bulletin of

Duke University 2012-2013

School of Medicine

The Mission of Duke University

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.

Adopted by the Board of Trustees on February 23, 2001.

bulletin of

Duke University 2012-2013

School of Medicine

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The information in the bulletin applies to the academic year 2012-2013 and is accurate and current, to the best of our knowledge, as of May 2012. The university reserves the right to change programs of study, academic requirements, lecturers, teaching staffs, the announced university calendar, School of Medicine calendar, and other matters described in the bulletin without prior notice, in accordance with established procedures.

Duke University admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students. The University does not discriminate on the basis of race, color, national origin, religion, disability, veteran status, sexual orientation, gender, gender identity, or age in the administration of its educational policies, admission policies, financial aid, employment, or any other university program or activity. Duke University also does not tolerate harassment based on any of the above or harassment of any kind.

Duke University complies with applicable federal laws addressing discrimination, including, but not limited to, Title VI, which prohibits race discrimination, the Genetic Information Non-Discrimination Act (GINA), which prohibits discrimination based upon genetic information, Title VII of the Civil Rights Act of 1964, as amended, which prohibits discrimination in employment and Title IX of the Education Amendments of 1972, which prohibits sex discrimination.

In accordance with Title IX of the Education Amendments of 1972, Duke University prohibits discrimination on the basis of sex in the administration of its educational policies, admission policies, financial aid, employment, or any other university program or activity. Sexual harassment is a form of sex discrimination. Duke University has designated Dr. Benjamin D. Reese, Vice-President of the Office for Institutional Equity as its Title IX Coordinator. The Office for Institutional Equity is located in Smith Warehouse, 114 S. Buchanan Blvd., Bay 8, Durham, North Carolina 27708. Dr. Reese's office telephone number is 684-8222.

Questions, comments or complaints of discrimination or harassment should be directed to the Office for Institutional Equity, (919) 684-8222. Further information, as well as the complete text of the harassment policy and appropriate grievance procedures may be found at http://www.duke.edu/web/equity/.

Duke University Nondiscrimination Statement. Duke University is committed to encouraging and sustaining a learning and work community that is free from prohibited discrimination and harassment. The university prohibits discrimination on the basis of race, color, religion, national origin, disability, veteran status, sexual orientation, gender identity, sex, genetic information, or age in the administration of its educational policies, admission policies, financial aid, employment, or any other university program or activity. The university also makes good faith efforts to recruit, employ and promote qualified minorities, women, individuals with disabilities, and veterans. It admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students.

The university also does not tolerate harassment of any kind. Sexual harassment and sexual misconduct are forms of sex discrimination and prohibited by the university. Duke University has designated Dr. Benjamin D. Reese, Vice-President for Institutional Equity, as the individual responsible for the coordination and administration of its nondiscrimination and harassment policies. The Office for Institutional Equity is located in Smith Warehouse, 114 S. Buchanan Blvd., Bay 8, Durham, North Carolina 27708. Dr. Reese's office telephone number is (919) 684-8222 and his email address is ben.reese@duke.edu.

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, just as they currently do with paper/postal service mail.

Information that the university is required to make available under the Student Right to Know and Campus Security Acts may be obtained from the Office of University Relations at 684-2823 or in writing to 615 Chapel Drive, Duke University, Durham, NC 27708.

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

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History

History

I have selected Duke University as one of the principal objects of this trust because I recognize that education, when conducted along sane and practical, as opposed to dogmatic and theoretical, lines is, next to religion, the greatest civilizing influence. I have selected hospitals as another of the principal objects of this trust because I recognize that they have become indispensable institutions, not only by way of ministering to the comfort of the sick, but in increasing the efficiency of mankind and prolonging human life.

—James Buchanan Duke, Indenture of the Duke Endowment, 1924

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. Recognizing its responsibility for providing quality care to the people of the Carolinas, Duke soon opened the first major outpatient clinics in the region. The Private Diagnostic Clinic, opened in 1931, not only provided coordinated medical and surgical care to private patients with moderate incomes but also allowed members of the medical faculty to contribute a portion of their earnings toward the continued excellence of medicine at Duke. 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.

Building on this heritage, Duke University Medical Center has grown and expanded over the years and now ranks as one of the world's outstanding health care centers. In education, its innovative medical curriculum features a generous measure of elective courses in the belief that all health professionals must be prepared for a lifetime of self-education. The scientific grounding for that education is provided through participation in a wide variety of ongoing research programs. Duke University Hospital, now located in facilities opened in 1980 and since expanded several times, draws patients from across the Carolinas, the United States, and the world for diagnosis and treatment. In both basic and clinical research, Duke University Medical Center has grown into a premier biomedical research institution and is consistently one of the largest recipients of funding from the National Institutes of Health.

In recent years, Duke University Medical Center has evolved into an even broader health care institution, one poised to meet the challenges of health care delivery in the twenty-first century. No longer solely a traditional academic medical center where patients are referred almost exclusively for specialty care, Duke Medicine has expanded to include an integrated system of health care providers and facilities across the region. The Duke University Health System is composed of Duke University Hospital; Durham Regional Hospital; Duke Raleigh Hospital; Duke HomeCare & Hospice; and Duke University Affiliated Physicians; and encompasses many other strategic relationships and programs.

Representing the continuing fulfillment of the dream of James Buchanan Duke, Duke Medicine still seeks to carry out its teaching, research, and patient care programs in a manner that meets the needs of society. In keeping with its heritage, it seeks to provide socially relevant medical education, research, and patient care and is expressly committed to the search for solutions to regional, national, and global health care problems.

As a world-class academic and health care system, Duke Medicine strives to transform medicine and health locally and globally through innovative scientific research, rapid translation of breakthrough discoveries, educating future clinical and scientific leaders, advocating and practicing evidence-based medicine to improve community health, and leading efforts to eliminate health inequalities.

The Web site for Duke Medicine is *http://www.dukemedicine.org/*.

Duke Medicine Signature Initiatives

In addition to our day-to-day efforts to further our core missions of patient care, biomedical research, and education, Duke Medicine dedicates considerable resources to several "signature initiatives."These cross-institutional, multidisciplinary efforts are designed to harness our strengths and focus our efforts to make significant positive contributions to medicine and human health.

Global Health Institute

Globalization is profoundly affecting worldwide disease patterns and revealing enormous disparities in health care stemming from economic, social, environmental, political, and other inequalities.

Recognizing that global health is not only a moral imperative but also a key to global stability, *Duke Global Health* works to reduce health disparities both in our local community and worldwide.

The Institute seeks to bring together interdisciplinary teams to address highly complex global health problems (such as HIV and emerging infections), to generate new ideas powerful enough to influence policy makers, and to serve disadvantaged populations both at home and abroad.

Institute for Genome Sciences and Policy

Advances in the genome sciences will enable the creation of new models of health care as well as a huge array of highly specific diagnostic tests and therapeutics. As one of the most profound scientific revolutions in history, genomics will also have a major impact on society -- and require the construction of new legal, ethical, and policy frameworks to address the challenges it raises.

Founded in 2000, the *Duke Institute for Genome Sciences & Policy* is a university-wide initiative devoted to advancing the Genome Revolution and addressing its broad implications for health and society.

Duke-NUS Graduate Medical School Singapore

The Duke-NUS Graduate Medical School Singapore (Duke-NUS) was established in 2005 as a strategic collaboration between the Duke University School of Medicine and the National University of Singapore (NUS). The Singapore government is making a significant investment in the medical school as part of a national strategy to become a leading center for medical research and education. The partnership also presents a valuable strategic opportunity for Duke to expand its global reach and research. Ranga Krishnan, MB ChB. succeeded R. Sanders Williams, M.D. as dean of Duke-NUS in July 2008. The school admitted its first class in the fall of 2007.

Duke-NUS offers a graduate-entry, 4-year M.D. (Doctor of Medicine) training program based on the unique Duke model of education, with one year dedicated to independent study and research projects of a basic science or clinical nature. Graduates would be conferred a joint degree from Duke University and the National University of Singapore (NUS). Duke-NUS also offers M.D/PhD and PhD programs.

As a player in Singapore's biomedical community, Duke-NUS has identified five Signature Research Programs: Cancer & Stem Cell Biology, Neuroscience and Behavioral Disorders, Emerging Infectious Diseases, Cardiovascular & Metabolic Disorders, and Health Services and Systems Research. For more information, please visit www.duke-nus.edu.sg

Duke Translational Medicine Institute

The Duke Translational Medicine Institute, established in October 2006 with a $52.7-million grant from the National Institutes of Health, will expedite the translation of new scientific discoveries into clinical practice, promote measurable improvements in community health, and make personalized medicine a reality.

The Duke Translational Medicine Institute will serve as the administrative umbrella for a diverse group of new and existing Duke entities:

- The Duke Clinical Research Institute, established in 1969, organizes and manages large-scale international clinical trials, disease registries and health outcome studies, from their conception to data analysis and publication of trial results.
- The Duke Clinical Research Unit will combine the current General Clinical Research Center, a federally funded inpatient unit specializing in novel clinical research, with a new facility to treat patients enrolled in first-time trials of new technology, including drugs, devices and vaccines.
- The Duke Translational Research Institute, to be developed with the new NIH grant, will focus on streamlining the process of guiding new scientific discoveries through the early phases of development into technologies that can be applied to human health.
- The Duke Community Clinical Research Unit will combine current efforts with new initiatives to create a model system to improve the health status in Durham County while developing collaborations within North Carolina, other states and internationally to learn better how to understand the best models of preventing and treating illness on a community-wide basis.

The University

Duke University, located in Durham, North Carolina, has an enrollment of some 13,000 students from all 50 states and from many foreign countries. The university's schools and colleges include Trinity College of Arts and Sciences, the Graduate School, and the Schools of Business, Divinity, Engineering, Environment and Earth Sciences, Law, Medicine, and Nursing. Durham, with a population of 201,000, is in the Piedmont region of North Carolina and has easy access to the sea coast and mountains. It is one of the three cities bounding the Research Triangle Park, where numerous private research laboratories and governmental agencies are located. Duke University is 25 miles from North Carolina State University in Raleigh, eight miles from the University of North Carolina at Chapel Hill, and is in the same city as North Carolina Central University.

Academic Calendar – MD Program

approved by the Curriculum Committee 10/05/2011
(Calendar is subject to change)

2012-2013

FIRST YEAR

Fall Term 2012

COURSE DIRECTORS: Grades are due within 4 weeks of the last day of class for each term

August

10 Friday, AOA Day - **MANDATORY ATTENDANCE**
6-10 Monday – Friday, orientation to First Year - **MANDATORY ATTENDANCE**
13 Monday, begin classes, Molecules & Cells
29 Wednesday, begin classes, Intro. to Prevention

September

3 Monday, Labor Day, student holiday
19 Wednesday, end class, Intro. to Prevention
25 Tuesday, 5:00 p.m., end classes, Molecules & Cells, section 61
25 Tuesday, begin class, Practice Year 1
27 Thursday, begin classes, Normal Body, section 16

November

12- Dec. 20 Registration/Drop/Add for spring 2013 term
20 Tuesday, 6:00 p.m. begin Thanksgiving *student holiday*
26 Monday, classes resume Normal Body, section 16

December

21 Friday- 5:00 p.m., End class, Normal Body - Begin Winter Break for 1st year medical students

Spring Term 2013

January

1 Tuesday, New Year's Day *holiday observed*
2 Wednesday, begin class, Brain & Behavior, section 16
21 Monday, Martin Luther King, Jr., *student holiday*
25 Friday, end class, Brain & Behavior, section 16
28 Monday, Begin class, Physical Examination week (Intensive Learning Period)

February

2 Saturday, 5:00 p.m., end class, Physical Examination week (Intensive Learning Period)
4 Monday, begin class, Body & Disease, section 16
8 Friday, deadline for Normal Body and Brain & Behavior grade submission to the Registrar's Office
TBD Friday, 8:00 p.m., Student/Faculty Show
TBD Medical Families Weekend - Friday-Saturday

March

23 - 31 *Saturday, Spring break for 1st Year (MS1's) Medical Students*

April

1 Monday, resume Body & Disease, section 16 (return from spring break)

TBA Monday – Friday, 8:30 a.m. – 4:00 p.m., registration for 2nd year summer selectives

May

27 Monday - Memorial Day Holiday *student holiday*

June

25 Tuesday, end class, Practice Year 1

28 Friday, 5:00 p.m. end classes, Body and Disease, section 16

SECOND YEAR
Fall Term 2012

COURSE DIRECTORS: Grades are due within 4 weeks of the last day of class for each term

July

30 Monday, begin class, 8:00 a.m. Clinical Skills Course – **MANDATORY ATTENDANCE**
MS2 students register on-line for fall 2012 selectives

August

10 Friday, AOA Day - **MANDATORY ATTENDANCE**

10 Friday, end class, end Clinical Skills Course

13 Monday, 8:00 a.m. begin Patient Safety class

17 Friday, end Patient Safety class

20 Monday, 8:00a.m. begin sections 21, 41, 61, 81

31 Friday, end section 21

September

3 Monday, Labor Day, *student holiday*

4 Tuesday, begin section 62

12 Wednesday, begin class, Practice Year 2

14 Friday, 6:00 p.m., end classes in section 41

17 Monday, begin section 42

28 Friday, 6:00 p.m., end section 61

October

1 Monday, begin section 22

10 Wednesday, 6:00 p.m., end section 81

12 Friday, end sections 22, 42, and 62

15 Monday, begin sections 23, 43, 63, 82

26 Friday, end section 23

29 Monday, begin section 64

November

9 Friday, end section 43

12 Monday, begin section 44

13 Tuesday, 8:30 a.m. - on-line registration for MS2 spring selectives begins

16 Friday, 1:00 p.m. on-line registration for MS2 spring selectives end

21 Wednesday, end section 63

21 Wednesday, noon, begin Thanksgiving holiday

22-25 Thursday - Sunday begin Thanksgiving, *student holiday*

26 Monday, classes resume

26 Monday, begin section 24

December

7 Friday, end sections 24, 44, 64, and 82
10 Monday, begin Health Policy and Global Health
14 Friday, 6:00 p.m., end Health Policy and Global Health
15 Saturday, begin winter break

Spring Term 2013

January

1 Monday, New Year's Day, *student holiday observed* (End Vacation)
2 Wednesday, begin classes in sections 81, 61, 41
11 Friday, end section 21
21 Monday, Martin Luther King, Jr. *student holiday*
25 Friday, 6:00 p.m. end classes in section 41
28 Monday, begin classes in section 42

February

8 Friday, end classes in section 61
11 Monday, begin selective classes, section 22
20 Wednesday, 6:00 p.m. end section 81
22 Friday, end sections 22, 42, and 62
25 Monday, sections 23, 43, 63, and 82

March

8 Friday, end section 23
11 Monday, begin section 64
22 Friday, end section 43
25 Monday, begin section 44

April

TBD MS2 students register for summer selectives
5 Friday, end section 63
8 Monday, begin section 24
17 Wednesday, end section 82
19 Friday, end 24, 44, and 64
20 Saturday, begin vacation
28 Sunday, end vacation

Summer Term 2013

April

29 Monday, begin sections 21, 41, 61, and 81

May

10 Friday, end section 21
TBD Friday, noon deadline for rising Third Yr. (MED3) registration form submission to Registrar
13 Monday, begin section 62
24 Friday, end section 41
27 Monday, Memorial Day Holiday, *student holiday*
28 Tuesday, begin section 42

June

7 Friday, section 61

10 Monday, 8:00 a.m., begin section 22
19 Wednesday, end section 81
21 Friday, end sections 22, 42, and 62
24 Monday, begin sections 23, 43, 63, and 82

July

4 Thursday, Independence Day *student holiday*
5 Friday, 6:00 p.m., end section 23
8 Monday, 8:00 a.m., begin section 64
17 Wednesday, end class, Practice Year 2
19 Friday, end classes in section 43
22 Monday, begin section 44

August

2 Friday, 6:00 p.m. end section 63
5 Monday, begin section 24
14 Wednesday, end section 82
16 Friday, end sections 24, 44, and 64

THIRD AND FOURTH YEAR
Summer Term 2012

April

TBD Monday 8:30 a.m. - Friday 1:00 p.m., Registration for rising MED4
23 Monday, Begin classes in sections 81, 41

May

19 Saturday, 12:00 noon - End classes in section 41
21 Monday, Begin classes in section 42
28 Monday, Memorial Day Holiday - *student holiday*

June

5-7 Tuesday, 8:30 a.m. - Thursday, 1:00 p.m. - Drop/Add summer 2012, section 82, 43, 44 (MED4)
16 Saturday, 12:00 noon, End classes in section 81, 42
18 Monday, Begin classes in section 82, 43

July

4 Wednesday, Independence Day, *student holiday*
14 Saturday, 12:00 noon, End classes in section 43
16 Monday, Begin classes in section 44

August

7-9 Tuesday, 8:30 a.m. - Thursday, 1:00 p.m. Drop/Add fall 2012, all section (MED4)
10 Friday, AOA day - **MANDATORY ATTENDANCE**
11 Saturday, 12:00 noon, End classes in sections 82, 44

Fall Term 2012

August

10 Friday, AOA day - **MANDATORY ATTENDANCE**
27 Monday, MS3 begin Medical Statistics course (Aug.27, 28, 30, Sept. 4, (Tues.), Sept. 6, 10, 13, 17, 20)
27 Monday, MS3 12 month begin
27 Monday, MS3 begin section 41 - Step 1 and study period

27 Monday, MS4 begin section 41, section 81

September

3 Monday, Labor Day, *student holiday*
20 Saturday, MS3 and Medical Statistics course
22 Saturday, MS3 study period ends
22 Monday, MS4 end section 41
24 Monday, MS3 11 month begin
24 Monday, begin section 42
28 Friday, MS3 Research Ethics Modules Due

October

2-4 Tuesday, 8:30 a.m. - Thurs., 1:00 p.m.- Drop/Add fall 2012, sections 82, 43, 44 (MS4)

November

17 Saturday, MS3 end section 43
17 Saturday, MS4 end section 43
19 Monday, MS3 begin section 44
19 Monday, MS4 begin section 44
12-16 Tuesday, 8:30 a.m. MS4 registration opens. Registration ends at 1:00 p.m. on 11/16/2012
17 Saturday, 8:30 a.m. MS4 drop/add for spring 2013 opens
22-25 Thursday - Sunday (27th) - Begin Thanksgiving, *student holiday*
26 Monday, resume classes

December

15 Saturday, MS3 end section 44
15 Saturday, MS4 end sections 44, 82
15 Saturday, Winter break begins
20 Thursday, 1:00 p.m. MS4 on-line Drop/Add for spring 2013 ends

Spring Term 2013

January

1 Tuesday, New Year's Day, *student holiday observed - end vacation*
2 Wednesday, MS3 - 10 month begin Scholarly Component
7 Monday, MS3 begin Medical Statistics (7, 8, 10, 14, 17, 21, 24, 28, 31)
14 Monday, MS4 begin sections 41, 81
21 Monday, Martin Luther King, Jr. holiday, *student holiday*
31 Thursday, MS3 end Medical Statistics

February

1 Friday, MS3 Research Ethics Module Due
9 Saturday, MS4 end section 42
9 Monday, MS4 begin section 42
5-7 Tuesday, 8:30 a.m. - Thursday, 1:00 p.m. - Drop/Add period for spring 2013, section 43-44 (MS4) * *Capstone required*

March

9 Saturday, MS4 end sections 42, 81
11 Monday, MS4 begin section 43 (CAPSTONE) - Mandatory
15 Friday, MS4 MATCH DAY - (tentative date)

April

TBD Monday, 8:30 a.m. – Friday, 1:00 p.m., registration for Rising MED4, summer and fall terms
5 Monday, MS4 end section 43, CAPSTONE

8	Saturday, MS4 begin section 44
May	
4	Saturday, MS4 end section 44
10-12	Friday through Sunday, Graduation Activities (MS4)
28	Monday, Memorial Day holiday, *student holiday*
June	
4-6	Tuesday, 8:30 a.m. – Thursday, 1:00 p.m. – Drop/Add summer 2013 sections 82, 43, 44
July	
4	Thursday, Independence Day, *student holiday*
August	
6-8	Tuesday, 8:30 a.m. – Thursday, 1:00 p.m., Drop/Add fall 2013, all sections (MED4)

MS3 Students: For more specific information about Thesis due dates, please contact the 3rd Year Coordinator, 919-684-0859

NOTE: ALL GRADES MUST BE SUBMITTED TO THE OFFICE OF THE REGISTRAR IN ORDER FOR STUDENTS TO BE APPROVED FOR GRADUATION.

ACADEMIC CALENDAR KEY

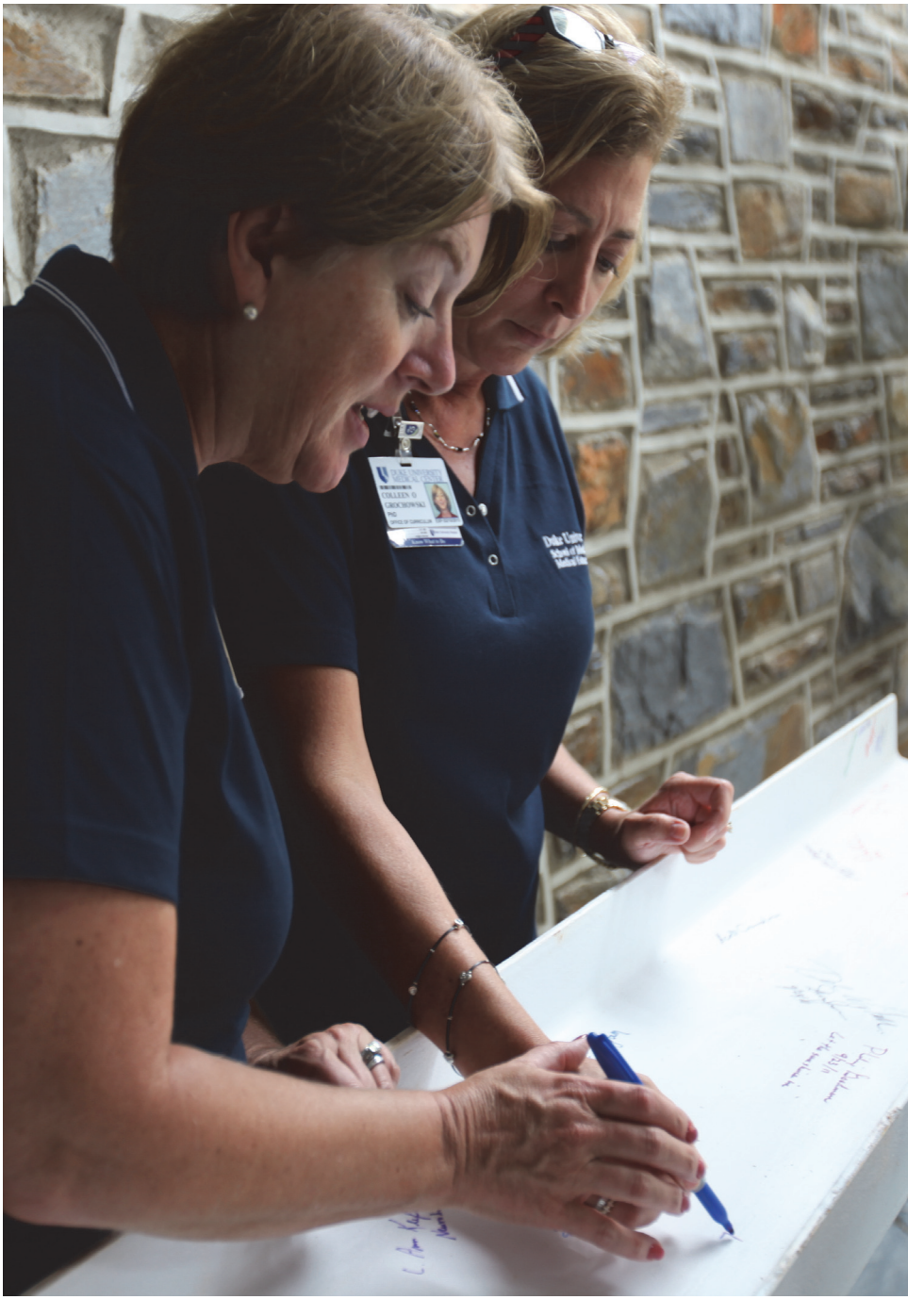
(Calendar is subject to change)

11 – 1st one-week Clinical Core of the term
12 – 2nd one-week Clinical Core of the term
13 – 3rd one-week Clinical Core 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
41 – 1st four weeks of term
42 – 2nd four weeks of term
43 – 3rd four weeks of term
44 – 4th four weeks of term
61 – 1st six weeks of clinical rotation (PEDS or OBGYN) of term
62 – 2nd six weeks of clinical rotation (PEDS or OBGYN) of term
63 – 3rd six weeks of a clinical rotation (PEDS or OBGYN) of term
64 – 4th six weeks of a clinical rotation (PEDS or OBGYN) of term
81 – 1st eight weeks of term
82 – 2nd eight weeks of term
16 – entire 16-week term

Attendance Requirements for Medical Students when Holidays are ob-served on days other than the actual holiday.

Students in the School of Medicine are to observe approved holidays as outlined on the School of Medicine Academic Calendar. Holidays that occur on a Saturday may officially be observed on the preceding Friday. Official School of Medicine holidays occurring on Sundays 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.

Doctor of Medicine Program



Doctor of Medicine Program

Duke School of Medicine Mission Statement for the Education of Medical Students

The mission of the educational program for MD students at Duke University is to prepare a diverse student body to pursue a spectrum of medical career options in order to become physician leaders who can advance biomedical research and improve local, national, and global health.

The general goals of the educational program are to ensure that students:

- acquire an understanding of core basic and clinical science knowledge
- develop the clinical skills to care for diverse patient populations
- explore how scientific investigation transforms medical knowledge and clinical care
- demonstrate creativity, leadership, scholarship, and teamwork
- direct and practice respectful patient-centered care
- display professional, ethical and humanistic behaviors
- build the skills necessary to be a life-long learner

Physicians are facing profound changes in the need for understanding health, disease, and the delivery of medical care—changes which shape the vision of the medical school. These changes include: a broader scientific base for medical practice; a national crisis in the cost of health care; an increased number of career options for physicians, yet the need for more generalists; an emphasis on career-long learning in investigative and clinical medicine; the necessity that physicians work cooperatively and effectively as leaders among other health care professionals; and the emergence of ethical issues not heretofore encountered by physicians. Medical educators must prepare physicians to respond to these changes. The most successful medical schools will position their students to take the lead addressing national health needs. Duke University School of Medicine is prepared to meet this challenge by educating outstanding practitioners, physician scientists, and leaders.

Continuing at the forefront of medical education requires more than educating Duke students in basic science, clinical research, and clinical programs for meeting the health care needs of society. Medical education also requires addressing such concerns as national science and health policy, providing medical care for the disadvantaged, and applying basic science discoveries to clinical medicine. As health care practices at the federal, state, institutional, and individual levels evolve, these endeavors need input from physicians uniquely prepared to assume guiding roles.

Duke University's role as a leader in medical education is built upon its internationally-recognized tradition of fostering scientific scholarship and providing excellent preparation for the practice of medicine. The curriculum promotes creativity, scholarship, leadership, and diversity. It integrates the basic and clinical sciences and prepares students to pursue the spectrum of options available to modern physicians, from basic science to primary care. Duke University Medical School produces at least three prototype physicians; the physician scientist, the clinician-investigator, and the practitioner (either generalist or specialist).

The Duke faculty enhance the Medical School's curriculum by continually embracing new methods of education and evaluation to improve the medical education experience. Attention to curricular development assures Duke graduates that they are grounded in basic biomedical sciences, trained to become competent and caring clinicians, prepared to pursue a lifetime of continuing education, and capable of participating in local, national, and international discussions about the delivery of health care now and in the future.

Features of the four-year curriculum include:

- Development of a core medical curriculum that is rigorous, efficient, integrative, and forms a realistic base of knowledge for a physician;
- Integration of basic, clinical, psychosocial, and population information and skills throughout the four years of medical education;
- General introduction to basic and clinical science for one year each, followed by two years of individualized curricular options that promote professional diversity and personal development;
- An elective third year which permits students to pursue their independent scholarly interest across a range of scientific disciplines from basic biomedical science to health policy;
- Promotion of structured active learning that includes explicit experience in leadership and cooperative roles;
- Mentorship of students by faculty in all facets of the learning process;
- Implementation of a standardized and valid assessment of progress, carefully and thoughtfully evaluating the acquisition of knowledge, skills, and attitudes appropriate to the future goals of each student;
- Incorporation of information technology and the use of computers into student learning and evaluation;
- Research and implementation of new and improved methods of teaching.

The curriculum offers flexibility in the medical educational program and new opportunities for intellectual exploration. It also makes heavy demands upon the student. It should be recognized that medical students at the Duke University 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 also are 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 scholarship and in circumstances that truly contribute to the educational process or to the care of the patient. This attitude involves consideration not only of speech and personal appearance but also of morality, honor, 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. The Duke University School of Medicine is rising to this challenge.

Admission Procedures

Maturity, strong study habits, intelligence, character, humanism, and integrity are essential qualifications for admission. Beyond this, premedical students should strive for an education that develops abilities to observe critically, think analytically, and work independently. Though knowledge of basic scientific principles should be secured, the competence with which premedical students conduct their undergraduate careers is of more importance than the specific subjects which they study.

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 must begin by submitting the electronic AMCAS application. The application may be accessed at the following website: http://www.aamc.org/students.

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, a favorable screen by the members of the admission screening committee of an applicant's AMCAS application and Supplemental Application materials generates an invitation for a personal interview. Applications should be submitted between **June 1** and **November 1**, the deadline for all materials to be received by AMCAS. *Applicants are urged to file their AMCAS applications as early in the admission cycle as possible since interview slots can fill quickly.* AMCAS may take as long as four to six weeks to process and verify your application and transcripts. It is the applicant's responsibility to ensure that her/his application is verified by AMCAS in order for AMCAS to transmit your application data to Duke by the Duke AMCAS Application deadline (November 1).

Depending on the volume of applications, we cannot always guarantee an on-campus interview. Duke offers regional interviews at various cities throughout the United States. These interviews are conducted by Duke Medical School Alumni who have been carefully selected by the Committee on Admissions. Applicants who interview at a regional location are at no disadvantage and their applications are given the equal consideration. The final deadline for receipt of the Supplemental Application is December 1st but we strongly encourage applicants complete both the AMCAS Application and the Duke University School of Medicine supplemental application 4-6 weeks prior to the posted deadlines. Applicants who complete their applications earlier in the process on average have a broader range of interview dates from which to select. Our interviews are conducted from mid-September through mid-February of the application cycle.

Requirements: Admission to the School of Medicine requires a minimum of 90 hours of approved college credit including one year of college English or a university writing course, a minimum of one semester of inorganic chemistry with lab, one minimum of one semester of organic chemistry with lab, one year of physics with lab, one year of biology and/or zoology with lab, one semester of calculus and one semester of another college-level mathematics course, preferably statistics. An introductory course in Biochemistry and Cell Biology (labs not required) are also required. All science requirements must be complete

not more than seven years prior to matriculation. The Medical College Admission Test (MCAT), administered by the American College Testing Programs and Services, P.O. Box 414, Iowa City, Iowa 52240, is required of all applicants. This test is administered each year at numerous colleges throughout the United States. If possible, applicants should arrange to take the MCAT as early as possible of the year they plan to submit applications for admission. MCAT scores dated earlier than four years prior to the year for which an applicant is seeking are not considered. Information regarding the MCAT can be obtained by visiting the official site for the MCAT which provides registration instructions, test dates, and testing locations: http://www.aamc.org/students/mcat/start.htm.

School of Medicine Technical Standards. All candidates for the MD degree must possess the physical and mental skills and abilities necessary to successfully complete the medical school curriculum. To achieve the optimal educational experience, students are required to participate in all phases of the training program.

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 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.

I. Observation.
   a. 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.
   b. Observe patients accurately and completely, both at a distance and directly. This requires functional vision, hearing, and sensation.

II. Communication.
   a. Effectively speak, write, hear, read and use a keyboard;
   b. Perceive non-verbal communications, including facial expressions, body language, and affect;
   c. Communicate effectively and sensitively with patients and their families via speech as well as reading/writing;
   d. Communicate in oral and written form with the healthcare team in an effective, accurate, and efficient manner.

III. Motor.
   a. Elicit information from patients via palpation, auscultation, and percussion, as well as carry out diagnostic maneuvers;
   b. Execute movements reasonably required to provide general medical care and emergency treatment to patients. These skills require coordination of gross and fine motor movements, equilibrium, and sensation;
   c. Manipulate equipment and instruments to perform basic laboratory tests and procedures as required to attain curricular goals. (e.g. needles, stethoscope, ophthalmoscope, tongue blades, intravenous equipment, scalpel).

IV. Intellectual/conceptual, Integrative, and Quantitative Abilities.
   a. Perform calculations necessary to solve quantitative problems as required by the curriculum;

b. 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;
c. Apply knowledge and reasoning to solve problems as outlined by the curriculum;
d. Comprehend the three-dimensional spatial relationships of structures;
e. Remain awake and alert.

