA Conference
May 29	Memorial Day Holiday, no classes
May 30	Classes resume
June 19	Juneteenth Holiday, no classes

June 21	5 p.m.—End of Summer Term and Preclinical Year
Clinical Year Calendar — Academic Year 2022-2023 (Class of 2023)	
June 22, 2022	End of Classes
June 22-July 17	Summer Break
July 18-29	PhyAsst 299 - Bridge: The Path to Patient Care
August 1-25	Rotation #1
August 29-September 22	Rotation #2
September 5	Labor Day Holiday
September 26-October 20	Rotation #3
October 24-November 17	Rotation #4
November 21-December 15	Rotation #5
November 24	Thanksgiving Holiday
December 17, 2022-January 2, 2023	Winter Break
January 3-26	Rotation #6
January 16	Martin Luther King, Jr. Holiday
January 30-February 23	Rotation #7
February 27-March 23	Rotation #8
March 27-April 20	Rotation #9
April 22-April 30	Spring Break
May 1-25	Rotation #10
May 29*	Memorial Day Holiday
May 30-June 22	Rotation #11
June 19	Juneteenth Holiday
June 26-July 21	Rotation #12
July 4	Independence Day Holiday
July 24-August 4	PhyAsst 390 – Practice and the Health System III
August 4	Certificate of Completion
August 11	Eligible to sit for PANCE
September 1	Graduation Date: MHS Conferral

Master of Health Sciences Physician Assistant

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.

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- 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 July 1 of 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. The application is available from April 26 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 to Duke University 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

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.

Class of 2023 Yearly Tuition	\$45,259
Class of 2024 Yearly Tuition	\$46,843

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 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.

Full cost of attendance and budgets may be found on the Office of Financial Aid website, medschool.duke.edu/education/health-professions-education-programs/student-services/office-financial-aid-and-student. 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.

Health Insurance

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

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.

A pattern of recurrent absences may have a negative impact on the clinical competency of the learner and reflect 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 progression 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

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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 progression agreement, probation, suspension, or dismissal from the program.

Appeals of Course Grades

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 Progress and Promotion 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 Progress and Promotion 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 Progress and Promotion Committee, and each student is assigned to one of the following categories of academic standing:

A. Satisfactory Academic Standing: The PA student is considered to have satisfactory academic standing if they complete no more than one course in a semester with an overall grade of less than 78 (but greater than or equal to 70).

B. Academic Probation: The PA student will be placed on academic probation if they complete more than one course in a semester with an overall grade of less than 78 (but greater than or equal to 70). Additionally, the following are considered academic concerns and may result in the assignment of Academic Probation: deficiencies in clinical skills, interpersonal communication abilities, and/or

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professional conduct, failure all integrated unit components of an exam (i.e., failure of the clinical medicine, pharmacology and diagnostic methods portions of a combined unit exam), or as recommended by the Progress and Promotion 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 Progress and Promotion 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 less than 78, the student will be dismissed 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).

If a student previously on academic probation, returns to satisfactory academic standing and has a future semester with more than one overall grade less than 78, academic probation will be assigned. The student would then need to have two concurrent semesters with no overall course grades less than 78 to return to satisfactory academic standing.

Upon recommendation by the PA program director, the Vice Dean for Education is responsible for placing individuals on academic probation, suspension or dismissal.

Students on academic probation or a professionalism agreement may be ineligible for special clinical experiences such as Global Health Electives, some scholarship opportunities, certain out-of-state rotations, or 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

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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 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 may 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.

Withdrawal

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 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 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. 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

Program Requirements

Preclinical Year	
Before proceeding into the clinical phase of the curriculum, students must satisfactorily complete the following required courses:	
Fall Semester	Course Credits
PHYASST 200 Basic Medical Sciences	2
PHYASST 201 Physiology	2
PHYASST 205 Anatomy	4
PHYASST 210 Diagnostic Methods I	2
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
Term Total	22
Spring Semester	
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
Term Total	21
Summer Term	
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
Term Total	15
Preclinical Year Total	58
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
PHYASST 305 Evidence-Based Practice II	3
PHYASST 310 Behavioral Medicine	4
PHYASST 320A, 320B Internal Medicine I & II	4
PHYASST 340 Principles of Surgery	4
PHYASST 350 Emergency Medicine	4
PHYASST 360 Pediatrics	4
PHYASST 370 Obstetrics & Gynecology	4

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Elective	4
Elective	4
PHYASST 390 Practice and the Health System III	2
Total	51

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

Courses of Instruction

PHYASST200 BASIC MEDICAL SCIENCES. Basic Medical Sciences

PHYASST201 PHYSIOLOGY. Physiology

PHYASST205 ANATOMY. Anatomy

PHYASST210 DIAGNOSTIC METHODS I. Diagnostic Methods I

PHYASST211 DIAGNOSTIC METHODS II. Diagnostic Methods II

PHYASST212 DIAGNOSTIC METHODS III. Diagnostic Methods III

PHYASST220 CLINICAL MEDICINE I. Clinical Medicine I

PHYASST221 CLINICAL MEDICINE II. Clinical Medicine II

PHYASST222 CLINICAL MEDICINE III. Clinical Medicine III

PHYASST223 PHARMACOLOGY I. Pharmacology I

PHYASST224 PHARMACOLOGY II. Pharmacology II

PHYASST225 PHARMACOLOGY III. Pharmacology III

PHYASST230 FUNDAMENTALS OF SURGERY. Fundamentals of Surgery

PHYASST231 PATIENT ASSESSMENT/CNSLING I. Patient Assessment and Counseling I

PHYASST232 PATIENT ASSESSMENT/CNSLING II. Patient Assessment and Counseling II

PHYASST233 PATIENT ASSESSMENT/CNSLING III. Patient Assessment and Counseling III

PHYASST251 PRACTICE & HEALTH SYSTEM I. Practice and the Health System I

PHYASST252 PRACTICE & HEALTH SYSTEM II. Practice and the Health System II

PHYASST255 EVIDENCE-BASED PRACTICE I. Evidence-Based Practice I

PHYASST261 BEGINNING MEDICAL SPANISH. Beginning Medical Spanish

PHYASST262 INTERMEDIATE MEDICAL SPANISH. Intermediate Medical Spanish

PHYASST263 ADVANCED MEDICAL SPANISH. Advanced Medical Spanish

PHYASST299 BRIDGE: PATH TO PATIENT CARE. Bridge: The Path to Patient Care

PHYASST300A PRIMARY CARE. Primary Care

PHYASST300B PRIMARY CARE. Primary Care

PHYASST300E PRIMARY CARE. Primary Care

PHYASST301 OCCUPATIONAL MEDICINE. Occupational Medicine

PHYASST302 GERIATRICS. Geriatrics

PHYASST303 GLOBAL HEALTH. Global Health

PHYASST304 PREVENTION AND HEALTH PROMO. Prevention and Health Promotion

PHYASST305 EVIDENCE-BASED MEDICINE II. Evidence-Based Medicine II

PHYASST306 INTEGRATIVE MEDICINE. Integrative Medicine

PHYASST307 MEDICAL INFORMATICS. Medical Informatics

PHYASST308 PEDS HEALTHY LIFESTYLES PROGRAM. Pediatric Health Lifestyles Program

PHYASST309 PUBLIC HEALTHCARE IN CUBA. Public Health and Healthcare in Cuba

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PHYASST310 BEHAVIORAL MEDICINE. Behavioral Medicine
PHYASST310E BEHAVIORAL MEDICINE. Behavioral Medicine
PHYASST311 CLINICAL RESEARCH. Clinical Research
PHYASST312 COMMUNITY HEALTH. Community Health
PHYASST313 LGBTQ HEALTH. LGBTQ Health
PHYASST320A INTERNAL MEDICINE. Internal Medicine
PHYASST320B INTERNAL MEDICINE. Internal Medicine
PHYASST320E INTERNAL MEDICINE. Internal Medicine
PHYASST321 CARDIOLOGY. Cardiology
PHYASST322 DERMATOLOGY. Dermatology
PHYASST323 ENDOCRINOLOGY. Endocrinology
PHYASST324 PAIN MEDICINE. Pain Medicine
PHYASST325 HEMATOLOGY/ONCOLOGY. Hematology and Oncology
PHYASST327 INFECTIOUS MEDICINE. Infectious Medicine
PHYASST328 GASTROENTEROLOGY. Gastroenterology
PHYASST329 PALLIATIVE CARE. Palliative Care
PHYASST331 NEPHROLOGY. Nephrology
PHYASST332 NEUROLOGY. Neurology
PHYASST333 PULMONARY MEDICINE. Pulmonary Medicine
PHYASST334 RHEUMATOLOGY. Rheumatology
PHYASST336 MEDICAL ICU. Medical Intensive Care Unit
PHYASST338 RADIOLOGY. Radiology
PHYASST339 GENETICS. Genetics
PHYASST340 PRINCIPLES SURGERY. Principles of Surgery
PHYASST340E GENERAL SURGERY. General Surgery
PHYASST341 CARDIOTHORACIC SURGERY. Cardiothoracic Surgery
PHYASST342 OTOLARYNGOLOGY. Otolaryngology
PHYASST343 NEUROSURGERY. Neurosurgery
PHYASST344 ORTHOPAEDICS. Orthopaedics
PHYASST345 PLASTIC SURGERY. Plastic Surgery
PHYASST346 SPORTS MEDICINE. Sports Medicine
PHYASST347 UROLOGY. Urology
PHYASST348 PRE-OPERATIVE SCREENING UNIT. Pre-Operative Screening Unit
PHYASST349 SURGICAL ONCOLOGY. Surgical Oncology
PHYASST350 EMERGENCY MEDICINE. Emergency Medicine
PHYASST350E EMERGENCY MEDICINE. Emergency Medicine
PHYASST352 TRAUMA. Trauma
PHYASST353 SURGICAL ICU. Surgical Intensive Care Unit
PHYASST354 VASCULAR SURGERY. Vascular Surgery
PHYASST355 TRANSPLANT SURGERY. Transplant Surgery
PHYASST360 PEDIATRICS. Pediatrics
PHYASST360E PEDIATRICS. Pediatrics
PHYASST361 PEDIATRIC CARDIOLOGY. Pediatric Cardiology

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PHYASST362 PEDS CARDIOTHORACIC SURGERY. Pediatric Surgery / Cardiothoracic Surgery

PHYASST363 PEDS HEMATOLOGY/ONCOLOGY. Pediatric Hematology and Oncology

PHYASST364 PEDS ALLERGY/RESPIRATORY. Pediatric Allergy and Respiratory

PHYASST365 PEDIATRIC ENDOCRINOLOGY. Pediatric Endocrinology

PHYASST366 PEDS INFECTIOUS DISEASES. Pediatric Infectious Diseases

PHYASST367 INTENSIVE CARE NURSERY. Intensive Care Nursery

PHYASST368 PEDS EMERGENCY MEDICINE. Pediatric Emergency Medicine

PHYASST369 PEDS ORTHOPAEDIC SURGERY. Pediatric Orthopaedic Surgery

PHYASST370 OBSTETRICS/GYNECOLOGY. Obstetrics and Gynecology

PHYASST370E OBSTETRICS/GYNECOLOGY. Obstetrics and Gynecology

PHYASST371 MATERNAL/FETAL MEDICINE. Maternal and Fetal Medicine

PHYASST372 REPRO ENDOCRIN & INFERTILITY. Reproductive Endocrinology and Infertility

PHYASST381 OPHTHALMOLOGY. Ophthalmology

PHYASST390 PRACTICE & HEALTH SYSTEM III. Practice and the Health System III

PHYASST398 VISITING STUDENT ELECTIVE. Visiting Student Elective

PHYASST399 INDEPENDENT STUDY. Independent Study

Cardiac Ultrasound Certificate

Medical Director: Anita Kelsey, MD, MBA

Program Director: Richard A. Palma, BS, ACS, RCS, RDCS, FACVP, FSMDS, FASE

Website: 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

Academic Calendar

Fall 2022	September 6-December 23, 2022
Spring 2023	January 3-April 14, 2023
Fall 2023 (does not apply to pediatric program)	May 8-August 25, 2023

Cardiac Ultrasound Certificate

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.

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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.

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

Financial Information

Tuition and Fees

For the Cardiac Ultrasound Program: 2022-2023 tuition for the program is \$21,000 plus student fees.

For the Pediatric Cardiac Ultrasound Program: 2022-2023 tuition for the program is \$10,500 plus student fees.

Full cost of attendance budgets may be found on the Office of Financial Aid website: medschool.duke.edu/education/student-services/office-financial-aid/resources.

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

(919) 684-6649

finaid@dm.duke.edu

Cardiac Ultrasound Certificate

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 23, 2022 to January 2, 2023.

Registration and Drop/Add Policy

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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:

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. 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
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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

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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

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

Students in the **Pediatric Cardiac Ultrasound** program must complete the following course:

- CARDULTR 502. Cardiac Ultrasound Pediatrics. Credit: 26

Cardiac Ultrasound Certificate

Courses of Instruction

CARDULTR501 CARDIAC ULTRASOUND. Cardiac Ultrasound

CARDULTR502 CARDIAC ULTRASOUND PEDIATRICS. Cardiac Ultrasound Pediatrics

Ophthalmic Medical Technician Certificate

Medical Director: Anna Bordelon, MD

Program Director: Deborah K Smith, BS, COMT, OSC

Website: dukeeyecenter.duke.edu/education-and-training/ophthalmic-technician-training

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.

For more information, visit dukeeyecenter.duke.edu/education-and-training/ophthalmic-technician-training/curriculum.

Ophthalmic Medical Technician Certificate

Academic Calendar

Fall 2022 Semester	July 5-December 16, 2022
Spring 2023 Semester	January 3-June 16, 2023
Fall 2023 Semester	July 5-December 15, 2023

Ophthalmic Medical Technician Certificate

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;
- 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
- the Test of Essential Academic Skills-Allied Health (TEAS-Allied Health) test, which may be taken through a PSI testing center or proctored remotely by the ATI testing center. Official test transcripts should be sent to the Duke Ophthalmic Technician Program. Applicants are responsible for the cost of the preadmission TEAS-Allied Health test.

The Admissions Committee reviews all complete applications and TEAS-Allied Health results. The committee invites selected

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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. Applications and more information may be obtained at dukeeyecenter.duke.edu/optech.

Criminal Background Check

Candidates considered for admission to the Ophthalmic Technician Program will undergo criminal background checks.