V. Behavioral, Emotional and Social Attributes.
a. Possess the emotional health to fully apply his/her intellectual skill, exercise good judgment, and to complete all responsibilities attendant to the diagnosis and care of patients;
b. Develop a mature, sensitive, and effective relationship with patients and colleagues;
c. Tolerate the physical, mental and emotional stress experienced during training and patient care;
d. Possess qualities of adaptability, flexibility, and the ability to function in the face of uncertainty;
e. Form a compassionate relationship with his/her patients while maintaining appropriate boundaries for a professional relationship;
f. Behave in an ethical and moral manner consistent with professional values and standards;
g. Exhibit sufficient interpersonal skills, knowledge, and attitudes to interact positively and sensitively with people from all parts of society, ethnic backgrounds, and belief systems;
h. Cooperate with others and work corroboratively as a team.

The faculty of the Duke University School of Medicine recognizes its responsibility to present candidates for the MD degree that have the knowledge, attitudes, and skills to function in a broad variety of clinical situations and to render a wide spectrum of patient care. Candidates for the MD degree at Duke will be prepared to enter postgraduate medical education as general physicians able to undertake specialty education.

The Committee on Admissions is responsible for adhering to these technical standards during the selection of medical students.

Selection. The earliest date of notification of acceptance is in early March for applicants entering the following August. Those selected to interview are carefully evaluated by the Committee on Admissions. A personal interview is conducted at Duke for those applicants with competitive credentials. Candidates may have personal interviews with regional representatives of the Admissions Committee, who are Duke School of Medicine alumni. Those candidates who demonstrate the most promise for exceptional performance in their future practice of medicine are admitted on the basis of merit. In order to ensure enrollment, accepted candidates must return a signed agreement within three weeks after notification. Since admission is offered in advance of matriculation, it is provisional upon the successful completion of any incomplete, premedical, and required subjects as well as the continued demonstration of scholarship in college course work. Incoming medical students must consent to and undergo a criminal background check prior to matriculation. The background

checks are conducted by the Duke Health System Department of Human Resources and are kept strictly confidential. A negative result or failed background check does not necessarily prohibit a student from entering medical school but the student's standing will be evaluated on a case-by-case basis. An incoming student will not be permitted to begin Orientation and/or classes without consenting to a criminal background check.

Applicants who are not U.S. 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, if 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 U.S. Department of Homeland Security.

Transfer. Transfers are considered only into the clinical year (Year Two) at the Duke University School of Medicine and only for the spouses of Duke House staff (i.e., residents, fellows, etc.), Duke Medical School faculty, or currently enrolled students in the Duke University School of Medicine. If all of these criteria are met, a student requesting consideration for transfer *cannot* begin the process until confirmation of space availability in the second year of the Duke curriculum is known, usually early to mid-June of the academic year.

The application procedures are as follows:

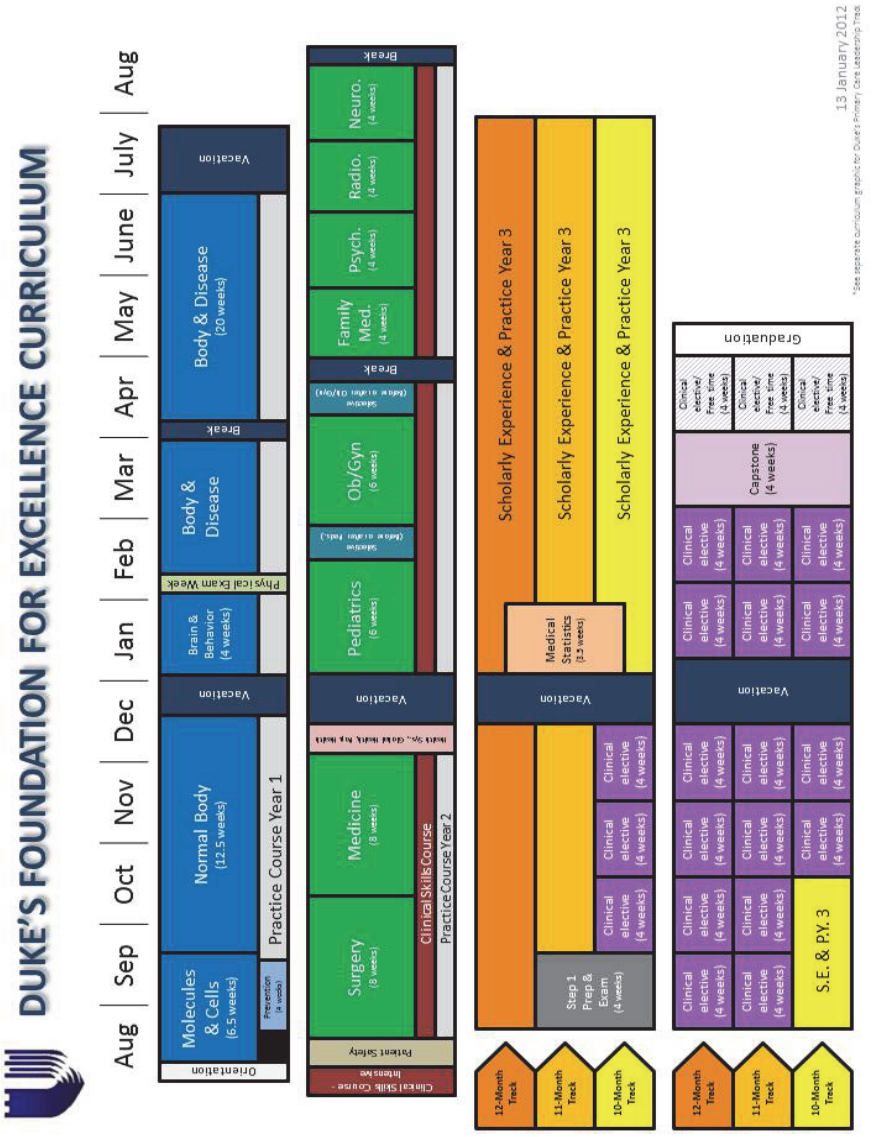
1. completion of the Duke University School of Medicine Secondary Application and completion of a criminal background check,
2. receipt of the AMCAS application data that was submitted for the applicant's original medical school application,
3. a letter from the Dean of the medical school where the student 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 course work at the current medical school,
7. if deemed appropriate after review of the above, an interview with 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

Advanced Placement. After acceptance to the School of Medicine, applicants who hold PhD degrees in biomedical or preclinical sciences may apply to be considered for a three-year, MD degree program. This program consists 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. Applications to receive credit for the PhD can be obtained at the Medical School admissions and registrar's offices, and must be submitted to the registrar's office by 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 approval. A recommendation is made to the Vice-Dean who will formalize the waiver who then notifies the student and Registrar's Office,

Re-application: Applicants who wish to re-apply should contact AMCAS to complete a new AMCAS application. Supporting information will be transferred to the new application. These documents are kept on file for three years. To be seriously considered, re-applicants must demonstrate significant additions of experience or coursework to the original application.



Doctor of Medicine Degree

The degree of Doctor of Medicine is awarded, upon approval by the faculty of Duke University, to those students who have satisfactorily completed the academic curriculum; demonstrated the intellectual, personal, professional, and technical competencies to function as skilled physicians; and demonstrated their fitness to practice medicine by adherence to a high standard of ethical and moral behavior.

The faculty of Duke University School of Medicine have developed general guidelines for technical standards for medical school admissions and degree completion. These are available on request from the Office of Admissions.

The awarding of degrees is contingent upon payment of, or satisfactory arrangements to pay, all indebtedness to the university.

In February, 2008, the Duke University School of Medicine was fully accredited for seven years by the Liaison Committee on Medical Education of the Association of American Medical Colleges.

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 Practice course which is designed to expand primary and continuity care experience for Duke medical students. The Pracitce course is a combined clinical curricular experience which emphasizes progressive knowledge and competencies. Year one requires satisfactory completion of 46 credits in the approved basic science curriculum.

The first year consists of instruction in the following:

Semester 1

INTERDIS 105B.	Practice	1.5 credits
INTERDIS 100B.	Molecules and Cells	6 credits
INTERDIS 104B	Introduction to Prevention	1 credit
INTERDIS 101B.	Normal Body	12 credits

Semester 2

Intro to Physical Examination (Intensive Learning Period)

INTERDIS 105B.	Practice	1.5 credits
INTERDIS 103B.	Brain and Behavior	4 credits
INTERDIS 102B.	Body and Disease	20 credits

Year 1 consists of four integrated basis science courses, the Interprofessional Introduction to Prevention course, and the Practice courses:

- Molecules and Cells (integration of Biochemistry, Genetics, and Cell Biology)—6.5 weeks
- Introduction to Prevention - four hours per week for 4 weeks.
- Normal Body (integration of Gross Anatomy, Microanatomy, and Physiology) - 12.5 weeks
- Brain and Behavior (integration of Neurobiology and Human Behavior) - 4 weeks
- Body and Disease (integration of Microbiology, Immunology, Pathology, and Pharmacology) - 20 weeks

- Practice—(Doctor/patient relationships, interviewing, physical exam, basic counseling skills) - 4 hours per week for entire year

Guiding Principles for Year 1:

- 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)

A vacation takes place after the conclusion of the first year. In addition, every class has a holiday on Labor Day, Thanksgiving and the day after, Christmas, New Year's Day, Martin Luther King, Jr. Day, and Memorial Day, with the exact dates depending upon rotation and class schedules. Approved calendars are included in this Bulletin as well as published on the http://registrar.mc.duke.edu 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 58.5 credits in the approved clinical science curriculum.

The second year consists the Clinical Skills course, the Patient Safety course, eight core clerkship rotations, the Global Health and Health Policy course, two two-week selectives, the Practice 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 credits
Surgery	8 weeks, 8 credits
Obstetrics and Gynecology	6 weeks, 6 credits
Pediatrics	6 weeks, 6 credits
Family Medicine	4 weeks, 4 credits
Psychiatry	4 weeks, 4 credits
Neurology	4 weeks, 4 credits
Radiology	4 weeks, 4 credits
Practice - Advanced clinical themes (ethics, professionalism, end-of-life, etc.)	2.5 hours four times during each 8-week rotation, 2 credits
Clinical Skills Course	Initial 2-week intensive, then 2.5 hours three times pre 8-week rotation, 5 credits

Note: Students on the Primary Care Leadership Track (PCLT) must complete the core clerkships, Practice, Clinical Skills, Clinical Cores, Assessment, 4week, 4 credit Emergency Medicine (Surgery 252C) rotation, and the required Tutorial course.

Elective periods include two two-week Selectives. Selectives provide an opportunity before the fourth year for students to learn about clinical subspecialties that are not covered by clerkships and support career exploration.

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 during the first three months of the third academic year. The Clinical Skills Assessment consists of a twelve-station clinical performance exam (CPX); written exams covering chest x-rays, ECGs, laboratory interpretation, and medical informatics; and debriefs for all components. The CPX 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 CPX are (a) to evaluate, in a more standardized way, each student's approach to patients common patient complaints, demonstrating the orchestration of history-taking, physical examination and communication skills that cannot be adequately assessed through written tests, (b) to provide a measure of curriculum effectiveness and (c) to prepare students for Step 2 CS, a standardized patient-based assessment that is part of the physician licensing system in the United States. This preparation is achieved by giving students an experience that closely resembles the actual Step 2 CS. Passing each component of the Clinical Assessment is required for graduation.

Students must complete 10, 11, or 12 months of scholarly investigation; seven clinical electives; and a four-week Capstone course. Students may opt to take one, two, or three clinical electives before beginning the period of scholarly investigation.

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 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 advisers, 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. During the scholarly experience, students are required to complete 36 credits including three clinical science credits for the required Practice Year 3. Students also must complete a quantitative thesis (or qualitative in the Medical Humanities study program track) for three 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, Oral Presentation and present at AOA Day.

Students on the 10 and 11-month Scholarly Experience tracks (and 12-month track if allowed by the parameters of their scholarship) are allowed four weeks of Step 1 preparation (independent study) at any point 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.

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

- Subinternship

- Critical care/Anesthesiology/Emergency Medicine rotation
- Continuity clinic (only if not completed in the third year)

Additionally, students participate in a four-week required **Capstone** (Interdis 450C) course in March 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
- Advanced basic science principles

Fourth Year Course Requirements

Fourth year students that do not satisfy the Practice requirement for Year 3, must successfully complete a four-week, four credit course from the approved list of Practice electives. The credits earned (by exempted students) for these courses will fulfill INTERDIS 305C and the 32 credit requirement for the fourth year at the same time. Eligible courses are:

- ANESTH 446C. Acute and Chronic Pain Management
- COMMFAMM 401C. Subinternship in Family Medicine
- COMMFAM 423C. Occupational and Environmental Medicine
- COMMFAM. 435C.Health Promotion and Disease Prevention
- COMMFAM 439C. Advanced Clerkship in Family Medicine (outpatient)
- COMMFAM 440C. Primary Care Sports Medicine
- COMMFAM 441C. Family Medicine Continuity Experience (outpatient)
- COMMFAM 449C. Advanced Preceptorship in Community and Family Medicine
- DERMATOL 450C. Clinical Dermatology
- MEDICINE 415C. Clinical Management of Obesity
- MEDICINE 431C. Adult Allergy and Clinical Immunology
- MEDICINE 434C. Outpatient Hematology-Oncology (Duke or Durham VA)
- MEDICINE 449C. Geriatric Medicine
- OPHTHAL 425C. Pediatric Ophthalmology
- PEDS 410C. Advanced Pediatrics (outpatient) (*must have the Practice office permission*)
- PEDS 430C. Healthy Lifestyles Program: A Clinical, Family-Based Approach to Pediatric Obesity
- PEDS 431C. Clinical Pediatric Cardiology
- PEDS 433C. Allergy and Clinical Immunology
- PSYCHTRY 443C. Addiction Psychiatry

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

- a four-week, 5-credit subinternship experience in the field of their choice, which must be completed at Duke
- a four-week, 4- or 5-credit critical care elective, which may be done at Duke or approved as a study away rotation at another institution. 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.

Also, 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	*Courses that count toward Subintership requirement*
ANESTH 440C	ANESTH 441C
ANESTH 441C	COMMFAM 401C
MEDICINE 403C	MEDICINE 401C
MEDICINE 404C	MEDICINE 402C
MEDICINE 405C	MEDICINE 403C
MEDICINE 406C	MEDICINE 404C
PEDS 426C	MEDICINE 405C
PEDS 440C	MEDICINE 406C
SURGERY 402C	MEDICINE 407C
SURGERY 412C	OBGYN 447C
SURGERY 441C	ORTHO 429C
SURGERY 443C	PEDS 401C
	PEDS 426C
	PSYCHTRY 401C
	PSYCHTRY 407C
	SURGERY 401C
	SURGERY 402C
	SURGERY 435C
	SURGERY 441C
	SURGERY 448C
	SURGERY 451C

Primary Care Leadership Track

Director: Barbara Sheline, MD, MPH; Co-Directors: Joseph Jackson, MD, Bruce Peyser, MD. Approved May 2010

Duke 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 longstanding partnership between Duke and the Durham community to understand the causes of health disparities, create a strong research focus on community engagement for a population health approach to the redesign of clinical programs.

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

Goal: Students committed to primary care will be specifically recruited and participate in an innovative 4-year curriculum designed to develop skills needed for community-engaged, population-based practice. Students who commit to stay in primary care will receive a scholarship of $10,000 each year.

OVERVIEW OF THE FOUR YEARS:

Year 1: Students in the PCLT will complete the first year Duke curriculum largely unchanged from other students. PCLT students will participate in Interprofessional Case Conferences.

Year 2: There will be a 8-month outpatient experience (LIC). Students will have 4 months of inpatient immersion experiences. Students will take coursework in community engagement, cultural competence and health literacy. Practice Course continues through year two. Additional training will prepare PCLT students for working in a patient-centered medical home.

Year 3: The scholarly focus of the third year will be community-engaged research, population studies, or other forms of investigation of health systems and improvement in collaboration with the Division of Community Medicine. All PCLT students will complete coursework in epidemiology and biostatistics as well as coursework in leadership. The third year will still have a 10, 11 or 12 month option.

Year 4: 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 will also complete the required subinternship, the critical care month and the Capstone Course

Dual Degree Programs

MEDICAL SCIENTIST TRAINING PROGRAM

Director, Christopher Kontos, MD, Associate 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. Most candidates apply for admission to the first year of the MD program, but a few students are admitted each year after completing the second or third year of Duke University School of Medicine. In addition to the minimum requirements for acceptance into the Graduate School and the School of Medicine, advanced course work 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 United States citizens or official permanent residents of the US.

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 2012-2013 is $27,000 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.
- 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 application to MSTP is due no later than November 1.
- Interviews of selected candidates are held from early October through the end of January, and admissions decisions are announced as they are made from mid-December through late February.
- Applicants admitted to MSTP will be asked to complete an additional application 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 course work in the first medical school year provides a solid grounding in the basic medical sciences. The second year is devoted to a clinical sciences curriculum. Following completion of the second year, the trainee enters a graduate program to complete the requirements for the PhD degree. A final academic year of elective clinical study completes the requirements for the MD degree.

While the typical student follows the plan outlined above, students whose research interests are well developed early in the first year may opt to begin the PhD at the beginning of their second year and then complete the clinical sciences curriculum after finishing the

PhD. While this is not the typical sequence, much latitude is granted to students interested in early research experiences.

The Curriculum.

Year 1—Core Basic Science Year (46 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 credits in the approved basic science curriculum.

Year 1 consists of four integrated basic science courses, the Interprofessinal Introduction to Prevention course, and the Practice courses;

- Molecules and Cells (integration of Biochemistry, Genetics, and Cell Biology) - 6.5 weeks
- Introduction to Prevention - four hours per week for 4 weeks.
- Normal Body (integration of Gross Anatomy, Microanatomy, and Physiology) - 12.5 weeks.
- Brain and Behavior (integration of Neurobiology and Human Behavior) - 4 weeks
- Body and Disease (integration of Microbiology, Immunology, Pathology, and Pharmacology) 20 weeks.
- Practice (Doctor/patient relationships, interviewing, physical exam, basic counseling skills) - 4 hours per week for entire year.

Year 2—Core Clinical Science Year (58.5 clinical science credits). The second year consists of the Clinical Skills course, eight core clerkship rotations, the Global Health and Health Policy course, two two-week selectives, the Practice course, a Disaster Training course, and a 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 credits
- Surgery 8 weeks, 8 credits
- Obstetrics and Gynecology 6 weeks, 6 credits
- Pediatrics 6 weeks, 6 credits
- Family Medicine 4 weeks, 4 credits
- Psychiatry 4 weeks, 4 credits
- Practice – Advanced clinical themes (ethics, professionalism, end-of-life, etc.) 2.5 hours four times during each 8-week rotation, 3 credits
- Clinical Skills Course Initial 2-week intensive, then 2.5 hours, three times per 8-week rotation, 3 credits

Elective periods include two two-week selectives. Selectives provide an opportunity before the fourth year to learn about clinical subspecialties that are not covered by clerkships and support their career exploration.

Years 3, 4, 5, (6)—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 requirements include: (1) completion of necessary course work, (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 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, and the University Program in Genetics and Genomics are listed in the Bulletin of 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 adviser chosen by the trainee in consultation with the director of graduate studies in the appropriate department. The faculty adviser is the chairman 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 non-credit, 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 her or his 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 subinternship, 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 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, North Carolina 27710, MSTP@duke.edu, or telephoning the program office, 919-684-2412.

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 (2-3 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 3rd year study project is designed to require 10-12 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 *may be* eligible for full or partial credit towards 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. They will be required to fulfill the thesis, course work, and examination requirements of the third year of medical school plus the remainder, if any, of the research experience.

All students leaving the MSTP 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. This is applicable regardless of whether full or partial credit is given for the research portion of their graduate work towards 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.
(Approved: March 2008)

MASTER OF ARTS IN CLINICAL PSYCHOLOGY

After successful completion of the first two years in the School of Medicine at Duke, students may apply for a Masters 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 credits which must include 24 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 comprised 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 Duke 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 Andrew Krystal, MD at krystal@phy.duke.edu.

MD/MASTER OF ARTS IN LIBERAL STUDIES - MD/MALS

This joint degree program of the Duke University Graduate Liberal Studies program and the School of Medicine would begin in the third year of a student's medical degree. It would be a two-year program in its first implementation. Options for creating a one-year program to be situated in the 3rd year of medical school will be explored in future.

The Master of Arts in Liberal Studies (MALS) program offers the rigor of a graduate-level liberal arts education within an interdisciplinary context. For medical students, the value of this degree is substantial. The program enables students to expand their intellectual capacity in diverse areas of study (e.g., social sciences, history, policy, ethics, etc.) while exploring these subjects from many 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 Duke's Graduate School.

Requirements: Students design an individual course of study that brings together their intellectual interests and professional goals. Requirements include nine courses and a Master's thesis (approved by both the Graduate Liberal Studies program and the School of Medicine).

Apply to the Graduate Liberal Studies program on-line 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, please contact Donna Zapf, PhD, Director, Box 90095, Durham, NC 27708-0095, telephone 919-684-3222, dzapf@duke.edu; or Margaret Humphreys, MD, PhD, Carr Building 206, medh@duke.edu, 919-684-2285.

MD/MHS in Clinical Research

Name of degree: Master of Health Sciences in Clinical Research (1-2 years)Options/ tracks within the degree program: Clinical research, Genomic Research

Course of study – 2-4 semesters of coursework. For the Master's Degree, 4 semesters of coursework, plus a thesis is required; a non-degree option requires two semesters and involves taking the core curriculum of the Masters' Program.

Location: Duke Clinical Research Training Program (CRTP)

Length of Program: Masters' Degree takes 2 years and requires a thesis; the non-degree option is for one year.

Total time to graduation: Masters' Program typically five years; non-degree option typically takes four

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: David Edelman, M.D., MHS, dedelman@duke.edu, core faculty member of CRTP; Galen Wagner, MD, galen.wagner@duke.edu, Study Program Director

MD/MSc IN GLOBAL HEALTH

Name of Degree: Master of Science in Global Health (2 years)

Options/tracks within the degree program: elective options in Disease Causation and Prevention, global Environmental Health, Global Health Policy and Management, and Population Sciences

Course of study: 2-3 semesters of coursework, a field experience to apply learned research methods, and a research-based thesis are required

Location: Duke Global Health Institute (DGHI) and a variety of international sites/ institutions

Length of Program: Typically 4 semesters

Total time to graduation: Typically five years, could be accomplished in 4.5 years

Tuition Arrangements: full tuition for both programs and is paid independently to the two schools.

Financial Aid: eligible and can apply for financial aid at each program for each year enrolled in that program

Contact for more information: Ms. Lisa Croucher, MA, MLS, Associate Director for Education and Training, DGHI; Dennis Clements, MD, PhD, MPH, Study Program Director.http://globalhealth.duke.edu/education/mscgh-prospective-students

MD/MLS OR MD/MSIS

Master of Management in Clinical Informatics: MD/MMCI

Duke's Fuqua School of Business, in conjunction with the Duke Center for Health Informatics, 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 and demand of experts in health are informatics continues to grow. Students acquire the knowledge and skills to apply technology to such areas as patient are, performance improvement, and translational research, as well as business management and strategic planning principles. The program meets every other Friday and Saturday for 12 months, from August to August, over four 12-week academic terms. A research experience and project is substituted for the applied practicum. Tuition is paid to Fuqua in addition to Duke School of Medicine. Contact for more information: Pat Thibodeau, MLS, MBA, patricia.thibodeau@duke.edu or http://www.fuqua.duke.edu/programs/other_programs/mmci/

MASTER OF SCIENCE OF INFORMATION SCIENCE: MS/MSIS

The information science degree program is offered by the University of North Carolina Chapel Hill and is designed to prepare students to contribute to the design, development, and maintenance of information systems and networks; to provide leadership in the development of new technologies and new applications relating to the delivery of information to users; and to demonstrate a theoretical knowledge of information science, including the theory of information storage and retrieval, systems science, and social, political, and ethical implications of information systems. Within this degree, students may develop their own specializations through their choice of courses. The master's project is required for UNC graduation, but can be used to fulfill Duke's third-year requirements for

a research experience and thesis. All course work will be reviewed and approved by the student's UNC faculty advisor. Students may select a Duke mentor for their research. The program is usually two years long (4 academic semesters and one summer term). Tuition is paid to UNC directly, in addition to the Duke School of Medicine. Financial assistance is available and some students may be eligible for in-state tuition.

Contact for more information: Pat Thibodeau, MLS, MBA, patricia.thibodeau@duke.edu or http://sils.unc.edu/programs/graduate/msis

MASTER OF SCIENCE IN LIBRARY SCIENCE: MD/MLS

The degree in library science is offered by the University of North Carolina Chapel Hill and is designed to develop knowledge and skills around the development, management, and organization of information. Students graduating from this program would be able to assist in the development of information resources, the creation of databases, and the organization and management of information services, including libraries. The curriculum focuses around five functional areas: organization, collection and retrieval, information-related behavior, design and evaluation, and management. Students generally develop an area of concentration and select a number of advanced courses in that area. The master's project is required for UNC graduation, but can be used to fulfill Duke's third-year requirements for a research experience and thesis. All course work will be reviewed and approved by the student's UNC faculty advisor. Students may select a Duke mentor for their research. The program is usually two years long (4 academic semesters and one summer term). Tuition is paid to UNC directly, in addition to the Duke School of Medicine. Financial assistance is available and some students may be eligible for in-state tuition.

Contact for more information: Pat Thibodeau, MLS, MBA,
patricia.thibodeau@duke.edu or
http://sils.unc.edu/programs/graduate/msls

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. 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.

Further information may be obtained by contacting 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 (2 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: Duke Fuqua School of Business or a Business School at another University - must be approved by the third year committee prior to beginning the program.

Length of Program: Usually two years, with requirements of third year medical school accomplished in second year of degree

Total time to graduation: typically five years

Tuition Arrangements: full tuition for both programs is paid independently to the two schools

Financial Aid: eligible and can apply for financial aid at each program for each year enrolled in that program

Contact for more information: David Edelman, MD., MHS, dedelman@duke.edu, Study Program Director, Dr. Kevin Schulman, MD, MBA, kevin.schulman@duke.edu Director of the Health Sector Management Program, Fuqua School of Business.

MD/JD

Name of Degree: Juris Doctor (3 years)

Options/tracks within the degree program: Varies across law schools

Course of study: six semesters of coursework

Location: Duke University School of law or a another University - (must be approved by the third year committee)

Length of Program: Usually three years, with requirements of third year medical school accomplished in third of degree program

Total time to graduation: typically six years

Tuition Arrangements: full tuition for both programs is paid independently to the two schools

Financial Aid: eligible and can apply for financial aid at each program for each year enrolled in that program

Contact for more information: David Edelman, MD, MHS, dedelman@duke.edu, Study Program Director.

MEDICINE AND PUBLIC HEALTH PROGRAM

The Epidemiology and Public Health Study Program is designed for students pursuing third year opportunities in public health through 1) Obtaining a masters of public health degree or 2) A year- long experience at the Centers for Disease Control, Atlanta, Georgia It combines formal course work in epidemiology and population health, allowing students an opportunity to participate in the 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 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. Each student selects a Duke Faculty mentor in consultation with the study track director.

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- Chapel Hill (or an alternate accredited school of public health.) or apply to the CDC yearlong experience for medical students.

Required Research: Each student will have the equivalent of 10-12 months' participation in research. Students should identify a mentor, and 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, finance, 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 or CDC experience. For MPH students, the student must apply to the relevant MPH school (and program within the school) and to Duke School of Medicine by completing the Duke Third Year Elective Form. For students who plan to apply for an MPH at the University of North Carolina, School of Public Health: There are currently 5 "pre-approved" MPH programs at the School of Public Health. These include Epidemiology; Health Care and Prevention; Health Policy, Maternal and Child Health and Nutrition. The amount of 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 they have an interest. This determination is made semester by semester. For details, see http://gradschool.unc.edu/student/residency.

Students interested in another study track at the School of Public at UNC, or an MPH at another University must work with Dr. Andolsek to petition the Duke third year committee for "acceptance." Students complete all requirements for the MPH degree during one-two academic years as part of fulfilling their third year requirement. If interested, they can extend their research for an additional year. At the end of the students' third year, they are required to submit a quantitative thesis/manuscript/grant application and present their findings orally at a suitable venue to satisfy Duke's third year requirements, in addition to the requirements of their masters or CDC program. Upon receipt of the MPH degree and completion of a quantitative thesis, students are awarded a full year of basic science credit toward the MD degree. Students should consult the UNC School of Public Health for information on eligibility, application requirements and deadlines, and course requirements of the degree. Most students are successful in obtaining this degree but it takes a great deal of organization, coordination, and proactive effort. In addition, students may propose an individually tailored Study Away option.

Financial Aid: eligible and can apply for financial aid for each year enrolled in the program

Contact for more information: Dr. Kathryn Andolsek, MD, MPH, Study Program Director, at kathryn.andolsek@duke.edu.

MD/MPP

Name of degree: Master of Public Policy (1-2 years)

Options/tracks within the degree program: Varies across schools of Public Policy

Course of study: three-four semesters of coursework; Masters' Thesis is required

Location: Duke Sanford School of Public Policy or a Public Policy School at another University (must be approved by the third year committee prior to the start of the program).

Length of Program: usually two years, with requirements of third year of medical school accomplished in second year of degree program; under carefully considered circumstances and with special permission/effort can be completed in 16 months.

Total time to graduation: typically five years, but can be four (see above)

Tuition arrangements: full tuition for both programs is paid independently to the two schools.

Financial Aid: eligible and can apply for financial aid at each program for each year enrolled in that program

Contact for more information: David Edelman, MD, dedelman@duke.edu, Study Program Director.

Financial Information and Tuition and Fees

Tuition Policy Statement. The Duke University School of Medicine's mission in medical education is to build upon our internationally-recognized tradition of excellence in training outstanding practitioners and physician-scientists who will be leaders in all fields of medicine. By selecting outstanding and dedicated students for matriculation, the school is committed to preparing physicians to respond to societal health needs. The School of Medicine has a policy of need-blind admission and adequate financial aid for those students with financial need. Tuition is set at a level that is competitive with schools of comparable quality and selectivity for admission. This tuition policy, plus a financial aid program which protects against excessive student indebtedness, permits the School of Medicine to attract the most qualified students nationally and regionally, regardless of the student applicant's personal or family financial status. It is important that tuition and financial aid are balanced to ensure that debt does not skew career choices of medical students once they graduate from the Medical School. All students (except MSTP and those exempted from Third Year) are responsible to pay four years of medical school tuition.

Tuition. 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 $63,000 for a fourth year student to $73,300 for a first year student. These are estimated figures only. Tuition and fees are subject to change without notice.

2012-13 Estimated Cost of Education

Expense	Amount
Tuition	$48,065
Accident and sickness insurance[1] (subject to change)	$1,705
Technology fee	$2,000
First year fees[2] (includes microscope rental, first year only)	$1,301
Annual cost of books and supplies: first year	$1,400
Annual cost of books and supplies: second year	$1,000
Annual cost of books and supplies: third and fourth years	$500
Rent, board, and miscellaneous: first and third years (12 mos.)	$22,392
Rent, board, and miscellaneous: second year (13 mos.)	$24,258
Rent, board, and miscellaneous: fourth year (8 mos.)	$14,928
Continuing Optional Research Study Fee[3] (per semester)	$50
Motor vehicle registration: car	$550

1. Mandatory fees.
2. Sphygmomanometer, ophthalmoscope, otoscope, and other equipment required of each student must conform to rigid standards.
3. 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 five 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.

Advanced Standing Matriculants. Students who enter the MD degree program with previously earned doctorate degrees may petition the Third Year Committee and vice-dean to receive a maximum of 36 elective, basic science credits to be applied to the third year MD curriculum. Students granted 16 transfer credits are given allowance for one tuition payment. Those granted 36 transfer credits are given allowance for two tuition payments. Advanced standing students who elect to register at Duke for the curricula for which they

could have received transfer credit, forego the appropriate tuition waivers and are assessed tuition accordingly.

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 status's listed below. The exception would be Free Time (Interdis 450C). Students are not required to complete paperwork for Free Time, and they should enroll in that status during on-line 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, non-credit 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, 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 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 Study (IS) is a four-week 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) but is not research. It can be elected for up to twelve one-month terms. An application consisting of a brief description of the activity and advisory dean approval is required. A brief report to the advisory dean on the progress of the activity is required at the end of each four-week term. Full-time student status is maintained during this enrollment, and the student is eligible for the benefits of enrollment, including loan deferment, eligibility for student health services and insurance, but is not eligible for financial aid for living expenses. A continuation fee is charged for this status if the student is enrolled in Independent Study for an entire term.

Free Time (FT) (Interdis 450C) is a four-week term-based, non credit-bearing status used when the student is not engaged in any curricular or education-related activity for brief periods of time less than a semester. The student is not considered enrolled and does not have the benefits of enrollment on this status unless s/he is registered for 50% or more of the semester term credits. Fourth year medical students are required to enroll in Free Time

for periods when they are not enrolled in classes or enrolled in another approved status. No fee is charged for this status.

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 $50 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. Beginning with the entering class of 2009, students pursuing dual degrees are responsible for both tuition expenses. A limited amount of scholarship support is available; it will be advertised in early November of each year.

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.

Transfer Students. Only in extraordinary circumstances are transfer students accepted into the Duke program. However, in these instances, such a student must have completed successfully two years of course work in the basic sciences to be eligible to apply. Upon entrance to the Duke MD program, transfer students receive credit for the first and third year curricula, and the corresponding four tuition payments are waived.

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:

Senior Scholarships are offered to third year students for use during their fourth year of study. Selection by a special committee is based on outstanding academic achievement and extracurricular activities during the first two and one-half years of medical school. These scholarships, to be paid toward tuition, are in the range of $10,000. These funds support the Senior Scholarship program.

Financial need is not a criterion for selection; however, applicants who feel their financial need is greater than the merit award may apply for financial aid. Students who already have Duke-sponsored, full tuition scholarships are not eligible for funds from this scholarship.

William G. Anlyan, MD Scholarship, established 1988, by gifts from faculty, staff and friends.

Barham Endowed Merit Fund, established November, 1984, by gift from Mr. and Mrs. Joseph Barham, Oak Ridge, Louisiana.

Family Dollar Scholarship, established November, 1984, by gift from Mr. Leon Levine, Chairman of the Board, Family Dollar Stores, Inc., Charlotte, North Carolina; for minority students.

Mary W. and Foster G. McGaw Scholarship, established February, 1986, by bequest from Foster G. McGaw.

School of Medicine Merit Fund, established 1984, by gifts from medical alumni, students, and American Medical Association-Education and Research Foundation.

The Dean's Tuition Scholarships. Seven Dean's Tuition Scholarships in the amount of current tuition 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.

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. The special application is made directly to the program in which the student is interested. Contact information can be found at finaid.mc.duke.edu/scholarships.

Payment of Accounts. Statements for tuition, fees, and other charges are processed by the Bursar's office. All statements are delivered electronically via ACES. You will receive an e-mail each time a new bill is ready for you to view on ACES. Fall bills will be due on August 1, 2012 and spring bills will be due on January 2, 2013. If full payment is not received by the stated due date, a late payment penalty charge will be assessed on the subsequent statement.

Duke University
Bursar's Office - Payment Processing Center
P.O. Box 602538
Charlotte, NC 28260-2538

To ensure prompt credit to your student account, please include a copy of your bill when mailing your payment. This is our payment processing center at Wells Fargo Bank. Only payments should be sent to this address. Correspondence, scholarship checks and overnight mail sent to this address will not be processed.

Your check should be:

- Payable in US dollars to “Duke University”
- Include your name and student account number (from your bill)
- drawn on
- A U.S. financial institution (such as Bank of America), or
- A U.S. branch of your financial institution (example: the New York City branch of Barclay’s Bank PLC)
- Your check will be deposited upon receipt.

If you are paying from abroad and are unable to send a U.S. Dollar check drawn on a U.S. financial institution, or if your bank is unable to provide you with a check drawn on its U.S. branch, please submit your payment by bank wire. Wire instructions are included on your e-bill that is available to you on ACES. Duke University does not accept credit or debit cards for payment of tuition & fees.

Scholarship checks, overnight/express mail, and other correspondence should be sent to:

Duke University Bursar
PO Box 90759

114 South Buchanan Boulevard
Bay 8, Room B-103
Durham, North Carolina 27708

Checks should be made payable to Duke University. Please write your account number on your check or money order. Please do not send cash. Payment by check should be made in US Dollars, drawn on a US Financial Institution.

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% 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 Tuition Management System (TMS) to allow currently enrolled students and their parents to pay all or part of the academic term expenses in monthly payments as follows:

Fall balance	July 1- November 1
Spring balance	December 1 - April 1

A non-refundable fee is charged for TMS participation; this fee is paid directly to TMS. As a TMS participant, you will continue to receive statements on a regular basis from Duke Bursar's Office. This statement should reflect your TMS payments made to date. The balance due on your statement, which includes charges for the current term, must be covered by your remaining scheduled TMS payments for that term. Payments made to TMS 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. For more information, visit www.afford.com or contact TMS at (800)722-4867.

MD Program Late Registration Fee. Failure to register during the prescribed on-line registration periods offered by the School of Medicine will result in a $250.00 late registration fee. Any student who begins registration during or after the Drop/Add period of registration will be assessed this fee.

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, 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:

1. In the event of death a full refund of tuition and fees is granted.
2. 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.

3. 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 number 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.

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 School of Medicine is committed to meeting the demonstrated financial need of applicants based upon federal and institutional policies and procedures. For our current academic year, approximately 91% of the total student enrollment received financial assistance from sources other than parents. Grants, scholarships and loans from all sources to medical students totaled over $19 million. Over $8 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 U.S. citizens.

Financial Assistance to Incoming Students. Students should start the financial aid application process as soon as possible after January 1. Students are given information about this process at the time of their interview, and 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.

The applicant requesting financial aid is expected to work during the summer preceding entrance into medical school and to save part of those earnings to defray a portion of the first-year expenses.

The applicant's need is determined before an award is made. The Office of Financial Aid therefore requires the Need Access 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. An official aid award notice is mailed to the accepted applicant after receipt of the required forms.

Sources of Aid for International 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. Therefore, need-based institutional grants and loans are offered to students who demonstrate financial need. Information regarding these grants and loans, and how to apply, may be found at http://medschool.duke.edu/modules/som_finaid/index.php?id=7.

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.

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

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

For additional information, please contact the Office of Financial Aid at 919-684-6649 or email at financial_aid@mc.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 from the most recent tax year and the Need Access, which the student fills out and submits on-line. 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 May 15th. 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 Web site: http:// finaid.mc.duke.edu.

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 PLUS Loan. The Federal Direct PLUS Loan is a low-interest loan (7.9% fixed) 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 Stafford loans upon graduation. There is a 4% origination fee and a credit check for all Grad PLUS loans.

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 disbursed after July 1, 2012 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 U.S.citizen or permanent resident, have no previous default on a federal loan, and be enrolled in 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 may be found at studentloans.gov.

The Board of Governors Medical Scholarship Loan Program (BGMSL) is funded by the North Carolina General Assembly. Funds are available to incoming legal N.C. residents who have been admitted to a medical school in North Carolina and demonstrate financial need and a desire to practice medicine in North Carolina. Provided sufficient funds are available, the scholarship provides an annual stipend of $5,000 plus tuition, mandatory fees, and medical insurance. Awards are renewable annually for a total award period of four years, provided the student makes satisfactory academic progress and continues to show financial need. One calendar year of full-time employment with the state of North Carolina is required for each school year a loan is received.

The North Carolina Student Loan Program for Health, Science, and Mathematics. These loans provide financial assistance to North Carolina residents who demonstrate need as determined by the North Carolina State Education Assistance Authority. Loans are available for study in the medical fields, mathematics, and science programs that lead to a degree. The applicant must be a domiciliary of North Carolina and accepted as a full-time student in an accredited associate, baccalaureate, master's, or doctoral program leading to a degree. Loan recipients in some professional or allied health programs may cancel their loans through approved service in shortage areas, public institutions, or private practice. Medical students may receive up to $8,500 per year for each of the four years; master's degree students are eligible for two loans of up to $6,500 each; bachelor's degree students are eligible for three loans of up to $5,000 each. For application forms and more information, write: Executive Secretary, North Carolina Student Loan Program for Health, Science, and Mathematics, P.O. Box 14223, Research Triangle Park, North Carolina 27709-4223, or telephone (919) 549-8614.

Primary Care Loan (PCL). Recipients must agree to enter and complete a residency training program in primary health care not later than four years after the date on which the student graduates from the school, and must practice in such care through the date on which the loan is repaid in full.

If the borrower fails to complete a primary health care residency and to practice in a primary health care field, the loan balance is recomputed from the date of issuance at an interest rate of 7 percent per year, compounded annually. This seven percent loan is available on a limited basis for qualified borrowers.

University loans are available under the specific restrictions of the loan funds and are awarded on the basis of financial need. Awards are made as part of the regular financial aid cycle. The School of Medicine does have one emergency loan fund; the Francis and Elizabeth Swett Loan Fund is available in small amounts to any medical student on a no-interest basis for a short period of time.

Additional information may be obtained by contacting the Office of Financial Aid, Box 3067, DUMC, Durham, North Carolina 27710, (919) 684-6649 or email: financial_aid@duke.edu.

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. The special application is made directly to the program in which the student is interested.

AWARDS AND PRIZES

Typically these are awarded at graduation for the top students in a given area.

Andrew C. Puckett Essay Contest. In honor of Dr. Andrew C. Puckett, Associate Dean Emeritus of the School of Medicine. The topic is chosen each year by Dr. Puckett. The award is chosen by a committee with Dr. Puckett participating in the selection. Prize consists of a Certificate and award for $500.

Davison Scholarship. The Davison Scholarship award is supported by the Davison Club in the memory of Dean Wilburt Davison to enable a medical student to participate in a clinical science elective outside the United States in an area of primary care. Any student eligible to study away may apply for the award. For consideration for the scholarship, the elective must be approved by the Study Away Committee.

Dean's Recognition Award. In recognition of contributions made to the school and the class in leadership and service as well as academic performance, this award is given to 4-6 graduating seniors which consists of a certificate and a monetary award.

Excellence in Emergency Medicine. Selected by the faculty in the division of Emergency Medicine to a student who has demonstrated outstanding proficiency in Emergency Medicine. One-year subscription to the Society for Academic Emergency Medicine journal, Academic Emergency Medicine, one-year subscription to *SAEM Newsletter*, one-year complimentary membership in the SAEM.

Thomas Jefferson Award. This award, consisting of $200, a certificate, to recognize a graduating senior student who has made outstanding contributions to the university or to fields which have not been traditionally confined to science and medicine. The award is given by the Awards Committee to a graduating senior.

Leonard Tow Humanism in Medicine Award presented by the Arnold P. Gold Foundation. The Humanism in Medicine Award is a national award given to a graduating senior at each US Medical School by the Arnold P. Gold Foundation, a charitable foundation based in New Jersey that has as one of its mission the development and recognition of humanistic physicians. The criteria for this award include that the recipient consistently demonstrates compassion and empathy in the delivery of care to patients, illustrates

professional behavior by example, shows respect for everyone and is committed to continuous self-improvement. Nominations are solicited from the graduating class and the recipient chosen by a panel that includes previous faculty recipients of the award and the advisory deans. The award consists of a certificate and a monetary award of $1.000. The companion award is presented to a faculty member at the Annual Faculty Awards ceremony.

Other Awards. Throughout the year, Duke Medical School receives notification of awards consisting of books, money, and/or plaques or medals to be awarded to students in a variety of fields at all medical schools on a national competitive basis selected by committees of the sponsoring organizations. These awards are screened by the dean's office and publicized appropriately.

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 12 month commitment to research. Students may apply for external scholarships and programs if a scholarship or program is approved by the Scholarship Committee as consistent with the goals and time frame of the third year experience. In addition, multiple internal scholarships are offered by departments at Duke. 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. Further questions can be directed to the Office of Student Affairs, Renee Mahaffey, at 684-5901, or renee.mahaffey@duke.edu.

External Research/Scholarship Programs

CDC Experience. The CDC Experience is a one-year fellowship in applied epidemiology for medical students. The program is designed to increase the pool of physicians with a population health perspective. Each year, eight competitively selected medical students from around the country spend 10-12 months at the Centers for Disease Control and Prevention (CDC) in Atlanta. At CDC they gain an in-depth understanding of applied epidemiology, the role of epidemiology in medicine and health, and the role of physicians in the public health system. With the guidance of experienced CDC epidemiologists, they perform epidemiologic analyses and research, design public health interventions and assist in field investigations. Possible areas of concentration include birth defects, injury prevention, chronic disease, infectious disease, environmental health, reproductive health, and minority health. Fellowship activities include: hands-on training and work experience at CDC; participation in field investigations; orientation to CDC and didactic training; monthly seminars; monthly journal clubs; Epidemic Intelligence Service annual conference attendance; and presentation of the culminating project. Application deadline is in early December. Additional information is available at http://www.cdcfoundation.org/thecdcexperience.

Doris Duke Clinical Research Fellowship Program. This fellowship is designed for students to do one year of "hands-on" and didactic clinical research training at one of the following twelve medical centers: Columbia University College of Physicians and Surgeons, Harvard Medical School, Johns Hopkins School of Medicine, Mount Sinai School of Medicine, University of California at San Francisco Medical School, University of Iowa Medical School, University of North Carolina Medical School, University of Pennsylvania

School of Medicine, University of Pittsburgh School of Medicine, University of Texas Southwestern Medical School at Dallas, Washington University Medical School, and Yale University School of Medicine. At least five students will be accepted to the program at each of these schools. The stipend is currently $28,000 plus health insurance. Medical students must apply directly to the twelve participating medical schools. Additional information, including international opportunities, is available at http://ddcf.aibs.org.

Howard Hughes Medical Institute (HHMI) Research Fellows Program. Hughes fellows may work in any laboratory of their choice (excluding the NIH) including those within their own medical school. Selection of a mentor is key to the application process. The application, which includes a research plan and a letter from the mentor, must be submitted by January 11, 2012. Students receive an annual salary of $28,000. In addition, students will receive a $5,500 allowance for research or education-related expenses that directly benefit the fellow, and a $5,500 fellow's allowance to defray health insurance and tuition costs. For additional information and application, please go to the website: http://www.hhmi.org/grants/individuals/medfellows.html.

Intramural Research Program at the National Institute of Environmental Health Science (NIEHS). The NIEHS, a division of the National Institutes of Health (NIH), offers medical students the opportunity to pursue research activities focused on environmentally related diseases, epidemiology, and dysfunctions in areas such as carcinogenesis, reproduction and development, pulmonary and neurological disorders Research is conducted on the NIEHS campus at Research Triangle Park. Four NIEHS Fellowships in Environmental Medicine are available each year. Each NIEHS investigator has a website accessible at http://www.dir.niehs.nih.gov/research/atniehs. Students should contact the investigator directly to determine if that investigator is accepting fellows of this type for the coming year. Applications should then be made jointly by the student and the NIEHS preceptor, proposing the project of interest. A complete application consists of a five-page research proposal summary, including a statement relating to the research, student's medical training, and career interests. Include a medical transcript and undergraduate transcript, plus a letter of recommendation from one or more Medical School faculty members. Applications are due in January of each year. Send the entire package of materials to William T. Schrader, PhD, NIEHS Division of Intramural Research, 111 T.W. Alexander Drive, RTP, NC 27709. For further assistance, call 919-541-3433 or email: schrader@niehs.nih.gov.

***NEW* National Institute of Health (NIH) Medical Scholars Program.** The program will offer 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. Program applications will be accepted October through mid-January. Student support will include a $33,000 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 www.cc.nih.gov/training/mrsp

National Institutes of Health (NIH) International Clinic Research Scholars Program (FICRF). The NIH's Fogarty International Center (FIC), in partnership with several other NIH institutes, offers a one-year clinical research training experience. This is an opportunity for highly motivated individuals to experience mentored research training at top-ranked NIH-funded research centers in developing countries such as Africa, Asia, and the Americas. The fellowship term begins with an intensive orientation program on the NIH campus in Bethesda, MD. This is followed by approximately 10+ months of intense research

training at the foreign site. To learn more about the FICRF program please visit their web site: http://www.fogartyscholars.org/program/ficrf/rfa-fogarty-international-center-clinical-research-fellows.

Sarnoff Cardiovascular Research Foundation. Sarnoff Fellowship Program offers medical students enrolled in accredited U.S. 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 $28,500, 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. Any questions contact Dr. Neil Freedman at neil.freedman@duke.edu. Applications for the Sarnoff Fellowship Award must be submitted online at www.SarnoffFoundation.org/program/information.cfm.

Internal Scholarship Programs

Students applying for the Duke Internal Scholarships listed below should use the Internal Duke Scholarship Application form to apply. Most Internal Scholarships applications are due April 1st. Announcements are generally made in April or May.

Basic Science Research Scholarships - Scholarships for students conducting their third year research in a laboratory associated with a Duke School of Medicine Basic Science Department. These departments are Neurobiology, Biochemistry, Pharmacology & Cancer Biology, Molecular Genetics & Microbiology, and Immunology. Depending on the funding source, these scholarships may be restricted to laboratories of primary faculty in the department, or open to laboratories of both primary and secondary faculty. (Please note it is expected that MD-PhD candidates and students receiving significant external scholarship funding eg., HHMI fellowships, will not be eligible for these small scholarships.) Please contact Joanna Downer, Ph.D., for more information at joan-na.downer@duke.edu or by phone - 919-681-8272. **Science Council** - Two $5000 scholarships - labs of primary faculty in the departments defined above. **Molecular Genetics & Microbiology (MGM)** - two $5000 scholarships per year among four possibilities: Nevins Scholarship in Molecular Genomics; Petes Scholarship in Genetics & Cancer Biology; Keene Scholarship in RNA & Molecular Biology; and Mitchell Scholarship in Microbiology & Infectious Disease. **Immunology** - One $5000 scholarship in the lab of primary faculty in the Department of Immunology. **Pharmacology & Cancer Biology** - The Fitzgerald Medical Scholar Award: One scholarship of up to $10,000 in the lab of primary faculty in the Department of Pharmacology & Cancer Biology. All Basic Science scholarships utilize the standard Internal Duke Scholarship form and share the same deadline (most years it is April 1).

The Donald B. Hackel Fellowship. The Donald B. Hackel Fellowship in Cardiovascular Pathology 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 twelve-month fellowship carries an annual stipend of $15,000. For further information contact Dr. William Bradford at bradf001@mc.duke.edu.

The Duke CTSA Scholarship supports one- and two-year options in didactic and mentored hands-on training in clinical research at Duke. The one-year program includes four core courses in biostatistics, research design, and responsible conduct in Duke's Clinical Research Training Program in addition to a mentored research project. Two-year students complete the course work and research project that lead to a Master of Health

Sciences in Clinical Research degree. Elective options within the two-year degree program include two course clusters in genomics. This scholarship carries an annual stipend of $20,976. For further information please contact Stephanie Molner, at stephanie.molner@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. Additional internal scholarships are available, however they require a different application. For more information contact the Global Health Third Year Study Program Coordinator at gh-thirdyear@duke.edu or visit their website: http://globalhealth.duke.edu/education/graduate-professional/md-third-year-track.

Duke-Singapore Student Scholar Fellowship. Singapore 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. Opportunities for outreach in neighboring Asian countries are also possible. This research will take up 80%+ of the scholar's time. Singapore Scholars are also expected to provide mentoring to first year Duke-NUS Graduate Medical School (DNUS) students (6-8 hours per week) This may involve participating in the orientation to first and second year educational activities, serving as a general resource for first and second year students, facilitating small group or one-on-one discussions about the students' experiences with the curriculum, and sharing their experience of third year research. Singapore Scholars will receive SGD20,000 tuition support, two Duke-Singapore coach round-trip airline tickets during the year, and living expenses of SGD3,200 a month. In addition, temporary living expenses to assist the move to Singapore will be reimbursed up to SGD75 per day for up to two weeks. (These amounts are stated as Singapore dollars; see http://www.x-rates.com for conversion.) Support will be for the 10 months of the research project. Applicants need to submit a Study Away application (on the third year web site). They should complete the internal Duke scholarship form, and write a brief (1-2 page) essay on "How, if at all, will being in Singapore enhance my research?" The deadline is usually late January, and applicants are notified in early March. For more information about potential mentors, please visit the Duke-NUS web site, http://www.duke-nus.edu.sg/web/research_signature_research_programs.htm. For additional information please contact Alison Atherton at alison.atherton@duke.edu or 684-8329.

Eugene A. Stead Student Research Scholarships. Dr. Eugene A. Stead, Jr. served as Chairman of the Department of Medicine at DUMC from 1947-1967. Because of Dr. Stead's affiliation with the Department of Medicine, this scholarship is awarded exclusively to third year students who are working with mentors who have a primary appointment in the Department of Medicine. The stipend for the 12 months of research is $25,000. For more information, contact Rowena Dolar, MD, MHS at Rowena.dolor@duke.edu

Dr. William Reid Haas and Mrs. Ardelle B. Haas History of Medicine Scholarship. The purpose of this scholarship is to support a third year medical student engaged in research in the Medical Humanities Study Program. The Haas Scholar is expected to spend 10-12 months engaged in research and to attend any History of Medicine Collections events, as well as regular lecture series offered through the Trent Center. The award is $3000. Apply using the Internal Duke Scholarship form. The deadline is April 1.

Interdisciplinary Research in Medicine or Physiology (Hyperbaric Medicine). The Center for Hyperbaric Medicine and Environmental Physiology at Duke supports a $25,000

scholarship in basic research for third year medical students in a laboratory setting, either in the Center or in the laboratory of a Duke faculty member affiliated with the Center. Projects should advance our understanding of important physiological or pathological processes. Proposals that exploit two or more traditional disciplines are especially encouraged. For the faculty list and more information, contact Barry W. Allen, PhD, in the Center for Hyperbaric Medicine and Environmental Physiology: 668-0031, or email him at barry.w.allen@duke.edu.

Ovarian Cancer Research Fellowship. The Ovarian Cancer Research Fellowship in Gynecologic Oncology is offered to one third-year Duke University Medical Student annually. The broad aim of the laboratory group in which the student will work is to elucidate the molecular pathogenesis of ovarian cancer and to translate this knowledge into prevention strategies. This 10 month fellowship carries an annual stipend of $7,000. Students who aspire to careers in Obstetrics and Gynecology will have the highest priority in judging applicants for this award, but this should not discourage others from applying. If you have questions please contact Dr. Andrew Berchuck, MD, Professor of Obstetrics and Gynecology, Division of Gynecologic Oncology, Box 3079 DUMC, Durham, NC 27710.

R. Randall Bollinger Surgical Scholarship. The Department of Surgery offers research scholarships in Surgery for third year students at Duke University Medical Center. 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. Accepted applicants will be expected to interview and present a brief presentation in April for consideration. For more information you may contact Alexander Perez at alexander.perez@duke.edu.

Ruth K. Broad Foundation Medical Fellow in the Neurosciences. The Ruth K. Broad Biomedical Research Foundation, a support corporation of Duke University, is offering an award to promote learning and research in the neurosciences for one Duke medical student. This will be the first time the organization has offered an award specifically for medical students. The award will support 12 months of full-time biomedical research training during the third year of the MD degree program. Applicants must be enrolled at the School of Medicine, applying to pursue laboratory-based research (basic or translational, biomedical engineering, etc.) relevant to neurodegenerative disease. The award will provide $38,000 that will accrue to the student's medical school account, and will be attributed toward tuition, fees and possibly a research allowance. The award will be open to student projects based on merit, regardless of whether the principal investigator has a primary appointment in a basic science department, or is an MD or PhD. The fellowship research may be conducted at another U.S. academic institution with 501(c) (3) status, with the approval of the student's academic advisor along with approval of the mentor at the host lab. The recipient may be asked to present findings at an annual RKBF board meeting, and will be asked for a written report at the end of the funding period. Application deadline – February . Application information is available on their website at http://broadfoundation.som.duke.edu/modules/bf_apply/index.php?id=1 You can also email the Foundation at ruthkbroadfoundation@mc.duke.edu

Financial Aid and Scholarships. Need-based financial aid is available during the third year basic science elective and fourth year clinical elective years. A student receiving a research scholarship may also qualify for need-based financial aid funds. Your award will incorporate the scholarship along with your financial aid award in accordance with NIH, Duke SOM policies and federal financial aid regulations. Duke University School of Medicine policy dictates that all external scholarships replace need-based loans first. At such

time that these loans are replaced, then the grant portion of your 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 has been made to ensure that you have all the financial aid you 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.

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. As an example, the Howard Hughes Medical Institute (HHMI) agreement and contract states that "fellows may not undertake medical school coursework, a clerkship, or any graduate school coursework."

All third year students are required to satisfy the Third Year Practice course/continuity clinic. This requirement may be satisfied during the fourth year with approval of the student's mentor, study program director, and advisory dean (and in some situations, the Promotions Committee). 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 warrants a breach of contract. Ramifications may be, but are not limited to, loss of scholarship support, loss of credit or other punitive measures.

Doctor of Medicine Program Policies

Academic Calendar. An academic calendar is prepared by the School of Medicine Registrar's Office. The calendar is vetted through the Curriculum Administrative Group and by the Curriculum Committee. The academic calendar must be approved by the Curriculum Committee on an annual basis.

Academic Dismissal Policy of the Duke University School of Medicine. Accepted by Duke University School of Medicine Curriculum Committee, May, 2010. 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 (includes clerkships, electives, and selectives) courses
- Failure of two (clinical setting-based courses) clinical courses
- Failure of the same course twice

Approved School of Medicine Holidays for Medical Students (Subject to Change)

Labor Day

Thanksgiving Day (and the day after Thanksgiving)

Christmas Day (and additional days as outlined on school academic calendar)

New Year's Day

Labor Day
Martin Luther King, Jr. Holiday
Memorial Day
Independence Day

Attendance Requirements for Medical Students – Holidays. Students in the School of Medicine are to observe approved holidays as outlined on the School of Medicine Academic Calendar. Holidays that occur on a Saturday may officially be observed on the preceding Friday. Official School of Medicine holidays occurring on Sundays 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.

Compact Between Teachers and Learners of Medicine. Accepted by Duke University School of Medicine Curriculum Committee May 1, 2002; Approved by Duke University Medical Center Executive Committee October 7, 2003

Preparation for a career in medicine demands the acquisition of a large fund of knowledge and a host of special skills. It also demands the strengthening of those virtues that under gird the doctor/patient relationship and that sustain the profession of medicine as a moral enterprise. This Compact serves both as a pledge and as a reminder to teachers and learners that their conduct in fulfilling their mutual obligations are the medium through which the profession inculcates its ethical values. *In this document, the resident is considered a teacher as well as a learner.*

GUIDING PRINCIPLES

Duty. Medical educators have a duty, not only to convey the knowledge and skills required for delivering the profession's contemporary standard of care, but also to inculcate the values and attitudes required for preserving the medical profession's social contract across generations.

Integrity. The learning environments conducive to conveying professional values must be suffused with integrity. Students learn enduring lessons of professionalism by observing and emulating role models who epitomize authentic professional values and attitudes.

Respect. Fundamental to the ethic of medicine is respect for every individual. Mutual respect between learners, as novice members of the medical profession, and their teachers, as experienced and esteemed professionals, is essential for nurturing the ethic. Given the inherently hierarchical nature of the teacher/learner relationship, teachers have a special obligation to ensure that students and residents are always treated respectfully.

Commitments of Faculty

- We pledge our utmost effort to ensure that all components of the educational program for students and residents are of high quality.
- As mentors for our students and resident colleagues, we maintain high professional standards in all of our interactions with patients, colleagues, and staff.
- We respect all students and residents as individuals, without regard to gender, race, national origin, religion, or sexual orientation: we will not tolerate anyone who manifests disrespect or who expresses biased attitudes towards any student or resident.

- We pledge that students and residents will have sufficient time to fulfill personal and family obligations, to enjoy recreational activities, and to obtain adequate rest; we monitor and, when necessary, reduce the time required to fulfill educational objectives, including time required for "call" on clinical rotations, to ensure students' and residents' well being.
- In nurturing both the intellectual and the personal development of students and residents, we celebrate expressions of professional attitudes and behaviors, as well as achievement of academic excellence.
- We do not tolerate any abuse or exploitation of students and residents.
- We encourage any student or resident who experiences mistreatment or who witnesses unprofessional behavior to report the facts immediately to appropriate faculty or staff: we treat all such reports as confidential and do not tolerate reprisals or retaliations of any kind.

Commitments of Students and Residents

- We pledge our utmost effort to acquire the knowledge, skills, attitudes, and behaviors required to fulfill all educational objectives established by the faculty.
- We cherish the professional virtues of honesty, compassion, integrity, fidelity, and dependability.
- We pledge to respect all faculty members and all students and residents as individuals, without regard to gender, race, national origin, religion, or sexual orientation.
- As physicians in training, we embrace the highest standards of the medical profession and pledge to conduct ourselves accordingly in all of our interactions with patients, colleagues, and staff.
- In fulfilling our own obligations as professionals, we pledge to assist our fellow students and residents in meeting their professional obligations, as well.

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.

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 will result in notations on grade reports, transcript request blockage, and possibly the holding of the academic diploma. For more information contact the Office of Curriculum.

Due Process Guidelines. If a student decides to appeal a decision of a Promotions Board, he or she must submit in writing to the vice-dean the reasons for the disagreement with the decision and any extenuating circumstances he or she wishes to identify within two 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, at least one of whom is from a basic science department. The Promotions Appeal Committee reviews the student's

request and meets with other faculty or members of the Duke University Medical Center staff who have pertinent information. The student may present her or his 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 still is dissatisfied and wishes to appeal further, he or she 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. This policy is currently under review and subject to change.

Duty Hours Policy. The Duke University School of Medicine has adopted a duty hours policy for medical students to provide guidance and protection for students, especially on the clinical services in the second and fourth years of the curriculum. It is recognized by faculty and students that the goals of educating students in the clinical setting are both the development of their clinical skills and professional attributes and the provision of student contributions to medical teams and the care of patients. It is the intent of this policy to support the achievement of these goals while allowing students adequate time to rest, attend to extracurricular obligations, and recreate in order for them to be maximally effective as learners.

Statement of Duty Hours Policy

1. Students will be expected to be on-site on any clinical service no more than 80 hours per week, averaged over a two-week period during second year clerkships and a four-week period during fourth year courses. This maximum should include actual time spent on service in the hospital or clinic on "on-call" nights, but should not include time a student may spend at home reading or studying, or sleeping in the hospital while on call. Exceptions to the 80-hour limit can be made for unique learning opportunities that may arise (e.g. an unexpectedly long surgical case, an unanticipated transplant surgery, awaiting an obstetric delivery, etc.), but should not become routine. Extensions may be granted for situations in which a student's supervising residents are allowed longer hours by national accreditation agencies (e.g. 86 hours in Neurosurgery).
2. Students will have one full day completely free of curricular or patient-care responsibilities in the hospital or clinic per week, averaged over a two-week period during second year clerkships and over a four week period during fourth year courses. Weekends off after a course ends may be included as days off for the preceding two-week period only. School holidays that occur during a course may be included as days off for the two-week period in which they fall.
3. Students will not be expected to be in the hospital or clinic setting for more than 30 consecutive hours, including hours spent sleeping while on call if less than four hours.
4. In conjunction with the restrictions on total time spent in the hospital or clinic, course directors should design learning activities to make most efficient use of time from the standpoint of learning. Learning activities appropriately include:
    a. the care of patients assigned to the student, the student’s team, or services being cross-covered, and other activities that are the work of the student’s team, and
    b. classes, conferences, rounds, projects and individual learning assignments that are part of a course.

5. Students should not be expected to use the hours allocated on tasks that are not directly related to learning activities (e.g. performing personal favors or services for other medical personnel), nor should they be expected to do tasks unrelated to their learning activities (see 4a) solely because residents must leave due to work hours restrictions.
6. Students will be expected to keep an accurate log of time spent in the hospital/ clinic and provide the log to an office designated by the Office of Curriculum. Intentional falsification of logs will be treated as an Honor Code violation. Course directors will routinely review cumulative, non-student-identifiable duty hours data and correct any systemic problems that are contributing to students regularly working excess hours on their rotations. Students will not be penalized for accurate reporting, nor will information from student logs be used in any way in determining grades or evaluations.
7. The Office of Curriculum will compile a yearly summary for the Curriculum Committee including:
    a. average duty hours per student per week on individual rotations
    b. number of reports of excess duty hours from student logs for that year
    c. actions by course directors taken to remedy issues contributing to excess duty hours

-Approved by the Curriculum Committee on September 4, 2006

Grade Appeal Process. A student wishing to appeal an official grade or comment must present his/her appeal to the course director 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. 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 Curriculum. The Grade Review Panel, designated by the Chair of the Curriculum Committee 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 regarding preserving or changing the grade. At this time, the Vice Dean will either uphold the decision of the Grade Review Panel or make his/her independent decision relative to the documentation submitted.

If the student is not satisfied with the outcome of the grade appeal process, s/he may appeal to the Dean of the School of Medicine within two weeks of receiving the decision of the Vice Dean. 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 s/he finds 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.

-Approved: Coordination and Guidance sub-committee, 5/10/2004
-Approved: Curriculum Committee, 6/2/2004

Grading. Final course grades are available to the students via ACES. A grading basis is established for each course with Curriculum Committee approval. Currently there are three grading schemes established: Pass/Fail; Pass/Fail/Honors; and Pass/High Pass/Honor/ Fail. Where appropriate, certification by the individual faculty person or by the delegated representative of each departmental chairman that a student has satisfactorily completed requirements for a course shall constitute grounds for a grade of Pass (*P*), High Pass (*HP*), orHonors (*H*). Honors are reserved for those students who have performed in an exemplary manner in the opinion of the faculty.

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 last section prior to graduation.

An Incomplete *(I*) grade is reserved for those students who have not met all of the requirements of a course because of illness or other such extenuating circumstances, or because of the inability to attain sufficient understanding of course material without additional study. Incompletes that are not satisfied within one calendar year (unless an extension is granted by an advisory dean and the registrar) automatically become grades of Fail (*F*). It is the departmental chairman's responsibility or that of the delegated representative of the departmental chairman to certify that an Incomplete has been satisfied and to so notify the registrar. A passing grade is placed alongside an Incomplete on the permanent and official transcript. Grades of *I* are not removed from the permanent record. All first year courses must be satisfactorily completed before a student may enroll in second year courses. Normally, all second year courses must be satisfactorily completed before a student may enroll in the elective curriculum.