Ophthalmic Medical Technician Certificate

Financial Information

Tuition and Fees

2022-2023 tuition for the program is \$9,500 plus student fees. Upon acceptance to the program, a \$500 nonrefundable deposit must be submitted. This will be applied toward tuition. Full cost of attendance budgets may be found on the Office of Financial Aid website: medschool.duke.edu/education/student-services/office-financial-aid/resources.

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

Ophthalmic Medical Technician Certificate

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 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:

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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

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

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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.

Ophthalmic Medical Technician Certificate

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

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- 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

Courses of Instruction

CODE	NAME	DESCRIPTION
OPTECH152	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
OPTECH153	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
OPTECH153L	Visual Acuity Assessment Laboratory	Credit: 1
OPTECH154	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
OPTECH155	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
OPTECH156	Cardiopulmonary Resuscitation	CPR is required for certification as an ophthalmic medical technician. Credit: 1
OPTECH158	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
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

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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

All Programs

A-BST-M - Master of Biostatistics

About

Program Title

Master of Biostatistics

Degree Designation

M-BST - Master of Biostatistics

Type

Primary

A-CLP-MHS - Master of Health Sciences in Clinical Leadership

About

Program Title

Master of Health Sciences in Clinical Leadership

Degree Designation

MHSL - Master of Health Sciences in Clinical Leadership

Type

Primary

A-CRP-MHS - Master of Health Sciences in Clinical Research Training

About

Program Title

Master of Health Sciences in Clinical Research Training

Degree Designation

MHSR - Master of Health Sciences in Clinical Research

Type

Primary

A-CU-C - Cardiac Ultrasound Certificate

About

Program Title

Cardiac Ultrasound Certificate

Degree Designation

CER - Certificate

Type

Certificate

A-MCI-MMCI - Master of Management in Clinical Informatics

About

Program Title

Master of Management in Clinical Informatics

Degree Designation

MMCI - Master of Management in Clinical Informatics

Type

Primary

Duke University

A-MSBS - Master of Science in Biomedical Sciences

About

Program Title

Master of Science in Biomedical Sciences

Degree Designation

MSBS - Master of Science in Biomedical Sciences

Type

Primary

A-OPT-C - Ophthalmic Medical Technician Certificate

About

Program Title

Ophthalmic Medical Technician Certificate

Degree Designation

CER - Certificate

Type

Certificate

A-PA-MHS - Master of Health Sciences Physician Assistant

About

Program Title

Master of Health Sciences Physician Assistant

Degree Designation

MHS - Master of Health Sciences

Type

Primary

A-PTA-MHS - Master of Health Sciences Pathologists' Assistant

About

Program Title

Master of Health Sciences Pathologists' Assistant

Degree Designation

MHS - Master of Health Sciences

Type

Primary

MD - Doctor of Medicine

About

Program Title

Doctor of Medicine

Degree Designation

MD - Doctor of Medicine

Type

Primary

OT-D - Doctor of Occupational Therapy

About

Program Title

Doctor of Occupational Therapy

Degree Designation

DOT - Doctor of Occupational Therapy

Type

Major

PT-D - Doctor of Physical Therapy

About

Program Title

Doctor of Physical Therapy

Degree Designation

DPT - Doctor of Physical Therapy

Type

Major

All Courses

ANESTH220C - Clinical Anesthesiology

Subject

ANESTH

Catalog Number

220C

Title

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: Elizabeth Futrell (elizabeth.futrell@duke.edu) or 919-668-3400. Credit: 2; Max: 4, Min: 1. Grace McCarthy, MD

ANESTH221C - Pain Management

Subject

ANESTH

Catalog Number

221C

Title

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 Elizabeth Futrell at elizabeth.futrell@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. For more information, contact Dr. Sharon McCartney at sharon.mccartney@duke.edu or Jacole Hairston at Jacole.Hairston@duke.edu. Credit: 5. Enrollment: Max-2 Min-1. Sharon McCartney, MD; Ian Welsby, MBBS, BSc; Mihai Podgoreanu, MD; Kamrouz Ghadimi, MD; Nazish Hashmi, MD; Loreta Grecu, MD; Jerrold Levy MD; Ehimene Iboaya, MD; Madhav Swaminathan, MD; Annemarie Thompson, MD; Meredith Whitacre, MD; Rasesh Desai, MD; Sundar Krishnan, MD; Jason Katz, 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. For more information, contact Dr. Sharon McCartney, sharon.mccartney@duke.edu or Jacole Hairston at Jacole.Hairston@duke.edu. Credit: 4. Enrollment: Max-4 Min-1. Sharon McCartney, MD; Ian Welsby, MBBS, BSc; Mihai Podgoreanu, MD; Kamrouz Ghadimi, MD; Nazish Hashmi, MD; Loreta Grecu, MD; Jerrold Levy MD; Ehimene Iboaya, MD; Madhav Swaminathan, MD; Annemarie Thompson, MD; Meredith Whitacre, MD; Rasesh Desai, MD; Sundar Krishnan, MD; Jason Katz, 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: Dr. Jake Freiburger, 668-0032. 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 1. 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, such as labor and delivery, pediatric operating rooms, neurosurgical operating rooms, regional anesthesiology service, and/or acute pain management. Learning opportunities will include pre-operative patient evaluation, anesthetic technique selection, airway management, pharmacology, physiology, and anatomy, as well as procedures such as 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 Elizabeth Futrell (elizabeth.futrell@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

This course is designed to broaden the student's knowledge and experience in managing critically ill surgical patients. Under supervision, students function as sub-interns in the Surgical Intensive Care Unit (SICU) in 6 West DMP. Students are assigned their own patients and actively participate in daily rounds as part of the SICU team. The ICU Fellows provide lectures on multiple aspects of critical care. Students take call one night in four and work on a one-on-one basis with SICU house staff in the supervised management of critically ill patients. There is emphasis on teaching of procedures and techniques necessary for the management of critically ill patients including vascular access, airway management, hemodynamic assessment and monitoring, cardiovascular resuscitation and use of vasoactive drugs, ventilator management, prevention and management of nosocomial infections, and ethical decision making in ICU. Students are formally evaluated by the SICU house staff and the attending physician. C-L: SURGERY 441C. Credit: 5. Enrollment: max 2. Christopher Young, MD; Amy Alger, MD; Suresh Agarwal, MD; Kelli Brooks, MD; Joe Fernandez-Moure, MD; Krista Haines, MD; Taylor Herbert, 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

ANESTH445C - Physiology & Medicine of Extreme Environments

Duke University

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. Students with questions may contact Dr. Lance Roy (lance.roy@duke.edu) or Elizabeth Futrell (elizabeth.futrell@dm.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). 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, sampling distributions. Core concepts are mastered through mathematical exploration, simulations, and linkage with the applied concepts studied in BIOSTAT 704. Prerequisite: 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with matrix algebra is helpful. Corequisites: BIOSTAT 702, BIOSTAT 703 Credit: 3

BIOSTAT701K - Introduction to Statistical Theory and Methods I

Subject	Catalog Number	Title
BIOSTAT	701K	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, sampling distributions. Core concepts are mastered through mathematical exploration, simulations, and linkage with the applied concepts studied in BIOSTAT 704. Prerequisite: 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with matrix algebra is helpful. Corequisites: BIOSTAT 702, BIOSTAT 703 Credit: 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. Core concepts are mastered through team-based case studies and analysis of authentic research problems encountered by program faculty and demonstrated in practicum experiences in concert with BIOSTAT 703. Computational exercises will use the R and SAS packages. Prerequisite: 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with linear algebras is helpful. Corequisites: BIOSTAT 701, BIOSTAT 703, BIOSTAT 721 Credit: 3

BIOSTAT702K - Applied Biostatistical Methods I

Subject	Catalog Number	Title
BIOSTAT	702K	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. Core concepts are mastered through team-based case studies and analysis of authentic research problems encountered by program faculty and demonstrated in practicum experiences in concert with BIOSTAT 703. Computational exercises will use the R and SAS packages. Prerequisite: 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with linear algebras is helpful. Corequisites: BIOSTAT 701, BIOSTAT 703, BIOSTAT 721 Credit: 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. In addition to didactic sessions on biomedical issues, students are introduced to different areas of biostatistical practice at Duke University Medical Center. Biomedical topics are organized around the fundamental mechanisms of disease from both evolutionary and mechanistic perspectives, illustrated using examples from infectious disease, cancer and chronic/degenerative disease. In addition, students learn how to read and interpret research and clinical trial 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. Corequisites: BIOSTAT 701, BIOSTAT 702 Credit: 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 will be an extension of the course. The lab will be run like a journal club. The lab will instruct how to dissect a research article from a statistical and scientific perspective. The lab will also give students the opportunity to present on material covered in the co-requisite and to practice the communication skills that are a core tenant of the program. Corequisite: BIOSTAT 703 or permission of the Director of Graduate Studies

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, simulations, and linkage with the applied concepts studied in BIOSTAT 705. Prerequisite: BIOSTAT 701 or its equivalent. Corequisites: BIOSTAT 705, BIOSTAT 706 Credit: 3

BIOSTAT704K - Introduction to Statistical Theory and Methods II

Subject	Catalog Number	Title
BIOSTAT	704K	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, simulations, and linkage with the applied concepts studied in BIOSTAT 705. Prerequisite: BIOSTAT 701 or its equivalent. Corequisites: BIOSTAT 705, BIOSTAT 706 Credit: 3

BIOSTAT704L - Advanced Statistical Theory and Method II Lab

Subject	Catalog Number	Title
BIOSTAT	704L	Advanced Statistical Theory and Method II Lab

Description

Students who enroll in BIOS 704 may opt to enroll in this advanced lab designed to extend the material presented in BIOS 704. 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 704 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

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. Computational examples and exercises will use the SAS and R packages. Prerequisite(s): BIOSTAT 702 or its equivalent; linear and matrix algebra Corequisite(s): BIOSTAT 704, BIOSTAT 706, BIOSTAT 722 Credits: 3

BIOSTAT705K - Applied Biostatistical Methods II

Subject	Catalog Number	Title
BIOSTAT	705K	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. Computational examples and exercises will use the SAS and R packages. Prerequisite(s): BIOSTAT 702 or its equivalent; linear and matrix algebra Corequisite(s): BIOSTAT 704, BIOSTAT 706, BIOSTAT 722 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 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. Prerequisite: BIOSTAT 703 Corequisites: BIOSTAT 704, BIOSTAT 705 Credit: 3

BIOSTAT707 - Statistical Methods for Learning and Discovery

Subject	Catalog Number	Title
BIOSTAT	707	Statistical Methods for Learning and Discovery

Description

This course surveys a number of techniques for high dimensional data analysis useful for data mining, machine learning and genomic applications, among others. Topics include principal and independent component analysis, multidimensional scaling, tree-based classifiers, clustering techniques, support vector machines and networks, and techniques for model validation. Core concepts are mastered through the analysis and interpretation of several actual high dimensional genomics datasets. Prerequisites: BIOSTAT 701, 702, 704, 705, and 721 or 722 or permission of The Director of Graduate Studies. Credit: 3

BIOSTAT708 - Clinical Trial Design and Analysis

Subject	Catalog Number	Title
BIOSTAT	708	Clinical Trial Design and Analysis

Description

Topics include early phase through late phase clinical trials, including two-stage, Simon's optimal design, parallel group, crossover, cluster randomized, and adaptive designs. Objectives such as endpoint selection, dose range, maximum tolerated dose, non-inferiority, surrogate outcomes, and safety will be considered. Methods for group sequential testing, will include fixed group sequential, O'Brien-Fleming, Pocock, one-sided, Tsiatis, Whitehead triangular and other tests. Wang method, repeated confidence intervals, and a range of related topics in monitoring trials. Prerequisites: BIOSTAT 701, 702, 704, 705 and 721 or 722 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. Prerequisites: BIOSTAT 701, BIOSTAT 702, 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. Prerequisites: BIOSTAT 701, BIOSTAT 704, 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

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, applications to clinical trials. Interval censoring, informative censoring, competing risks, multiple events and multiple endpoints, time dependent covariates; nonparametric and semi-parametric methods. Prerequisites: BIOSTAT 701, 702, 704, 705, and 721 or 722 or permission of the Director of Graduate Studies Credits: 3

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

BIOSTAT715 - Methods in Non-Parametric Statistics

Subject	Catalog Number	Title
BIOSTAT	715	Methods in Non-Parametric Statistics

Description

An introduction to the theory and application of classical non-parametric methods with emphasis on applications to design and analysis of clinical and molecular studies: Classical rank tests; permutation resampling based inference; estimation of statistical functionals; functional Central Limit Theorem; influence functions; empirical distribution function; the jackknife and bootstrap; bias-variance tradeoff; curse of dimensionality; kernel smoothing and spline methods for density and regression estimation; isotonic regression; classical inequalities. Prerequisites: BIOSTAT 201, BIOSTAT 204, or permission of the Director of Graduate Studies Credits: 2

BIOSTAT716 - Integration of Biomarkers from Molecular and Cell Assays in Clinical Biostatistics

Subject	Catalog Number	Title
BIOSTAT	716	Integration of Biomarkers from Molecular and Cell Assays in Clinical Biostatistics

Description

Statistical and computational issues associated with identification and clinical characterization of biomarkers, and integration of molecular and cell assays, including RNA and protein probe expressions, SNPs, copy-number variants, flow-cytometry data and other forms of emerging molecular markers in prognostic and diagnostic models: pre-processing of molecular assays including methods for background correction and normalization within and across experiments; methods for accounting for left and interval truncation in the probe intensities and cell counts; methods for identifying and addressing batch effects; methods for assessing agreement and consistency among assays; methods for assessing sensitivity and specificity of assays; data management and compression methods for high-dimensional data. Prerequisites: BIOSTAT 201, BIOSTAT 204, or permission of the Director of Graduate Studies Credits: 2

BIOSTAT717 - Stochastic Processes

Subject	Catalog Number	Title
BIOSTAT	717	Stochastic Processes

Description

An introduction to classical stochastic processes with an emphasis on applications in population genetics, molecular and cell biology and evolutionary biology: Random walks; Conditional probability and expectation; discrete Markov chains, branching trees; phylogenetic tree, counting process, Poisson process; renewal process; discrete martingales; Brownian motion; Simulation methods. Prerequisites: BIOSTAT 201, BIOSTAT 204, or permission of the Director of Graduate Studies Credits: 2

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: Biostatistics 701, 702, 704 and 705 or permission of the Director of Graduate Studies. Credits:3

BIOSTAT719 - Generalized Linear Models

Subject	Catalog Number	Title
BIOSTAT	719	Generalized Linear Models

Description

This class introduces the concept of exponential family of distributions and link function, and their use in generalizing the standard linear regression to accommodate various outcome types. Theoretical framework will be presented but detailed practical analyses will be performed as well, including logistic regression with Poisson regression and extensions. Majority of the course will deal with the independent observations framework. However, there will be substantial discussion of longitudinal/clustered data where correlations within clusters are expected. To deal with such data the Generalized Estimating Equations and Generalized Linear Mixed models will be introduced. An introduction to the Bayesian analysis approach will be presented, time permitting. Prerequisites: Biostatistics 701, 702, 704, 705 and 721 or 722 or Permission of 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: Biostatistics 701, 702, 703, 704, 705 and 706. Corequisite: Biostatistics 707

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 statistics majors with minimal programming knowledge, which will give them the skills to grasp how statistical software works, tweak it to suit their needs, recombine existing pieces of code, and when needed create their own programs. Students will learn the core of 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. Programming techniques and their application will be closely connected with the methods and examples presented in the corequisite course. The primary programming package used in this course will be R. Prerequisite(s): None; familiarity with linear algebras is helpful. Corequisite: BIOSTAT 702.