A grade of Withdrew (W) is available for those students that withdraw from a course due to a leave of absence or if a student withdraws from the Doctor of Medicine program

A grade of Fail (F) is recorded on the permanent record of a student by the registrar upon certification by the individual faculty person or the delegated representative of the departmental chairman that unsatisfactory work has been done in the opinion of the faculty. Failures cannot be erased from the permanent record, but the requirements of the course may be satisfied by repeating the course in a satisfactory manner. At that time, a passing grade is recorded on the official and permanent transcript.

Internship Interviews. A total of six working days may be taken by fourth year students for internship interviews. However, no more than three days can be missed during a four week rotation. The student must give the instructor of the affected course sufficient notice of his or her 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. Students must confer with the instructor to complete missed time and work in a timely manner. Students must complete missed time within the same semester that they were enrolled in the course.

Leave of Absence. In order to be granted a Leave of Absence of greater than one month, a student is required to complete the "Change" form and submit it to his/her 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, and the Vice Dean for Education. A student desiring an extension of the leave of absence beyond one calendar year must update the “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.

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

1. have satisfied all financial obligations(debt) to the University.
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 of Medical Education to repeat some or all of 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 medical/psychiatric 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 must be submitted to the Advisory Dean. In order 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 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.

Medical Licensure. The United States Medical License Examination (USMLE) is a three-step examination for medical licensure in the United States. USMLE is sponsored by the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME). It is governed through a jointly appointed composite committee consisting of representatives from the FSMB, the NBME, the Education Commission for Foreign Medical Graduates (ECFMG), and the public. 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. There are two parts of Step 2. The first part, Step 2 CK Clinical Knowledge (CK), assesses how well a student can apply their 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. The other part, called Step 2 CS Clinical Skills (CS), assesses clinical performance of candidates through encounters with a number of standardized patients. Candidates take a medical history and for some patients conduct a physical examination. There is also a clinical note that is written after seeing the patient. Steps 1, 2 CK and 2 CS must be passed to be eligible for Step 3. Step 3, typically taken in the first year of postgraduate training, 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. Steps 1, 2 CK and 3 are computer-based and must be taken in certified Prometric testing centers. Centers closest to Durham are in Raleigh and Greensboro. Step 2 CS is taken at one of five specially designed testing centers around the country. More information can be obtained from the USMLE website (http://www.usmle.org).

Duke University medical students are *required* to take Steps 1, 2 CK and 2 CS *prior to graduation*. Duke Medical School 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 curriculum 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.

According to the NBME, "In order to be eligible to register for USMLE Step 3, students and graduates of LCME- or AOA-accredited medical schools will be required to not only meet current examination requirements (i.e., passing Step 1 and passing Step 2 CK) but also to pass Step 2 CS if they: a) have graduation dates in 2005 or later, or b) have graduation dates prior to 2005 and have not passed the CK component of Step 2 taken on or before June 30, 2005." More information is available at the USMLE website. Applications for Steps 1 and 2 are available on the National Board of Medical Examiners website (http://www.nbme.org).

Medical Student Performance Evaluations (MSPE's). During the fall of the fourth year, the advisory deans write an evaluation for each of their advisees. The purpose of the Medical Student Performance Evaluation is to summarize the student's medical school career and accomplishments and to give prospective training programs some insight into a student's abilities and assets. Effective fall 2012, evaluations are submitted to residency programs on October 1. Detailed information concerning the preparation of the MSPE is sent to the student by the Office of Student Affairs in early fall of the fourth year.

After graduation from the School of Medicine, copies of the MSPE may be obtained from the Registrar's Office. (It should be noted, however, that the Medical School forwards copies of the MSPE directly to the institution to which an individual is applying. It is against the school's policy to release copies to the student.)

Missing Grades. The Curriculum Administrative Group passed a mandate that all grades must be supplied to the Registrar's Office prior to a student receiving their degree. Every effort will be made by the Registrar's Office to collect these grades. However, if within one month of graduation this does not occur, students will be requested to obtain the missing grades for their permanent records. Diplomas may be withheld until such time as all grades are submitted for the student.

Policy for Completion of Coursework in First Year During the Term of the Course. The nature of the first year curriculum is rapid-paced and cumulative, such that each course is considered prerequisite for the successive courses. Efforts are made by course instructors, the Assistant Dean for Basic Science, and advisory deans to proactively identify students who are having academic difficulty or who, for reasons of illness or other extenuating circumstances, are temporarily unable to attend class. In these situations, the assistance of student tutors, special guidance by course directors, or other forms of academic or counseling support may be offered to help the student accomplish course goals. In extenuating circumstances and at the discretion of the course director(s), the student may negotiate to delay due dates, tests or presentations, or to retest or revise coursework during the term of the course(s).

Incomplete Grades for First Year. If completion of the course requirements results in a "Pass" or "Honors" grade, the "Incomplete" is not recorded on the transcript. If the student is unsuccessful in satisfactorily completing course requirements or does not enact the "Plan" by the agreed upon deadline, a grade of "Fail" is recorded. The "Plan for Course Completion" will become a part of the student's permanent record, and submission of the final grade for the course will constitute verification of completion.

If a student has multiple "Incomplete" grades and "Plans for Course Completion" that preclude completion of coursework in a timely manner, the Promotions Committee may recommend to the Vice Dean a delay in further progression in the curriculum. If the Promotions Committee determines that, despite an approved "Plan for Course Completion", the student is not adequately prepared to continue in the curriculum, a delay in further progression may be recommended to the Vice Dean, even though no "Fail" grade has been recorded.

Fail Grades for First Year. If a grade of "Fail" 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" grade will become a permanent part of the student's transcript. With the course director's advice and consent, the Promotions Committee may recommend to the Vice Dean that the student remediate the course prior to promotion to the next year. Remediation of failed courses may occur only while other courses are not in session in order to avoid further academic difficulty. When deficiencies in coursework are major or in multiple courses, the Promotions Committee may recommend that the student repeat the entire course(s) the following year.

Promotion. The Promotions Committee will periodically review the academic performance of all medical students (at least once per year) and recommend continuation, remediation, or dismissal. The Committee will consist of two course directors from each year of the educational program plus seven other faculty recruited through self-, peer-, or department chair-nomination, and appointed by the Vice Dean for Medical Education. The advisory deans will serve in an ex-officio capacity. The Chair of the Promotions Committee will be appointed by the Vice Dean. Serving on the Promotions Committee will be a four year commitment. Meetings will occur every October, January, April, and July

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 students whose work is unsatisfactory or who have demonstrated unprofessional behavior; or
4. Request the resignation of any student who is considered an unpromising candidate for the degree of Doctor of Medicine.

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

The vice-dean, with the advice of the dean of the School of Medicine, reserves the right to require the withdrawal of any student at any time if, in his/her opinion, the student should not continue in the School of Medicine.

Reciprocal Agreements with Neighboring Medical Schools. Under a plan of cooperation between the Duke University School of Medicine, the Wake Forest School of Medicine, the East Carolina University's Brody School of Medicine, and the University of

North Carolina-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.

Important Note: 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 subinternships taken at any school other than Duke or the University of North Carolina at Chapel Hill.

Re-admission after Withdrawal. Students who wish to re-enter the medical program after withdrawing from the School of Medicine must provide the following to the associate dean for student affairs:

1. A statement detailing:
    a. The reason(s) for withdrawing from the program, including relevant history leading up to the decision;
    b. How the issues relating to those reasons have been addressed;
    c. 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;
    d. A chronological list and brief description of actions since withdrawing from the Medical School;.
2. An updated *curriculum vitae;*
3. A transcript of any academic courses taken since the withdrawal;
4. Two letters of reference from people with whom the student worked during the withdrawal period.
5. In the event of a withdrawal because of medical reasons, the School of Medicine requires an evaluation from Student Health to assess readiness for returning to the School of Medicine.

The applicant is scheduled for two interviews with either administrative staff or faculty in the Medical School. After these meetings take place, a committee comprised of the vice-dean and the advisory deans convenes to review the information submitted by the applicant, the interview reports, and the student's previous, academic file and to determine if re-admission 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.

Excused absences. Students must request and negotiate excused absences from required course activities with the director of a course or clerkship 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. 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.

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 an honor code charge if deemed unprofessional behavior.

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 Honor Code. 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 that these make-up exams should occur within the time frame of the course if possible and permitted by the course director, or prior to the subsequent Promotions Committee meeting if it is a final exam in the first year, or within 12 weeks of the clerkship ending in a second year course.

Registration. Students are expected to register at specified times for each successive term. First, second, and fourth year medical students register on-line via ACES. First year students register for the required first year classes; second year students register for their two selectives on-line; fourth year students register for their elective and Capstone courses on-line. Students that 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. Student's must contact their advisory dean's prior to the scheduled registration period and the advisory dean must flag their advisees as eligible to enroll prior to an on-line registration period. 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 advisory dean, the third year study program director, and their approved mentor. Upon receipt of the signature approvals on the registration form, the students submit the completed form to the Third Year Coordinator. A copy of the approved form is provided to the School of Medicine (SoM) Registrar's Office for processing.

There are designated on-line drop/add periods for each term for the fourth year courses. Drop/add dates and instructions are emailed to the students in advance of the scheduled drop/add dates. Drop/add requests made outside of the drop/add periods must be done by completion of the drop/add form. Signatures of the impacted course directors and the student's advisory dean are required.

Students who fail to register during the specified enrollment periods are subject to a $250 late registration fee. Students that 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 for the following term will not be allowed to register for the following term until such fees and fines have been paid in full. The SoM Registrar's Office cannot remove a registration hold placed by the Bursar's Office, therefore, students should contact the Bursar's Office to resolve any payment issues or registration/transcript holds placed by the Bursar or Loan Offices.

Repetition of Courses. Students enrolled in the Doctor of Medicine program may not take the same course, for credit more than once.

Retesting Policy - Examinations. A student who failed an examination in a course that allows for retesting during the course must petition in writing for a retest using the Request for Re-examination form and submit it to his/her Advisory Dean. The opportunity to retake the examination is contingent on the student completing the remedial steps directed by the Course Director and Advisory Dean which may include utilizing academic resource(s) to prepare for the retake, reducing co-curricular activities, seeking medical/mental health services, taking a leave of absence, and/or retaking the course. The student is eligible for only one retake of a failed exam, and the retest score will be capped at the minimum passing score of that 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 excused by the Course Director will have the opportunity to take a make-up exam (see the Excused Absences, Unexcused Absences, and Testing policies in the School of Medicine Bulletin).

Retesting Policy - Courses. A student who is failing a course due to performance on an examination(s) in a course that allows for reassessment by retest must petition in writing for a retest using the Request for Re-examination form and submit it to his/her Advisory Dean. The opportunity for retesting (or retaking the course) is contingent on the student taking the remedial steps directed by the Course Director and Advisory Dean which may include utilizing academic resources(s) to prepare for the retake, reducing co-curricular activities, seeking medical/mental health services, taking a leave of absence, and/or retaking the course. The student is eligible for only one retest, which will be scored Pass/Fail.

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 47 credits in the approved basic science curriculum in one calendar year.

Second to Third Year. Requires satisfactory completion of 53 credits in the approved clinical science curriculum within 14 months.

Third to Fourth Year. Requires satisfactory completion of 36 basic science credits within ten months (12 months for master's or scholarship students).

Fourth Year to Graduation. Requires satisfactory completion of 32 clinical science credits 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.

Satisfactory Academic Progress Policy For Financial Aid. New Federal regulations that went into effect July 1, 2011 require that Duke establish and implement a policy to measure whether students applying for and/or receiving financial aid are making satisfactory academic progress (SAP) towards a degree. This regulation applies to all students applying for aid, whether or not financial aid has been previously received. Satisfactory Academic Progress (SAP) is the successful completion of degree requirements according to established increments that lead to awarding the degree within published time limits. There are three measurements that are used to determine eligibility: 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. 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. 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 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.
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 the equivalent of 70 percent 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 (70 percent or better) 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 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.
  - 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 students Duke e-mail 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 your advisor.
- If the SAP appeal is denied, financial aid will be cancelled. 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.

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.

Regaining Financial Aid Eligibility. Students denied financial aid after completing the appeal process or fail to meet their Academic Plan can regain full eligibility for financial aid by:

- Successfully completing coursework that will meet or exceed the minimum required for their total attempted hours.
- Raise their coursework attempted to the 70 % level as required by their program.

- Students who have reached their maximum time frame are not able to regain eligibility

Students who are ineligible to receive financial aid may use one or more of the following payment options while attempting to regain eligibility: student's own resources, Duke Tuition Management Payment Plan, and/or Alternative/Private Educational Loans. Students who have taken the necessary measures to regain eligibility for financial aid must contact the Office of Financial Aid immediately upon doing so and apply for Reinstatement of Eligibility. Students' academic performance will then be reviewed, and if all required SAP criteria is met, full financial aid eligibility will be reinstated, effective the following semester.

This policy has been vetted and approved by the School of Medicine educational programs, Advisory Deans, Promotions committee, and the Curriculum Advisory Group.

Study Away Policy. Students in the MD 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 before they are eligible to study away for credit. It is *unlikely* that students with any failures or marginal performances at Duke will receive permission. A student may not study away from Duke for credit during the four weeks prior to his or her graduation. Transfer students who are taking the two clinical years are not eligible to study away. Study Away applications are available either in the registrar's office or on the http://registrar.mc.duke.edu website. The applications for third year Study Away are forwarded to the Third Year Committee, which is notified by the Promotions Board if any second year students are ineligible, and to the Duke Risk Management Office for approval. *All Study Away for credit (including military rotations) must be approved in advance by these three entities.* Third year students who study away are liable to pay Duke's tuition as well as any tuition at the visited school. Fourth year Study Away must be approved by the student's advisory dean and the Duke Risk Management Office. Credit toward the Duke MD degree is not to exceed nine units of clinical elective credit unless recommended by the Committee (exceptions, military students).

To obtain approval for work taken away from Duke University, the student must first contact her or his advisory dean to determine if qualified. Transfer students and students receiving grades of "Fail" in any of the core basic or clinical science courses of the first and second years even after successful remediation are not eligible for this option. Application forms, as well as additional information, may be secured from the Medical School Registrar's Office for study away during the fourth year. Students that apply for an away rotation and obtain approval through the Visiting Student Application Service (VSAS) must also complete the Study Away Application for the School of Medicine. Copies of the elective books of selected medical schools are kept in the Reserve Room at the Medical Center Library and are available for student usage.

Upon approval and receipt of the study away application, students are registered for the study away rotation by the School of Medicine Registrar's Office. Clinical science courses are designated as STDYAWAY 410C, 411C (UNC), 421C (WFU), and 431C (ECU). *The amount of credit awarded for study away work is based upon that given for a comparable course at Duke. With the exception of those at UNC-Chapel Hill, subinternships taken extramurally can earn a maximum of four credits at Duke.* The current Duke tuition, rather than that of the visited institution, is assessed for extramural clinical science courses.

Fourth year students may only study away as visiting students at other institutions for one or two elective periods, or a total of 8 credits. Students are asked to complete an evaluation of their away experience at its' conclusion and return the evaluation to the School of Medicine Registrar's Office.

Time Away Requests for Second Year Courses. Medical students should consider their clinical year with an approach that reflects professional behavior and acknowledgement of the accountability and dedication required by physicians and patient care teams.

Balancing the necessary dedication to professional responsibilities as a member of a health care team with the need for self care and planning for personal and professional obligations is a critical component of the learning process during the clerkship year. This behavior applies to patient care and academic activities.

Illness.

- Notification of illness: If the student is not able to attend to their duties due to illness it is the student's responsibility to notify the appropriate course personnel as soon as possible.
- Notification must be provided in a timely fashion to allow the clinical team to adjust to the absence of a team member.
- Recurring appointments: Students with recurring appointments should use the request for time away protocol. It is not necessary to reveal the specific medical reason for the request.

Tardiness.

- Arrive *on time* for all clinical and academic sessions,
- Notify the appropriate course personnel if there is a problem that will result in tardy arrival.

Requests for time away. The School of Medicine recognizes that professional and personal obligations may arise for which students would appreciate time away from the service. Any absence must be approved by the Course Director. The policies and consequences of missed time vary from course to course. There may be minimum attendance requirements to successfully complete the course as determined by individual course policy.

It is the student's responsibility to request time away *well in advance* of the clerkship to allow for optimal scheduling. The Course Director will be responsible for all decisions regarding approval or denial of the time away request. The Course Director will determine the necessity of make-up work for any requested absence.

Protocol for time away requests:

- Requests for proposed time away must be submitted to the Course Director at least eight weeks prior to the scheduled clinical or academic event.
- Last minute requests will not be granted in non-emergent situations.
- Absence from required orientation activities cannot be "made-up", therefore, check your calendar well in advance and avoid scheduling activities during the orientation and pre-clerkship activities.
- Request forms are available at: BlueDocs or may be downloaded from the School of Medicine Registrar's website, registrar.mc.duke.edu.
- If time away is required that exceeds minimal attendance guidelines for the course, the student should discuss with their Advisory Dean options for dropping the course or taking a leave of absence.

Please refer to Blue Docs or the School of Medicine Registrar's website, registrar.mc.duke.edu for the Time Away Request form and to obtain a list of course contacts.

Visiting 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 8 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. Payment of a non-refundable application fee (currently $50, subject to change) must accompany all applications for applicants from LCME approved Canadian medical schools. Applicants applying via VSAS are not required to pay an application fee. If approved, a registration fee of $200 for students from an LCME approved medical school or a COCA approved Osteopathic medical school and $$6,000.00 per elective for students from 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 cancelled 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. The optional Student Health Fee for a visiting student is set at $50.00 for each 4-week period of enrollment. If selected, payment should be made at the time services are provided by the Student Health Center. 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 please email to the attention of the Visiting Student Coordinator, steven.wilson@duke.edu Duke University School of Medicine, Office of the Registrar, Visiting Student Coordinator, Box 3878, Durham, North Carolina, 27710. Detailed information about the visiting student program is available on the Web site for the Office of the Registrar, School of Medicine, at http://medschool.duke.edu/education/office-registrar/visiting-students.

POLICIES FOR ALL SCHOOL OF MEDICINE PROGRAMS

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 Faculty Hearing Committee to provide advice. Cases not resolved by the 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 her or his 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 exercises are held once a year in May when degrees are conferred on, 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. 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.

Duplicate Diplomas. In the event that a diploma is misplaced or damaged, please contact the University Registrar's Office, 114 S. Buchanan Blvd., Smith Warehouse, Bay 9, Room A289, Campus Box 90754 Durham, NC 27708-0754, can replace the document for a nominal fee. Please direct requests to 919-684-3146. The University Registrar's Office will provide you with a form that must be completed and notarized. The individual concerned must certify in writing that the diploma is truly lost and that if found in the future, the duplicate diploma will be returned to Duke University. Damaged diplomas must be submitted to the School of Medicine Registrar's Office before the duplicate can be issued.

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:

1. The right to inspect her or his education records.
    a. 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 she or he graduates or withdraws from the university.
    b. 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 Medical School 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.

2. 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.
3. 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 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 non-disclosure 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 non-disclosure 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, email 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.

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 his or her tasks. A school official has legitimate educational interest if the official needs to review an education record in order to fulfill his or her 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 http://registrar.duke.edu/registrar/studentpages/student/ferpa.html.

Graduation from Degree Programs. Students may earn degrees on one of three different dates during the academic year: September 1, December 30, and in early May. Actual ceremonies are only held at the end of the spring term. Anyone who has a degree date of December or September is invited to participate in the May commencement program immediately following her or his actual graduation date.

During the spring semester prior to the senior year, a form letter is sent to each student inquiring as to when (e.g., semester and section - spring semester, section 43) he or she expects to fulfill degree requirements. Diploma forms requesting information such as

current local address and how the name should be listed on the diploma are forwarded to prospective graduates as well.

Student records are reviewed by the Registrar's Office staff to ensure that, upon successful completion of the current courses, graduating seniors will fulfill degree requirements on schedule. Those students who are deficient are contacted by the Registrar's Office to inform them of the situation and to discover how they plan to rectify the problem, e.g., add a course, graduate in September instead, etc.

In mid-March, letters are sent to prospective May graduates asking them whether or not they plan to attend graduation exercises. It is extremely important that students wishing to be graduated in absentia inform the Registrar's Office of their intentions at this time. Diplomas are sent to such students at their permanent address.

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 & Environmental Safety Office. Their website is http://www.safety.duke.edu/OnlineTraining/.

For more information about HIPAA compliance training, please refer to the following website: http://www.dukehealth.org/Privacy/HIPAA.

Honor Code. All entering medical students are required to sign an Honor Code attesting to high ethical standards in school performance. The rights and responsibilities of students with regard to university-wide regulations pertaining to student conduct can be found in the current Bulletin of Information and Regulations of Duke University.

- The students of the Duke University School of Medicine understand that it is a privilege to learn the practice of their chosen professions in a clinical setting. At the same time, they recognize the obligation that they have to the health and welfare of their patients and to their patients' families. As they enter professions in which they will have an extraordinary responsibility for others' lives and health, students will strive to hold themselves to the highest standards of academic integrity and conduct. As part of their education and training, students must begin to practice the ethic of service that they will uphold for the rest of their professional lives. Since training in ethical and professional behavior is integral to the education of the health professional, violations of this Honor Code will be considered as an academic issue and may jeopardize advancement and graduation in the same way as other academic matters.
- The Honor Code is written to promote a sense of intellectual honesty, trust, responsibility, and professionalism among students, faculty and staff of the School of Medicine. It should be understood that these guidelines represent standards to strive for, and that not every infraction will necessitate investigation. It should also be recognized that this honor code cannot anticipate every potential offense and that unethical behavior not specifically mentioned in this code can still be investigated. Specific incidents will be considered in the context in which

they occur. In addition, the magnitude and chronicity of infractions will be taken into account.

To uphold the honor code, the student will:

- demonstrate intellectual integrity and honesty,
- show concern for the welfare of others and act responsibly,
- demonstrate respect for the rights of others, build trust in professional relationships, and demonstrate professional demeanor.

DUKE UNIVERSITY SCHOOL OF MEDICINE HONOR CODE OF PROFESSIONAL CONDUCT*

Preamble

The Duke University School of Medicine strives to attract, matriculate, and train health professional students who have a high capacity for ethical professional behavior. Since training in professional behavior is a part of training in the health professions, professional conduct during training is an academic issue, and when a student accepts an offer of admission into these programs, he or she commits him or herself to comply with all regulations regarding conduct established by Duke University, the School of Medicine, and the individual's program. Despite these initial intentions, circumstances may arise during a student's enrollment that call into question the capacity or commitment to maintain this academic standard, and the school and training program retain the responsibility and authority to determine a student's fitness to continue in the program of study for a health profession. The rights and responsibilities of students with regard to University-wide regulations pertaining to student conduct can be found in the current Bulletin of Information and Regulations of Duke University. As a distinct learning community within the University, the School of Medicine has established an Honor Code of Professional Conduct, accompanied by specific policies and procedures, for the guidance and protection of students in two circumstances:

1. while they are enrolled as a student in the school, and
2. after they have left the school in matters pertaining to their credentials, transcripts, and degrees that have been granted by the school.

The principles from which the Honor Code is derived include but are not limited to:

1. University regulations regarding student conduct
2. Guidelines for standards of conduct adopted by national organizations that accredit our programs (AAMC, LCME, ARC-PA and APTA) or license or certify our learners (USMLE, state licensing board)
3. Standards of ethical and professional behavior adopted by national or local professional organizations (AAPA, AMA, APTA)
4. Standards of fairness, privacy, and due process derived from the civil judicial system

It is the responsibility of each matriculating student to review the honor code and its policies and procedures before beginning formal educational activities, and the responsibility of the school to ensure that students understand the code and document their understanding. Students should read and discuss the honor code and the rules and regulations of their chosen programs of study before beginning classes. Entering students will be asked

*Currently under review and subject to change.

to sign statements saying that they have read, understand and will abide by the Honor Code of the Duke University School of Medicine and the Rules and Regulations of their various programs. Matriculation in the Duke University School of Medicine constitutes de facto acceptance of this Honor Code and the policies and procedures involved in administering the Honor Code. A copy of each student's signed Honor Code Agreement will be retained in his or her permanent educational record.

Scope of the Honor Code

The Honor Code is intended to guide the professional behavior of students studying in the health professions programs and applies to all endeavors and conduct pertaining to those studies. It is not intended to guide behavior that is a part of a student's private life away from his or her studies in a direct way, but such behavior may come to the attention of the school in several ways and become the focus of an Honor Code investigation:

- conduct may be reported to a member of the faculty or administration by a variety of sources (police, friends, parents, other agencies) that raises a concern about the student's capacity to continue his or her studies. If such reported conduct raises a significant concern about the safety of the student or the safety of others that the student may have contact with at the school, or includes behavior that could indicate a weakness of moral, ethical or personal values that would preclude functioning as a health care professional, an investigation may be done and action taken on the basis of the investigation.
- if a student is charged with an offense in the civil justice system and the school becomes aware of and verifies this circumstance through self-report of the student or a reliable source of verification, the school will generally not pursue an investigation until the outcome of the civil court proceeding is known, unless the alleged offense is such that allowing the student to continue his or her studies could be detrimental to the safety of patients or other members of the school, as determined by the Vice Dean for Education.
- if a student is charged with a criminal offense, he or she is obligated to report this to the Vice Dean for Education immediately. If a matriculating student has been charged with a criminal offense between the time he/she wrote an application and the time he/she arrives at school, he/she should inform the Vice Dean before or upon arrival. If the school later discovers that a student has withheld disclosure of a criminal charge, he/she may be subject to immediate dismissal by the Vice Dean. In all situations, the student will not be allowed to continue the course of study until cleared of a criminal charge. This does not reflect a "guilty until proven innocent" standard, but rather, the obligation of the school to ensure the safety of patients and other members of the school.

Statement of the Honor Code of Professional Conduct

The students of the Duke University School of Medicine understand that it is a privilege to learn the practice of their chosen professions in a clinical setting. At the same time, they recognize the obligation that they have to the health and welfare of their patients and to their patients' families. As they enter professions in which they will have an extraordinary responsibility for others' lives and health, students will strive to hold themselves to the highest standards of academic integrity and conduct. As part of their education and training, students must begin to practice the ethic of service that they will uphold for the rest of their professional lives. Since training in ethical and professional behavior is integral to the education of the health professional, violations of this Honor Code will be considered as an academic

issue and may jeopardize advancement and graduation in the same way as other academic matters.

The Honor Code is written to promote a sense of intellectual honesty, trust, responsibility, and professionalism among students, faculty and staff of the School of Medicine. It should be understood that these guidelines represent standards to strive for, and that not every infraction will necessitate investigation. It should also be recognized that this honor code can not anticipate every potential offense and that unethical behavior not specifically mentioned in this code can still be investigated. Specific incidents will be considered in the context in which they occur. In addition, the magnitude and chronicity of infractions will be taken into account.

To demonstrate intellectual integrity and honesty, the student will:

- submit for course credit only one's own work and not that of another, in whole or in part, and will give credit for passages taken either word-for-word or paraphrased from the work of another (i.e., plagiarizing other sources to write or present academic papers, research reports, or clinical reports is dishonest).
- not collaborate with others on work that is claimed to be one's own. Instructors will make clear when collaboration is permissible, and students should ask for clarification when in doubt.
- give full and obvious acknowledgement to collaborators when collaboration to produce a project or report is permitted.
- offer original work for course or research credit and not submit work done previously for credit in another course.
- not use, give, or receive unauthorized materials or assistance to gain unfair academic advantage over colleagues prior to, during or after an examination or other evaluative procedure.
- not take an examination nor complete an assignment for another person.
- respect the intellectual property and learning materials of others understanding that to take, keep, tamper with or destroy such property would result in unfair academic advantage.
- take all examinations when scheduled unless appropriately excused. Students should never delay taking examinations for the sole purpose of gaining academic advantage over colleagues.
- not alter or falsify academic, research or patient documents.
- not gain unauthorized access to academic or administrative files, patient medical records, or research documents, via computer or otherwise.
- use only access codes, passwords, login codes, keys, and facility access cards issued to the student.
- report promptly any suspected violations of the Honor Code to appropriate authorities.
- refrain from other behaviors that clearly compromise intellectual integrity and honesty.

To show concern for the welfare of others and act responsibly, the student will:

- treat patients, research subjects, and their family members with respect and dignity both in their presence and in discussions with others.

- undertake clinical duties and persevere to the best of the student's ability, striving to recognize limits on the capacity to persevere due to limited knowledge or skills, exhaustion, or impairment.
- strive to recognize the limitations of the student's knowledge and skills, and seek supervision or advice before acting when appropriate.
- learn to recognize when his/her ability to function effectively is compromised, ask for relief or help, and notify the responsible person if something interferes with the ability to perform clinical or research tasks safely and effectively.
- not compromise patient care, interactions with members of the Duke community, nor his/her medical education through the use of alcohol or illegal substances
- not engage in romantic, sexual, or other nonprofessional relationships with a patient, even upon the apparent request of a patient.

Students should voluntarily remove themselves from patient care duties and seek professional help or advice from their program director, advisory dean or director of the Wellness Center when they recognize any physical, mental, or emotional problems that could impair effective patient care, their interactions with members of the Duke community, or their educational program. It is the obligation of the school and its officials to help the student seek appropriate help for an impairment, and the student would become subject to an Honor Code charge only if he/she did not follow recommendations and referrals for appropriate help.

To demonstrate respect for the rights of others, build trust in professional relationships, and demonstrate professional demeanor, students will:

- deal with professional, staff and peer members of the health care team in a considerate manner and with a spirit of cooperation.
- act with an egalitarian spirit toward all persons encountered in a professional capacity regardless of race, religion, gender, sexual preference, disability or socioeconomic status.
- avoid offensive language, gestures, or remarks, including those based on others' race, religion, gender, sexual preference, disability, or socioeconomic status.
- avoid disruptive behavior in the classroom, clinic, hospital, or laboratory that might interfere with the learning or clinical care of others
- respect the right of the patient or research subject and his or her family to be informed about and participate in patient care.
- respect patients' and research subjects' modesty and privacy.
- be truthful in communications with others, admit errors and not knowingly mislead others or promote themselves at the patient's expense.
- maintain and safeguard the confidentiality of patient and research subject information, including paper records, computerized records, and verbal communication.
- not misrepresent themselves as a licensed or certified health care provider.
- strive to maintain their composure under pressures of fatigue, professional stress or personal problems.
- maintain neat and clean appearance, and dress in attire that is acceptable as professional to the patient population served.

HONOR CODE PROCEDURES

1. Initiation of Complaints

Complaints about potential Honor Code violations may be initiated by personnel within the School of Medicine (students, faculty, staff, and administration) or by external sources (patients, families, visitors, extramural rotation sites, other agencies with whom a student has had contact). The initial complaint may be reported to the student's advisory dean or program director, or directly to the Vice Dean for Education.

2. Role of the Advisory Dean or Program Director

The advisory dean or program director will conduct an initial investigation of the complaint to determine its merit and may elect to:

a. recommend that a formal Honor Code violation be charged and report that recommendation to the Vice Dean for Education, or
b. consider the potential violation an educational or advisory matter and formulate a plan for remediation with the student, or
c. refer the student to another resource for help or remediation if the complaint is valid but the behavior is thought not to merit the charge of Honor Code violation, or
d. process the complaint with the party who made the complaint to explain why the complaint will not be pursued.

In all cases, the advisory dean or program director will inform the student who is the subject of the complaint regarding the complaint. The student will be informed of any investigation, of his/her right to remain silent during any investigation that will be conducted, and of which option (A-D) is chosen for action after any investigation. The conduct of any investigation should be confidential, and breach of confidentiality by another student will be considered an Honor Code violation. Information about the complaint will be kept in the student's file if options A, B, or C are elected. If option A is chosen, this information will become a permanent part of the record. If option B or C is chosen, this information will be removed from the file at graduation and destroyed if no further complaints about the student are filed, at the discretion of the program director or advisory dean.

3. Role of the Vice Dean for Education

The Vice Dean for Education may receive complaints directly or upon the recommendation from an advisory dean or program director that an Honor Code violation be charged. The Vice Dean may convene an ad hoc investigative task force to gather information about the validity of the complaint in addition to any information gathered by the advisory dean or program director. If the Vice Dean for Education concludes, on the basis of all information about the complaint that has been gathered, that the complaint constitutes an Honor Code violation, the Vice Dean may initiate the charge of an Honor Code violation and either:

a. determine the appropriate action to be taken (e.g. reprimand, probation, suspension, dismissal) and inform the student of that decision, or
b. refer the matter to the Honor Council for a formal hearing if he/she prefers to have that body make a decision about the verdict and the action to be taken.

4. The Honor Council

Membership: The Honor Council will be a standing body consisting of the following representation:

a. A faculty member from each degree and certificate-granting program within the SOM. The process for the selection of faculty representatives will include an election of a primary representative and alternate representative by the students of each program, based on a slate of candidates recruited by the program director. Each faculty representative will serve a two-year term and may be re-elected once.
b. A student representative from each degree and certificate-granting program within the SOM. The process for the selection ofstudent representatives will involve the election by the entire student body from each program, as coordinated by the student government of that program, which may determine the timing of the election and the dates of service of the representatives. The elected alternate must be from a different class than the primary representative.
c. A member of the hospital Ethics Committee, to be chosen by that committee.