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 statistics majors with minimal programming knowledge, which will give them the skills to grasp how statistical software works, tweak it to suit their needs, recombine existing pieces of code, and when needed create their own programs. Students will learn the core of ideas of programming (data step, procedures, ODS, 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. Programming techniques and their application will be closely connected with the methods and examples presented in the co-requisite course. The primary programming package focus used in this course will be SAS. Prerequisite(s): None; familiarity with linear algebra is helpful. Co-requisite: BIOSTAT 705. Credit: 3

BIOSTAT723 - Biostatistics Practicum

Subject	Catalog Number	Title
BIOSTAT	723	Biostatistics Practicum

Description

All candidates for the masters 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. Note: Based on Federal regulation, international students may not begin their practicum experience until after the first two semester of course work have been completed. International students may only work part-time during the academic year if their practicum is not completed by the end of summer. Prerequisites: BIO 701, 702, 703, 721, and 801.

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.

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 in 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. Corequisite(s): BIOSTAT 701 through BIOSTAT 703. Credit: 1

BIOSTAT801K - Biostatistics Career Preparation and Development I

Subject	Catalog Number	Title
BIOSTAT	801K	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 in 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. Corequisite(s): BIOSTAT 701 through BIOSTAT 703. 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 that 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. Prerequisite: BIOSTAT 721 and permission of the Director of Graduate Studies. Credits: 3

BIOSTAT822 - Data Science With R

Subject	Catalog Number	Title
BIOSTAT	822	Data Science With R

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. Prerequisite: BIOSTAT 722 or BIOSTAT 821 or permission of the Director of Graduate Studies. 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. Prerequisite(s): BIOSTAT 821 or permission of the Director of Graduate Studies. 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 course work. Prerequisite(s): BIOSTAT 707, 821, 822, and 823 or permission of the 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

Duke University

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.

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

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

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

Duke University

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

Duke University

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.

COMMFAM101C - Community Clinic Immersion Elective - Fremont

Duke University

Subject	Catalog Number	Title
COMMFAM	101C	Community Clinic Immersion Elective - Fremont

Description

Over the course of both semesters students will work in a community-based clinic providing care to patients for both urgent and chronic conditions. Students will practice skills with history-taking, physical examination, and when appropriate differential diagnosis and management, under the supervision of a supervising clinician and senior DUSOM medical student. Students will receive direct feedback from supervisory senior students and clinic faculty. Finally, students will learn about the provision of care within community-based clinics and the issues facing specific local communities. This elective is for first year students only. Credit; zero; Enrollment max;10. Permission of Instructor is required. Nathan Sison, MD

COMMFAM102C - Community Clinic Immersion - Holton

Subject	Catalog Number	Title
COMMFAM	102C	Community Clinic Immersion - Holton

Description

Over the course of both semesters students will work in a community-based clinic providing care to patients for both urgent and chronic conditions. Students will practice skills with history-taking, physical examination, and when appropriate differential diagnosis and management, under the supervision of a supervising clinician and senior DUSOM medical student. Students will receive direct feedback from supervisory senior students and clinic faculty. Finally, students will learn about the provision of care within community-based clinics and the issues facing specific local communities. This elective is for first year students only. Credit; zero; Enrollment max;10. Permission of Instructor is required. Allison Clay M.D.; Michelle Lyn MBA,MHA

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 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

Duke University

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, 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: 2. 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	Title
COMMFAM	245B	-

Description

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COMMFAM251 - COMPLEMENTARY MEDICINE

Subject	Catalog Number	Title
COMMFAM	251	COMPLEMENTARY MEDICINE

Description

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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 at Pickens or North Duke Street. 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. Brian Halstater, MD; and Nancy Weigle, MD

COMMFAM403C - Community Clinic Leadership Elective - Holton Clinic

Duke University

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

Duke University

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, Dennis Darcey, MD, 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 and population health improvement. 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 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. 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 Jan Willis (jan.willis@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, Course Director

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. Brian Halstater, 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, Vivian West, PhD via email at vivian.west@duke.edu, or by phone, 919-668-0189. Offered during spring section 42 only. Permission is required. 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. Corequisite: CRP 241. 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). 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. 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. 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 intra-patient 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. 2 credits.

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: CRP 242. Credit: 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. 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: CRP 242. Credit: 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 242. Corequisite CRP 245. Credit: 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.

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. Credit: 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

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. Credit: 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. 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. you do not plan on enrolling in classes this spring, and you are not enrolling in CRP 299 – Continuation of Research.

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 chosen 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

Duke University

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). Credit: 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

Description

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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 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. Instructors John Williams, MD and Stefanie Sarantopoulos

CRP278 - Machine Learning For Health

Duke University

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. Instructor Matt Englehard, PhD

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. Instructor Jillian Hurst, PhD, Matthew Sparks, MD, Chris Kontos, MD

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. 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. Prerequisite: Must be currently enrolled in CRTP Clinical Pharmacology track. Credit: 4; Maximum Enrollment: 5.

CRP282 - Pharmacogenomics - Study Away at UNC

Duke University

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. 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

Duke University

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; Adela Cardones, MD; Sabrina Shearer, MD; Adam Brys, 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 lectures 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, and a written case review. 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

Duke University

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. Secondary contact: Stacy Cayton (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 term. The course will be graded P/F. Enrollment Max. 16; Credit: 4. For more information, please contact Dr. Erin Leiman (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. Secondary Contact: Kristin Campbell (Kristin.l.campbell@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

Duke University

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. Secondary Contact: Kristin Campbell (kristin.l.campbell@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

Duke University

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

FREETIME450C - Free Time

Subject	Catalog Number	Title
FREETIME	450C	Free Time

Description

Students with no classes scheduled for a particular section should sign up for free time.

GHS301B - Global Health Study Program

Duke University

Subject	Catalog Number	Title
GHS	301B	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.

HGP301B - Research in HGP

Subject	Catalog Number	Title
HGP	301B	Research in HGP

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.

HLTHSCI501 - Human Structure

Duke University

Subject	Catalog Number	Title
HLTHSCI	501	Human Structure

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

The goal of this course is to build a basic understanding of the molecular and cellular principles of tissue organization, organ function, and human disease. The course will include a survey of several perspectives on cellular sciences, including biochemistry, cell biology, cellular physiology, genetics, immunology, pharmacology, microanatomy, and the basic mechanisms of pathology. The integration of this content will emphasize the structure and function of the cells and tissues of the body, the relationships among the major classes of macromolecules in cellular systems, metabolic control mechanisms, and the biochemical basis of human diseases. A laboratory component provides an interactive experience using virtual microscopy to analyze the structure of normal and pathological cells and tissues. 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 clinical correlations. Prerequisite: none. Credit 5. (Degree requirement)

HLTHSCI503 - Organ Systems

Duke University

Subject	Catalog Number	Title
HLTHSCI	503	Organ Systems

Description

The goal of this course is to develop a conceptual model for understanding the integrated function of major organ systems in the body, building upon the integration of human anatomy, embryology, histology, and the molecular and cellular sciences. The focus of this course will be on the physiology of organ systems in regulating the overall homeostasis of the human body, as well as the pathophysiological response of organ systems to injury and disease. The course will feature laboratory exercises, clinical correlations, and active learning experiences that incorporate exploration and dissection of human and non-human tissues. Mode of instruction will implement the principles and practices of team-based learning, with students organized in small teams for readiness assurances and integrative team applications. Prerequisite: HLTHSCI 501 and 502. Credit 5. (Degree requirement)

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

Duke University

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 and proportions, analysis of covariance; correlation; regression; and power and sample size. Prerequisite: none. Credit: 4. (Degree requirement)

HLTHSCI510 - Health Systems

Duke University

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. Prerequisite: none. Simulations will be provided throughout the course. Following successful completion of the EMT-B, students must 1) pass the NC state EMT examination and submit evidence of their examination scores and subsequent NC State certification and 2) Students who have completed a prior EMT Basic Training Course will be expected to participate in this course, and demonstrate maintenance of competency by passing the examinations and participating in the skills practicum. If they have active certification acceptable to the state of North Carolina they will not have to sit for "recertification." Credit 2. (Degree requirement)

HLTHSCI512 - EMT Clinicals I

Subject	Catalog Number	Title
HLTHSCI	512	EMT Clinicals I

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 Sciences, Systems Sciences, Medical Arts & Sciences Proseminar, and Discovery/Journal Club courses. A minimum of 12 hours per month is required October-December. Prerequisite: HLTHSCI 511. Credit 1. (Degree requirement)

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 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 Systems Sciences, Medical Arts & Sciences Proseminar, and Discovery/Journal Club courses. A minimum of 12 hours per month is required January-May. Prerequisite: HLTHSCI 512. Credit 1. (Degree requirement)

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)

HLTHSCI518 - Evidence Based Clinical Practice

Duke University

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)

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)

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. 2 Max 6. Credit: 4. (Selective) (Graded)

HLTHSCI522 - Nutrition Selective

Duke University

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. Stephanie Freel, MD. Credit 4. (Selective) (Graded)

HLTHSCI524 - Directed Study

Subject	Catalog Number	Title
HLTHSCI	524	Directed Study

Description

Directed Studies are variable credit (1-4) 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). Credit variable 1-4. Leonor Corsino, MD (Selective)

HLTHSCI525 - Fundamentals of Ultrasound

Duke University

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. 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

Duke University

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)

HLTHSCI535 - Fundamentals of Learning: Theory and Practice

Duke University

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 an area of health systems such as population health, health policy, chronic disease management, and health law. Interested students will work one-on-one with the instructor to identify a project with specific aims, implementation plan, timeline and outcome measure(s). Don Bradley, MD Credit: 1-2. (Selective)

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

Duke University

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

Duke University

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). Caroline Haynes, MD/PhD

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 Alspaugh, 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 Spanish-speaking healthcare providers. Students will build a foundation of medical terminology in Spanish, practice assuming the role of a Spanish-speaking provider, and build skills to provide patient-centered care for Hispanic/Latino patients as Duke medical students. A notation of "Credit/No Credit" will be entered on the student transcript at the conclusion of the course. Students meet every other Wednesday, 5:30 pm - 6:30 pm throughout the fall/spring terms. Class will meet in Classroom 4. Dr. Liza Genao (liza.genao@duke.edu) if you have questions about the course. Pre-requisite: Permission of the instructor is required for enrollment. Enrollment minimum is 10; maximum: 20. Credit: 1. Liza Genao, MD

INTERDIS175C - Clinical Experience - Cancer Care Experience Year 1

Subject	Catalog Number	Title
INTERDIS	175C	Clinical Experience - Cancer Care Experience Year 1

Description

This non-credit bearing experience is an oncology-care-focused clinical and didactic elective program for first-year medical students at Duke SoM. Enrollment information is provided during the spring term and evening sessions are typically held January – June. Course information is sent to students in November prior to the spring registration period, by the course director. Students must be approved by the course director and then must complete the form for enrollment in INTERDIS 175C. The approved form is routed to the SoM Registrar's Office for enrollment. No grade or credit is awarded. Matthew Labriola, 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 1. 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)

Duke University

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

Duke University

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

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. The Independent Study option for third year students is included on the 3rd year registration form for those students taking the board preparation course. The four-week study period must be approved in advance by the student's third year mentor, study program director, and mentor. The four-week period for study time is not guaranteed. 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.

INTERDIS305C - Clinical Skills Continuity Clinic

Duke University

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 I - Evidence Based Medicine YR3

Subject	Catalog Number	Title
INTERDIS	310C	Quantitative Medicine and Decision Making I - 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 the 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

Duke University

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. The Independent Study option for third year students is included on the 3rd year registration form for those students taking the board preparation course. The four-week study period must be approved in advance by the student's third year mentor, study program director, and mentor. The four week period for study time is not guaranteed. 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 and Fall 43, class will be Thursday 8am-12pm. 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 42 (minimum of 5 students/no drops); 43, and 44; fall 41, 42, and 43; spring 41, 42, and 44. Primary Contact: Course Director Dr. Sharon McCartney @ Sharon.McCartney@duke.edu. Course coordinator: Victoria Grossman, victoria.grossman@duke.edu. Credit/No Credit. Enrollment max: 22; 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 5:15p - 7:15p. For questions, please contact Dr. Quaranta via email, brian.quaranta@duke.edu. Credit: 1, Non-Direct Patient Care credit. Enrollment Max.:10; 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 (Tuesdays, 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.: 10. Credit: 1. Course Directors: 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

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 and religion 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) or 684-7790. Secondary contact: Rosa Solorzano, (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 fourth year elective 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 10 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 the Gracias area during 6 days of the trip. A trip to Copan and an indigenous Mayan community is also planned. There is a \$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@dm.duke.edu. This elective will not be open the 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 and 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 will participate in an ACLS and/or PALS provider course. For more information, students should contact Dr. Aimee Chung (aimee.chung@duke.edu) or Dr. Stephen Bergin (stephen.bergin@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 SOMCapstone@dm.duke.edu. Credit: 4. Enrollment max. 125. 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

Duke University

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 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 relate to medicine. Students design an individual course of study that brings together their intellectual interests and professional goals.

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 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

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, 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, or 919-668-7215. Credit: 2. Enrollment Max. 1. Location: Duke University Hospital, Duke Regional Hospital, Duke Home Care & Hospice. Alisha Benner, 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: 2. 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. Cecelia Zhang, 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

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: Students must have successfully completed Medicine 205C prior to taking this selective offering. Permission of instructor required. For more information or a permission number, please contact Dawne Smith via email, dawne.t.smith@duke.edu. Credit: 2. 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). 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. 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 (Duke/VA)

Subject	Catalog Number	Title
MEDICINE	401C	Internal Medicine Sub-Internship (Duke/VA)

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 are 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. Credit: 5. Enrollment: max 1. Matthew Labriola, MD and Medical Oncology staff

MEDICINE404C - Cardiac Care Unit Sub-Internship

Subject	Catalog Number	Title
MEDICINE	404C	Cardiac 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 cardiovascular disease. (2) How Goals Are Achieved: Students are assigned to the Duke CCU or to a cardiology inpatient service at Duke, and, in concert with the house staff, cardiology fellows, and senior staff attendings, work up and manage patients admitted to these various services. They also participate in 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 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. 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. Night call occurs every third night. 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. Credit: 5. Enrollment: max 3. Katie Young, MD and critical care staff

MEDICINE406C - Intensive Care Medicine Sub-Internship (Durham VA Hospital)

Duke University

Subject	Catalog Number	Title
MEDICINE	406C	Intensive Care Medicine Sub-Internship (Durham VA Hospital)

Description

(1) Course Goals: Primary - To provide training in clinical, physiologic, and pharmacologic principles of the care of the critically ill. Secondary - To develop students' skills in performance and interpretation of diagnostic procedures. (2) How Goals Are Achieved: Under the supervision of senior assistant residents, the pulmonary fellow and the critical care attending physician, students function as sub-interns and are responsible for patient work-ups and daily bedside presentations. Students are given responsibilities for procedures and decision-making in direct proportion to the development of their patient management skills. Daily radiology and bedside attending rounds stress an integrated physiologic approach to the management of critically ill patients with emphasis on triage, resuscitation, acute respiratory care, hemodynamic monitoring, acid-base balance, nutritional support, palliative care, patient safety, and end-of-life care. Each student is provided a document linking selected readings that supplement the didactic and bedside discussions on diagnosis, pathophysiology, and recognition and management of critical illness. The student on-call schedule is every fourth night for the duration of this four-week course. The student registered for MEDICINE 406C may drop the course up to one month before the start date. After that time, the student should arrange for a replacement if dropping the course. (3) Methods of Evaluation: Student evaluations are done by the fellows and faculty attending on the MICU and are based on observed performance. For more information, please email martha.carraway@va.gov. Secondary contact: Dr. Karen Welty-Wolf, 684-4938 or via email at welty001@mc.duke.edu. Students are to meet in the VA MICU's MD workroom for orientation by the on-service fellow or attending on the first day of the rotation at 0800 a.m., 5A (5th floor A wing), Durham VAMC, after emailing the course director at least two weeks before as a reminder of the start date. NOTE: Students must contact the course director at least 4 weeks before the first day of their scheduled rotation in order to have the allotted time necessary for the VA to get them back into the system. Each student rotating through Medicine 406C must complete the required VA "paperwork" (contact Clyde Meador at clyde.meador@va.gov) no less than 60 days from the first day of the section in which he/she is enrolled. Credit: 5. Enrollment: max 1. Martha Carraway, MD and critical care staff.

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

MEDICINE412C - Hospital Medicine

Duke University

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 will be emphasized. 1) Procedures including thoracentesis, paracentesis, and lumbar puncture through participation and direct observation, simulation, and viewing of procedure videos. 2) Management of inpatients on the Hospital Medicine service. 3) Overnight patient care with Hospital Medicine attendings with the opportunity to participate in 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 prefer the first or second two weeks of the four-week block. Prerequisite: Permission of course director is required. Contact talía.bernal@duke.edu for permission to enroll. Enrollment Max.: 2. Credit: 2. Talía Bernal, 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 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 919-660-6746 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; Raneé Chatterjee, MD; Kevin Shah, MD; Sharon Rubin MD, Lynn Bowlby MD; and other outpatient faculty

MEDICINE415C - Clinical Management of Obesity

Duke University

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.

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 once weekly from 5:00p - 7:30p. Students should contact Dr. Saumil Chudgar at saumil.chudgar@duke.edu to obtain a permission number. Credit: 1. Enrollment: max 12, min 6. Saumil Chudgar, MD, MS

MEDICINE423C - Rheumatology

Duke University

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) location. 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 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 (mithu.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

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 2021, we will conduct the course via Zoom, so students will be able to participate in live sessions even while traveling. 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: 8; max: 35. To enroll after the course has filled, you will need special permission from the Course. Faculty: John Roberts, MD (Course Director) and Dr. Michael Berkoben. director, please contact Dr. John Roberts at john.roberts@duke.edu to do so.

MEDICINE425C - Clinical Coagulation

Duke University

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, 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. For more information contact the course director Dr. Alisha Benner and the educational admin Jennifer Bowen via email at alisha.benner@duke.edu & Jennifer.bowen@duke.edu. Credit: 2. Enrollment max: 2. Alisha Benner, MD; David Casarett, MD; Farr Curlin, MD; Anthony Galanos, MD; Megan Jordan, MD; Kristin Meade, MD; Delani Mann, MD; Robin Turner, MD; Wil Santivasi, MD; Juan Pagan-Ferrer, MD; Jennifer Gentry, DNP; Tara Coleman, PA and Ashley Toscano, LCSW

MEDICINE428C - Metabolism and Endocrinology

Duke University

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. Secondary contact: Dr. Spratt (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

MEDICINE-430C. 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 or by phone at 919-684-0435. Dr. Marshall can be reached via email at Harvey.marshall@duke.edu. Credit: 4. Enrollment: min 1, max 1. Harvey Marshall, MD and pulmonary staff

MEDICINE431C - Adult Allergy and Clinical Immunology

Duke University

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, 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. 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) 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. 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; Stephen Bergin, MD and Christopher Cox, 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 2. 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

Subject	Catalog Number	Title
MEDICINE	437C	Rheumatology

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 rotate through multiple rheumatology clinics, learning how to manage complex disease in an outpatient environment. Inpatient consult time may be available upon request. 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 (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 Bereavement 101

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. 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

Duke University

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: Diane Mangum, 919-681-3815. Credit: 4. Enrollment: max 1. Augustus Grant, M.B., CH.B., PhD; Ruth Greenfield, MD; 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

Duke University

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.tsmith@duke.edu. Prerequisite: none. Credit: 4. Enrollment: max. 5 , (unless otherwise noted). Nishant Shah, MD; and cardiology staff

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

MEDICINE447C - Practitioners and Patients: The History of Clinical Medicine

Duke University

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 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 Tuesday 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 and the course director. Enrollment Max.: 14; Enrollment Min.: 8. Credit: 1, Non-Direct Patient Care credit. Offered during fall section 82. Jeffrey P. Baker, MD/PhD; Margaret Humphreys, PhD

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 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. Liza Genao at 919-970-8965 or Dr. Serena Wong at 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. Genao or 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. Course contact: Dr. Liza Genao, (liza.genao@duke.edu). Secondary contact: Dr. Serena Wong (serena.wong@duke.edu). Credit: 4. Enrollment: max 2. Liza Genao, MD; Serena Wong, DO; and other staff

MEDICINE452C - Clinical Medical Ethics: What Would a Good Physician Do?

Duke University

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 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 Brisco, MD (joshua.brisco@va.gov); Farr A. Curlin (farr.curlin@duke.edu), MD; and Marjorie Miller (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 to enroll. The email approval should be sent to the thirdyear@dm.duke.edu and to the course director. Enrollment Max.: 16; Minimum Enrollment: 8. Credit: 1. Offered spring 82; virtual during spring 2021. Thursday Evenings, 5:15pm - 7:15pm. Sneha Mantri, MD

MEDICINE479C - REHABILITATION MEDICINE - UNC

Subject	Catalog Number	Title
MEDICINE	479C	REHABILITATION MEDICINE - UNC

Description

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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 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.

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.

MMCI511 - Principles of Cost and Managerial Accounting

Duke University

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

Duke University

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 - Managerial Analysis

Subject	Catalog Number	Title
MMCI	540	Managerial Analysis

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.

MOLMED302B - Research in MOLMED - Regenerative Medicine

Subject	Catalog Number	Title
MOLMED	302B	Research in MOLMED - Regenerative Medicine

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 the fields of developmental and stem cell biology. Faculty in the study program are engaged in investigating mechanisms of embryonic development, developmental genetics, stem cells in various tissues from both humans and model organisms, the factors that regulate the balance between stem cell self-renewal and differentiation, the stem cell niche, the role of cancer stem cells in human cancer and the use of stem cells for therapy. The program is directed at students potentially interested in a career in regenerative medicine. Faculty members in this study track come from numerous departments, including Medicine, Biochemistry, Cell Biology, Pediatric, Pharmacology and Cancer Biology and Radiation Oncology. 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

MOLMED303B - Research in MOLMED - Molecular Basis of Disease

Duke University

Subject	Catalog Number	Title
MOLMED	303B	Research in MOLMED - Molecular Basis of Disease

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 defining molecular mechanisms that underlie biological processes, using an integrated approach that combines chemistry, enzymology, biophysics, structural biology, computational biology, cell biology and genetics. Faculty members in this study track come from numerous departments, including Biochemistry, Cell Biology, Medicine, Microbiology and Medical Genetics, 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.

MOLMED304B - Research in MOLMED - Nutritional & Metabolic Mechanisms of Chronic Diseases

Subject	Catalog Number	Title
MOLMED	304B	Research in MOLMED - Nutritional & Metabolic Mechanisms of Chronic Diseases

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 nutritional and metabolic mechanisms involved in the pathogenesis of chronic diseases. Faculty in the study program is engaged in investigating fundamental nutritional and metabolic regulatory mechanisms, including application of comprehensive metabolic analysis tools ("metabolomics") for the diagnosis and treatment of individuals with chronic diseases. Faculty members in this study track come from numerous departments, including Biochemistry, Cell Biology, Medicine, Microbiology and Medical Genetics, 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 Hasamukh Shah, MD, MHS; Gopal Sreenivasan, PhD; James A. Tulsky, MD

MSLS301B - Master of Library Science Study Program

Duke University

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 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. 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: 4. 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 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. 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 16 weeks, on Tuesday evenings, 5:30pm - 7:30p. 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. 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

Duke University

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. Course Director: Steven Cook, MD; John Sampson, MD, PhD (Chairman); Muhammad Abd-El-Barr, MD, PhD; Allan Friedman, MD; John Barr, MD; Patrick Codd, MD; Peter Fecci, MD, PhD; Herbert Fuchs, MD, PhD; Rory Goodwin, MD, PhD; Oren Gottfried, MD; Michael Haglund, MD, PhD; Erik Hauck, MD; Isaac Karikari, MD; Jordan Komisarow, MD; Nandan Lad, MD, PhD; Christopher Shaffrey, MD; Brandon Smith, MD; Derek Southwell, MD, PhD; Khoi Than, MD; Eric Thompson, 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

Intermediate Clinical Neurosurgery. 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; John Sampson, MD, PhD (Chairman); Muhammad Abd-El-Barr, MD, PhD; Allan Friedman, MD; John Barr, MD; Patrick Codd, MD; Peter Fecci, MD, PhD; Herbert Fuchs, MD, PhD; Rory Goodwin, MD, PhD; Oren Gottfried, MD; Michael Haglund, MD, PhD; Erik Hauck, MD; Isaac Karikari, MD; Jordan Komisarow, MD; Nandan Lad, MD, PhD; Christopher Shaffrey, MD; Brandon Smith, MD; Derek Southwell, MD, PhD; Khoi Than, MD; Eric Thompson, MD; Dennis Turner, MD; Matthew Vestal, MD; Chester Yarbrough, MD; and Ali Zomorodi, MD

NEUROSUR404C - Neuro-Oncology

Duke University

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 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 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, or you may contact her assistant, Kelly Seagroves, at kelly.seagroves@duke.edu or by phone at 919-684-6173. Permission is required. 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.

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, 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

Duke University

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 Geshler (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

Subject	Catalog Number	Title
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. Brittany Davidson, MD; Andrew Berchuck, MD; Brittany Davidson, MD; Laura Havrilesky, MD; Paula Lee, MD; Becca Previs, MD; Haley Moss MD, Angeles Alvarez Secord, MD; Georgia Smith; and gynecologic oncology fellows

OBGYN407C - Female Pelvic Medicine and Reconstructive Surgery Sub-Internship

Duke University

Subject	Catalog Number	Title
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 Cynthia Paylor, Duke Urogynecology, 5324 McFarland Drive, Suite 310, Duke Medicine Patterson Place, Durham, NC 27707; Phone: 919-401-1001. 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; Andrew Rivara, 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; Aimee Ferrindino, MD; Beverly Gray, MD; Liz Deans, MD; Bethany Beasley, MD/MPH; 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

Duke University

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). 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 and complete self-assessments and should report to the Hudson Building, Room 4588, 4th floor, once a week for an in-person case discussion (time determined at the start of the session). This course is offered during sections Spring 41 and 42; students are expected to view all pre-recorded lectures and attend at least 6 of the in-person case discussions, 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 @ 8:30am 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.jones@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

Duke University

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

Duke University

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

Duke University

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 for 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

Duke University

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. Credit: 2, Enrollment max: 3.Elizabeth W. Hubbard, 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 or 684-3170. Permission is required. Credit: 3. Enrollment: maximum 2 students per four-week section. Elizabeth Hubbard, MD; Robert Fitch, 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 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 students must contact the Visiting Student Coordinator, scott.campbell@duke.edu, to inquire about the process for applying. Elizabeth W. Hubbard, MD; Robert Fitch, MD and orthopaedic staff and house staff

ORTHO430C - Orthopaedic Sports Medicine

Duke University

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 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 or 684-3170. Permission Required. Credit: 4. Prerequisite: Ortho 429C. Enrollment max: 1. David Ruch, MD; Richard Goldner, 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 or 684-3170. Prerequisite: Ortho 429C. Permission is required. Credit: 4. Enrollment max: 1. Brian Brigman, MD and William Eward, DVM, 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 or 684-3170. Prerequisite: Ortho 429C. Permission is Required. Credit: 4. Enrollment max: 1. Robert Fitch, MD; and Robert Lark, MD; Benjamin Alman, MD, Elizabeth Hubbard, 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