The Honor Council will elect one of its members to serve as the Chair of the Council for a term of one academic year. The Chair will be responsible for keeping the file for each proceeding, for conveying the decisions of the Honor Council to the Vice Dean, and shall be a non-voting member of each proceeding. When the Honor Council is convened to hear a case, any member of the Council should excuse him/herself from the proceeding if he/she has had a personal or formal academic relationship with the student in question. The student member of the Council from the program of the accused student should excuse him/herself if he/she is from the same class, and the student alternate should serve instead. A quorum consists of three quarters of the voting membership.

Conduct of the Hearing:

a. Except as hereafter provided, the hearing of any case shall begin with a reading of the charge by the Chairman in the presence of the student who is accused of an Honor Code violation, hereafter referred to as "the student." The student shall then plead guilty or not guilty or move to postpone the hearing for good cause shown. The student may qualify a plea, admitting guilt in part and denying it in another part.
b. The student has the right to remain silent in regard to the charges brought against him/her, before, during and after the hearing. No inference of guilt shall be made from his/her silence. Any information pertinent to the charges volunteered by the student may be used as evidence against him/her. If s/he elects to offer testimony as to a specific act of misconduct, s/he then waives his/her right to remain silent as to this specific act, and must answer truthfully all questions pertaining to it asked of him/her.
c. The chairman of the Honor Council shall call for a reading of the report from the Vice Dean concerning the case. The Honor Council shall request the student to present his case. The student may call and question witnesses. The Council may call and question witnesses to clarify matters which have been the subject of testimony. It should not attempt to act as a prosecutor or as a defense counsel. Since the hearing involves an academic matter, representation of either the School or the student by an attorney will not be permitted at the hearing.
d. All evidence which the Council considers relevant shall be admitted except as hereafter provided. Specifically, the fact that evidence offered is hearsay or an expression of opinion will not in itself bar the admission of the evidence. Written statements may be admitted but wherever

possible, oral testimony rather than any written statement should be employed. No one shall be convicted solely on the declaration of one whom the student has had no opportunity to question.

e. The student may not be questioned for more than one hour without recess.

f. Pending verdict on charges (including appeal) against the student, his/her status as a student shall not be changed, nor his/her right to be on campus or to attend classes suspended, except that the Vice Dean may impose an interim suspension upon any member of the School of Medicine who demonstrates by his/her conduct that his/her continued presence on the campus constitutes an immediate threat to the physical well-being or property of members of the School or the property of orderly functioning of the school. The imposition of interim suspension requires that the suspended individual shall immediately observe any restriction placed upon him/her by the terms of the suspension. The suspended individual shall be entitled to a hearing within three days before the Honor Council on the formal charges. If s/he required additional time to prepare his/her case before the Honor Council, s/he shall be entitled to an informal review of the decision imposing interim suspension by a three-person committee chosen from the members of the Council by its Chairman. Interim suspension is an extraordinary remedy, which will be invoked only in extreme cases where the interest of the School and members of its community require immediate action before the Honor Council can adjudicate formal charges against the suspended individual. If interim suspension is imposed and the student is later found not to be guilty by the School, shall grant restitution as provided the Honor Council with respect to that student's academic responsibilities incurred during the period of suspension.

g. A tape recording and a digest shall be kept of the initial hearing for a minimum of three years. The basis for the decision shall be summarized clearly in brief, numbered paragraphs. Any dissenting opinions shall be similarly explained.

h. The Honor Council, with the consent of the student, shall have the right to amend the charges at any time during a hearing to conform to the evidence. If the student does not consent to the amendment of the charges, the Council may, nevertheless, order them amended to conform to the evidence. If, in the judgment of the Honor Council, a delay is not necessary to enable the student to defend himself/herself against the amended charge, the hearing shall continue. If a delay appears necessary, the Honor Council shall so order it.

The Verdict:

a. After hearing the evidence and summations offered by the parties, the Honor Council shall consider its verdict and judgment in closed session. The verdict shall consist of a simple statement of the significant acts done or not done by the student. If the Honor Council is unable to say that there is clear and convincing evidence that an act was done, then the Honor Council shall conclude that the evidence was insufficient. The verdict (the finding of guilty or not guilty) and the judgment, a statement of the sanction, must be concurred in by at least three fourths of a quorum, (a quorum is three fourths of the voting members of the council.)

b. The Honor Council by a majority vote may decide to rehear a case in which significant new evidence may be introduced on behalf of the student.
c. The Chairman of the Honor Council shall promptly inform in writing the Vice Dean of the decision of the hearing committee. The Vice Dean shall promptly notify the student of the decision in his/her case and shall, at the same time, inform him/her of his/her rights of appeal.

Sanctions:

Possible options for sanction by the Honor Council include:

a. Expulsion: Dismissal from the School of Medicine with the recommendation that the person never be readmitted.
b. Suspension: Dismissal for a specified period of time in which the student is ineligible to proceed with work for credit.
c. Probation: An action that places the student on notice that his/her conduct has not been satisfactory.
d. No disciplinary action.
e. Other lesser penalty deemed so warranted in a particular case. This might include censure, admonition, etc.
f. The student will be notified in writing of the decision and findings of the Honor Council, and a copy of the letter will remain in the student's permanent record.

5. Right of Appeal

It is a student's right to appeal any decision of the Vice Dean or Honor Council that he/she perceives as adverse to his/her interests. The student must file a written draft of the appeal with the Vice Dean within two weeks of being notified of the original decision. An appeal for a rehearing by the Honor Council will be considered only in the following circumstances:

a. Procedural error substantially affecting the rights of the accused.
b. Incompatibility of the verdict with the evidence.
c. Excessive penalty not in accord with "current community standards".
d. New evidence of a character directly to affect the verdict but on which the original tribunal had refused a new hearing.
e. Error in applying or interpreting the rule under which the case was originally tried.

If none of these circumstances apply but the student is not willing to accept an adverse decision, he/she may appeal as follows:

a. If the initial decision was rendered by the Vice Dean for Education, the student may appeal the decision to the full Honor Council and go through the process described in this document under "Honor Council".
b. If the Vice Dean originally referred the decision to the Honor Council, or the student has received a decision from the Honor Council on appeal, and the decision from that body was adverse for the student; the student may appeal the decision to the Dean of the School of Medicine.

The following procedures would then apply:

In no case shall an appeal from the Honor Council result in a *de novo* hearing of testimony of other evidence. However:

a. The documents transmitted from the original hearing shall include the tapes of the testimony taken at the hearing. The student may, at his/her own expense, have a transcription of the tape made.
b. The original Honor Council shall provide for the Dean, written opinions, containing the reasoning upon which the majorities based their decision and any dissenting opinions of members thereof.
c. The student shall submit to the Dean a written statement containing the ground(s) for his/her appeal and his/her arguments.
d. The student shall be allowed to make an oral statement to the Dean to amplify his/her written arguments. The Dean may question the defendant at this time about his/her oral statement or his/her written statement, but shall limit himself/herself to the issues on appeal. These additional statements and arguments shall be recorded.
e. The Dean may call a representative of the original Honor Council to answer questions concerning written opinions submitted in accordance with the paragraph B of this section. This material shall likewise be incorporated in the record.
f. In cases where the Dean dismisses the charges, enters a different decision, or directs the original Honor Council to conduct a new hearing, he/she shall submit to the Council a detailed written opinion as to his/her reasoning. This opinion would be similar to that prescribed in paragraph B of this Section.

Decisions of the Dean shall be promptly communicated to the student and forthwith to the applicant with a copy to the original tribunal.

The term "Dean" shall include not only persons appointed to the office but also any other person or persons appointed to perform the functions of the office. With the consent of the student, the Dean shall be authorized to consult with such members of the University community as he/she chooses concerning the disposition of the appeal.

6. Procedural Safeguards in the Honor Code Procedure

a. The hearing of all charges shall take place promptly, ordinarily within ten days following the presentation of the charges to the student. The student shall be given notice to appear, written notice of the charge against him/her and a written text of the regulations that he/she is accused of violating, the report of the Vice Dean, a statement of his procedural rights, a list of members of the Honor Council, and any other material that the Honor Council instructs the Vice Dean to supply him/her at least 72 hours before the hearing. If he/she desires additional time in which to prepare his/her defense, he/she may petition the Chairman of the Council and be granted a reasonable delay of the hearing. The student may waive the notice and the 72 hours notification period.
b. No person presenting evidence against the student shall at any time sit in judgment upon him/her.
c. The student has the right to challenge on the grounds of prejudice any member of the Council sitting in his/her case. If a student makes such a challenge, the Council shall deliberate in private to determine whether cause exists. By a majority vote of the members of the Council (excluding the member being challenged), a member shall be removed from the case and replaced by a person who is an alternate representative or, if not alternate can serve, is designated by the Chairman.
d. The student has the right to produce witnesses (including no more than two character witnesses), introduce documents, and offer testimony in

his/her own behalf. He/she may question all witnesses. The student, with the assistance of an advisor (his/her advisory dean, another faculty member from the School of Medicine, friend or family member), may submit questions in writing to the Chairman. The Chairman shall answer questions submitted to him/her if they are fair and relevant. A copy of the questions shall be appended to the record.

e. A person having direct knowledge relevant to a case being heard by the Board is a material witness. The Vice Dean may require the appearance of material witnesses. He/she shall notify them of the time, place and purpose of their appearance. He/she shall also require, upon written request of the complaint of the student, the appearance of material witnesses. He/she shall notify such witnesses of the time, place, and purpose of their appearance.

f. The student has the right to examine the written statement of any witness relevant to his/her case at least 72 hours before the hearing. He/she has the right to be faced by any witness who has given a statement relevant to his/her case at the hearing if the witness' attendance can be secured. The hearing will be conducted in private unless the student requests an open hearing. If any objection is raised to conducting an open hearing in any particular case, the Council shall decide the issue by majority vote. If the decision is made not to hold an open hearing, the student shall be informed in writing of the reasons for the decision.

The Council shall consider only the report of the Vice Dean, documents submitted into evidence, and the testimony of witnesses at the hearing in reaching its decisions.

Payment Policy For Students Who Do Not Hold U.s. Citizenship Or Us Permanent Resident Status. Each non-US citizen accepted for enrollment at the Duke University School of Medicine or a Medical Center Allied Health Program shall make, or cause to be made, a payment, hereafter called a deposit, to the Office of the Bursar for the purpose of ensuring financial stability to meet each full year's educational costs in advance of matriculation. The amount of this deposit shall be equal to the total costs of the student's first year of medical school at Duke University and includes tuition and fees and living expenses. The Medical School will maintain these funds in an escrow account and will distribute the funds to the student in accordance with Duke University policy.

Budgets are approved annually by the Duke University Board of Trustees and this information is generally available prior to the May 15th AAMC notification deadline. The amount of the deposited shall be at least equal to the school's approved first year student budget for the applicable program of student (medicine or allied health).

The deposit shall be received by the Office of the Bursar no later than forty-five (45) days prior to the beginning date of classes to guarantee enrollment in the fall semester for the first year student.

During the period for which the deposit has been made, the Bursar shall make withdrawals by the due date set by the institution in the amount of tuition and fees owed to the University. The amount of such withdrawals shall be the same as that charged to other students in similar programs of study for the applicable class year.

At the beginning of each semester, the Office of the Bursar shall prepare a check for the deposit for the student to cover living and other necessary education expenses. The amount of the check shall be based on a prorated sum from the living expense portion of the School's approved student budget.

In the event the student withdraws voluntarily or is withdrawn administratively for academic or any other reason, the Bursar shall issue a check for the full amount of the unused

portion of the deposit. Such checks shall be made payable to the source that supplied the deposit. The amount of the check shall be prorated if the deposit was supplied from more than one source. Any income resulting from investment of the deposit until appropriate portions of the deposit are used or needed for educational purposes shall belong to Duke University of management of the account.

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

Safety/Compliance Training. All students enrolled in Duke University School of Medicine are required to complete *annual* online compliance and safety training modules. These modules are found on the Occupational & Environmental Safety Office website,http://www.safety.duke.edu/OnlineTraining/The required modules are Compliance Update Training, (mentioned in the HIPAA section), Compliance Orientation Training (HIPAA), Compliance Update Training (HIPAA), HIPAA Privacy and Security training for non-clinicians, Fire/Life Safety, OSHA Blood Borne Pathogens (BBP), Tuberculosis (TB) Safety Training, Environment of Care (EOC), Hospital Emergency Incident Command System (HEICS), Safe Specimen Collection, and Infection Control. Students are required to complete online modules for Ergonomics Overview and General Chemical training every two years. Compliance with these modules is a graduation requirement. Failure to complete the modules by the set due date may result in the placement of a transcript hold and/or a registration block on the students account. Students who fail to comply during their final year of the Doctor of Medicine program will be presented to their promotions board as failure to meet graduation requirements. Requirements are subject to change based on OESO compliance requirements.

School of Medicine Severe Weather Attendance Policy. The School of Medicine will handle the cancellation of classes in the following manner:

All School of Medicine students (MD, DPT, PA, Ophthalmic Tech), 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, 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 684-INFO or by visiting the School of Medicine, Office of the Registrar's website, http://registrar.mc.duke.edu or http://www.duke.edu/today/. The SoM Registrar's Office will make every attempt to announce any cancellations on the Announcements section of their website, registrar.mc.duke.edu, in a timely manner.

Please note that 684-INFO and www.duke.edu/today are considered the official communication for inclement weather announcements.

Technology Fee. All matriculating students in the School of Medicine are assessed a mandatory technology fee. This includes students enrolled in the following programs: *Doctor of Medicine, Doctor of Physical Therapy, Physician Assistant, and Pathologist's Assistant*. The fee will not only cover hardware such as laptop or handheld device, but service, software and technical updates to comply to all Duke Health System compliance guidelines.

Transcripts Of Academic Record. Students may obtain a copy of her or his academic transcript by completing a transcript request form or sending a letter or FAX to:

Office of the Registrar
Duke University School of Medicine

Box 3878, DUMC
Durham, NC 27710
FAX: 919-684-4322 (Electronic requests must include facsimile of the requestor and the original signature of the requestor.)

Students may request the School of Medicine Registrar's Office to send a secure on-line transcript via email. The requests may be made through ACES.

Current students may also request transcripts online through their ACES accounts. Transcripts are released at no charge only upon the written request of the student concerned.

Transcripts and records submitted from other schools that are on file at the Medical School cannot be duplicated and released from the Registrar's Office.

IMMUNIZATION REQUIREMENTS

Immunization and Health Record. North Carolina State law and the Infection Control Committee at the Medical Center require all new students to provide, within 30 days of 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 start of Duke classes to the Student Health Center, Box 2899, DUMC, Durham, North Carolina 27710.

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 may 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 dshs_immunizations@mc.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. You are encouraged to review and update your records as soon as you can. Failure to meet requirements may result in course scheduling delays.

The following represents a "quick list" of requirements for Health Professional Students. For details, see the more detailed information immediately below this list.

- Varicella IgG antibody titer
- Hepatitis B Surface antibody titer
- 2 doses of MMR vaccine
- 3 doses of tetanus/diphtheria with booster in last ten years. One of these has to be given as a Tdap and after 2005
- Annual PPD

DETAILED IMMUNIZATION INFORMATION

Varicella (chicken pox)

Requirement. Documentation of illness or documentation of primary immunization series [2 doses] *and* varicella IgG antibody titer showing immunity.

Actions to be taken if requirement is not met. If you have not had the primary series or illness, you will need to get the adult immunization series and a titer two months after. The adult series consists of two vaccine doses 1month apart. Students getting immunized with adult series will be considered "in process" of meeting requirements. The adult series and subsequent titer are not covered by the Duke Student Health Fee.

If your titer does not show immunity, you will need to start the adult series followed by a titer two months after. Students restarting the series will be considered "in process" of meeting requirements. The immunization and subsequent titer are not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine. For those who had chicken pox, a titer is still required.

Hepatitis B

Requirement. Documentation of illness or documentation of primary immunization series [3 doses] and Hepatitis B surface antibody titer showing immunity. If you do not have documentation of primary immunization series, a Hepatitis B surface antibody titer demonstrating immunity will meet the requirement.

Actions to be taken if requirement is not met. If you have not received the primary immunization series, you will need to get the adult immunization series which consists of three vaccine doses the first at any time, then 1-2 months apart, and then 4-6 months apart *and* a titer 2 months after series completion. Students getting immunized with adult series will be considered "in process" of meeting requirements. The adult series and subsequent titer are not covered by the Duke Student Health Fee. If your titer does not show immunity, you will need to repeat the adult series and a titer two months after. The adult vaccine and subsequent titer are not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine.

MMR (Measles, Mumps, Rubella), *or* see individual vaccines below

Requirement. Documentation of primary immunization series [2 doses with the first given after 12 months of age and the second at least one month after the first dose. Both doses must be after April 22, 1971.] or documentation of illnesses and respective IgG antibody titers.

Actions to be taken if requirement is not met. If you have had the primary immunization series but do not have documentation you may be revaccinated [2 doses, 1 month apart] *or* show proof of immunity via IgG antibody titers. The vaccines and subsequent titer are not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine.

Measles (rubeola)

Requirement. Primary immunization series [2 doses with the first given after 12 months of age and the second at least one month after the first dose. Both doses must be after March 21, 1963. You are exempt if you were born prior to January 1, 1957] or **d**ocumentation of illness or a measles IgG titer.

Actions to be taken if requirement is not met. If you have had the primary immunization series but do not have documentation you may be revaccinated [2 doses, 1 month apart] *or* show proof of immunity via IgG antibody titer. The vaccines and subsequent titer are not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine.

Mumps

Requirement. Primary immunization [2 doses at or after 12 months of age given after December 28, 1967. You are exempt if you were born prior to January 1, 1957] or positive mumps IgG antibody titer.

Actions to be taken if requirement is not met. If you have had the primary immunization series but do not have documentation you may be revaccinated [2 doses] or show proof of immunity via IgG antibody titer. The vaccines and subsequent titer are not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine.

Rubella (German measles)

Requirement. Primary immunization [1 dose at or after 12 months of age given after June 9, 1969. You are exempt if you are over 50 years old] or positive rubella IgG antibody titer.

Actions to be taken if requirement is not met. If you have had the primary immunization series but do not have documentation you may be revaccinated [1 dose] *or* show proof of immunity via IgG antibody titer. The vaccines and subsequent titer are not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine.

Tetanus-Diphtheria (Tetanus and whooping cough)

Requirement. Primary immunization series [3 doses of any combination of DTP, DTap, DT, or Td]. Your last tetanus immunization must be a Tdap and given after 2005.

Actions to be taken if requirement is not met. If you have not received the primary immunization series, you will need to get the adult immunization series which consists of one dose of Tdap followed by two (2) doses of tetanus diphtheria, with the second dose being given one (1) month after the first dose. The third dose is given six (6) months after the second dose. The adult series is not covered by the Duke Student Health Fee.

When immunization is not required. Students meeting the North Carolina standards for medical (G.S130A-156) or religious (G.S130A-157) exemption are not required to obtain the vaccine.

PPD (Tuberculosis)

Requirement. Annual testing with the most recent test being in the last 12 months. If your most recent ppd is positive[†] you will need to have documentation of a negative chest x-ray done in the U.S. within the last 12 months. If you have a history of positive1 ppd in the past you will need to have documentation of negative chest x-ray done in the U.S. within the last 12 months.

[†] a ppd is considered positive if >=15mm for low-risk individuals and >=10mm for high-risk individuals. High-risk is defined as individuals who have come to the US less than five years ago from a high-prevalence region [Africa, Asia, and Latin America], individuals who are immunocompromised, and other high-risk groups. Please call 919-681-4912 if you have any questions.

Actions to be taken if requirement is not met. You may get a ppd test upon arrival to Duke. The ppd is covered by the Duke Student Health Fee. If your ppd is positive1, you will be required to get a chest x-ray. The x-ray is not covered by the Duke Student Health Fee.

When immunization is not required. If you are allergic to ppd, you are not required to get tests; however, are required to get a chest x-ray.

Tuberculin Skin Test (PPD) Requirements. Effective with the entering class of fall 2007, all students enrolled in the School of Medicine will be required to obtain a tuberculin skin test (PPD) on an annual basis. As a requirement for graduation, students are required to obtain a PPD during the spring of the fourth year. This is usually done during the Capstone course. Fourth year students that do not graduate in the spring, but rather the summer or fall terms must obtain the PPD during their last clinical rotation. The Registrar's Office and Student Health Center coordinate the schedule for students to receive the PPD tests at the Student Health Center. Individuals who intend to study away during these time periods must make arrangements with the Immunization Coordinator of the Student Health Center, to take the PPD test before leaving for the study away experience. The coordinator can be reached at 681-4912 or via email at DSHS_Immunizations@mc.duke.edu. Students may obtain printouts of their immunization records at no cost from the Student Health Center. Students should contact the Immunization Coordinator should they have any questions or concerns pertaining to immunization requirements.

STUDENT AND PROFESSIONAL ORGANIZATIONS

Alpha Omega Alpha Medical Honor Society. Alpha Omega Alpha, founded in 1902, is the national medical honor society. The society works to promote scholarship and research in medical schools as well as high standards of character and comportment toward patients among students and physicians. The Duke chapter of AOA was founded in 1931 and has since played an important role in the medical center. For the past 30 years, AOA has sponsored an original studies symposium where third year medical students present their research findings. The symposium consistently attracts speakers of national prominence to deliver the keynote address. Election into the honor society is restricted to one-sixth of the graduating class. Members are elected in both the third and fourth years of medical school. The primary criterion for election in the third year is superior academic performance as demonstrated by excellent grades in the first two years of medical school. Election in the fourth year is still primarily based on outstanding academic achievement in courses; but additional factors such as comportment towards patients and colleagues, community service, significant research activities, and other similar accomplishments are accorded greater weight. AOA membership is also conferred upon physicians, including alumni and faculty members who have distinguished themselves in research, teaching, and practice.

Davison Society. The Davison Society is composed of the entire student body. Each student pays a yearly fee that is used to fund various school activities. The Davison Council is the student government organization for the Duke University Medical School. The Council consists of individuals both elected and appointed to handle matters as they pertain to the entire medical school. The elected officials consist of an executive board (President, Social VP, Service VP, Secretary, and Treasurer), a President from each of the four classes, and 4 representatives from each class. In addition, the Davison Council has appointed members that serve on committees such as the Admissions Committee, Curriculum Committee, Graduate and Professional Student Council, Internal Review Board, Alumni Association, Honor Council, and others. Various national and local organizations are affiliated with the Davison Council and receive money from its treasury. Each of these

groups have their own officers and meet periodically. The list of these organizations can be found under "Student Groups."

In keeping with the tradition of graduating well-rounded, happy, healthy physicians, the medical school offers a variety of opportunities by which to get involved with service and social activities. These are two main focuses of the Davison Council. For service, the highlight of our year is Duke in Durham Day, in which the medical school goes out to various sites all over Durham for a day of service. Previous sites include Eno River, The Ronald McDonald House, the Carnivore Preservation Trust, Caring House, Durham Rescue Mission, and many more. In addition, the medical school participates in Adopt-a-Highway, and each Christmas participates in a fundraiser to buy Christmas gifts for less fortunate families.

The Davison Council meets monthly to discuss issues that relate to the medical school. The Dean of Medical Education is in constant communication with the Council.

Medical student groups affiliated with, and in the past funded by, the Davison Society include: Duke Medical School Acapella Group (Acapella), Alternative Careers Interest Group (ACIG), Alpha Omega Alpha (AOA - Medical Student Honor Society), the Association of American Medical Colleges (Organization of Student Representatives), the American Medical Association (AMA - Medical Student Section), the American Medical Women's Association (AMSA), the American Medical Student Association (AMWA), the North Carolina Student Rural Health Coalition (Rural Health, aka Community Health Interst Group), the North Carolina Medical Society Student Chapter, the Student National Medical Association (SNMA), American Physician Scientist Association (APSA), Business Ethics and Medicine Interest Group (BEAM), Benjamin Rush Society (BRS), the Christian Medical and Dental Society(CMDA), the Gay-Straight Alliance (GSA), Epicurean Society (EIG - Medical Student Dinner Club), the Duke Asian-Pacific American Medical Student Association (APAMSA), Latino Medical Student Alliance (LMSA), the Duke Jewish Medical Student Association, Medical Chinese Interest Group (MCIG), Med Mentors, Muslim Medical Student Association (MMSA), Student Curriculum Committee, duke Institute for Health Care Improvement (IHI Open School), Duke Comprehensive Cancer Center Volunteer Network, AIDS Education Roadshow, Lenox Baker Children's Hospital Program, Duke Medical Gleaning Program, Homeless Shelter Clinic, Children's Miracle Network Fair, the Aesculapian (yearbook), HuMed, Family Medicine Interest Group (FMIG), the Mind-Body Interest Group, Careers in Internal Medicine Interest Group (CIMIGro), Dermatology Interst Group (DIG), Geriatrics Interest Group (GIG), OB-GYN Interest Group, Emergency Medicine Interest Group (EMIG), Global Health Interest Group (GHIG), Infectious Disease Interest Group (IDIG), Pediatrics Interest Group (PIG), Palliative Care Interest Group, ENT Interest Group (OOHNS), Plastic and Reconstructive Surgery Interest Group (PRSIG), Orthopedics Interest Group (Ortho), Cardiology Interest Group (CIG), Physicians for Social Responsibility (PSR), Psychiatry Interest Group (PSYCH), Recovered Medical Equipment for the Developing World (REMEDY), Universities Allied for Essential Medicine (UAEM), Teaching and Mentorship Interest Group (TMIG), The Duke Wilderness Sports Club (DWSC), and Neurology and Neurosurgery Interest Group, and the Medical Ethics and Humanities Lecture Series.

You may find an updated list of officers at http://www.duke.edu/web/medstudent.

Duke Medical Alumni Association. The Duke Medical Alumni Association (MAA) seeks to support and promote the interests of Duke University Medical Center and its extended community and to nurture life-long relationships and learning. The MAA contributes a framework through which the Medical Center family continues to thrive,

alumni concerns are addressed, and alumni participation in the life and vitality of Duke University Medical Center is encouraged. Today, the MAA includes more than 12,500 Duke School of Medicine graduates and former house staff members who live and work in every state across the nation and in 46 countries around the globe. The Association also supports approximately 400 current medical students and 900 house staff officers in various ways. Each year the MAA sponsors events and activities for medical students including the Big Sib/Little Sib welcome event; Medical Families Orientation; Medical Families Weekend; the purchase of books for the Capstone course; and a student/alumni networking event - the Blue Tie White Coat dinner. The Association also provides embroidered white coats for first year students; graduation gifts for fourth year students and distribution of the publications, *DukeMed Magazine* and *DukeMed Alumni News* to current house staff officers.

President: Dale R. Shaw, T'69, MD '73, HS '73-'77
President Elect: Kurt D. Newman, MD '78
Jenny Jones, Director, Medical Alumni Affairs

Courses of Instruction

Anesthesiology

Clinical Science Electives

Mark Newman, MD
Chair, Department of Anesthesiology
Office: 5692 HAFS Bldg. Duke Hospital
Campus PO Box: 3094
Phone: 684-8579 / FAX: 681-2923
E-mail:*newma005@mc.duke.edu*
Assistant: Cathy Cox
Business Manager: Dan Marcantonio

Second Year Two-Week Clinical Selectives

ANESTH-220C. CLINICAL ANESTHESIOLOGY. (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 include the general and cardiothoracic Operating Rooms, as well as subspecialty areas and pain management. Additional hands-on practice will occur in the Patient Safety Center (human simulator). There will be problem-based learning sessions on 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; Grand Rounds; and other conferences. Max: 4, Min: 1; Contact: Kathy Long at 681-6754 or via email at kathy.long@duke.edu. *Stuart Grant, M.B., CH.B; Srinvas Pyati, MD, and Staff*

ANESTH-221C. PAIN MANAGEMENT. Students will participate in both acute and 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 and psychotherapy is stressed. Students will observe various interventional procedures. Students will also attend weekly pain conference, journal club, and biweekly multidisciplinary pain conference. The course is offered throughout the year. If more than 1 absence is anticipated, the elective should be re-scheduled. Students with questions may contact the course director, Billy Huh, M.D., (beeper #7990). Credit: 2 Enrollment max: 2. Location: Duke Pain Clinic-932 Morreen Rd. @7:15 a.m., 2nd floor-conf. room. Contact: Students should contact Dr. Huh via email (huh0000@mc.duke.edu) to confirm the meeting time for the first day of classes or if they have questions. *Bill Huh, MD, PhD; Brian Ginsberg, MD; and pain fellows*

Fourth Year Clinical Electives

ANESTH-430C. DIVING AND HYPERBARIC MEDICINE. 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. Piantadosi at 684-6726. Secondary contact: Dr. Jake Freiberger, 668-0032. Students should meet for

rounds on the first day of classes promptly at 7:45 a.m. The location is Hyperbaric Center Library, 0588 White Zone, CR II Building. Credit: 4-8. Enrollment 1. Claude Piantadosi, MD, and staff

ANESTH-440C. CLINICAL ANESTHESIOLOGY. The student will participate in the pre-, intra-, and post-operative anesthetic management of patients while assigned to an individual resident or attending anesthesiologist. Usually, (s)he will spend two weeks in the general Operating rooms, one in the Cardio-thoracic Operating Rooms, and a fourth week in subspecialty areas including the Hyperbaric facility, The Acute Pain management Service, and others. 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, including central venous and arterial line placement, and patient monitoring. These areas will be reinforced by lectures, Grand Rounds, and other conferences. In the fall, priority in registration is given to students considering careers in Anesthesiology. Students MUST attend the first day of the Section, and are strongly advise not to miss any of the first week. More than 5 absences are not permitted. Permission of the instructor is required. Please contact Kathy Long at 681-6754 or via email at kathy.long@duke.edu for more information. For orientation we will meet on the 5th floor of the HAFS building, in the foyer between elevators 25 and 26, at 8:30 a.m. on the first day of the Section. Enrollment Max: Fall Sections 41, 42, and 43=3; 44=4. Spring Sections 41, 42=4. Summer Sections 41,42=2. (NOT offered Spring and Summer Sections 43,44). Credit: 4. *Peter D. Dwane, MD and Staff*

ANESTH-441C. SUBINTERNSHIP IN SICU. 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). Students are re-assigned their own patients and actively participate in daily rounds as part of the SICU team. There is a daily lecture on 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. Time may be spent in the SICU at Duke University Medical Center (trauma, vascular surgery, liver-kidney-pancreas transplantation, general surgery) and/or the SICU at the Durham VA Medical Center (cardiothoracic and vascular surgery, general surgery). 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 ethical decision making in ICU. Students are formally evaluated by the SICU house staff and the attending physician. Please contact Vicki Grossman at 668-3400 or via email at grosm001@mc.duke.edu for more information. C-L: SURGERY 441C. Credit: 5. Enrollment: max 2. *Christopher Young, MD, Eugene Moretti, MD/MHSc; Nancy Knudsen, MD; Steven Vaslef, MD/PhD; Allison Clay, MD; and Joseph Govert, MD*

ANESTH-446C. ACUTE AND CHRONIC PAIN MANAGEMENT. Students will participate in both acute and chronic pain management. Each student is assigned daily to an individual fellow or attending physician who supervises the student's active involvement. This evaluation and treatment emphasizes a multidisciplinary approach appropriate for the individual patient. The impact of pharmacotherapy including opioids, NSAID's, local anesthetics, adjuvant drugs; interventional procedures such epidural and regional catheter placement, nerve blocks, neurolytic procedures, as well as implatable devices; and physical and psychotherapy is stressed. Students will observe and/or participate in various interventional procedures. In addition to this clinical work, students attend weekly pain conference,

journal club, and biweekly multidisciplinary pain conference. The course is offered monthly 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 the course director, Billy Huh, M.D., (beeper #7990). Students may also contact Lyn Zirillo via email at ziril001@mc.duke.edu. Credit: 4. Enrollment: max 2, min 1. *Billy Huh, MD/PhD; Winston Parris, MD; Lesco Rogers, MD; Ann Marie Fras, MD; Brian Ginsberg, MD; Ronald Goldberg, MD; Beth Lindsay, MD; and Diane Scott, MD*

Biochemistry

Basic Science Electives

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Assistant: JoAnn Kempel
Business Manager: Esther Self

Cell Biology

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Community and Family Medicine

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Assistant: Rita Baur
Business Manager: Chip Bailin

Required Course

COMMFAM-205C. FAMILY MEDICINE. 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, continuity of care, and the role of consultants in primary care. Other topics covered include social factors such as the doctor-patient relationship, the role of the physician in the community, and the economics of health care delivery. Students are placed with community-based faculty who are practicing family physicians in communities outside of Durham, principally within North Carolina. Most of these preceptorship sites are in rural communities, providing students with exposure to many issues of rural health care such as farming and other occupational injuries, transportation difficulties,

and local customs. Students gain extensive experience in diagnosing and managing patient problems in an ambulatory care setting under the guidance of the department's faculty. In addition, the clerkship provides students with opportunities to see patients in a variety of other settings, including home, nursing home, and community hospital. There is also the opportunity for medical students to be paired with physician assistant students at a community practice site for the purpose of working with mid-level practitioners in a team practice setting. Changes in the rotation are not made less than 12 weeks prior to the start of the clerkship. Credit: 4. *Joyce Copeland, MD*