Students explore what it means to understand themselves, others, and human health from an occupational perspective. They analyze the factors that influence how people engage in and experience occupations, the everyday activities of life. Students begin to consider how to help optimize people's health by improving their engagement in meaningful life occupations. Students explain the relationships between what people do and health determinants. 3 Credits

OT-D501 - Occupation, Occupational Therapy, & Care Systems I

Subject	Catalog Number	Title
OT-D	501	Occupation, Occupational Therapy, & Care Systems I

Description

In part I of this 2-part series, students examine occupational therapy's history--its core concepts, key players, and societal conditions that shaped the profession over time-- with particular attention to contemporary understandings of occupational therapy and how to advance those understandings through occupation-based practice. 2 Credits

OT-D502 - Occupational Science

Subject	Catalog Number	Title
OT-D	502	Occupational Science

Description

Students examine the science by which some knowledge of occupation is generated, including the evolution of occupational science, the core phenomena of interest to the science, the research questions explored, the methodological approaches and the levels of investigation most targeted in the science, as well as the contributions of occupational science to occupational therapy and other fields. 2 Credits

OT-D504 - Enabling Occupation Skills I

Subject	Catalog Number	Title
OT-D	504	Enabling Occupation Skills I

Description

In Part 1 of this 4-part series students practice ten key skills for enabling occupation: adapting, advocating, coaching, collaborating, consulting, coordinating, designing/building, educating, engaging, and specializing. Part I explores the meaning of client-centered enablement focused on occupation. 3 Credits

OT-D505 - Assembling, Creating, & Translating Knowledge I

Duke University

Subject	Catalog Number	Title
OT-D	505	Assembling, Creating, & Translating Knowledge I

Description

Across this 2-part series, students design, implement, and disseminate a research project. In part I, students select an area of research at the intersections of Diversity, Occupation, & Health. They conduct a literature review, establish research questions, and select qualitative and quantitative methods appropriate to the research questions. Data collection will begin in Part I and conclude in Part II. 3 Credits

OT-D506 - Formation for Service I

Subject	Catalog Number	Title
OT-D	506	Formation for Service I

Description

This course is Part One of a series that occurs every session. 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. In Part One of the formation series, students will clarify their values, beliefs, assumptions, and innate strengths. Once clarified, students will explore how these innate strengths impact interactions in group and team environments. In particular, students will hone skills to carefully observe, listen to, and support others with overlapping similarities and distinct differences who are also being formed for service as occupational therapists. Students will also examine the alignment between who they are, their vocation, and what occupational therapy exists to address in societies as a profession. To do this, students will explore philosophical reflections on occupational therapy, critiques of the field, and accounts of the professional identity of occupational therapists. 2 Credits

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 settings. 1 Credit

OT-D508 - Occupational Transitions I

Subject	Catalog Number	Title
OT-D	508	Occupational Transitions I

Description

Students apply the occupational therapy process to situations in which occupations are disrupted by person factors across the lifespan. Attention is given to the impact of person factors, such as cognition or strength, on occupation. Attention is also given to the clients' lived experiences, associated societal issues, and how the conditions relate to community and population health. 3 Credits

OT-D509 - Occupational Transitions II

Duke University

Subject	Catalog Number	Title
OT-D	509	Occupational Transitions II

Description

Students apply 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. 3 Credits

OT-D510 - Occupational Transitions III

Subject	Catalog Number	Title
OT-D	510	Occupational Transitions III

Description

Students apply the occupational therapy process to situations in which occupations are disrupted by personal and social issues such as occupational imbalance, life transitions, trauma, aging, or stress, among others. 3 Credits

OT-D511 - Enabling Occupation Skills II

Subject	Catalog Number	Title
OT-D	511	Enabling Occupation Skills II

Description

Students integrate content from each occupational disruption course to complete the occupational therapy process for individuals across the lifespan, from infancy to advanced old age. They also complete the occupational therapy process for communities and populations of children, adolescents, adults, and older adults. 3 Credits

OT-D512 - Assembling, Creating, & Translating Knowledge II

Subject	Catalog Number	Title
OT-D	512	Assembling, Creating, & Translating Knowledge II

Description

Students complete the research project they began in Part I. They collect, analyze, interpret data, and discuss implications. Students present their work publicly at the end of the course. 3 Credits

OT-D513 - Formation for Service II

Duke University

Subject	Catalog Number	Title
OT-D	513	Formation for Service II

Description

This course is Part Two of a series that occurs every session. 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. In Part Two of the formation series, students will explore different dynamics and practices that shape their commitment to service as an emerging occupational therapy practitioner. Building on insights from Part One of this course series, students will explore their role in systems-level influences on participation in occupation. To do this, students will examine different approaches to service provision, including disability studies, occupational justice, and international frameworks. Appreciating, critiquing, and expanding on these different approaches to service, students will analyze how power dynamics influence professional practice and the therapeutic use of self in the context of enabling occupation among individuals, groups, communities, and populations. Finally, students will practice skills related to conflict resolution and self-compassion that will support practice as a service-oriented occupational therapy professional. 2 Credits

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. 1 Credit

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. 2 Credits

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. They create theory- and research-driven education plans that are centered on occupation for patients, clients, fieldwork students, academic students, and the public. 2 Credits

OT-D517 - Enabling Occupation Skills III

Duke University

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. 2 Credits

OT-D518 - Formation for Service III

Subject	Catalog Number	Title
OT-D	518	Formation for Service III

Description

This course is part three of a series that occurs every session. 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. In Part three of the formation series, students will explore their inclinations, styles, and strengths related to leadership as an emerging occupational therapy practitioner. Students will consider the ethical standards for the profession of occupational therapy and how upholding these standards provides a foundation for identity and practice rooted in service and justice. Finally, students will explore practices that can support them in discerning ethically ambiguous and distressing situations, especially those in the context of enabling others to access and participate in occupation. 1 credit

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. 1 Credit

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 discover methods for conducting needs assessments and designing programs in collaboration with organizations and agencies seeking to enhance services that improve people's access to and participation in occupation. They gain skills for demonstrating occupational therapy's value and contributions to organizational metrics.

OT-D601 - Occupation and Technology

Duke University

Subject	Catalog Number	Title
OT-D	601	Occupation and Technology

Description

Students discover and engage with digital health, including the electronic medical record, telehealth, virtual reality, wearables, and more. They frame technology use as an occupation and critically evaluate its relationships to health and well-being and their role in contributing to the design of devices to optimize successful engagement. Students identify when mainstream and assistive technology can improve access to and participation in occupation.

OT-D602 - Occupation, Occupational Therapy, & Care Systems II

Subject	Catalog Number	Title
OT-D	602	Occupation, Occupational Therapy, & Care Systems II

Description

In part II of this series, students examine the U.S. medical and non-medical model systems. Students explore how these systems shape current occupational therapy practice and support emerging practices. Students examine reimbursement models and the roles of inter-professional colleagues. They learn theoretical models appropriate to different settings and gain skills for demonstrating occupational therapy's value and contributions to organizational metrics.

OT-D603 - Enabling Occupation Skills IV

Subject	Catalog Number	Title
OT-D	603	Enabling Occupation Skills IV

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-D604 - Formation for Service IV

Subject	Catalog Number	Title
OT-D	604	Formation for Service IV

Description

Students are empowered as ethical and authentic leaders in everyday situations. Throughout this course, students explore their own leadership skills and styles, participate in activities that form their capacity and skills to interact effectively with diverse groups of people to make meaningful occupational change. Students further develop approaches to manage conflict in professional settings with confidence, courage, and integrity, with fidelity to their professional identity as OTs and to the profession of OT as a whole.

OT-D606 - Capstone I

Subject	Catalog Number	Title
OT-D	606	Capstone I

Description

Students design and initiate a capstone project and experience in one of eight advanced areas of practice within occupational therapy: advocacy, research, policy, entrepreneurship, education, administration, program development and theory development.

OT-D607 - Advanced Practice Course I

Subject	Catalog Number	Title
OT-D	607	Advanced Practice Course I

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-D608 - Advanced Practice Course II

Subject	Catalog Number	Title
OT-D	608	Advanced Practice Course II

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-D609 - Advanced Practice Course III

Subject	Catalog Number	Title
OT-D	609	Advanced Practice Course III

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-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

Students who have completed a minimum of 20 hours of a pre-approved learning experience will synthesize and critically evaluate the experience and create a digital portfolio to capture the experience via Portfolio. They will assess the accomplishment of learning objectives and reflect on their personal development in relation to the project. 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

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-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

Students are formed for service as OTs through the development of discrete professional skills, behaviors, and competencies. Students build on their skills in self-reflection and reflexivity to identify core areas for improving and expanding their own professional skills and competencies. Students focus on giving and receiving charitable and critical feedback as part of professional responsibility.

OT-D617 - Capstone II

Subject	Catalog Number	Title
OT-D	617	Capstone II

Description

Students design and initiate a capstone project and experience in one of eight advanced areas of practice within occupational therapy: advocacy, research, policy, entrepreneurship, education, administration, program development and theory development.

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, student apply content from fourth semester coursework to simulated practice scenarios, followed by application to practice settings.

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. 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

Duke University

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.

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

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

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 reacquaint the student with autopsy prosecution 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

Duke University

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

Duke University

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

Duke University

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Duke University

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Duke University

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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 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

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 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; Grace Lee, MD; Jessica Poisson, MD; Jadee Neff, MD; and Christopher Polage, MD

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: Meredith Hennessey, M.H.S., meredith.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. Secondary contact (staff assistant): Terrie Harris (terrie.harris@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

Duke University

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. Aditee Pradhan Narayan, MD

PEDS222C - Overview of Pediatric Hematology-Oncology

Duke University

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. 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) and Dr. Mago Shah (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

Duke University

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

Duke University

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

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 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. Dana Clifton (dana.clifton@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. Secondary Contact: Melissa Minton, melissa.minton@duke.edu. Credit: 5. Enrollment: Max: 4. Dana Clifton, MD; Samrat Das, MD and faculty.

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.

PEDS403C - Med-Peds Ambulatory Rotation

Subject	Catalog Number	Title
PEDS	403C	Med-Peds Ambulatory Rotation

Description

-Full immersion experience in outpatient adult and pediatric medicine. -Students will see patients of all ages for a variety of visit types (follow-ups, physicals/well child checks, urgent care visits), hone their history and PE skills, formulate assessment and plans for common outpatient problems, gain an understanding of healthcare maintenance/preventive care, experience continuity of care, and learn about community resources in the outpatient setting. Enrollment Max: 1. Credit 3-4. Permission of instructor is required. Students should report to Duke Health Center, 4020 N. Roxboro Street, Durham, NC 27704 on the first day. Please contact Dr. Aimee Chung (aimee.chung@duke.edu) to confirm start time. Aimee Chung, MD

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 2022, classes begin on January 12th. 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 Naryan, 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

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 2W98c Duke South Blue Zone Palliative Care offices at 8:45am - page attending at 970-4357 to verify meeting location. Enrollment max; 2 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. Credit 2. Megan Jordan, MD; Other faculty: Margarita Bidegain, MD; Sarah Gall, MD; Karen Jooste, MD; Rose Sharpe, NP; and Ashley Toscano, CSW

PEDS411C - Pediatric Emergency Medicine

Duke University

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. Ellis via email approximately 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, even if scheduled for fewer than 4 credits. Required activities include simulation and didactic lectures on various mornings (depending on the specific month). If students are unable to attend these sessions, additional assignments must be completed in order to pass the rotation. Students are allowed to ask for 3 off-days during their month (with an additional 2 requests during interview season). These are by no means guaranteed, but every effort will be made to accommodate these requests. Schedule requests for time away must be cleared by the elective course director FOUR weeks before the start date of the rotation. Permission of the instructor is required for enrollment. 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. Permission is required. Variable Credit: 3-4 credits. Enrollment max: 2. Rachel O'Brian, MD; W. Clay Bordley, MD, MPH; Donald Ellis, MD; James Fox, MD; Emily Greenwald, MD; Mia Mallory, MD, MEd; Emily Sterrett, MD, MS-CTR; Neel Subramanian, MD; Larissa Truschel, MD, MPH; 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 Tariq Ali Dinar, (tariq.dinar@duke.edu) if you have questions. Pre-requisite: Permission of instructor is required. Credit: 2; Enrollment max: 1. Tariq 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 Tariq Ali Dinar, (tariq.dinar@duke.edu). Pre-requisite: Permission of the instructor is required for enrollment. Credit: 3-4; Maximum Enrollment: 1. Tariq 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. Course Requisite: Permission of course director is required for enrollment. 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

PEDS418C - PEDIATRIC CARDIOLOGY - UNC

Subject	Catalog Number	Title
PEDS	418C	PEDIATRIC CARDIOLOGY - UNC

Description

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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, management, and follow-up of patients with possible infectious diseases. Students will work closely with the pediatric infectious diseases team on the general infectious diseases service, 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 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. Kammy McGann (Kathleen.mcgann@duke.edu). Secondary contact: Dr. Mike Smith (michael.j.smith@duke.edu; 919-684-6335). Students should meet on the first day at Dr. McGann's Office – Room 373, Hanes House. Peds ID fellow pager: 970-7420. Permission is required. Credit: 2. 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, management and follow-up of patients with possible infectious diseases. Students will work closely with the infectious disease team on the general infectious diseases service, 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 infectious diseases. There may be an opportunity to spend some time with the transplant infectious diseases team. Students that take this course are not eligible to enroll in PEDS 420C. Dr. Kammy McGann (Kathleen.mcgann@duke.edu). Secondary contact: Dr. Mike Smith (michael.j.smith@duke.edu; 919-684-6335). Students should meet on the first day at Dr. McGann's Office – Room 373, Hanes House. Peds ID fellow pager: 970-7420. Permission is required. Credit: 3-4. Enrollment Max: 3-4. 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; Michael Freemark, MD; Deanna Adkins, MD; Laura Page, MD; and Pinar Gumus, 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 or by phone at 919-681-6024. Secondary contact: Dr. Ronald Goldberg, 681-6024. 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; Margarita Bidegain, MD; Trevor Burt, MD; C. Michael Cotten, MD; Jeffrey Ferranti, MD/MS; Rachel Greenberg, 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. Prerequisite: Interested students must contact the course director. For questions, please contact Christine Duke (Christine.g.duke@duke.edu) Credit: 4. Enrollment: max 1. Susan Kreissman, MD; Dan Landi MD; Corinne Linardic MD/PhD; Kristi Pahl, MD; 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. 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. 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

Duke University

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) and secondary contact support staff Kim Yancey (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, Apex, 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. Secondary Contact: Dr. Michael J. Campbell, michael.campbell2@duke.edu, or 919-684-3574. Credit: 4. Enrollment: max 1. Zebulon Spector, MD; Other faculty: Piers C.A. Barker, MD; Richard J. Boruta, 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; Gregory Tatum, MD; McAllister Windom, MD.

PEDS433C - Allergy and Clinical Immunology

Duke University

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. An alternate contact is Debra Preddy. You may reach her via email at debra.preddy@dm.duke.edu. Please contact Debbie Preddy at least one week prior to 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

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

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

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. Wigfall at 684-4246 or via email at wigfa001@mc.duke.edu. Credit: 4. Enrollment: max 1. Delbert Wigfall, 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

PHARM236 - Drug Discovery and Development

Subject	Catalog Number	Title
PHARM	236	Drug Discovery and Development

Description

Takes students through every step of the process for new drug discovery, from target validation, high through put discovery (hit to lead), lead development through medicinal chemistry, preclinical work-up (pharmacokinetics and toxicity), formulations and GLP/GMP manufacture, regulation and clinical trials. Explores the future of drug discovery - new (biologics) versus old school (small molecule). Prerequisite Pharmacology and Cancer Biology 233.

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.

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.

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.

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.

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.

PHYASST201 - Physiology

Duke University

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.

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. Streilein

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. Streilein

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. Streilein

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

Duke University

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. Sanchez

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. Sanchez

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. Sanchez

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 Bolden.

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 Bolden.

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. Morgan

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 training, professionalism and Advanced Cardiac Life Support. Credit: 2. Blazar

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. 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

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

PHYASST308 - Pediatric Health Lifestyles Program

Duke University

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

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.

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

Duke University

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

Duke University

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

Duke University

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

Duke University

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

Duke University

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. Bolden.

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

The one to four credit course is available to PA students who wish to propose an individualized alternative learning plan on a topic of their selection for an elective course during the clinical year. This plan will require approved assessment measures with advanced approval by the Clinical Year Team and Program Leadership 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. Cerrone Cohen, MD

PSYCHTRY206C - Primary Care Leadership Track (PCLT) - Psychiatry

Duke University

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

Duke University

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, 5:15p-7:15p, Thursday evenings. 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

Duke University

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. For permission to enroll, please contact Cathy Lefebvre, (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). 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, or the secondary contact, Cathy Lefebvre, 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 (STEP) is the first in a series of four courses that are embedded in the first phase of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1.

PT-D602 - Body and Brain I

Subject	Catalog Number	Title
PT-D	602	Body and Brain I

Description

This course begins a two-session exploration of the human body and brain through a variety of learning experiences, including cadaver dissection, laboratory presentations, examination and dissection of brain specimens, classroom presentation and discussion, and a variety of team-based learning activities. The overall goal of this course and the next in this sequence, PT-D 612 Body and Brain II, is to provide a framework for understanding the form and function of the human body and the organization of the neural systems in the brain and spinal cord that motivate bodily actions. The framework for PT-D 602 is primarily anatomical, with an emphasis on gross anatomy and 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 and reproductive systems. In addition, this course examines 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. This course also covers the microanatomy of the major organs and the functions of their constituent cells, the embryological origins of organ systems, the biomechanics of various organ tissues, and the response of muscle, bone, joints, and soft tissue to disease and injury. In terms of regional anatomy, PT-D 602 will consider the postcranial body, while PT-D 612 will focus on the head and neck, including a comprehensive survey of the neuroanatomy and neurophysiology of the central nervous system. Credit: 4

PT-D603 - Applied Physiology I

Subject	Catalog Number	Title
PT-D	603	Applied Physiology I

Description

This course begins a two-course sequence of Applied Physiological concepts through a variety of learning experiences, including classroom presentation and discussion and laboratory experiences. The overall goal of this course and the next in this sequence, PT-D 613 Applied Physiology II, is to provide the foundational basis for understanding the body's physiological responses to physical activity. The sequence investigates how the support systems of the body (respiratory, cardiovascular, muscular, endocrine, etc.) function, in cooperation with energy production, to ensure that energy is provided for physical activity. At the completion of the two-course Applied Physiology sequence, students will 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. Clinical correlations and case-study applications will be used throughout the sequence. The first course in the sequence, PT-D 603 Applied Physiology I, concentrates on the following topics: a) nutrition as the basis for human performance; b) energy systems for physical activity and measuring energy expenditure; c) systems of energy delivery and utilization such as the cardiovascular, pulmonary, and skeletal muscle systems; d) body composition, energy balance, and weight control; e) vital sign and physical performance assessments; and f) physical activity and disease prevention. Credit: 3

PT-D604 - Movement Sciences I

Subject	Catalog Number	Title
PT-D	604	Movement Sciences I

Description

This course is an introduction to the elements and principles fundamental to the study of human movement. Included are basic kinesiology and biomechanics, biomechanics of biological tissues, muscle and joint structure and function, normal and pathological joint movement, and a clinically-relevant movement assessment model. Concepts of kinetics, kinematics, length-tension relationships, joint classification, and functional movement will be discussed. Clinical application of mechanical concepts will be presented. While these concepts seem very specific in nature they will always be focused on the application to the patient population. This will set the foundation for your future coursework examining how various movement-oriented interventions can potentially promote the quality of life in various patient populations along with understanding the mechanisms and effects of various pathologies. This foundation will combine with additional intervention and pathology coursework so that students can develop treatment plans in their eventual roles in the health care community as a Clinical Doctor of Movement. Credit: 3

PT-D605 - Professional Development I

Subject	Catalog Number	Title
PT-D	605	Professional Development I

Description

Professional Development I is the first in a three-course series that has as its focus the development of professional behaviors, knowledge, and values in the student. In this course students will discover and develop their understanding of the obligations and rewards of professionalism. Students will learn about the profession of physical therapy, its history, accomplishments, and future directions. Students will discuss the core professional values for physical therapists and the broad dimensions of legal and ethical practice. Students will be introduced to theoretical models used to describe the processes of health and illness and the management of patients in physical therapy. Credit: 2

PT-D606 - Health Promotion Across the Lifespan

Subject	Catalog Number	Title
PT-D	606	Health Promotion Across the Lifespan

Description

This course introduces issues related to health and wellness across the lifespan from birth to death, including physical, psychological, social, and economic aspects. Life stages from prenatal, childhood, adolescence, adulthood, and old age are covered. There is an emphasis on issues relevant to the practice of physical therapy in geriatric populations. The course content includes principles of prevention for individuals, groups, and populations across the lifespan; analysis of health promotion and disease prevention service needs for populations and communities; and developing skills and attitudes needed for inter-professional teamwork. Credit: 2.

PT-D611 - Clinical Steps II

Subject	Catalog Number	Title
PT-D	611	Clinical Steps II

Description

Clinical Student Team Experience in Practice (STEP) is the second in a series of four courses that are embedded in the first phase of the DPT curriculum. Students will work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 2.

PT-D612 - Body and Brain II

Subject	Catalog Number	Title
PT-D	612	Body and Brain II

Description

This course completes the two-session exploration of the human body and brain through a variety of learning experiences, including cadaver dissection, laboratory presentations, examination and dissection of brain specimens, classroom presentation and discussion, and other team-based learning activities. The overall goal of this course is the same as the first in this sequence, PT 602 Body and Brain I: to provide a framework for understanding the form and function of the human body and the organization of the neural systems in the brain and spinal cord that motivate bodily actions. The framework for PT 612 is again primarily anatomical, with an emphasis on gross anatomy and the relationships between the musculoskeletal, neurological, and vascular systems of the human body. PT 602 surveyed these relationships in the postcranial body; PT 612 will focus on the morphology and function of the head and neck region, including a comprehensive survey of the neuroanatomy and neurophysiology of the central nervous system. PT 612 will also cover the microanatomy, embryology and pathology of the nervous system. In the end, learners will command a comprehensive fund of knowledge concerning the form and function of Body and Brain, and the means by which the nervous system governs human behavior. Credit: 3

PT-D613 - Applied Physiology II

Subject	Catalog Number	Title
PT-D	613	Applied Physiology II

Description

The overall goal of the Applied Physiology two-course sequence (PT-D 603 and PT-D 613) is to provide the foundational basis for understanding the body's physiological responses to physical activity. At the completion of the sequence, the student will 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. Clinical correlations and case-study applications will be used throughout the sequence. The second course in the sequence, PT-D 613 Applied Physiology II, concentrates on the following topics: a) endocrine, GI, renal, and reproductive organ systems physiology and responses to exercise; b) enhancement of energy transfer capacity through anaerobic and aerobic training and muscle strength training; c) influence of environmental stress such as altitude and thermal stress on exercise capacity; d) exercise, successful aging, and disease prevention; and e) clinical applied physiology as it pertains to major pathologies such as cardiovascular disease, diabetes, cancer, common musculoskeletal injuries, etc. Credit: 3

PT-D614 - Movement Sciences II

Subject	Catalog Number	Title
PT-D	614	Movement Sciences II

Description

This course is a continuation of PT-D 604 Movement Science I. Where PT-D 604 focused on how we move, this course focuses on how we control movement. The first portion of the course builds on the student's knowledge of previous movement science coursework, and focuses on observational gait analysis of normal and pathological gait patterns. The second portion of the course focuses on motor control, and motor learning as areas of study for understanding the acquisition and performance of human movement. This course explores the theories and principles of motor control and motor learning as they apply to the analysis of human movement across the lifespan, as well as the application to physical therapy assessment and intervention. The third part of the course focuses on typical (normal) development. The basic understanding of human movement provides a foundation for developing assessment and intervention strategies to improve and restore movement ability. Credit: 2.

PT-D615 - Professional Communication I

Duke University

Subject	Catalog Number	Title
PT-D	615	Professional Communication I

Description

This course introduces and develops the critical communication skills that are integral to the practice of physical therapy. Students will learn about patient-centered interviewing, aspects of personal communication, written and electronic documentation, principles of teaching and learning, learning styles, goal setting, behavioral change, giving and receiving feedback, self-assessment, and working effectively as a member of a group. In this course, students will be introduced to the patient/client interview from a communication perspective. Students will learn a model for conducting a patient/client interview and will practice these techniques with each other, standardized patients, and patients in clinical settings. Students will give and receive feedback in group format and individually for the purposes of developing skills in managing feedback and becoming aware of their personal strengths and areas for improvement in interviewing. Written documentation in the SOAP format will be covered and applied to actual patient cases. Learning theories and principles of learning will be applied to the role of health care provider as educator. Students will learn to prepare lessons using a variety of teaching methods for specific audiences. Credit: 2.

PT-D616 - Foundational Physical Therapist Examinations

Subject	Catalog Number	Title
PT-D	616	Foundational Physical Therapist Examinations

Description

In this course, students are taught to screen, measure, and examine problems associated with basic physiological dysfunction, movement dysfunction, and disability. Basic skills are presented in an applied, problem-solving learning environment, which is integrated with PT-D 617. The course introduces fundamental examination skills used throughout physical therapy practice and among all practice settings. Credit: 2

PT-D617 - Foundational Physical Therapist Interventions

Subject	Catalog Number	Title
PT-D	617	Foundational Physical Therapist Interventions

Description

In this course, students are introduced to the basic physical therapist patient interventions used to ensure safe patient-interaction. Interventions include: patient safety and first aid, safe and effective patient positioning and movement, transfers, use of assistive ambulatory devices, stretching and flexibility, strength training, introduction to pharmacology and proprioceptive neuromuscular facilitation. Credit: 2

PT-D621 - Clinical Steps III

Subject	Catalog Number	Title
PT-D	621	Clinical Steps III

Description

DPT STEPs® is the third in a series of four courses that are embedded in the first phase of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students are expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1.

PT-D622 - Evidence-Based Practice I

Subject	Catalog Number	Title
PT-D	622	Evidence-Based Practice I

Description

In this course students will be introduced to the science of clinical reasoning in health care and physical therapy, and, the integration of clinical reasoning and evidence based practice will be developed. Students will learn how to access knowledge for practice, and will learn the methods of scientific inquiry, including research theory, design, methods, and measurement. 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. Credit: 2.

PT-D623 - Cardiopulmonary Patient Management

Subject	Catalog Number	Title
PT-D	623	Cardiopulmonary Patient Management

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 and evaluation procedures, diagnostic procedures, goal setting, and interventional strategies. Successful completion of the course requires the ability to integrate and synthesize information from this course with prerequisite and other related courses in a variety of cardiovascular and pulmonary case-based problem-solving experiences. The lecture portion of the course provides the didactic background to make sound clinical decisions in examination, evaluation, and treatment of patients with a wide variety of cardiovascular and pulmonary diseases. The laboratory 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 diseases. Credit: 2

PT-D624 - Integumentary Patient Management

Subject	Catalog Number	Title
PT-D	624	Integumentary Patient Management

Description

This course introduces the practice management model for patients with pathology or impairment of 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 are discussed. Students learn to examine patients with impairments or functional limitation and disability as a result of primary and secondary pathologies of the integument. Students learn screening techniques for secondary management of the integumentary system in many physical therapy settings and across the lifespan. Credit: 2

PT-D625 - Diagnostic Imaging

Subject	Catalog Number	Title
PT-D	625	Diagnostic Imaging

Description

This course introduces the student to a spectrum of diagnostic imaging techniques used for musculoskeletal, neurological, pulmonary, cardiovascular systems. An overview of principles, techniques, purpose, process, and interpretation of diagnostic imaging will be offered, as well as indications, contraindications, advantages, and disadvantages of various specific imaging techniques. Diagnostic imaging covered will include plain film radiography, bone scans, DEXA, ultrasound, CT scans, MRI, MRA, PET scans, SPECT, and diffusion tensor imaging, as well as nuclear and interventional medicine. Emphasis will be on the role of diagnostic imaging as it relates to physical therapy, including indications for referral for imaging, and integrating imaging information with significant findings from patient history and patient examination in physical therapy assessment. Importance is placed on the skills needed to effectively collaborate and communicate with medical professionals. Credit: 2

PT-D626 - Assessing Outcomes of Care

Subject	Catalog Number	Title
PT-D	626	Assessing Outcomes of Care

Description

PT 626 has two specific foci. Firstly, the course introduces the metrics associated with outcomes assessment (e.g., reliability, validity, dimensionality, and interpretability), whereas the second aspect of the course introduces the learner to the most common generic, disease specific, and condition specific 1) self-report measures, 2) physical performance measures, 3) clinician report measures, and 4) administrative measures. The course will compare and contrast the merits of the measures including a discussion of the influence of bias for each measure. Credit: 2.