Longitudinal Integrated Clerkship

COMMFAM-206C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) - FAMILY MEDICINE. 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, continuity of care, and the role of consultants in primary care. Other topics covered include social factors such as the doctor-patient relationship, the role of the physician in the community, and the economics of health care delivery. Students participate in a team-based longitudinal quality improvement project focusing evaluation of patient care efforts in a primary care practice. Students gain extensive experience in diagnosing and managing patient problems in an ambulatory care setting under the guidance of the department's faculty. In addition, the clerkship provides students with opportunities to see patients in a variety of other settings, including home, nursing home, and community hospital. Credit: 4. *Joyce Copeland, MD*

Second Year, Two-Week Clinical Selectives

COMMFAM-220C. OCCUPATIONAL MEDICINE: PREVENTION & POPULATIONS. 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. Enrollment Max. 1. For information about the meeting time and location, please contact Jody Crabtree 681-3066 or via email at jody.crabtree@duke.edu. *Sam Moon, MD; Brian Caveney MD/JD/MPH; and Carol Epling, MD/MSPH*

COMMFAM-221C. PRACTICAL CLINICAL NUTRITION. This course will cover the topics in clinical nutrition that will be of most use to medical students interested in pri-

mary care. Participants will have a chance to observe and practice interviewing and counseling skills. Topics will include weight management, eating disorders, diabetes, hypertension, cancer, pregnancy, middle age, elderly, addictive behaviors, and population-based nutrition. Enrollment Max. 6. Location: NC Mutual, 411 W. Chapel Hill St Room 319 as well as clinic sites around Duke and Durham. Contact: Jody Crabtree at jody.crabtree@duke.edu for permission. NOTE: Students may not drop the course within one month of the first day of classes. *Gwen Murphy, PhD.*

COMMFAM-222C. PROSEPECTIVE HEALTH PLANNING AND INTEGRATIVE MEDICINE. This selective will provide second year Duke Medical students an evidence-based and experiential exploration of Duke Integrative Medicine's "Wheel of Health" as one approach to prospective health planning. Methods include literature reviews, clinic visits with integrative medicine providers, practitioner and patient interviews, and participation in various ongoing activities at Integrative Medicine. Students will receive faculty mentoring, attend a few ongoing classes, receive orientation to informational resources, and experience Mindfulness-Based Stress Reduction and health coaching. Students set personal health goals, develop their own health plans, and give presentations about some aspect of Integrative Medicine. For more information, please contact the Course Director at baile010@mc.duke.edu, (919)660-6657. Prerequisite: Advance permission of the instructor is required. NOTE: Students may not drop this selective within one month of the first day of classes. Enrollment: Minimum 2, Maximum 4. Course Director: *Michelle Bailey, MD.*

COMMFAM-224C. PROCEDURAL SKILLS IN PRIMARY CARE - LUMPS AND BUMPS. Students will receive instruction and experience in office-based procedures common in primary care. This 2-week selective will consist of workshops, observation, and participation in procedures such as simple skin biopsies, arthrocentesis of major joints, trigger point injection, joint injections, colposcopy, etc. The didactic experience will include instruction and guided reading focusing on indications for procedures, informed consent, and post-procedure care. For more information and permission to enroll, please contact Jody Crabtree at 681-3066. NOTE: Students may not drop this selective one month prior to the course. Students must obtain permission to drop the course. Enrollment Max. 4. *Gloria Trujillo, MD; and Viviana Martinez-Bianchi, MD*

COMMFAM-225C. TRAVEL MEDICINE AT DUKE STUDENT HEALTH. 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. Enrollment max: 1. Contact: Jody Crabtree at jody.crabtree@duke.edu for permission. *Melanie Trost, MD*

Fourth Year Clinical Electives

COMMFAM-401C. SUBINTERNSHIP IN FAMILY MEDICINE. This course provides senior medical students with an intense patient-oriented clinical rotation with responsibilities and autonomy similar to that of an intern. This provides a unique opportunity

to participate in the department's effort to test new models of care in the delivery of team-based chronic disease management in the ambulatory and community setting. Students see patients in the same format as entering interns with a patient panel supervised by senior faculty at Duke Family Medicine Center. Each sub-intern will perform a quality improvement project in conjunction with the Chronic Disease Management Program. 80% of the rotation will be direct clinical care in the Duke Family Medicine Center. The remaining 20% will occur rounding on Family Medicine inpatients and in Community Health Division programs. The inpatient component will include rounding on all Family Medicine patients admitted to Duke Hospital, including follow-up and home care. The student will provide daily communication of the patient's status with the primary provider. The student will also assist in the supervision of prenatal patients and attend the labor and delivery of at least one patient. Clinical instruction and supervision on each patient encounter is provided by senior level housestaff 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. Prerequisite: permission of instructor and successful completion of the Family Medicine Clerkship. For more information please contact the Coordinator of Medical Student Programs at 681-3066. Credit: 5. Enrollment: max 1 per session. *Joyce Copeland, MD and staff*

COMMFAM-410C. TRAVEL MEDICINE AT DUKE STUDENT HEALTH. 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 four-week elective. Enrollment max: 1. Contact: Jody Crabtree at jody.crabtree@duke.edu for permission. Please Note: 8:30am will be the start time unless otherwise instructed by Dr. Trost and you will need to meet at the Student Health Center, Duke South. *Melanie Trost, MD*

COMMFAM-423C. OCCUPATIONAL AND ENVIRONMENTAL MEDICINE. 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, 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 worksite health programs. Credit: 4. Two months advance notice and permission from instructor is required. Enrollment: max 1 per month. All interested students should contact the Coordinator of Medical Student Programs at 681-3066. *Carol Epling, MD; Dennis Darcey, MD; and Sam Moon, MD*

COMMFAM-432C. INTEGRATIVE MEDICINE AND PROSPECTIVE HEALTH. This month-long elective provides an evidenced-based didactic and experiential exploration of integrative medicine from the Duke Integrative Medicine perspective. The

core focus is on key overlaps between patient-centeredness, prevention, mindfulness, health behaviors, long-range health planning, patient empowerment, and complementary and integrative medicine health practices. Students engage in personal health risk appraisal, experience health coaching, participate in mindfulness based stress reduction, participate in Duke Integrative Medicine case conferences, and conduct reviews of the scientific literature. Credentialing, training, and health care system issues are discussed, as well as possible risks, hazards, and inefficiencies relating to complementary practices. Students set personal health goals, develop their own health plans, and give presentations about some aspect of Integrative Medicine. A final exam will be administered at the end of the course. All interested students should contact the Course Director at baile010@mc.duke.edu, (919)660-6657. Prerequisites: Advance permission of the instructor is required. Credit: 4. Enrollment: Minimum 2, Maximum 4. Course Director: *Michelle Bailey, MD.*

COMMFAM-433C. COMMUNITY HEALTH. This elective introduces students to the concepts and practice of community and population-based health care. Population-based care is becoming increasingly important in addressing the health needs of this nation. This elective helps students understand how Duke 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 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 appropriate community programming faculty and staff, will plan the specific activities that will be undertaken by that student, and the requirements for the student's successful completion of the course. For more specific information about the course, students may contact Claudia Graham, Program Coordinator in the Division of Community Health, at 681-5724. Details on course meeting location, days and time will be communicated prior to first day. Credit: 4; Enrollment max: 1; Sessions offered: 41, 42, 43, 44. *Anh Tran, PhD.*

COMMFAM-435C. HEALTH PROMOTION AND DISEASE PREVENTION. This elective is an intensive clinical experience in health promotion and disease prevention. Students see patients in the Duke Family Medicine Center and participate in a variety of activities designed to help them provide excellent health maintenance care. Specific content areas addressed include counseling skills in nutrition, safe sex practices, and smoking and alcohol cessation, as well as screening tests and immunizations. Prerequisite: permission of instructor. Two months advance notice. All interested students should contact the Coordinator of Medical Student Programs at 681-3066 Credit: 4. Enrollment: min 1, max 4. *Joyce Copeland, MD; Nancy Weigle, MD; and faculty*

COMMFAM-439C. ADVANCED CLERKSHIP IN FAMILY MEDICINE. This course provides intensive instruction and practice in the care of primary care patients in the community setting. Students work at Duke Family Medicine Center. This course has an outpatient focus and is recommended for students who would like to improve their skills in the care of ambulatory patients. Students learn about quality of care and patient safety in this setting. They develop skills in chronic disease management and prevention, as well as common outpatient problems. Students are involved with day to day patient care under the supervision of family physician faculty and residents. Preference for enrollment is given to those students entering Family Medicine residencies. Students are advised to contact the depart-

ment 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. Prerequisite: permission of instructor. For more information and to obtain permission numbers, please contact the Coordinator of Medical Student Programs at 681-3066. Credit: 4. Enrollment: max 1. *Brian Halstater, MD and staff*

COMMFAM-440C. PRIMARY CARE SPORTS MEDICINE. This elective is designed to introduce students to the concepts and practice of primary care sports medicine. Over recent years there has been increased focus on physical fitness. More people are engaging in regular physical activity and the average life expectancy has increased. This increase in activity has also resulted in an increased number of musculoskeletal injuries. In order to provide good care to these patients physicians need to be well versed in treatment of musculoskeletal problems as well as the common medical problems that physically active people face. During this month-long elective, students will become familiar with the diagnosis, treatment, and prevention of musculoskeletal injuries as well as treatment of primary care issues such as HTN, hypertrophic cardiomyopathy, asthma, and mononucleosis. During this rotation students see patients in the Sports Medicine and Family Medicine clinics. Students also participate in the care of college and high school athletes. To participate in this rotation students must contact the Medical Student Program Coordinator, 681-3066, at least 6 weeks prior to the course. Credit: 4. Enrollment Max: 1 per month. *Jeff Bytomski, MD and Blake Boggess, MD*

COMMFAM-441C. FAMILY MEDICINE CONTINUITY EXPERIENCE. Students manage a panel of patients over an extended period of time at the Duke Family Medicine Center under the supervision of one family physician faculty member. Patient care is scheduled for one to two half-days a week for two to four months. The rotation may be repeated to provide further continuity. With permission, this course can be audited; a project is required for course credit. Due to the need for clinic schedule arrangements, students are advised to contact the department as soon as possible for course approval (at least eight weeks in advance). Priority will be given to students in the Primary Care Program. Prerequisite: permission of instructor. For more information, please contact the Coordinator of Medical Student Programs at 681-3066. Credit: 2-8. Enrollment max. 1. *Joyce Copeland, MD, and staff*

COMMFAM-448C. INTRODUCTION TO MEDICAL INFORMATICS. 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, students will be exposed to these topics : Electronic medical systems (e.g. EMR, CPOE, eRx, PHR, CDS); Role of health IT in patient safety; Health information standardization (e.g. HL7); and Medical Information Terminologies/Taxonomies (e.g. SNOMED). Permission of the instructor is required. For more information about the course, students should contact the Duke Center for Health Informatics, Becky Riester (email: rebecca.riester@duke.edu). Enrollment:: 2 (offered only in section 44 of spring 2012 term) Credit: 4. *Ed Hammond, PhD*

COMMFAM-449C. COMMUNITY AND FAMILY MEDICINE PRECEPTORSHIP. An individually tailored preceptorship which allows students to observe and participate in aspects of the broad scope of Community and Family Medicine, including delivery of care to individuals, families, and populations within the context of the community in which they live. The rotation supplements and complements the second-year core clerkship,

and allows the student further exploration of specific areas of interest. A wide variety of practice types and geographic locations are available; students may choose from an extensive list or nominate a new site. Opportunities are also available within the Duke system, including: Lifestyle Management, Howard Eisenson, M.D. All interested students should contact the Coordinator of Medical Student Programs at 681-3066 to arrange a rotation in their area of interest. Because of the necessity for site approval and prior arrangements with preceptors, it is essential that this contact be made as soon as possible, and at least six months prior to the desired rotation. Drops are not accepted. Prerequisites: permission of instructor. Enrollment max. 1. Credit: 4. *Joyce Copeland, MD and staff*

Dermatology

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Assistant: Jeanne Brown
Business Manager: Virginia King-Barker
Web*:http://dukederm.duke.edu/*

Fourth Year Clinical Electives

DERMATOL-450C. CLINICAL DERMATOLOGY. The elective in clinical dermatology is designed to prepare students to perform an accurate skin examination, formulate appropriate differential diagnoses, and choose relevant diagnostic or therapeutic interventions. This course is valuable to any student interested in improving their ability and confidence in the cutaneous exam. Students in the rotation 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, HIV dermatology, cutaneous oncology; clinic attendance can be tailored to the student's future career goals. 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 by a brief clinically oriented examination. Students are to report to the Dermatology Clinic, Duke south, Purple Zone, Clinic 3K, Room 3337 at 8:30 a.m. on the first day of the rotation for orientation. Dr. Prose is the course director and may be reached at 684-5146. Secondary Contact: Dr. Holly Bartell, 970-3244. Credit: 4. Enrollment: max. 4. *Neil Prose, MD, Russell Hall, MD, Sarah Myers, MD, Navjeet Sidhu-Malik, MD, John Murray, MD, Elise Olsen, MD, and other staff*

Free Time

Clinical Science Electives

FREETIME-450C. FREE TIME. Students with no classes scheduled for a particular section must sign up for free time.

INTERSESSION

Required Second Year Course

INTERSES-204C. HEALTH POLICY/GLOBAL HEALTH WEEK. This one-week mandatory session is designed to expose students to fundamental health economics

and global health concepts. Through a variety of learning modalities, students integrate knowledge to consider issues outside the confines of a single discipline. The course develops reasoning skills and fosters team-based learning about population-level health issues. Major components include: the economics of the US health care system; current and proposed payment systems for healthcare; the development process for drugs and devices and their impact upon costs of care; and the impact of pay for performance initiatives on quality and outcomes. Global health content includes: measures of health status, health disparities, and burden of disease; analyzing socioeconomic and demographic features; applying principles of cost-effectiveness, benefits, and harms; and sustainability of an intervention to improve global health. The effects of social, cultural, and behavioral factors on a society's vulnerability to morbidity, and approaches to prevention and control will be considered. For more information please contact Paula Alford at paula.j.alford@duke.edu or 684-2563. *Victoria Kaprielian, MD*

Interdisciplinary

Required Courses

INTERDIS-100B. MOLECULES AND CELLS. A course designed for first year medical students that focuses on the molecular and cellular principles of human disease. The course has four components, which are tightly integrated: biochemistry, cell biology, genetics, and a series of clinical correlations. The biochemistry component re-emphasizes the relationship between structure and function of the major classes of macromolecules in living systems including proteins, carbohydrates, lipids, and nucleic acids. The metabolic interrelationships and control mechanisms are discussed as well as the biochemical basis of human diseases. The cell biology component emphasizes the structure and function of the cells and tissues of the body. The laboratory provides practical experience with light microscopy studying and analyzing the extensive slide collection of mammalian tissues. The genetics component emphasizes molecular aspects of the human genome, the structure of complex genes, regulation of gene expression, experimental systems for genetic analysis, human genetics -- including population genetics and genetic epidemiology, the use of genetic analysis for the identification of disease causing genes, cytogenetics, cancer genetics, and genetic diagnosis and counseling. The series of clinical correlations links the material covered in the basic science lectures to clinical problems. Many of the correlations include an interview with a patient. Secondary contact: Margaret Briggs, m.briggs@cellbio.duke.edu. To view more about the course schedule, please refer to BlueDocs. Credit: 8. Enrollment: max 105. *Mariano Garcia-Blanco, MD/PhD; Kenneth Kreuzer, PhD; Michael Hershfield, MD; Tom McIntosh, PhD; Fred Schachat, PhD, Margaret Briggs, PhD; and staff*

INTERDIS-101B. NORMAL BODY. This core course of the preclinical curriculum is intended to present the scientific principles underlying the structure and function of the normal body, thereby providing the foundational knowledge for the practice of medicine and facilitating the incorporation of the new scientific knowledge thorough out the medical career. To accomplish this end, the goals of the Normal Body component are to ensure that all students possess a conceptual model of the structure and integrated function of the human body (as an intact organism) and each of its major organ systems, emphasizing their role in the maintenance of the body's homeostasis. Credit. 12. *Thomas McIntosh, PhD and staff*

INTERDIS-102B. BODY AND DISEASE. This core course in human disease is presented from February through June of the first year. The course begins with fundamental

principles of the four basic sciences most directly related to human disease: immunology, microbiology, pathology, and pharmacology. This segment comprises the first seven weeks and also includes discussion of disease classes not related specifically to any one organ system, including cancer, immunodeficiency diseases, and chemically-induced diseases. The remaining thirteen weeks are devoted to 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, clinically-oriented disease workshops, and team-based learning. Credit: 20. Meeting Location for First Day of Classes: Duke South Amphitheater. *Victor Nadler, PhD; Alejandro Aballay, PhD; Christine Hulette, MD, Jack Keene, PhD, Garnett Kelsoe, D.SC,and Linton Yee, MD.*

INTERDIS-103B. BRAIN AND BEHAVIOR. The goal of Brain and Behavior is to present the scientific principles underlying the structure and function of the human nervous system as well as their dysfunction in certain neurological disorders. This course thus provides foundational knowledge for the practice of medicine and will facilitate the incorporation of new scientific knowledge throughout the medical career. Additionally, topics in normal and disordered human behavior will be incorporated into the curriculum to promote initial awareness of their anatomical and physiological substrates. Core material is presented through a synergistic combination of didactic lectures, scientific readings, laboratory exercises, and clinical case problem-solving. Credit: 4. *Leonard White, PhD, and D. Corey Adamson, MD*

INTERDIS-104B. INTERPROFESSIONAL INTRODUCTION TO PREVENTION. This interprofessional course uses a team-based learning approach to develop appreciation of the unique contributions of various health care providers in providing best practice prevention care to populations. Web-based modules on cultural competence, health literacy, and community health are also used. Interprofessional student teams meet in lecture and small group settings for organized activities and community assignments. A final team project is required. The course will meet in Fall 2011 on August 24, August 31, September 7, and September 14. Enrollment: 300. Credit: 1. *Brain Caveney, JD, MD, MPH*

INTERDIS-105B. PRACTICE YEAR 1. The Practice courses are required in years one, two, and three. Practice emphasizes clinical skills development using lecture and small group teaching, and outpatient clinical work. In year one, Practice introduces students to interviewing and physical diagnosis skills with emphasis on the doctor/patient relationship. Practice uses written assignments, problem-based learning, video-taping, group discussion to meet course goals. Students practice interviewing and counseling on the wards and with standardized patients. In the spring of year 1, students work with preceptors in outpatient clinics and on the wards to practice their new skills. Fall, Credit: 1. Spring, Credit: 2. *Barbara Sheline, MD, Michael McLeod, MD, and Eric Kirchman, MD*

INTERDIS-203C. CLINICAL SKILLS ASSESSMENT. Assessment Week 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. Faculty also use data from the week to evaluate the effectiveness of clinical curriculum. During Assessment Week, students complete an eight-station clinical performance examination (CPX) with standardized patients. The CPX is fashioned after the USMLE Step 2CS exam in order to help students prepare for this licensing exam. Students are assessed on their ability to read electrocardiograms and x-rays, and to interpret lab results. At the end of the week, clinicians review the correct answers for each of these components with the students. Students complete the Comprehensive Basic Science Examination in preparation for the USMLE Step1licensing exam, and take an information management skills assessment. Assessment

Week also allows time for reflection. Students participate in a half-day retreat with the advisory deans to consider the education impact of the second year curriculum and provide feedback. Students who do not achieve a passing score on each component of Assessment Week must successfully remediate the component. Students must pass each component of the week before beginning the 4th year. Credit: 1. *Colleen Grochowski, PhD., and Deborah Engle, EdD (At the time of publication, this course is currently under review by the Curriculum Committee and is subject to change).*

INTERDIS-204C. ORIENTATION TO PATIENT SAFETY AND CLINICAL YEAR. Prior to beginning clerkships, students participate in the "Orientation to Clinical Year." Two weeks are devoted to preparing students to function well as clinical clerks. They interview and examine patients on the wards and practice written and oral presentation skills. Lectures provide needed background. Specific focus is made on knowledge, skills, and in skills for prescription writing, sterile procedures, and evidence-based medicine. Credit: 3. *Barbara Sheline, MD and Victoria Kaprielian, MD*

INTERDIS-205C. PRACTICE YEAR 2. During year two, students use the Practice course to reflect on their experiences on the clinical rotations. Discussion topics include ethics, suffering, spirituality, pain, professionalism, and end of life issues. Fall, Credit: 1. Spring, Credit: 1. *Barbara Sheline,MD; Michael McLeod, MD; and Eric Kirchman, MD*

INTERDIS-305C. PRACTICE YEAR 3. A continuity ambulatory (outpatient) care experience, the course is required of most third year students and is designed to teach students patient outcomes over time. Study away 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, primary care sites being the most likely to be approved. 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. Approval for this is required by the Practice office. 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, if at all). Notification of the Practice office is required prior to starting, and attendance must be documented by the preceptor. A student may choose to do all 34 weeks at the same approved site. Credit: 1.5. Enrollment: max 100. *Barbara Sheline, MD*

INTERDIS–312B. RESEARCH ETHICS

INTERDIS-314B. MEDICAL STATISTICS. The Medical Statistics course covers in-depth statistical concepts that will be used by students during their third-year research project. It consists of 9 interactive sessions addressing topics such as study design, data analysis methods and sample size estimation. JMP statistical software is used for analysis. The course is taught using team-based learning methods. Credit: .5. Enrollment: max 100. *Sandra Stinnett, DPH*

Basic Science Electives

INTERDIS-110B. GLOBAL HEALTH. This unique course brings together some of the outstanding professors from across Schools and Departments at Duke University to address issues of Global Health. The course is designed to provide students with multidisciplinary theories and techniques for assessing and addressing infectious, chronic, and behavioral health problems in less wealthy areas of the world. The course will address global health issues from the disciplines of: epidemiology; biology; medicine; nursing; law; ethics; policy; psychology; sociology; anthropology; environment; engineering; that represent major disease burden overview of public health, focusing on the prevention of diseases and

health problems. After a brief review of public health history and epidemiologic methods, we will discuss organizational structures and their roles in defining, preventing and managing public health problems. We will explore selected health problems or issues from a health services research perspective, and discuss their health policy implications. C-L PUBPOL 264.01 Credit: 0. *Kathryn Whetten, PhD*

INTERDIS-155B. BEGINNER MEDICAL SPANISH ELECTIVE. The Medical Spanish Elective (MSE) offers 1-2 hours per week of medical Spanish language classes to first year Duke Med students. Students are stratified based on incoming language level. In addition, course participants are expected to volunteer for a minimum of 10 hours in the Latino community in the local area. No credit: *Dennis Clements, MD/PhD*

INTERDIS-156B. ADVANCED MEDICAL SPANISH ELECTIVE. The Medical Spanish Elective (MSE) offers 1-2 hours per week of medical Spanish language on -line classes with Interlangua to first year Duke Med students. Students are stratified based on incoming language level. In addition, course participants are expected to volunteer for a minimum of 10 hours in the Latino community in the local area. No credit: *Dennis Clements, MD/PhD*

INTERDIS-160B. MEDICAL CHINESE. Medical Chinese is an exciting new elective offered by the medical school for both beginners and intermediate/advanced speakers who wish to develop their Mandarin skills. The course was created in part by the recognition of the language's 20% of the world's population. Within the United States itself, it is the 3rd most spoken language. Chinese is an official working language of the United Nations and WHO. About 4-5% of the population in Durham County is of Asian descent. The presence of Chinese-speaking individuals has become increasingly evident on Duke's campus as well as in the clinics and hospitals. Not only do we have Chinese physician, doctorate fellows, and researcher scientists working with us side-by-side, but we also provide care to many Chinese who may not speak English. As with many other languages, the ability to communicate in Mandarin would be a valuable asset to all health care providers. The ultimate goal of the Medical Chinese Elective is to enable us to assist in medical interpretation and to help us develop a stronger rapport with our Mandarin-speaking patient.

INTERDIS 400C. INDEPENDENT STUDY

INTERDIS-422C. EXPLORING MEDICINE: CROSS-CULTURAL CHALLENGES TO MEDICINE IN THE 21ST CENTURY. 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 and UNC. Medical Spanish instruction is included in each class to facilitate understanding the culture and facilitate encounters with Hispanic patients in our own environments as well as in Honduras. The course will be held as a 2 hour seminar for 10 weeks (begins in 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 at 681-7790 or via email at cleme002@mc.duke.edu. Secondary contact: Robert Streilen, by phone at 684-4578. Students meet for the first day of classes in the School of Nursing Amphitheater the first Tuesday of the Semester at 6:00 p.m. Credit: 1 Enrollment - up to 20 students. *Dennis Clements, MD/PhD*

INTERDIS-423C. HONDURAS TRIP. A 10 day trip to Honduras is planned for beginning the end of March with approximately 15 fourth year medical 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 meet Honduran students and faculty as well as provide medical care to patients during the visit. A trip to Copan and an indigenous Mayan community is also planned. Permission of the instructor is required for the trip. For more information and permission, please contact Dr. Clements at 681-7790 or via email at cleme002@mc.duke.edu. Secondary contact: Robert Streilen, by phone at 684-4578. Credit 1. Enrollment up to 15. Instructor - *Dennis Clements, MD/PhD*

INTERDIS-450C. CAPSTONE. 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 will address such issues as compassionate, appropriate, and effective patient care: medical knowledge about established and evolving biomedical clinical and cognate sciences as well as practical tips for when you are "on-call" as an intern; interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals; professionalism relative to responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population and systems-based practices that demonstrate one's awareness of and responsiveness to the larger context and system of health care. As part of this course, medical students will participate in a BLS and ACLS provider course. For more information, students should contact Dr. Alison Clay via email at alison.clay@duke.edu. A secondary contact is the program coordinator, Mary Sexton. She can be reached via email at mary.sexton@duke.edu. Credit: 4. Enrollment Max. 110. *Alison Clay, MD*

INTERDIS-470C. MSTP CLINICAL RESEARCH EXPERIENCE. Clinical research experience for MSTP student's only. 4 weeks. 0 credit.

INTERDIS-475C. CLINICAL EXPERIENCE. This course is designed for students that elect to explore clinical experiences while enrolled in other programs such as the MST program and other degrees. This course is for students that wish to refresh their clinical skills in a patient setting. 4 weeks. No credit. *Staff*

Required Courses for the Longitudinal Integrated Clerkship Curriculum

INTERDIS-207C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC). 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.

INTERDIS-208C. LONGITUDINAL INTEGRATED CLERKSHIPS TUTORIAL. 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 the disease, to understand the illness from the patient's perspective with treatment plans that consider social and cultural issues, community resources, cost effectiveness, health care systems issues such as transition care between care sites. Students will reflect on their responses to caring for patients presented. Students will also consider the role of the primary care provider in the care of the patients. Students will also reflect on their experiences across the longitudinal clinical learning sites in the LIC and offer feedback to the program. *Barbara Sheline, MD, Joseph Jackson, MD, Nancy Weigle, MD*

INTERDIS-209C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) COMMUNITY TEAM. In this course, students function as active members of existing community teams addressing health care needs of Durham residents. The activities will depend on the patient's needs and the needs of their team. Students will be assigned patients to work with to help them understand their disease, the treatment plan. and the health care sys-

tem. Students will visit patients in their homes, as well as accompany them to provider visits as necessary. *Michele Lyn, MD*

Intersession

INTERSES 204C - HEALTH POLICY/GLOBAL HEALTH WEEK. This one-week mandatory session is designed to expose students to fundamental health economics and global health concepts. Through a variety of learning modalities, students integrate knowledge to consider issues outside the confines of a single discipline. The course develops reasoning skills and fosters team-based learning about population-level health issues. Major components include:the economics of the US health care system; current and proposed payment systems for healthcare; the development process for drugs and devices and their impact upon costs of care; and the impact of pay for performance initiatives on quality and outcomes. Global health content includes: measures of health status, health disparities, and burden of disease; analyzing socioeconomic and demographic features; applying principles of cost-effectiveness, benefits, and harms; and sustainability of an intervention to improve global health. The effects of social, cultural, and behavioral factors on a society's vulnerability to morbidity, and approaches to prevention and control will be considered. For more information please contact Paula Alford at paula.j.alford@duke.edu or 684-2563. Credit 1. *Victoria Kaprielian, MD*

Medicine

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Required Courses

MEDICINE-205C. MEDICINE (DUKE/DURHAM REGIONAL/VAMC). 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 Hospital, Durham 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 the study of his or her "own" patients. Functioning within teams consisting of an intern, a resident, and an attending 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. Since it is not possible to systematically cover the vast body knowledge comprising Internal Medicine during an eight-week rotation, 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. Specifically, students are expected to: (1) Perform and record a complete history and physical examination on each patient they admit. (During the first four weeks, this should be a minimum of two patients per week; thereafter, at least three patients per week). (2) Discuss their plan(s) for the evaluation and care of the patient after the resident has also assessed the patient, with both returning to the bedside to

resolve any discrepant historical or physical examination findings. (3) Place a complete written work-up including analysis of primary data (e.g. peripheral blood smear, urinalysis, sputum gram stain, ECG, etc.) on the chart by 8:00 a.m. the next day. It is important during the clerkship to learn to evaluate primary data in a timely fashion. (4) 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. (5) Participate in various diagnostic/therapeutic procedures (e.g., phlebotomy, lumbar puncture, thoracentesis, paracentesis, arthrocentesis, arterial blood gas drawing, placement of intravenous lines) and perform these procedures under appropriate supervision. (6) Preround, or see each of their patients on a daily basis before morning work rounds, review what has happened since last seen, formulate a preliminary plan of care and treatment for each patient and then present these formulations to their ward teams during morning work rounds. (7) Prepare for their bedside case presentations by reading, at a minimum, relevant sections in a standard textbook of medicine. (8) Present their patients to an attending physician within 24 hours of admission, knowing all pertinent medical information as well as the rationale for their ongoing plan(s) for care and evaluation. (9) Not miss any attending rounds without prior permission from their attending physician. (10) Attend all Chair's Conferences, Physical Diagnosis Teaching Rounds, Medical Grand Rounds, and the Student Lecture Series, and other site-assigned teaching activities/conferences unless urgent ward duties preclude doing so. Methods of evaluation: During week four and week eight, a grading committee composed of the resident(s) and the attending physician(s) with whom the student has worked, the Chief/Assistant Chief Medical Resident and the Course Director meet and evaluate each student based on the standard course evaluation form, a copy of which is posted on the Blackboard website and is distributed to each student during the initial orientation to the clerkship. At the end of the clerkship, students will take the NBME Medicine Clerkship written exam and a practical exam on focused problems using four standardized patients (mini-CPX exam). The final grade is a weighted average of the mid-term and end of clerkship grading sessions (80%), the NBME written exam (10%) and the mini CPX exam (10%). Weight: 8. *Jane Gagliardi, MD and staff*

MEDICINE-207C. NEUROLOGY. 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. Credits: 4. Course Director: *Vern Juel, MD.*

Longitudinal Integrated Clerkship (LIC)

MEDICINE-206C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) - MEDICINE. 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 Hospital, Durham 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 the study of his or her "own" patients. Functioning within teams consisting of an intern, a resident, and an attending 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. Since it is not possible to systematically

cover the vast body knowledge comprising Internal Medicine during an eight-week rotation, 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. Specifically, students are expected to: (1) Perform and record a complete history and physical examination on each patient they admit. (During the first four weeks, this should be a minimum of two patients per week; thereafter, at least three patients per week). (2) Discuss their plan(s) for the evaluation and care of the patient after the resident has also assessed the patient, with both returning to the bedside to resolve any discrepant historical or physical examination findings. (3) Place a complete written work-up including analysis of primary data (e.g. peripheral blood smear, urinalysis, sputum gram stain, ECG, etc.) on the chart by 8:00 a.m. the next day. It is important during the clerkship to learn to evaluate primary data in a timely fashion. (4) 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. (5) Participate in various diagnostic/therapeutic procedures (e.g., phlebotomy, lumbar puncture, thoracentesis, paracentesis, arthrocentesis, arterial blood gas drawing, placement of intravenous lines) and perform these procedures under appropriate supervision. (6) Preround, or see each of their patients on a daily basis before morning work rounds, review what has happened since last seen, formulate a preliminary plan of care and treatment for each patient and then present these formulations to their ward teams during morning work rounds. (7) Prepare for their bedside case presentations by reading, at a minimum, relevant sections in a standard textbook of medicine. (8) Present their patients to an attending physician within 24 hours of admission, knowing all pertinent medical information as well as the rationale for their ongoing plan(s) for care and evaluation. (9) Not miss any attending rounds without prior permission from their attending physician. (10) Attend all Chair's Conferences, Physical Diagnosis Teaching Rounds, Medical Grand Rounds, and the Student Lecture Series, and other site-assigned teaching activities/conferences unless urgent ward duties preclude doing so. Methods of evaluation: During week four and week eight, a grading committee composed of the resident(s) and the attending physician(s) with whom the student has worked, the Chief/Assistant Chief Medical Resident and the Course Director meet and evaluate each student based on the standard course evaluation form, a copy of which is posted on the Blackboard website and is distributed to each student during the initial orientation to the clerkship. At the end of the clerkship, students will take the NBME Medicine Clerkship written exam and a practical exam on focused problems using four standardized patients (mini-CPX exam). The final grade is a weighted average of the mid-term and end of clerkship grading sessions (80%), the NBME written exam (10%) and the mini CPX exam (10%). Weight: 8. *Jane Gagliardi, MD and staff*

MEDICINE-208C. LIC-NEUROLOGY. 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. Credits: 4. Course Director: *Vern Juel, MD.*

Second Year, Two-Week Clinical Selective

MEDICINE-221C. A TASTE OF PALLIATIVE CARE. 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. Enrollment Max. 2. Contact: Mei Mei Clarke via email at mei.clarke@duke.edu. *Lynn O'Neill, MD*

MEDICINE-223C. GASTROENTEROLOGY SELECTIVE. In order to expose students to the field of Gastroenterology, students will rotate on two services. Students will spend on week on the Gastroenterology Consult Service at Duke Hospital or at the Durham VA Medical Center. On these services, students will perform inpatient consults and be able to see a variety of general gastroenterology, biliary and procedures. Enrollment Max. 2. Location: Duke N. Endo Unit (Clinic 2H) -Promptly at 8:00 a.m. For more information, please contact Jill Rimmer, 684-2819 or via email at jill.rimmer@duke.edu. *John Geneczko, MD; and Staff*

MEDICINE-225C. INTRODUCTION TO HOSPITAL MEDICINE AND QUALITY IMPROVEMENT. The student on the Hospital Medicine and Quality Improvement 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) Quality improvement modules to learn concepts, design, and submit a quality improvement project to the course director. 4) Overnight patient care with Hospital Medicine attendings with the opportunity to participate in patient admissions, cross cover emergencies, and transitions of care. Enrollment Max: 1. Permission of the course director is required: *Saumil Chudgar, MD*

Fourth Year Clinical Electives

MEDICINE-401C. INTERNAL MEDICINE SUBINTERNSHIP (DUKE/VA). 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, the Durham VA, or Durham Regional Hospital. These services include the general medicine services at both hospitals, and internal medicine residents supervise the students. Alternative services include the MICU, Cardiology, Hematology/Oncology, and Pulmonary. Internal medical residents and subspecialty fellows provide supervision on these services. The student functions as an intern on that service with the exception that orders must be countersigned by a medical house officer. Sleep-in facilities are available. The supervising resident or fellow 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 senior staff attending. The evaluation form is made available to each student at the beginning of the rotation. There is a formal evaluation at four weeks. No final exam is given. Prerequisites: permission of instructor. Please contact Sheila Gainey at 681-5258 or via email at gaine003@mc.duke.edu for more information. Credit: 5. Enrollment: max 17. *Jane Gagliardi, MD and staff*

MEDICINE-402C. MEDICAL SUBINTERNSHIP IN HEMATOLOGY-ONCOLOGY. (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 North. 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 Sarah Overaker at 684-2287 or via email at overa003@mc.duke.edu. Credit: 5. Enrollment: max 4. *Carlos DeCastro, MD and Medical Oncology staff*

MEDICINE-403C. NEUROLOGY SUBINTERNSHIP. (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 the Duke or Durham VA Hospitals' neurology ward and take call in rotation with a medical intern as part of a patient care team. Students attend Neurology-Neurosurgery Grand Rounds, Neurology Subspecialty Conferences and participate in all ward activities. Full time participation is expected. (3) Methods of Evaluation: Resident and staff physician provide a written evaluation and grade. For more information, please contact Sarah McCorison via email at sarah.mccorison@duke.edu or by phone, 684-0139. Prerequisite: Medicine 417C. Credit: 5. Enrollment: min 1, max 1. (more than one with course director's approval). *Vern Juel, MD; Richard Bedlack, MD/PhD/MS; James Burke, MD/PhD; Timothy Collins, MD; Ricki Goldstein, MD; Carmelo Graffagnino, MD; Barrie Hurwitz, MD; Aatif Husain, MD; Daniel Laskowitz, MD; Janice Massey MD; E. Wayne Massey, MD; Joel Morgenlander, MD; Rodney Radtke, MD; Mark Skeen, MD; Burton Scott, MD/PhD; Mark Stacey, MD; and Warren Strittmatter, MD*

MEDICINE-404C. CARDIAC CARE UNIT SUBINTERNSHIP. (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, the VA 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 in-

struction 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 681-6745 or via email at smith695@mc.duke.edu. Prerequisite: none. Credit: 5. Enrollment: max 2. *Anna Lisa Crowley, MD/FACC and cardiology staff*

MEDICINE-405C. INTENSIVE CARE MEDICINE SUBINTERNSHIP (DUKE). 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 subinterns 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. Govert, 681-5919. (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. Prerequisites: permission of instructor for all summer sections and fall sections 41 and 42. For more information, please contact Donna Permar at 681-5919 or via email at donna.permar@duke.edu. Credit: 5. Enrollment: max 3. *Joseph Govert, MD and critical care staff*

MEDICINE-406C. INTENSIVE CARE MEDICINE SUBINTERNSHIP (DURHAM VA HOSPITAL). (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 subinterns 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 acute respiratory care, hemodynamic monitoring, acid-base balance, nutritional support, palliative care, patient safety, and end-of-life care. Each student is provided a handout linking selected readings that supplement the didactic sessions on diagnosis, pathophysiology, 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 he/she subsequently drops 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, contact Dr. McMahon at 286-6946 or via email at tim.mcmahon@duke.edu. 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 on the first day of the rotation at 0745 a.m., 5A (5th floor A wing), Durham VA Hospital. Credit: 5. Enrollment: max 3. *Timothy McMahon, MD, PhD and critical care staff.*

MEDICINE-407C. SUBINTERNSHIP IN INTERNAL MEDICINE/PSYCHIATRY. 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 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 a basic knowledge base 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 Morning Report. Call is taken in both Medicine and Psychiatry in alternating fashion every fifth night. For more information, please contact Dr. Sarah Rivelli via email, rivel001@mc.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. *Sarah Rivelli, MD*

MEDICINE-412C. HOSPITAL MEDICINE. The student on the Hospital Medicine elective 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, and perioperative risk assessment. 2) Procedures including thoracentesis, paracentesis, and lumbar puncture through participation and direct observation, simulation, and viewing of procedure videos. 3) Quality improvement modules to learn concepts, design, and submit a quality improvement project to the course director. 4) Overnight patient care with Hospital Medicine attendings with the opportunity to participate in patient admissions, cross cover emergencies, and transitions of care. Prerequisite: Students that took the selective course, MEDICINE 225C, are not eligible to take this course. Permission of course director is required. Enrollment Max: 1. Credit: 2. *Saumil Chudgar, MD*

MEDICINE-414C. INTRODUCTION TO OUTPATIENT PRIMARY CARE INTERNAL MEDICINE. 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) 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 works with one or more faculty preceptors within the Division of General Internal Medicine spending one or more days per week seeing patients at the Duke Health Centers and/or Lincoln Community Health Center and the Durham VA Medical Center. A highly diverse mix of patients is seen and might include persons with diabetes, heart disease, orthopedic conditions, skin disease, common mental health problems, or neurologic disease. Patients also present for preventive health services. In the DGIM practice, patients routinely present with symptoms that have not been previously evaluated or diagnosed, allowing students to truly sharpen their clinical skills. In all cases, the student sees the patient first then 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 delivered to Dr. Rubin 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 contact Dr. Sharon Rubin via email to determine time and location for initial meeting. They must also contact Dr. Rubin in advance of the course start date to create goals and schedule. Dr. Rubin can be reached at 490-9800 or sharon.rubin@duke.edu. Credit: 1 (10 hrs/wk for 4 weeks) or 2 (20 hrs/wk for 4 weeks). Please note that this is a 1 or 2 credit course only. Enrollment: max 2. *Kathleen Waite, MD and general internal medicine staff*

MEDICINE-415C. CLINICAL MANAGEMENT OF OBESITY. 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 requires attendance in outpatient clinics or residential programs related to obesity or obesity-related comorbidities including residential programs (Diet and Fitness Center, Rice Diet), Bariatric Surgery, Pediatric Diabetes, Pediatric Endocrinology and Hypertension. Students will have the opportunity to 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 and permission, please contact Dr. Westman at 620-4061 or via email at ewestman@duke.edu. Permission of instructor is required. Credit: 4. Enrollment: 1. *Eric Westman, MD/MHS; Laura Svetkey, MD/MHS; Aurora Pryor, MD; Howard Eisenson, MD; and Ronald Sha, MD/PhD*

MEDICINE-417C. NEUROLOGY CLERKSHIP. This course is restricted to those students who did not take the Neurology rotation 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. The course includes faculty lectures. A written evaluation is provided to the students by faculty and house staff. There is an examination. For more information, please call Sarah McCorison at 684-0139 or via email at sarah.mccorison@duke.edu. Credit: 4. Enrollment: max 2. *Vern Juel, MD and neurology staff*

MEDICINE-418C. CLINICAL NEUROLOGY SUBSPECIALTIES. (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 specific subspecialty in neurology and attends clinic for 3-8 hours weekly. During that time the student participates in the clinical evaluation of patients with a member of the neurology faculty. Clinical experience in neuromuscular diseases, epilepsy and sleep disorders, cerebrovascular disorders, memory disorders, or neuro-oncology are available. Appropriate reading material is utilized to complement the clinical experience. MEDICINE 417C is a prerequisite for this course. (3) Method of Evaluation: Standard written evaluation form by faculty supervisor. Approval by the course director in order to ensure access to the desired neurologic subspecialty is required. For permission information, please contact Sarah McCorsion at 919-684-0139 or via email at sarah.mccorison @duke.edu. Credit: 1-2. Enrollment: max 5 (if participating in different subspecialties). *Vern Juel, MD; Rodney Radtke, MD; Aatif Hussain, MD; Ricki Goldstein, MD; Carmelo Graffagnino, MD; James Burke, MD/PhD; and Allan Friedman, MD*

MEDICINE-419C. CONSULTATIVE NEUROLOGY. (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 Hospital. This team consists of senior neurology attendings on a rotating basis 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. Experience on an inpatient neurology service such as MEDICINE 417C is a prerequisite for this course. (3) Method of Evaluation: Standard written evaluation by faculty supervisor with house staff input. Credit: 4. Enrollment: max 2. For more information, please contact Sarah McCorison at 684-0139 or via email, sarah.mccorison@duke.edu. *Vern Juel, MD and neurology faculty*

MEDICINE-423C. RHEUMATOLOGY. (1) Course Goals: To teach students 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 as well as other inflammatory diseases such as lupus and related 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, bone and joint radiology, and histopathological analysis of tissue. (2) How Goals Are Achieved: Two to three weeks of the rotation are spent in the Duke Rheumatology faculty clinics. Depending on the student's learning goals, one or two weeks may be spent on the Duke Hospital inpatient rheumatology consultation service. Students also evaluate outpatients at the DVAMC. Daily Duke inpatient consultation rounds involve faculty, fellows, internal medicine residents and students. Rounds focus on oral presentation of patients including detailed review of history, physical examination findings, pertinent laboratory, x-ray and pathological findings. Students attend all divisional conferences including weekly Rheumatology and Immunology Grand Rounds, Journal Clubs, the core curriculum series for Rheumatology fellows and other Divisional conferences. Students must complete an on-

line gout education module during the rotation. Students are assigned primary house officer level responsibilities on the Consultation Service and the Outpatient Clinics at Duke and the Durham VAMC Clinic. Emphasis is placed on a comprehensive approach to the evaluation and treatment of patients with rheumatic, inflammatory, immune and metabolic disorders. (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 outside reading. Students must complete the online gout module to pass the course. For more information, please email Dr. Lisa Criscione-Schrieber (crisc001@mc.duke.edu), 668-1466. Students may also contact Mia Winstead at 668-1466. Credit: 4. Enrollment: max 2. *Lisa Criscione, MD; William St. Clair, MD; Nancy Allen, MD; Rob Keenan, MD; David Caldwell, MD; John Rice, MD; David Pisetsky, MD/PhD; John Sundy,MD/PhD; Rex McCallum, MD; Megan Clowse, MD/PhD; Michael Hershfield, Md; Kim Huffman, MD; and Virginia Kraus, MD/PhD. Sole enrollment*

MEDICINE-425C. CLINICAL COAGULATION. (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 Sarah Overaker at 684-2287, or by email at overa003@mc.duke.edu. Credit: 4. Enrollment: max 1. *Carlos DeCastro,MD; and hematology staff*

MEDICINE-427C. HOSPICE AND PALLIATIVE MEDICINE. Hospice and Palliative Medicine is a specialty that is focused on the treatment of patients living with life-limiting or severe advanced illness. Comprehensive care- including physical (primarily symptom management), psychological, and spiritual- is provided by an interdisciplinary team to patients and families to help alleviate suffering and promote quality of life. This 2 credit elective provides students the opportunity to observe and work alongside various palliative care practitioners in community and inpatient settings. The importance of multi-disciplinary teamwork will be emphasized. Credit:2. Enrollment Max:1. Permission of Instructor is required. Report to Durham VAMC CLC on first day. For more information and permission to join class contact Mei Mei Clarke. via email at mei.clarke@duke.edu. Course director *Lynn O'Neill, MD. Other faculty: Katja Elbert-Avila, MD; Anthony Galanos, MD;*

Toni Custon, MD; Harold Goforth, MD; Kimberly Johnson, MD; James Tulsky, MD; Jennifer Gentry, RN, MSN, ANP; William Plonk, MD

MEDICINE-428C. METABOLISM AND ENDOCRINOLOGY. (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 (Drs. Spratt, Setji, Brown, Burch, Feinglos, Guyton, Green, Jelesoff, Spratt, Weber, McNeill, Gesty-Palmer, Batch, Kourany)Prior arrangements may be made with a particular faculty member under the appropriate course number. The student is exposed to clinical endocrine disorders by seeing patients in endocrine outpatient clinics (Diabetes/ General Endocrine, and Durham VA 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 Dr. Spratt via email at susan.spratt@duke.edu or Brandy Turner via email at brandy.turner@duke.edu. Secondary contact: Dr. Beatrice Hong, 684-5568 or beatrice.hong@duke.edu. Credit: 4. Enrollment: max 2. *Susan Spratt, MD, Jennifer M. Perkins, MD and endocrinology staff.*

MEDICINE-430C. PULMONARY MEDICINE. Course Goals: (1) 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 assigned to the Pulmonary Consult Services at either the Durham VA or 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 also participate in a half-day outpatient clinic each week. Joint seminars and conferences involving both the Duke and Durham VA Consult Services are held each week to provide instruction in pulmonary function evaluation, pulmonary physiology, chest radiology, pulmonary pathology and clinical pulmonary medicine. (3) Methods of Evaluation: Student evaluations are done by fellows and faculty assigned to the Consult Services during the period of the course and are based on observed performance. Questions should be directed to Gina Brewer, via email at gina.brewer@duke.edu or by phone at 684-5274. Dr. MacIntyre can be reached via email at macin001@mc.duke.edu. Secondary physician contact: Dr. Loretta Que at 681-8551. Credit: 4. Enrollment: min 1, max 4. *Neil MacIntyre, MD and pulmonary staff*

MEDICINE-431C. ADULT ALLERGY AND CLINICAL IMMUNOLOGY. 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 mo-

dalities 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, immunodeficiencies 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 should page the course instructor, Dr. John Sunday at 970-5637 prior to start date to arrange meeting location. Secondary contact: Terri Taylor at 919-668-6961. Credit: 4. Max. 1. *John Sundy, MD/PhD; Lugar and Williams.*

MEDICINE-433C. EVIDENCE-BASED MEDICINE:PATIENT-CENTERED, CLINICALLY-RELEVANT UTILIZATION OF MEDICAL LITERATURE. Evidence-Based Medicine is a one-credit elective course designed to provide students with the opportunity to learn about study design and critical appraisal, particularly with relevance to patient-centered clinical question formulation. Students will meet with faculty members during six sessions, in which study design, critical evaluation of study articles and other EBM skills will be discussed and practiced. Students in Durham are required to attend at least five of the six sessions and make up any missed session in order to receive the credit. Classes for Spring 2010 will be held on Thursdays, beginning on January 13. Classes are scheduled to end on February 17. For more information, please contact Dr. Gagliardi via email at gagli001@mc.duke.edu. Course possibly not offered as a stand-alone course during the 2011-2012 academic year. Credit: 1. Minimum Enrollment:10; Maximum Enrollment: 70. *Jane Gagliardi, MD* (At the time of publication, this course is under review and may not be offered in this format).

MEDICINE-434C. OUTPATIENT HEMATOLOGY-ONCOLOGY (DUKE OR DURHAM VA). (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 concentrates 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 Sarah Overaker at 684-2287. Credit: 4. Enrollment: max 2. *Carlos DeCastro, MD, and Hematology, Medical Oncology and Cell Therapy staff*

MEDICINE-435C. GASTROENTEROLOGY. (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: Participation in the care of inpatients under the guidance of the fellows and faculty on the GI Consult Services (Duke/VA), Liver Service (Duke), or Biliary Service (Duke). (3) Methods of Evaluation:

Evaluations are completed by the fellows and faculty working with the student and include clinical skills, fund of basic information, and the ability to apply this knowledge to the care of patients. Course meets at 8:00 am, Monday through Friday. Students should meet at the Duke North Endoscopy Unit Conference room. However, on the first day of classes the students should meet at the Duke Gastroenterology Clinical Suite, Orange Zone, Room 0343. For more information, please contact Jill Rimmer at 684-2819 or via email at jill.rimmer@duke.edu. Credit: 4. Enrollment: max 3. *Daniel Wild, MD and staff*

MEDICINE-438C. CLINICAL HEMATOLOGY AND ONCOLOGY (DUKE OR DURHAM VA). (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 Dr. Kane or Sarah Overaker at 684-2287 or via email at overa003@mc.duke.edu. Credit: 4. Enrollment: max 2. *Carlos DeCastro, MD and hematology/oncology staff*

MEDICINE-440C. CLINICAL INFECTIOUS DISEASES. Students are expected to work up assigned patients by interview, physical examination, and collation of laboratory results, leading to a summary and synthesis of the problem. Emphasis is placed on follow-up of inpatients, including attendance at procedures or operations whenever possible. Students should know their own patients well enough to be able to give presentations on rounds or at conferences. Students are expected to read texts and relevant primary references to learn about their patients' problems. Students are expected to attend conferences listed on the weekly schedule of division activities, including Microbiology Plate Rounds, Journal Club, and tutorials. For more information, please call Michelle Harris at 684-2660 or email michelle.a.harris@duke.edu. Credit: 4. Enrollment max. 7. *John Perfect, MD*

MEDICINE-442C. CLINICAL ARRHYTHMIA SERVICE. (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. 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 such as esophageal recording and pacing. (2) How Goals Are Achieved: The student spends four weeks working on the Clinical Arrhythmia Service. The student makes rounds with the Clinical Electrophysiology Service on inpatients with arrhythmia problems. The student is encouraged to attend electrophysiologic studies and assist in the analysis of data from these studies. Attendance of 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 sees outpatients during Arrhythmia Clinics that meet on Mon-

day, Tuesday, Wednesday, and Thursday in the PDC. The student assists in the evaluation of patients for permanent pacemaker implantations. Students are responsible for reviewing the literature on subjects related to the patients that they have seen on the clinical service. (3) Methods of Evaluation: Students are evaluated on their clinical skills in taking histories, performing physical examinations 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 meed 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. For more information, please email Diane Mangum at diane.mangum@duke.edu. Credit: 4. Enrollment: max 1. *Augustus Grant, M.B., CH.B.; Ruth Greenfield, MD; Tristram Bahnson, MD; and Sana Al-Khatib, MD/MHS*

MEDICINE-444C. CLINICAL HEART FAILURE AND CARDIAC TRANSPLANTATION. 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. Rogers' assistant, Crystal Grimshaw at 681-3398 or you may contact her via email, crystal.grimshaw@duke.edu. Credit: 4. Enrollment: max 2. *Joe Rogers, MD and other faculty*

MEDICINE-445C. CONSULTATIVE CARDIOLOGY. (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 VA Hospital 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. For more information, please contact Dawne Smith, 681-6745 or via email at dawne.t.smith@duke.edu. Prerequisite: none. Credit: 4. Enrollment: max 7. *Anna Lisa Crowley, MD/FACC; Yu-Ping Tracy Wang, MD; and cardiology staff*

MEDICINE-446C. NEPHROLOGY. (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 par-

ticipate 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 may choose between the three major nephrology services: the Acute Service which cares for patients in the intensive care units at Duke, the Transplant Service which focuses on patients with kidney or combined kidney-pancreas transplants, and the Durham VA General Nephrology Service which provides balanced exposure to all facets of nephrology. 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.Evans via email at evans122@mc.duke.edu or by phone at 660-6858. Students should meet on the first day at Duke North, 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. *Kimberley Evans, MD, and nephrology staff*

MEDICINE-449C. GERIATRIC MEDICINE. 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 interdepartmental faculty of the Division of Geriatric Medicine. The student works with faculty, fellows, and housestaff in a number of settings involved in the care of the geriatric patient. These include the Geriatric Evaluation and Treatment Clinic (Duke), Geriatric Evaluation Unit Clinic (Durham VA), The Forest at Duke Clinic, Extended Care and Rehabilitation Center (Durham VA) 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 cognitive disorders, gait instability and falls, urinary incontinence, pressure sores, and chronic pain. Students also learn about the management of common chronic diseases in the elderly, including diabetes mellitus, heart disease, and osteoarthritis. The student participates actively in the work-up and management of patients work-up in inpatient extended care and outpatient settings to become more familiar with the problems of the elderly in the community. 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 will need to call Michele Burgess at 660-7577 to notify her 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 call the Michele Burgess immediately to notify her and request permission. Prerequisite: Successful completion of first and second year of medical school. Student will report to Room C3012 in the DVAMC at 8:00 a.m. on the first Monday of the rotation for orientation with Dr. Twersky. For more information please contact Michele Burgess at michele.burgess@duke.edu or by phone,

660-7577. Credit: 4. Enrollment: max 1. *Jack Twersky, MD; Gwendolen Buhr, MD; Kenneth Lyles, MD; Mtichell Heflin, MD/MHS; and other staff*

Obstetrics and Gynecology

Haywood Brown, M.D.
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FAX: (919) 668-5547
Assistant: Laverne Alston
Business Manager: Jim Morgridge, MBA, CPA
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Required Course

OBGYN-205C. OBSTETRICS AND GYNECOLOGY. Required of all second-year students. 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. *Elizabeth Livingston, MD*

Longitudinal Integrated Clerkships (LIC)

OBGYN-206C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) - OBSTETRICS-GYNECOLOGY. Required of all second-year students. 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. *Elizabeth Livingston, MD*

Second Year, Two-Week Clinical Selective

OBGYN-220C. PRENATAL DIAGNOSIS. 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. Some time will also be allotted to 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 Chipolte Grill). - 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*

OBGYN-221C. INTRODUCTION TO REPRODUCTIVE ENDOCRINOLOGY. 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. Credit: 2. Enrollment Max. 1. Location: 5704 Fayetteville Road, Durham, NC 27713. Please contact Anne Wade at 572-4669 or by email at wade0022@mc.duke.edu for more information about the meeting time. *David Walmer, MD/PhD; and Thomas Price, MD*

OBGYN-222C. GYNECOLOGIC SURGERY. This two-week selective is designed to introduce the second year medical student to the surgical management of gynecologic disease, focusing on benign and urogynecologic disorders, pelvic floor reconstruction, and minimally invasive surgery. Students will be assigned to Durham Regional Hospital and participate in patient care and informal didactic instruction in the OR, wards, clinics and ED. Students will research and give informal presentations on assigned topics in gynecologic surgery. Prerequisite: must have successfully completed OBGYN 205C or COMMFAM 205C. Credit 2. Enrollment Max. 1. Please contact Dr. Craig Soboleweski at craig.sobolewski@duke.edu to determine the place and time to meet. *Craig Sobolewski, MD*

Fourth Year Clinical Electives

OBGYN-420C. GYNECOLOGIC CANCER. 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 subintern. Outpatient, inpatient, and operative exposure to these patients is extensive. For more information, please call 684-3765. Students should report at 6:30 a.m. to 7700 Duke North on the first day of classes. Credit: 4. Enrollment: max 1. *Andrew Berchuck, MD; Fidel Valea, MD; Angeles Secord, MD; Laura Havrilesky, MD; Paula Lee, MD/PhD; and gynecologic oncology fellows*

OBGYN-431C. CLINICAL REPRODUCTIVE ENDOCRINOLOGY AND INFERTILITY. Course for students who desire additional basic and clinical experience in examination, diagnosis, and treatment of obstetric and gynecologic patients with endocrinopathy and infertility. Course consists of clinical core of reproductive endocrine problems correlated with examination and treatment of patients in the Endocrinology Outpatient Clinic, in surgery, and in the hospital. Exposure to assisted reproductive technologies is also available depending on the current clinical load. Credit: 4. Enrollment: max 1. For more information, please contact Dr. Walmer at 919-572-4673 or via email at david.walmer@duke.edu. *David Walmer, MD/PhD, Thomas Price, MD; and Reproductive Endocrinology fellows*

OBGYN-447C. CLINICAL OBSTETRICS SUB-INTERNSHIP. 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 housestaff and faculty. Opportunities for experience in prenatal ultrasound, diagnosis and genetic counseling available. Meet on the 5th floor of Duke North, L&D workroom at 7:00AM on the rotation's first day (rounds begin at 7:10AM). For more information, please contact Dr. Ellestad at 681-5220. Secondary contact: Dr. Elizabeth Livingston, 681-5220 or livin001@mc.duke.edu. Credit: 5. Enrollment: max 2. *Sarah Ellestad, MD and MFM division*

OBGYN-449C. CLINICAL UROGYNECOLOGY. 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 gynecologic 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. For more information, please call Deborah Beddingfield at 919-401-1006 or via email, deborah.beddingfield@duke.edu, or Cynthia Paylor at 919-401-1001 or via email, roger104@mc.duke.edu to determine time and location to report. Students should report to Patterson Place Clinic, 5324 McFarland Drive, Durham, NC, 27707, suite 310, on the first day of classes. Max 1. *Alison Weidner, MD; Tony Visco, MD; Cindy Amundsen, MD; Jennifer Wu, MD; and urogynecology fellows.*

Ophthalmology

David L. Epstein, M.D., MMM
Office: Suite 3002, AERI Building
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FAX: (919) 681-6343
Assistant: Wendy Morris
Web: dukeeyecenter.duke.edu

Second Year, Two-Week Seectives

OPHTHAL-220C. OPHTHALMOLOGY. 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, strabmismus, glaucoma, and vitreoretinal disease). There will be didactic instruction with patient care exposure in the clinic setting and operating room. Enrollment max. 5. Location: Lobby of Eye Center. Please contact Horace Johnson via emai, horace.johnsonjr@duke.edu or by phone at 684-6853 for more information. *H Tina Singh, MD*

Fourth Year Clinical Electives

OPHTHAL-420C. MEDICAL OPHTHALMOLOGY. 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 should report to AERI, Resource Center, Room 1002 from 12 to 1pm. For more information students may contact Horace Johnson at 684-6851. Credit: 1. Enrollment: min 8, max 20. *H. Tina Singh, MD*

OPHTHAL-422C. GENERAL OPHTHALMOLOGY. 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 lobby of the AERI building (adjacent to and within the Eye Center) @ 8:30 am to see Horace Johnson, 684-6851. Prerequisites: OPHTHAL 420C recommended, but not required. Credit: 4. Enrollment: max 4. *H. Tina Singh, MD*

OPHTHAL-425C. PEDIATRIC OPHTHALMOLOGY. A clinical preceptorship in which the student participates in the outpatient pediatric ophthalmology clinic. The student will encounter the more common ocular disorders of childhood including ocular motility disturbances, congenital cataracts and glaucoma, and congenital genetic and metabolic disorders. In addition adult motility disorders and neuro-ophthalmic disease such as thyroid eye

disease, cranial nerve palsies, and optic nerve abnormalities 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 684-3957. Credit: 1 or 2. Enrollment: max 3. *Edward Buckley, MD; Laura Enyedi, MD; Sharon Freedman, MD; David Wallace, MD; Tammy Yanovitch,MD; and Terri Young, MD*

Orthopaedic Surgery

James A. Nunley, II, M.D.
Office: Room 5314, Orange Zone, 5th Floor
Campus PO Box: DUMC 2923
Phone: (919) 684-4033
FAX: (919) 681-8377
Assistant: Sheila Walls
Business Manager: John Tyrrell
Web: *http://ortho.surgery.duke.edu/*

Second Year, Two-Week Clinical Selectives

ORTHO-222C. ORTHOPAEDIC SURGERY EXPERIENCE. 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. For more information and permission to enroll in the course, please contact Wendy Thompson at wendy.thompson@duke.edu. Students should report to the Orthopaedic Replant Office at 5:50AM . This is located at Duke University Hospital in the Hospital for Surgery Addition (HAFS) Building, 7th floor, Room 7687C for participation in rounds (Monday through Friday), prior to beginning the days activities. Enrollment Max. 3. Credits: 2. *James Nunley, MD*

Fourth Year Clinical Electives

ORTHO-421C. FRACTURES/MUSCULOSKELETAL TRAUMA. 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. Permission numbers must be obtained from Ms. Wendy Thompson via email at wendy,thompson@duke.edu or telephone at 684-3170. Credit: 3. Enrollment: maximum 2 students per four week section. Permission is Required. *James Nunley II, MD; Steve Olson, MD; Duke Orthopaedic Staff*

ORTHO-429C. SUBINTERNSHIP IN ORTHOPAEDIC SURGERY. 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. Credit: 5. Enrollment: max 4 for 4 weeks. Summer section 41, maximum of 2 students. Permission of Instructor is Required. For more information and for permission numbers to enroll, please contact Wendy

Thompson via email at wendy.thompson@duke.edu or telephone, 684-3170. Interested visiting students must contact the Visiting Student Coordinator at 919-684-8042 to inquire about the process for applying. *James Nunley, MD and orthopaedic staff and house staff.*

ORTHO-430C. ORTHOPAEDIC SPORTS MEDICINE. This elective is ideal for students interested in orthopaedic surgery, but also relevant to primary care, 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. Credit: 4. Enrollment max: 1. Permission Required. Prerequisite: Surgery 429C. *James Nunley, MD; Claude Moorman, MD; William Garrett, MD; William T. Hardaker, MD; Dean Taylor, MD; and Alison P.Toth, MD.*

ORTHO-431C. HAND/UPPER EXTREMITY SURGERY. 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 or for permission to enroll, please contact Wendy Thompson at wendy.thompson@duke.edu or 684-3170. Credit: 4. Permission Required. Prerequisite: Surgery 429C. Enrollment max: 1. *James Nunley, MD; David Ruch, MD; Richard Goldner, MD; Marc Richard, MD; and Fraser Leversedge, MD.*

ORTHO-432C. MUSCULOSKELETAL ONCOLOGY. 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 for permission, please contact Wendy Thompson at 684-3170 or via email wendy.thompson@duke.edu. Permission is Required. Prerequisite: Surgery 429C. Credit: 4. Enrollment max: 1. *James Nunley, MD and Brian Brigman, MD.*

ORTHO-433C. PEDIATRIC ORTHOPAEDICS. 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 for permission to enroll, please contact Wendy Thompson at 684-3170 or wendy.thompson@duke.edu. Permission is Required. Prerequisite: Surgery 429C. Credit: 4. Enrollment max: 1 *James Nunley, MD; Robert Fitch,MD; and Patel.*

Pathology

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Assistant: Marie Thomas
Business Manager: Roger Searls
Web: *http://pathology.mc.duke.edu/*

Second Year, Two-Week Clinical Selective

PATHOL-220C. What Does A Pathologist Really Do?. The major objective of this selective is to provide the student with answers to the following questions: a) What are the major areas that comprise the practice of pathology (Laboratory Medicine)? What is Anatomic Pathology? Clinical Pathology (Laboratory Medicine)? What are the recognized subspecialties in pathology? b) How does the pathologist function as part of the health care team? What role does a pathologist play in clinical decision making? c) If you practice Internal Medicine / Surgery / Pediatrics / Ob-Gyn / Primary Care, what can the pathologist do for you? d) What is the pathologist's role as a teacher? Students will participate in several learning experiences (2-3 days each) that involve working with faculty and residents in various sub-disciplines of pathology [e.g., autopsy, 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 students 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 and will meet with the course director (or representative) at least twice during the selective. The majority of learning experiences will be in the Department of Pathology at DUMC. A few are located at DVAMC and at the Franklin Park Clinical Laboratories. Enrollment Max. 4. Location: M345 Davison (Duke S.) at 8:30 a.m. Dr. Buckley requests that students be on time. Contact: please email Dr. Buckley at patrick.buckley@duke.edu should you have questions. *Patrick Buckley, MD/PhD*

Pediatrics

Joseph W. St. Geme, III, M.D.
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FAX: (919) 681-2714
Assistant: Connie Bowes
Business Manager: Kay L. Marshall
Web: *http://pediatrics.duke.edu/*