PT-D627 - Physical Therapist Interventions I

Subject	Catalog Number	Title
PT-D	627	Physical Therapist Interventions I

Description

This course continues to build on Foundational Physical Therapist Interventions by adding to the therapeutic exercise techniques including wrapping and compression garments, thermal modalities, cryotherapy, mechanical traction, soft tissue mobilization and massage techniques, aerobic exercise, airway clearance techniques, skin and wound management. Credit: 2.

PT-D631 - Professional Practice I

Subject	Catalog Number	Title
PT-D	631	Professional Practice I

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.

PT-D632 - Structure and Function of the Human Body

Subject	Catalog Number	Title
PT-D	632	Structure and Function of the Human Body

Description

Normal Human Body provides the anatomic and basic science foundations necessary for physical therapists' understanding the human body. The course emphasis is on gross anatomy and 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 and reproductive systems. This course also covers the microanatomy of the major organs and the functions of their constituent cells, the embryological origins of organ systems, 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. Credit: 7

PT-D633 - Movement Science

Duke University

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, normal and pathological joint movement, normal human development, and observational gait analysis of normal and pathological gait patterns. Concepts of kinetics, kinematics, length-tension relationships, joint classification, and functional movement will be discussed. While these concepts seem very specific in nature, they will always 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

This course provides contact with patients and patient care techniques. It exposes students to the initial steps in the patient/client professional relationship. Emphasis is placed on the following skills: patient history, vital signs, palpation, range of motion, goniometry, muscle performance testing. The emphasis throughout the course is to develop the skills necessary to assure patient/client and student safety in the clinical environment.

PT-D635 - Professional Practice II

Subject	Catalog Number	Title
PT-D	635	Professional Practice II

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 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. Credit: 1.5

PT-D636 - Healthcare Systems

Subject	Catalog Number	Title
PT-D	636	Healthcare Systems

Description

Introduction to the healthcare system 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-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 will be 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 look at 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. Credit: 2

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 is more prevalent than heart disease, cancer, and diabetes combined; and is responsible for over \$600 billion in healthcare and lost productivity costs. Importantly, persistent pain is not a symptom, but a health disorder. For optimal pain management, clinicians must understand and identify a multitude of biological, psychological, cognitive, and social factors. The course will educate students on acute and persistent pain mechanisms and influences. In addition, students will be introduced to evidence-based approaches for optimal pain management.

PT-D641 - Professional Practice III

Subject	Catalog Number	Title
PT-D	641	Professional Practice III

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 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. Students will also be grounded in ethical frameworks that can be easily applied to practical situations encountered in clinical practice. Credit: 1

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 forty 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. Credit: 2

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, and, the integration of clinical reasoning and evidence-based practice will be developed. Students will learn how to access knowledge for practice, and will learn the methods of scientific inquiry, including research theory, design, methods, and measurement. Students will focus on learning how to determine the statistical conclusion validity of research evidence for practice, learn the logic of hypothesis testing and specific statistical tests used for descriptive and inferential analysis of experimental research data. Epidemiological statistics that enhance the understanding of diagnostic tests and treatment options will also be covered, as well as 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 mobility assistive technologies including: orthoses, prostheses, and wheelchairs. Additionally, patient management for individuals with amputations will be covered.

PT-D645 - Foundational Musculoskeletal Practice

Subject	Catalog Number	Title
PT-D	645	Foundational Musculoskeletal Practice

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; upper extremities, pelvis and lower extremities

PT-D646 - Foundational Neurologic Practice

Subject	Catalog Number	Title
PT-D	646	Foundational Neurologic Practice

Description

The Neurological Practice Management (NPM) course includes the basic etiology, epidemiology, pathogenesis, and clinical presentation of common focal and global neurological conditions and injuries. Learners will apply assessment procedures to define impairments and limitations across activities and participation, and develop a plan of care for adults with neurological dysfunction. The course will cover the management of central nervous system (CNS) dysfunction, peripheral nervous system dysfunction, vestibular pathologies, and motor unit diseases. Examination, evaluation, diagnosis, pharmacological management, clinical decision-making, prognosis, standardized assessments, outcome measures and interventions will be emphasized. Credit: 8

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 provides the anatomical and physiological foundations necessary for physical therapists' understanding of the human brain. 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, how the nervous system governs human behavior and how neuroanatomy and neurophysiology impact the care of patients/clients in the profession of physical therapy. Credit: 3

PT-D650 - Cultural Determinants of Health and Health Disparities in PT I

Duke University

Subject	Catalog Number	Title
PT-D	650	Cultural Determinants of Health and Health Disparities in PT I

Description

This curriculum will equip Duke Doctor of Physical Therapy Students with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity and socioeconomic difference. Course facilitators and guest 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 outside traditional classroom settings, 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. Credit: 1

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

This curriculum will equip Duke Doctor of Physical Therapy Students with a deeper understanding of implicit and explicit bias, race, racism, sex, ability status, gender identity and socioeconomic difference. Course facilitators and guest 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 outside traditional classroom settings, 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. Credit: 2

PT-D701 - Clinical Steps IV

Subject	Catalog Number	Title
PT-D	701	Clinical Steps IV

Description

DPT STEPs® is the fourth in a series of four courses that are embedded in the first phase of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving, and assume professional roles in various clinical patient care settings. In each course students are expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 2

PT-D702 - Professional Communication II

Subject	Catalog Number	Title
PT-D	702	Professional Communication II

Description

This course builds on the skills introduced in Professional Communication I by expanding the student's communication experience and preparing the student for the clinical application of advanced communication skills in the helping relationships with patients and families coping with the meaning of illness. Emphasis is placed on the psychosocial aspects of care, inter-professional communication and cultural competency which are reinforced by experiential learning, self-reflection and work with Standardized Patients. Students will continue to develop their teaching communication skills by designing formal learning experiences and developing methods for assessing learning and teaching effectiveness. Credit: 2.

PT-D703 - Evidence-Based Practice II

Subject	Catalog Number	Title
PT-D	703	Evidence-Based Practice II

Description

In this course, students focus on learning how to determine the statistical conclusion validity of research evidence for practice. Students learn the logic of hypothesis testing and specific statistical tests used for descriptive and inferential analysis of experimental research data. Students read research literature weekly and discuss the analytical approaches that support the research findings. Epidemiologic statistics that enhance the understanding of diagnostic tests and treatment options are covered, as well as the analytical components of systematic reviews and meta-analyses. Students are introduced to reference management software to support their Capstone Evidence-Based Practice project work, and present examples of their summaries of research evidence to their Capstone mentors. Credit: 2

PT-D704 - Musculoskeletal Patient Management I

Subject	Catalog Number	Title
PT-D	704	Musculoskeletal Patient Management I

Description

This course is designed to expand the knowledge base of the student in the specialized area of Musculoskeletal Practice Management. Direct physical therapist intervention for patient examination, evaluation, diagnosis, prognosis, and intervention will be presented. Credit: 3.

PT-D705 - Neurological Patient Management I

Subject	Catalog Number	Title
PT-D	705	Neurological Patient Management I

Description

Advanced clinical knowledge and skills are needed for physical therapy evaluation and management of complex neurological disorders. The Neurological Practice Management (NPM) Series includes the etiology, epidemiology, pathogenesis, clinical presentation of common neurological conditions and injuries, assessment procedures to define impairments and limitations in activity and participation, and development of plan of care for persons with neurological dysfunction across the lifespan. This is the first part of a two-semester course and will cover the physical therapy management for individuals with neurological and neuromuscular impairments and dysfunction, with an emphasis on the adult population. The course will cover the management of central nervous system (CNS) dysfunction, peripheral nervous system dysfunction, vestibular pathologies, and motor unit diseases. Examination, evaluation, diagnosis, pharmacological management, clinical decision-making, prognosis, standardized assessments, outcome measures and interventions will be emphasized. Diagnoses highlighted will include: cerebral vascular accident (CVA), acquired brain injury (ABI), normal pressure hydrocephalus (NPH), cerebellar dysfunction, spinal cord injury (SCI), multiple sclerosis (MS), Parkinson's Disease (PD), amyotrophic lateral sclerosis (ALS), vestibular pathologies, myasthenia gravis, and Guillain-Barre Syndrome (GBS). Management across the lifespan and in various clinical settings will be addressed, including acute care, inpatient acute rehab, outpatient, skilled nursing facilities, and home health settings. Students will participate in an Adult Movement Matters Program in which they will see adult patients with neurological and neuromuscular impairments and disabilities. Credit: 4.

PT-D706 - Physical Therapist Interventions II

Duke University

Subject	Catalog Number	Title
PT-D	706	Physical Therapist Interventions II

Description

This course supports the patient management courses that have been completed or are concurrently occurring. The course provides an opportunity for students to learn about a variety of interventions that are appropriate for patients with musculoskeletal and/or neuromuscular impairments. In this course the student will learn physical therapist interventions associated with: pain management and neural tissue stimulation, including ultrasound and electrical stimulation. This lab-based course will allow students to be introduced to and practice a variety of therapeutic interventions for patients, including, modulation of tone, patient handling skills, functional transitions and gait training. Credit: 3.

PT-D711 - Clinical Steps V

Subject	Catalog Number	Title
PT-D	711	Clinical Steps V

Description

DPT STEPs is a series of five courses that are embedded in the six didactic semesters of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving and assume professional roles in various clinical patient care settings. Each semester students are expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1

PT-D712 - Health Policy and Health System Design

Subject	Catalog Number	Title
PT-D	712	Health Policy and Health System Design

Description

In this course, we will explore the local, regional, national and international health care and policy landscapes. Students will learn about the evolution and complexities that exist within the health care system (or non-systems) in the United States and elsewhere. Students will also have the opportunity to learn about topics ranging from the principles that underpin health economics to the policy nuances of the Americans with Disabilities Act (ADA). The ultimate goal of PT-D 712 is to first establish awareness and knowledge of policy issues related to physical therapy, and second, to be able to apply this knowledge and information to express compelling and convincing written and oral opinions on current health policy topics. Throughout the course, students will learn about many components of health care, but we will focus on rehabilitation and physical therapy services. Drawing from the published literature and from some invited guests, we will use a blend of didactic presentation and team-based learning modules. The content of this course is important in and of itself; however, it is also a precursor to PT-D 722 (Session 6) when the student will apply much of this knowledge as they explore the business aspects of physical therapy. Credit: 2

PT-D713 - Professional Development II

Subject	Catalog Number	Title
PT-D	713	Professional Development II

Description

Professional Development II is the second in a three-course series that has as its focus the development of professional knowledge, values and behaviors, in the student. In this course students will revisit aspects of the Profession's Core Values as they set goals for their professional careers. Students will become familiar with post-professional training opportunities including residencies and specialization. Legal and ethical practice as physical therapists will be discussed and students will work in teams to solve complex clinical problems that they are likely to encounter. The Core Value for Excellence will be developed through a subunit focused on clinical reasoning theory and practice. Students will utilize their communication skills to practice the expectations of culturally competent care. Student teams will conduct a semester-long Advocacy project to instill the Professional Core Value of social responsibility. Credit: 2

PT-D714 - Musculoskeletal Patient Management II

Subject	Catalog Number	Title
PT-D	714	Musculoskeletal Patient Management II

Description

This course is designed to expand the knowledge base of the student into the specialized area of Musculoskeletal Patient Management. Direct physical therapist intervention for patient examination, evaluation, diagnosis, prognosis, and intervention will be presented. Credit: 3

PT-D715 - Neurological Patient Management II

Subject	Catalog Number	Title
PT-D	715	Neurological Patient Management II

Description

This is the second part of a two-semester course and will continue coverage of physical therapy for individuals with neurological and neuromuscular impairments and dysfunction, with an emphasis shifting towards the pediatric population. Advanced clinical knowledge and skills are needed for physical therapy evaluation and management of children with neurological and neuromuscular disorders. This course will cover management of central nervous system (CNS) dysfunction, obstetric brachial plexus injuries, motor unit diseases, and other congenital, genetic and developmental disorders. Examination, evaluation, diagnosis, clinical decision-making, prognosis, and the use of standardized assessments, outcome measures and evidence-based interventions will be emphasized. The etiology, pathology, pathophysiology, pathokinesiology, and clinical presentation of common pediatric neurological and neuromuscular disorders will be covered as well as the typical alterations in motor development that can accompany neurological and neuromuscular disorders in children. The evolution of secondary musculoskeletal impairments and strategies for prevention will be covered as well as the continuum of care across the lifespan. Diagnoses highlighted will include cerebral palsy, acquired brain injury (traumatic brain injury, near drowning, and brain tumors), myelodysplasia, muscular dystrophy, spinal muscular atrophy, brachial plexus injury, metabolic disorders, and other developmental disorders commonly encountered in pediatric physical therapy, including congenital muscular torticollis, Down syndrome, and arthrogryposis. Management across the lifespan in various clinical settings will be addressed, including outpatient, school, early intervention, acute care, and home health settings. Management across the ICF will emphasize optimizing activity and participation by using comprehensive, proactive, preventative, evidence-based care and advocacy in addressing pathology, impairment, and limitations in function and participation. Students will participate in pro bono Pediatric Movement Matters sessions in which they will see patients with neurological and neuromuscular impairments and disabilities. Availability and appropriate use of adaptive equipment, wheelchairs and other mobility devices, orthotic intervention, and assistive technologies will be presented. Assumed knowledge: Knowledge and skills learned in Neurological Patient Management I, Neuroscience and neuroanatomy, principles of neuroplasticity, theories of motor control and acquisition, methods for clinical evaluation, orthopedic assessments and interventions, cardiopulmonary assessments and interventions, applied therapeutic exercise for strengthening and endurance, cardiovascular training, coordination, balance, and proprioceptive neuromuscular techniques to facilitate movement, strengthen, and progress mobility from rolling, sitting, standing, and walking, and interventions to manage pain. Credit: 4.

PT-D716 - Physical Therapist Interventions III

Subject	Catalog Number	Title
PT-D	716	Physical Therapist Interventions III

Description

In this course, students continue to add to their knowledge of varied Physical Therapist interventions. Special topics related to interventions for neurological and musculoskeletal issues include: chronic pain management, interventions and education for patients with arthritis, and accommodations for driving and vision needs for patients. In addition, students will learn about Pilates-based Physical Therapy, skills for providing patient care using the aquatic environment, and special obstetrical and gynecological assessments and interventions. Students will be expected to read and discuss selected literature and will begin to understand the Physical Therapist role in a patient's community reintegration. Teams will research and present evidence for selected Integrative Medicine topics. Credit: 2.

PT-D721 - Clinical Step VI

Subject	Catalog Number	Title
PT-D	721	Clinical Step VI

Description

DPT STEP is a series of six courses that are embedded in the six didactic semesters of the DPT curriculum. Students work in teams with a physical therapist clinical instructor to apply skills, demonstrate clinical problem-solving and assume professional roles in various clinical patient care settings. Each semester students are expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 2

PT-D722 - Management of Health Care Delivery

Subject	Catalog Number	Title
PT-D	722	Management of Health Care Delivery

Description

This course introduces concepts that support the administration of a physical therapy practice setting. Using a developmental sequence beginning with the skills required to pursue a professional position, moving through the administrative and management knowledge needed to successfully support a practice in a variety of settings, the course progresses students to management responsibilities and skills that may be required as they move into administrative, consultative and supervisory roles as physical therapists. Credit: 2

PT-D723 - Health Promotion and Primary Care Practice

Subject	Catalog Number	Title
PT-D	723	Health Promotion and Primary Care Practice

Description

In this course, the physical therapist's role as a primary care practitioner for neuromusculoskeletal dysfunction will be presented. Students will master content that will allow successful screening of patients for medical referral, including application of knowledge of clinical pharmacology and nutrition and skill in physical examination of abdominal viscera. Decision-making using diagnostic clinical prediction rules will be emphasized. Case vignettes will illustrate typical patient presentations. Students will apply a decision pathway model and use a worksheet to organize their evaluations of case vignettes. The focus will be on differentiating probable systemic diseases/disorders (including medical emergencies) which require referral to other health care providers from neuromusculoskeletal dysfunction that is within the scope of physical therapist practice. Principles of health promotion, screening for health and wellness needs, and designing interventions to promote health behavior change will be covered. Credit: 2.

PT-D724 - Evidence-Based Practice Capstone

Subject	Catalog Number	Title
PT-D	724	Evidence-Based Practice Capstone

Description

In this third course in the sequence, the student will finalize his/her Evidence-based Practice Capstone project in paper and professional poster session format. The role of critical inquiry and evidence-based practice will be discussed, including the development of practice policies, and the use of evidence to support clinical decisions. Students will discuss strategies to change practice at the grass roots level and will develop a plan to foster their growth as scholarly practitioners. Credit: 2.

PT-D725 - Elective I

Duke University

Subject	Catalog Number	Title
PT-D	725	Elective I

Description

In these courses, students choose two electives in which to deepen their knowledge base for practice. Practice electives are offered in: Global Health, Manual Therapy, Pediatrics, Sports PT, Vestibular Rehabilitation, Women's Health, Neurological Gate, Research, and Musculoskeletal Screening . Credit: 2.

PT-D726 - Elective II

Subject	Catalog Number	Title
PT-D	726	Elective II

Description

In these courses, students choose two electives in which to deepen their knowledge base for practice. Practice electives are offered in: Global Health, Manual Therapy, Pediatrics, Sports PT, Vestibular Rehabilitation, Women's Health, Neurological Gate, Research, and Musculoskeletal Screening . Credit: 2.

PT-D730 - Independent Study

Subject	Catalog Number	Title
PT-D	730	Independent Study

Description

Independent Study is a semester long course focused on mentored research in physical therapy practice, education, administration or policy. Students will work with an assigned mentor on an approved research project. This course is available only to approved international exchange students. Credit: 2-5.

PT-D731 - PT Professional Practice IV

Subject	Catalog Number	Title
PT-D	731	PT Professional Practice IV

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-D732 - Foundational Pediatrics Practice

Subject	Catalog Number	Title
PT-D	732	Foundational Pediatrics Practice

Description

This course will introduce the practice management model for pediatric patients. The theoretical basis of pediatric development, normal and pathological development will be the foundation from which the assessment and management 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. The students will look at secondary management of the pediatric patient in many physical therapy settings and across the lifespan. Credit: 4

PT-D733 - Management of the Complex Patient

Subject	Catalog Number	Title
PT-D	733	Management of the Complex Patient

Description

Complex patient management 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 multiple system involvement. Furthermore, collaborative navigation of the complex patient through the health care system will be underscored. Credit: 2

PT-D734 - Professional Practice V

Subject	Catalog Number	Title
PT-D	734	Professional Practice V

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-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-D736 - Practice Management (CAMP) I

Duke University

Subject	Catalog Number	Title
PT-D	736	Practice Management (CAMP) I

Description

Comprehensive Assessment and Management of Practice (CAMP) are two courses that will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of conditions across all specialty practice areas. These courses will build upon earlier foundational and clinical experiences to further develop clinical reasoning. During CAMP, students will be mentored by DPT Program faculty 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. Credit: 1.5,1.5

PT-D737 - Practice Management (CAMP) II

Subject	Catalog Number	Title
PT-D	737	Practice Management (CAMP) II

Description

Comprehensive Assessment and Management of Practice (CAMP) are two courses that will provide opportunities for students to deliver physical therapy services through a supervised team approach for the evaluation and treatment of conditions across all specialty practice areas. These courses will build upon earlier foundational and clinical experiences to further develop clinical reasoning. During CAMP, students will be mentored by DPT Program faculty 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. Credit: 1,1

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

Duke University

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 1 and 2 courses to drive clinical application of skills and offer opportunities for direct engagement. The course is offered in parallel with our integrated clinical experiences of STEPs and 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. Credit: 0.5

PT-D801 - Terminal Clinical Experience I

Subject	Catalog Number	Title
PT-D	801	Terminal Clinical Experience I

Description

This is a series of three consecutive internships occurring in the third year. Each internship period is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice settings in which physical therapy is commonly practiced. Credits 12

PT-D802 - Terminal Clinical Experience II

Subject	Catalog Number	Title
PT-D	802	Terminal Clinical Experience II

Description

This is a series of three consecutive internships occurring in the third year. Each internship period is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice settings in which physical therapy is commonly practiced. Credits 12

PT-D803 - Terminal Clinical Experience III

Duke University

Subject	Catalog Number	Title
PT-D	803	Terminal Clinical Experience III

Description

This is a series of three consecutive clinical experiences occurring in the third year. Each is 12 weeks in length. Students learn to manage patients across the lifespan and the continuum of care, in both inpatient and outpatient practice settings in which physical therapy is commonly practiced. Clinical sites will have the opportunity to offer 12 week, 24 week or 36 week rotations when they are able to meet curriculum requirements. Credit: 12

PT-D804 - Professional Development III

Subject	Catalog Number	Title
PT-D	804	Professional Development III

Description

Professional Development III is the third in a three-course series that has as its focus the development of professional behaviors, knowledge, and values in the student. The course will be conducted to coincide with the Fall and Spring semester of the third year of the program, while students are completing 36 weeks of clinical internship. In this course students will complete the objectives of the Student Portfolio Project. They will also engage in required and optional professional learning activities that will model the life-long self-assessment and learning process that is the hallmark of a true professional physical therapist. Credit: 1

PT-D810 - Continuation

Subject	Catalog Number	Title
PT-D	810	Continuation

Description

The course is intended for students who need additional time to complete their internship course work. Assistant Program Director permission is required. No credit.

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: Wendy Perry (wendy.perry@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: Wendy Perry (wendy.perry@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 or Wendy Perry (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 or Beverly Harris (beverly.harris@dm.duke.edu), 919-684-7645. 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 Ghate, MD; Lars Grimm, MD; Karen S. Johnson, MD; Mary Scott Soo, 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 contact: Wendy Perry (wendy.perry@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 Wendy Perry at wendy.perry@duke.edu. Students that took Radiol 222C during the second year are not eligible to take RADIOL 404C. Credits: 2. Enrollment max: 1. Course Director: 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 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 Wendy Perry at wendy.perry@duke.edu. Credit: 2; Maximum enrollment: 2. 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 Wendy Perry at wendy.perry@duke.edu; Course Director: 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

Duke University

Subject	Catalog Number	Title
RADIOL	420C	Pediatric Radiology

Description

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 dictated 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. An introductory text is available on loan from the pediatric radiology division. 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). Pediatric Radiology Faculty include: Caroline Carrico, MD (course director); Charles Maxfield, MD Division Chief, Donald Frush, MD, Logan Bisset, MD, Ana Gaca, 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. For more information, and meeting times, please reach out to Babbie Williams (babbie.williams@duke.edu. Credit: 4. Enrollment: max 2. James Eastwood, MD and staff

RADIOL429C - Basic Radiology Clerkship

Duke University

Subject	Catalog Number	Title
RADIOL	429C	Basic Radiology Clerkship

Description

Fourth Year Basic Radiology Clerkship for the Primary Care Leadership Track. This course is designated for PCLT students only. This course is not open to visiting students. RADIOL 429C is the same course as RADIOL 205C (the second year Radiology Clerkship) but was created for the students in the Primary Care Leadership Track as PCLT students must satisfy the Radiology requirement during the fourth year. The objectives of this course are to provide an overview of the various imaging modalities of diagnostic and interventional radiology and their clinical utility. The elective consists of: (a) a high-quality lecture series (b) small group work and hands on time with imaging, reviewing preselected teaching cases, (c) participation in multispecialty conferences and grand rounds, and (d) rotation time in various subspecialty areas in diagnostic and interventional radiology. Objectives include gaining empathy for patients undergoing imaging procedures, learning the indications/contraindications and utility of a large variety of diagnostic and therapeutic imaging procedures, and learning basic imaging findings helpful for internship. For question please contact Wendy Perry at wendy.perry@duke.edu. Credit: 4; Maximum enrollment: 3. 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.

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. A case presentation 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. Secondary Contacts: Wendy Perry (wendy.perry@duke.edu) and Deborah Griffin (deborah.griffin@duke.edu). Credit 4. Enrollment: max. 2. Charles Spritzer, MD; Caroline Carrico, MD; Drs. R. Lee Cothran, Jr., MD; Clyde Helms, MD; Erin McCrum, 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

Duke University

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. Secondary contact: Bette W. Clack, email, walke098@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

RELIGION911 - Religious Material Culture in Theory and Practice

Subject	Catalog Number	Title
RELIGION	911	Religious Material Culture in Theory and Practice

Description

Examines prevailing theories and methods of studying objects, spaces, images, and the senses as primary forms of evidence for understanding religions.

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 injury Students 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

Subject	Catalog Number	Title
STDYAWAY	410C	Extra-Mural Clinical

Description

Approved fourth year experience at another location.

STDYAWAY411C - Study Away at UNC

Duke University

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Duke University

Subject	Catalog Number	Title
SURGERY	205C	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: 8. Cory Vatsaas, MD

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: 8. Cory Vatsaas, MD

SURGERY209C - Longitudinal Integrated Curriculum - Surgery

Duke University

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

Subject	Catalog Number	Title
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 Colleen McDowell (colleen.mcdowell@duke.edu) to request permission to enroll and to obtain a permission number. Clinical Contact for students: Erica Sudyk, (erica.sudyk@duke.edu). Credit: 2. 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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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

SURGERY227C - Urology

Subject	Catalog Number	Title
SURGERY	227C	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.

SURGERY230C - Trauma and Acute Care Surgery

Duke University

Subject	Catalog Number	Title
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. Cory Vatsaas, MD

SURGERY231C - Essentials of Pediatric Surgery

Subject	Catalog Number	Title
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); 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

SURGERY242C - Emergency Medicine: Longitudinal Experience

Duke University

Subject	Catalog Number	Title
SURGERY	242C	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 term. The course will be graded P/F. Enrollment Max. 16; Credit: 4. For more information, please contact Dr. Erin Leiman (erin.leiman@duke.edu). Erin Leiman, 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

Subject	Catalog Number	Title
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 Colleen McDowell (colleen.mcdowell@duke.edu). Permission numbers are not assigned by the Course director or the clinical contact. 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

Subject	Catalog Number	Title
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

Subject	Catalog Number	Title
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)

Subject	Catalog Number	Title
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 Kristen Rhodin, (kristen.rhodin@duke.edu) 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

SURGERY420C - General Surgical Oncology

Subject	Catalog Number	Title
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

SURGERY423C - Advanced Surgery-Emphasis Cardiovascular/Thoracic

Subject	Catalog Number	Title
SURGERY	423C	Advanced Surgery-Emphasis Cardiovascular/Thoracic

Description

Advanced concepts in surgery are presented in seminars and in ward, clinic, and operating room experiences. Fifty to 75 percent of the time is devoted to cardiovascular/thoracic surgery and related basic topics and the remainder to surgery generally. For more information, please contact Dr. D'Amico at 681-0491. Credit: 4. Enrollment: min 1, max 5. Thomas D'Amico, MD; Jeffrey G. Gaca, MD; Donald Glower, MD; John C. Haney MD, David Harpole, MD; Matthew G. Hartwig, MD; Chad Hughes, MD; Joseph Klapper, MD; Andrew Lodge, MD; Carmelo Milano, MD; Ryan Plichta, MD Jacob Schroder, MD; Peter K. Smith, MD; and Betty C. Tong, 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 Maria Fryar 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

Duke University

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

Subject	Catalog Number	Title
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. 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

Duke University

Subject	Catalog Number	Title
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 Colleen McDowell via email colleen.mcdowell@duke.edu. Clinical Contact for Students: Erika Sudyk (erika.sudyk@duke.edu). Credit: 4. Enrollment: max 2, unless otherwise noted. Geoffroy Sisk, MD and Erika Sudyk, PA-C

SURGERY451C - Sub-Internship in Urologic Surgery

Subject	Catalog Number	Title
SURGERY	451C	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 positioning consult and on-call patients. Please contact Dr. Baker at Karen.Baker@duke.edu for more information and to obtain your permission number. Secondary contact: Apryle Graham (apryle.graham@duke.edu). Prerequisite: Permission is required. Credit: 5. Enrollment max: 4. Karen Baker, MD and urology staff

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