Required Courses

PEDS-205C. PEDIATRICS. 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) Durham Regional Hospital, (d) Duke nursery, and (e) Lincoln Community Health Center. Credit: 6. *Robert Drucker, MD*

LONGITUDINAL INTEGRATED CLERKSHIPS (LIC)

PEDS-206C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) - PEDIATRICS. 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) Durham Regional Hospital, (d) Duke nursery, and (e) Lincoln Community Health Center. Credit: 6. *Robert Drucker, MD*

Second Year, Two-Week Clinical Selectives

PEDS-220C. CLINICAL GENETICS AND METABOLISM. 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. Enrollment Max. 2. Location: Genetics Clinic in Children's Health Ctr. in workroom beside exam rooms 10 & 11. Meet promptly at 8:30am on Monday morning in the genetics clinic CHC, Level 2. Contact Dr. Marie McDonald for more information. *Marie McDonald, MD*

PEDS-221C. CHILD ABUSE AND FAMILY VIOLENCE. 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, observe family based interventions, observe court proceedings, and participate in mental health didactics. Students will choose a topic in child abuse or family violence for further study and present their findings to the Child Abuse Consult 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. Enrollment Max. 3. Location: Duke Children's Primary Care Clinic, 4020 N. Roxboro Road, Durham, NC 27704. For more information and the meeting time, please contact Mr. Scott Snider, Clinical Coordinator, at 919-479-2690 or scott.snider@duke.edu. *Aditee Pradhan Narayan, MD and Karen St. Claire, MD*

PEDS-222C. OVERVIEW OF PEDIATRIC HEMATOLOGY-ONCOLOGY. 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 to round on the inpatient service and to 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 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. Enrollment Max. 1. Meeting Location for First Day of Class: Monday, 8:00 am, Room 2902 McGovern Davison Children's Health Center. Contact: For more information please contact Susan Kreissman, M.D., at 684-3401 (email kreis001@mc.duke.edu) or Deborah Lasater at 684-3829 via email at deborah.lasater@duke.edu. *Susan Kreissman, MD*

PEDS-223C. PEDIATRIC INTENSIVE CARE UNIT. This advanced course is designed to allow students a two-week experience in the Pediatric Intensive Care Unit (PICU). Under the supervision of faculty attendings, fellows, and residents, students participate in the care of critically ill children admitted to the PICU for multidisciplinary care. Emphasis is placed on the development of the pathophysiologic approach to the diagnosis and treatment of a broad spectrum of pediatric illnesses as they present in acute care settings. Advanced concepts in pediatric critical care are emphasized. Students are expected to take night call with pediatric house staff. Enrollment: max 2. Location: Please contact Dr. Rehder at kyle.rehder@duke.edu. Dr. Rehder can be reached by page as well, 970-7195. *Kyle Redher, MD; Ira Cheifetz, MD; Jon Meliones, MD/MS; Scott Schulman, MD; Jennifer Turi, MD; and B. Craig Weldon, MD*

PEDS-224C. DEVELOPMENTAL CARE OF SICK NEWBORNS-IMPORTANCE OF TEAMWORK. This selective will introduce the student to the more "general pediatric" aspect of neonatology, namely 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 early intervention, both in the hospital and after discharge for high-risk infants. They will participate in the activities of the 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. They will attend developmental rounds, Special Infant Care Clinic and shadow Dr. Goldstein and other members of the developmental team. Enrollment Max. 2. Location: Contact Dr. Goldstein

at 681-6024 for more information. Note: This elective is offered during the spring term 2008 during section 21 only, (Feb. 18-29). Please contact Dr. Goldstein at 681-6024 for more information pertaining to the meeting time and meeting location. *Ricki Goldstein, MD*

PEDS-226C. PEDIATRIC NEUROLOGY. 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 Terry Hales via email at terry.hales@duke.edu. Credit 2. Max 2. *Mohamad Mikati, MD*

Fourth Year Clinical Electives

PEDS-401C. PEDIATRIC SUBINTERNSHIP. 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. Students are responsible for admission histories, physical examinations, and management throughout the hospitalization. The student serves as an acting intern throughout the rotation. This is a sole-enrollment course and cannot be taken in conjunction with any other course. Students must obtain the permission of Dr. Mikelle Key-Solle to register for or to drop this course. Students are expected to contact the daytime supervisory resident prior to the start of the sub-internship to arrange the meeting place on the first day. Prior to the start of the sub-internship the name of the contact supervisory resident will be provided to the students. Students should meet promptly at 7:00am on the first day. Meeting schedules for other days will depend on rounding schedule and days off. Credit: 5. Enrollment: max: 4. *Mikelle Key-Solle, MD; Robert Drucker, MD and faculty*

PEDS-410C. ADVANCED PEDIATRICS. This course permits the student to elect an in-depth experience within pediatrics. Each student has a specific faculty preceptor who develops and implements the curriculum tailored to the individual's needs. Listed below are the faculty representatives to contact. Arrangements for the elective must be made with these individuals prior to enrolling in the course. The name of the preceptor with whom a student is working must be designated during web registration. Credit: 1 to 8. Enrollment: max 1 per section. (B) Gastroenterology Martin Ulshen, M.D. 681-4841 (C) Pulmonary Richard Kravitz, M.D. 684-2289 (D)Rheumatology Egla Rabinovich, M.D. 684-6575. Students may contact Dr. Drucker with any questions at robert.drucker@duke.edu. *Robert Drucker, MD and selected departmental representatives*

PEDS-411C. PEDIATRIC EMERGENCY MEDICINE. 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 patients emergent interventions, and to decide which patients need admission or outpatient workup. Documentation skills will be perfected. By the end of the rotation, the student will be capable of obtaining an appropriate problem-oriented history and physical, creating a differential diagnosis based on available information, and developing an appropriate management plan. Report to the Pediatric Emergency Department at Duke Medical Center at the time of the student's first scheduled shift. Variable Credit: 2-4 cr. Enrollment Max: 2. *James Fox, MD; William Bordley, MD; Linton Yee, MD; Donald Ellis, MD; Karen Frush, MD; and Lee Benjamin, MD*

PEDS-421C. PEDIATRIC INFECTIOUS DISEASES. This course provides experience in the clinical and laboratory diagnosis of infectious diseases and in their therapy. The student works closely with the infectious disease fellow and attending, participating actively in evaluation of patients in both the inpatient and outpatient setting. Daily rounds in microbiology laboratory. Students planning to enroll for fewer than 4 credits should contact Dr. Jhaveri in advance. For more information, please call Dr. Jhaveri at 684-6335. Secondary contact: Dr. Cunningham, 684-6335. Administrative contact is Terry Hales, 681-4658. Students should meet on the first day at the Children's Health Center, Peds ID office, room T915. Peds ID fellow page: 970-7420. Credit: 2 to 4. Enrollment: max 2. *Ravi Jhaveri,MD; Joseph St. Geme III, MD; Robert Drucker, MD; Ross McKinney, MD; Wiliam Steinbach, MD; M. Anthony Moody, MD; Kathleen McGann, MD; Colleen Cunningham, MD; Patrick Seed, MD/PhD, and Robert Benjamin, MD*

PEDS-425C. ENDOCRINE DISORDERS IN CHILDREN. Students attend in the Pediatric Endocrine, Diabetes, 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 as indices of endocrine status during childhood. Students also participate in a monthly endocrine 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. For more information, please contact Dr. Robert Benjamin via email at robert.benjamin@duke.edu the Friday prior to the start of the rotation in order to obtain instructions on where to report and the time to report. Credit: 1 to 8. Enrollment: max 2. *Robert Benjamin, MD; Michael Freemark, MD; Deanna Adkins, MD; Nancy Friedman, MD; and Andrea Haqq, MD*

PEDS-426C. NEONATOLOGY. 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 emphasis on 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. Prerequisite: PEDS and contact Dr. Susan Izatt at izatt001@mc.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 7:45 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; Richard Auten, MD; Margarita Bidegain, MD; C. Michael Cotten, MD; Jeffrey Ferranti,MD/MS; Ricki Goldstein, MD; Robert Lenfestey, MD; Edward Smith, MD; and David Tanaka, MD*

PEDS-427C. PEDIATRIC HEMATOLOGY /ONCOLOGY. 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 is placed on fundamental concepts of pediatric hematology/oncology. Students will accompany the inpatient team on the ward rounds for 2 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. Students will be asked to research a specific topic and deliver a short presentation at the end of their rotation. Location: Hanes House, room 382. Mailing box number 102382. For more information please call Deb Lasater at 684-3829 or Dr. Kreissman via email at kreis001@mc.duke.edu. Prerequisite: con-

tact instructor. Credit: 4. Enrollment: max 1. *Susan Kreissman, MD; Michael Armstrong, MD/PhD; Ray Barfield, MD/PhD, Corinne Linardic MD/PhD; Cassandra Moran, DO; Philip Rosoff, MD; Jennifer Rothman MD; Courtney Thornburg, MD/MS; Nirmish Shah MD, Jessica Sun MD; and Daniel Wechsler, MD/PhD*

PEDS-430C. HEALTHY LIFESTYLES PROGRAM: A CLINICAL, FAMILY-BASED APPROACH TO PEDIATRIC OBESTITY. 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. The team of health professionals students will interact with and observe include 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. Students will complete training and certification in motivational interviewing, an evidence-based communication technique to achieve effective behavior change. Students will be expected to participate actively in weekly noon team learning seminar (day TBA) 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. Students are to report to Duke Children's Primary Care Clinic, 4020 Roxboro Road, second level. For questions, email Dr. Armstrong at sarah.c.armstrong@duke.edu. Credit: 4. Enrollment: max. 1. *Sarah Armstrong, MD; Caren Mangarelli, MD; Martha Nelson, PA-c; Jenny Favret, LDN, RD; Andrea Hartzell, PT; Meryl Kanfer, LCSW*

PEDS-431C. CLINICAL PEDIATRIC CARDIOLOGY. This Medical Student rotation provides an learning experience in the clinical diagnosis and management of childhood heart disease. 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 observing cardiovascular procedures in the Pediatric Cardiac Catheterization Laboratory, the Pediatric Echocardiography Laboratory and the operating room. The emphasis is placed upon outpatient management, but there is the option of attending inpatient rounds in the cardiac intensive care unit if desired. Scope: history, physical examination, and special diagnostic techniques (echocardiography, electrocardiography, cardiac catheterization and cineangiography). Students participate in outpatient clinics five days per week as well as weekly cardiology/cardiovascular surgery conference. Prerequisite: PEDS 205C. Credit: 4. For more information please call 684-3574. Enrollment: max 2. *Stephanie Wechsler, MD; (contact person, course director); Other faculty: Drs. Armstrong, Barker, Camitta, Campbell, Carboni, Fudge, Idriss, Kanter, Li, Pasquali, Rhodes.*

PEDS-433C. ALLERGY AND CLINICAL IMMUNOLOGY. 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 call Dr. Burks at 684-9914. Alternate contact: Beverly Ross, email beverly.ross@duke.edu; phone: 681-2949. Students meet on the first day at 8:30 a.m. on the 4th floor, CHC - Allergy and Immunology Clinic. Credit: 4. Enrollment: max 2. *Wesley Burks,MD; M. Louise Markert, MD/PhD; Joseph Roberts, MD/PhD; Michael Frank, MD; Rebecca Buckley, MD; Ivan Chinn, MD; Michael Land, MD; and Brian Vickery, MD*

PEDS-434C. CLINICAL GENETICS/ METABOLISM. 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 please call 684-2036. First Day of Classes: Students should meet at the Genetics Clinic at 8:00 a.m., CHC level 2, Room 2924A. Credit: 4. Enrollment: max 2. *Marie McDonald, MD*

PEDS-436C. PEDIATRIC NEUROLOGY. 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 contact: Terry Hales at 681-4658. Students should report to the PEDS Neuro office in the CHC room T0913. Please meet promptly at 8:00 a.m. Prerequisite: contact Dr. Gallentine at 668-0477. Credit: 4. Enrollment: max 2. *William Gallentine, MD*

PEDS-440C. ADVANCED GENERAL PEDIATRICS-INTENSIVE CARE. 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 chose among several projects (oral or 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. Prerequisite: PEDS 205C. Credit: 4. Enrollment: max 2. For more information, please contact Dr. Rehder via email at kyle.rehder@duke.edu. Dr. Rehder can also be paged at 970-7195. *Kyle Rehder, MD; Ira Cheifetz,MD; Jon Meliones, MD/MS; Scott Schulman,MD; Jennfer Turi, MD; and Craig Weldon, MD*

PEDS-441C. PEDIATRIC NEPHROLOGY. 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 684-4688 or via email at wigfa001@mc.duke.edu or Dr. Foreman at forem001@mc.duke.edu. Credit: 4. Enrollment: max 1. *Delbert Wigfall, MD; R. Gbadegesin, MD; and John Foreman, MD*

PEDS-446C. PEDIATRIC STEM CELL TRANSPLANT UNIT. 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 Divison 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 , please 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; Paul Szabolcs, MD; Suhag Parikh, MD; Vinod Prasad, MD; and Kristin Page, MD*

Psychiatry

Sarah H. Lisanby, M.D.
Office: 4584 White Zone, Duke South
Campus PO Box: 3950
Phone: (919) 684-5616
FAX: (919) 681-5489
Assistant: Tammy Gentry
Business Manager: Brenda Paulson
Web: *http://psychiatry.mc.duke.edu/*

Required Courses

PSYCHTRY-205C. PSYCHIATRY. 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. Credit: 4. *Shelley Holmer, MD*

Longitudinal Integrated Clerkship

PSYCHTRY-206C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) - PSYCHIATRY. 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. Credit: 4. *Roy Stein, MD*

Second Year, Two-Week Clinical Selectives

PSYCHTRY-220C. ADDICTION PSYCHIATRY. Students are exposed to the multidisciplinary, biopsychosocial evaluation and treatment of individuals with substance use disorders, including abuse and dependence involving alcohol, tobacco, illicit drugs and pre-

scription medications. Students encounter patients engaged in the process of active, ongoing recovery from addictions, employing individual and group therapies, pharmacotherapy, and self-help groups. They are exposed to the assessment and management of patients with co-morbid psychiatric disorders and addiction. Assigned readings address epidemiology, neurobiology, and clinical management of addictions. Enrollment Max. 1. Meeting time: Promptly at 8:30 a.m. Meeting location for first day: VA Substance Abuse Outpatient Program; VA Hillandale II Clinic; 1830 Hillandale Road, Durham. For more information, please contact: Dr. Roy Stein by email, roy.stein@duke.edu. *Roy Stein, MD*

PSYCHTRY-221C. CLINICAL INTRO TO CHILD PSYCHIATRY. This two-week course will be an opportunity to observe and learn about the specialty of child psychiatry. A series of clinical experiences with children and adolescents who are experiencing mental health problems and disorders will be offered in both an outpatient and inpatient setting. Medical Students will have opportunities to observe comprehensive evaluations, consultations, and treatments. Participation in a weekly Evidence Based Medicine seminar and didactic sessions in child psychopathology will be included. Enrollment Max. 2. Meeting location for first day of classes: Central Regional Hospital - Child and Adolescent Unites in Butner, NC - 8:15 a.m. Orientation with Dr. Allsbrook. For more information, please contact Dr. Rachel Dew at 286-5260 or via email at rachel.dew@duke.edu. *Rachel Dew, MD and Linwood Allsbrook, MD*

PSYCHTRY-222C. GERIATRIC PSYCHIATRY. Objective: To provide exposure to the psychiatric care of geriatric patients. Students will rotate on an inpatient unit at Central Regional Hospital, and in a variety of outpatient/ consultation settings including the VA geropsychiatry clinic, the GET clinic and Nursing Homes. 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 and journal club. Enrollment Max. 2. Location: Please email Dr. Thakur for location and more information:

Fourth Year Clinical Electives

PSYCHTRY-401C. SUBINTERNSHIP IN PSYCHIATRY. 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 selected patient care conferences and didactic lectures is expected. Call is taken every 5th night. The rotation is only available at Duke on the Williams Ward. For more information, please contact Dr. Eric Christopher at 668-0869 or via email at chris026@mc.duke.edu. Please meet on Williams Ward, Duke South at 8:30 AM on the first day. Additional first day training will be provided. Prerequisites: instructor approval and satisfactory completion of PSC-205C (or equivalent for visiting students). Secondary contact: Dawn Faust, email at dawn.faust@duke.edu or phone at 684-4079. Credit: 5. Enrollment: max 1. *Eric Christopher, MD*

PSYCHTRY-407C. SUBINTERNSHIP IN INTERNAL MEDICINE-PSYCHIATRY. 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/Psychi-

atry faculty on the GenMed 12 service provides direct supervision. The goal of the elective is to refine and then clinically apply a basic knowledge base 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 Halfday and educational offerings in Internal Medicine, including Intern Morning Report. Call is taken in both Medicine and Psychiatry in alternating fashion every fifth night. For more information, please contact Dr. Sarah Rivelli via email, sarah.rivelli@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 MEDICINE 407C. Credit: 5. Enrollment: max 1. *Sarah Rivelli, MD*

PSYCHTRY-435C. MODERN PSYCHOTHERAPY: INTENSIVE CLINICAL INTRODUCTION. In this full-time (or near full-time) introduction, the student participates actively in assessment of outpatients for psychotherapy including short-term psychotherapy of inpatients, ongoing psychotherapy groups, and family therapy sessions. In addition he/she attends seminars on the various psychotherapeutic approaches: psychoanalytically oriented, cognitive, behavioral, interpersonal, systemic, etc. Readings are assigned and discussed. The student may pursue an area of special interest in greater depth with a selected preceptor. Permission of instructor is required to elect the course at any time other than section 41 of the fall term. For more information please contact Dr. Harold Kudler at 286-6933 or via email at hkudler@duke.edu. Students should meet on the first day of classes in Room 112, Building 5, Durham VA Medical Center. Please meet promptly at 9:00 a.m. Credit: 4. Enrollment: max. 3; min.1. Prerequisites: instructor approval and satisfactory completion of PSYCHTRY-205C. *Harold Kudler, MD*

PSYCHTRY-443C. ADDICTION PSYCHIATRY. Students are exposed to a spectrum of settings for treatment of substance use disorders. Students are based at the Durham VAMC Substance Abuse Outpatient Program, with additional experience at other Duke-affiliated inpatient and outpatient facilities. Emphasis is placed on understanding the relationships between addictive disorders and other psychiatric and medical conditions. Experiences include diagnostic evaluation, pharmacological management, and individual, group, and family psychotherapy. Students function as members of the multidisciplinary treatment team at the VA program. For more information and for approval, please contact Dr. Roy Stein at 286-0411 or via email at stein001@mc.duke.edu. Credit: 4. Enrollment max 1. Prerequisites: instructor approval at least 4 weeks in advance and satisfactory completion of PSYCHTRY 205C. *Roy Stein, MD and Daniel Bradford, MD*

PSYCHTRY-445C. CONSULTATION-LIAISON PSYCHIATRY. 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. Emphasis is placed on assessment and treatment of psychiatric disorders in the inpatient medical/surgical setting. 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 attend the weekly MedPsych conference and Psychiatry Academic Halfday educational offerings. Hours are 8am-6pm M-F. Call the consult pager to arrange meeting place on first day (970-PSYC). Students need to check with Dr. Rivelli in advance via email at sarah.rivelli@duke.edu to confirm the availability of this rotation. Prerequisites: instructor approval and satisfactory completion of PSC-205C. Credit: 4. Enrollment: max 1. *Sarah Rivelli, MD*

Radiation Oncology

Christopher G. Willett, M.D.
Office: 05143A Morris Building
Campus PO Box: 3085
Phone: (919) 668-5640 FAX: (919) 688-7345
Assistant: Donna Wimberley
Business Manager: Terry Brewer
Web: *http://www.radonc.duke.edu/*

Second Year, Two-Week Clinical Selective

RADONC-220C. BRIEF EXP. IN CLINICAL RADIATION/ONCOLOGY. 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. Enrollment Max. 3. Location: Radiation Oncology Workroom, Sub-basement, White Zone, Room 005113. Meet promptly at 8:00 a.m. For more information, please contact Bette Walker Clack at 668-7342. *Nicole Larrier, MD*

Fourth Year Clinical Electives

RADONC-415C. CLINICAL RADIATION ONCOLOGY. 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. Students should report to Room 005113 [Sub-basement, White Zone, Duke South] at 7:45am on the first day of the rotation. Credit: 4 or 8. Enrollment: max 2. *Nicole Larrier, MD and staff*

Radiology

Geoffrey Rubin, M.D.
Office: 1527 Duke Hospital
Campus PO Box: 3808
Phone: (919) 684-7289
Fax: (919) 613-5716
Assistant: Thressa Thomas
Business Manager: Harry Granito
Web: *http://radiology.duke.edu/*

Required Courses

RADIOL-205C. RADIOLOGY. 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, neu-

rological, 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. Credits: 4. Course Director: *Caroline Carrico, MD,* Co-Director: *Phil Goodman, MD.*

Longitudinal Integrative Clerkship

RADIOL-206C. LIC-RADIOLOGY. 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. Credits: 4. Course Director: *Caroline Carrico, MD*, Co-Director: *Phil Goodman, MD*.

Second Year, Two-Week Clinical Selective

RADIOL-221C. RADIOGRAPHIC ANATOMY. This selective is designed to introduce students to pertinent radiologic anatomy. Students will be exposed to different imaging modalities in radiology, and radiographic anatomy in the form of unknowns presented as online teaching modules. The goal for students is to understand relevant anatomy for radiology. Proficiency will be measured by a short quiz at the conclusion of the modules. Enrollment Max. 14, Min 1; Location: Department of Radiology, Duke North. Contact: For more information concerning the course of the meeting location and time for the first day, please contact Ms. Brantley at brant003@mc.duke.edu. or Caroline Carrico, MD at carri026@mc.duke.edu . *Caroline Carrico, MD*

Fourth Year Clinical Electives

RADIOL-420C. PEDIATRIC RADIOLOGY. Pediatric radiology is unique from other radiology subspecialties in that almost all imaging modalities (plain film, ultrasound, fluoroscopy, CT, MR examinations) and organ systems (e.g. brain and spine, chest, gastrointestinal tract, musculoskeletal system) are evaluated on a daily basis. Moreover, there are many disease processes and presentations that are unique to children. The importance of understanding normal vs abnormal development is also unique to pediatric imaging. Students can learn by observing the radiology residents, fellows and attendings protocol, acquire, 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 case conferences. Medical students are encouraged to ask questions and participate in preliminary film interpretation. For each 2 weeks on service, one case is to be selected and briefly presented at an interesting case conference. This case will be added to the division's electronic teaching file. For more information please contact Dr. Donald Frush at 684-7343 or via email at frush943@mc.duke.edu. Credit: 4. (Course begins at 8:30 a.m. in Pediatric Radiology Division, 1st Floor Children's Health Center - 1905A). Enrollment: max 2. *Donald Frush, MD and staff*

RADIOL-421C. CLERKSHIP IN NEURORADIOLOGY. 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. For more information please contact Dr. James Eastwood at 684-7466 or via email at eastw004@mc.duke.edu. Administrative contact: Babbie Williams, 684-7406. Students should meet on the first day of class at the CT reading room. Orientation to the class follows. Please report promptly at 8:30 a.m. Credit: 4 or 8. Enrollment: max 2. *James Eastwood, MD and staff*

RADIOL-429C. BASIC RADIOLOGY CLERKSHIP. This course is designed to provide an overview of the various imaging modalities of diagnostic radiology and their clinical utility. The elective consists of: (a) lectures and film interpretation sessions supplemented by student presentations; (b) assignment to a variety of diagnostic radiology services during which students observe the performance of diagnostic and interventional studies; and (c) use of a teaching file of radiographs and diagnostic images. One week is spent on the thoracic radiology service. Additional rotations may include the musculoskeletal, neuroradiology, mammography, vascular/interventional, pediatric, CT/abdominal imaging, ultrasound, nuclear medicine, gastrointestinal, and emergency radiology services. For more information please contact Dr. Caroline Carrico at 684-7343 or via email at caroline.carrico@duke.edu. Secondary contact: Dr. William Thompson, 684-7514. The course director will send enrolled students an email regarding the day, time and location of the start of each rotation. The location is the same for each rotation (room 1512B2) but the time varies. Credit: 4. Enrollment: min 4, max 12. *Caroline Carrico, MD and staff*

RADIOL-430C. CARDIOTHORACIC IMAGING. This course focuses on building a systematic approach to chest radiograph and CT interpretation for the diagnosis of cardiac and pulmonary disease. In addition to radiographs and CT, students will participate in thoracic interventional procedures and the interpretation of cardiac MRI examinations. Students engage in daily formal teaching sessions with both attending and resident physicians. An emphasis is placed on anatomic and radiologic-pathologic correlation with weekly multidisciplinary conferences involving pulmonary medicine, oncology, and thoracic surgery. In addition to recommended reading, students are expected to write two short case reviews during the four-week elective. Opportunities to become involved in research projects are available. Prerequisite: Basic Radiology Clerkship elective preferred but not mandatory. For more information please contact Dr. Jared Christensen at 684-7344 or via email at jared.christensen@duke.edu. Credit: 4. Enrollment: max 2. *Jared Christensen, MD and staff*

RADIOL-437C. MUSCULOSKELETAL IMAGING. 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. For more information please contact Dr. Caroline Carrico at 684-7469 or via email at caroline.carrico@duke.edu. Secondary contact: Tina Brantley, email at brant003@mc.duke.edu or phone at 684-7652. Credit 4. Enrollment: max. 2. *Caroline Carrico, MD; Drs. Clyde Helms, MD; Charles Spritzer, MD; R. Lee Cothran, Jr., MD; and Emily Vinson, MD.*

Study Away

Second Year, Four-Week Clinical Elective

STDYAWAY 250C. EXTRA-MURAL CLINICAL, STUDY AWAY ELECTIVE. Credit only.

Fourth Year Clinical Science Electives

STDYAWAY 410C. EXTRA-MURAL CLINICAL, STUDY AWAY ELECTIVE. Credit Only.

STDYAWAY-411C. STUDY AWAY AT UNC. Fourth year clinical elective at UNC. Upon receipt of the acceptance letter from UNC, the Registrar's Office at Duke University School of Medicine will process the enrollment for study away at UNC.

STDYAWAY-421C. STUDY AWAY AT WAKE FOREST UNIVERSITY SCHOOL OF MEDICINE. Fourth year clinical elective at WFU. Upon receipt of the acceptance letter from WFU, the Registrar's Office at Duke University School of Medicine will process the enrollment for study away at WFU.

STDYAWAY-431C. STUDY AWAY AT EAST CAROLINA UNIVERSITY SCHOOL OF MEDICINE. Fourth year clinical elective at ECU. Upon receipt of the acceptance letter from ECU, the Registrar's Office at Duke University School of Medicine will process the enrollment for study away at ECU.

STDYAWAY-440C. EXTERNSHIP IN INPATIENT CARE AT TEACHING HOSPITAL KARAPITIYA & MAHAMODARA GALLE IN SRI LANKA. 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. Credit: 8 Max: 2 (at time of publication course was under review and the course offering is subject to change).

Surgery

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Required Courses

SURGERY-205C. SURGERY. 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 realtime 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. Credit: 8. *Alexander Perez, MD*

Longitudinal Integrated Clerkship

SURGERY-206C. LONGITUDINAL INTEGRATED CLERKSHIPS (LIC) - SURGERY. 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 realtime 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. Credit: 8. *Alexander Perez, MD*

Second Year, Two-Week Clinical Selective

SURGERY-220C. NEUROSURGICAL INTERVENTION IN THE MODERN ERA. This neurosurgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive neurosurgery, including the subspecialties (cerebral aneurysm disease, intracranial malignancy in the adult, intracranial malignancy in the pediatric patient, benign intracranial tumors, peripheral nerve reconstruction, spinal surgery, traumatic brain injury, traumatic spinal cord injury). There will be didactic instruction with patient care exposure in the clinic setting, the Emergency Department, on the surgical wards and in the operating room. Enrollment Max. 2. Location: Duke North Ward 4200 - 6:00 a.m. Contact: For questions and to confirm meeting time and location,

please page the Neurosurgery Resident on call for the ER at 684-8111, on the night before the first day. *Michael Haglund, MD/PhD*

SURGERY-221C. SURGICAL TREATMENT OF DISEASES OF THE HEAD AND NECK, EARS, NOSE AND THROAT. 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. Enrollment Max: 3. Location: Duke North Ward 6300 - 6:30 a.m. Contact: Please contact the OHNS resident on call at 970-1320 the night before the rotation starts to confirm the exact time and place to meet. *Liana Puscas, MD*

SURGERY-223C. FROM COSMESIS TO RECONSTRUCTION, FROM INFANTS TO THE ELDERLY. 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. Enrollment Max. 2. Location and time: Duke North 6300 ward at 6:00am For more information, please contact Lori Allsbrook at 681-6588 or via email lori.allsbrook@duke.edu. *Michael Zenn, MD*

SURGERY-224C. SURGICAL CRITICAL CARE IN THE MODERN ERA. 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. Enrollment Max. 2. Location: Duke N. SICU, Unit 2200 - 6:20 a.m. For more information and to confirm meeting location and time, please contact: Dr. Mark Shapiro at ml.shapiro@duke.edu. Students may also email Ericka Miller at ericka.miller@duke.edu. Mark Shapiro, MD and Steven Vaslef, MD/PhD(daniel.kearney@duke.edu). *Mark Shapiro, MD and Steven Vaslef, MD/PhD.*

SURGERY-225C. MODERN THORACIC SURGERY: FROM RESECTION AND STAGING TO GENE THERAPY. This thoracic surgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive thoracic surgery, including the subspecialties (benign and malignant thoracic tumors, trauma, disorders of the esophagus, tracheal reconstruction, thoracoscopic intervention, tumor staging and novel therapeutic strategies). There will be didactic instruction with patient care exposure in the clinic setting, outpatient surgery center and the operating room. Enrollment Max. 2. Location: Duke N., Ward 3100: 6:00 a.m. Contact: Students should contact Dr. D'Amico at Phone (919) 684-4891, (919) 688-5061or via email at damic001@mc.duke.edu. *Thomas D'Amico, MD*

SURGERY-226C. MODERN CARDIAC SURGERY: FROM CABG TO GENE THERAPY. This cardiothoracic surgery selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive cardiac and thoracic surgery, including the subspecialties (adult ischemic Coronary Artery Bypass Grafting

(CABG), adult valvular surgery, minimally invasive cardiothoracic surgery, congenital cardiac repair, redo cardiothoracic surgery, and management of end-stage heart and lung diseases, including heart and lung transplantation and mechanical life support such as ventricular assist device and extracorporeal membrane oxygenator.) There will be didactic instruction with patient care exposure in the clinic setting and in the operating room. Enrollment Max. 6. Location: Duke North., Wards 3100, 3200, and 3300. Contact: Please email Dr. Lin at lin00003@mc.duke.edu for more information and to find out the time and location for the first day of classes. Location: Duke North, Ward 3200. Contact: Please e-mail Dr. Lin at lin00003@mc.duke.edu or call 684-4694 for more information and to find out the time and location for the first day of classes. *Shu Lin, MD, PhD*

SURGERY-227C. UROLOGY: SURGICAL TRTMNT OF BENIGN UROGENITAL PROBS & MALIGNANT DISEASES IN UROGENITAL TRACT. This urology selective is designed to introduce the second year medical student to the medical and surgical aspects of comprehensive urologic surgery, including the kidneys, ureters, bladder and male reproductive system and its subspecialties (pediatric, incontinence in the male and the female, sexual dysfunction, benign disease of the urogenital tract, malignant disease of the urogenital tract, reconstruction after tumor surgery, trauma). There will be didactic instruction with patient care exposure in the clinic setting, emergency department, outpatient surgery center and the operating room. Please contact Dr. Ross via email (sherry.ross@duke.edu) one week prior to starting the rotation. Enrollment Max. 2. *Sherry Ross, MD*

SURGERY-229C. EARLY EXPERIENCES IN EMERGENCY MEDICINE. 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 a 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. Credit 2. Enrollment max. 2. Location: 8:00 a.m. in the conference room in the offices of the department of emergency medicine (above the ED). Contact: Students should contact Dr. Gordon should they have any questions at 684-5537 or via email davidc.gordon@duke.edu. An alternative contact is Dr. Gordon's assistant David Massung at 681-4458. *David Gordon, MD*

SURGERY-230C. TRAUMA & ACUTE CARE SURGERY. 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 the triage and resuscitation of leveled trauma patients in the emergency department, as well as the operative care of patients with multi-system trauma injuries or other acute surgical problems. The students will work 12-13 hour night shifts to allow for optimal exposure to traumas and other surgical emergencies, as well as to increase one-on-one supervision and teaching. The student will be partnered with the night trauma chief resident and will work closely with the attending staff on the trauma service. Note: Requires permission of the instructor. Credit: 2. Enrollment: max 2. *Mark Shapiro,MD; Steven Vaslef, MD; Gregory Georgiade, MD; John Scarborough, MD; and Kelli Brooks, MD.*

Longitudinal Integrated Clerkship (LIC) Course

SURGERY 252C. EMERGENCY MEDICINE (LIC). 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 in-

jury." Course Goals: 1) Students will see patients with the full range of chief complaints that present to the Duke University 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. 2) Medical student lectures will be held every Monday morning. 3) Students will attend resident conferences on Wednesday mornings. 4) Students will shadow a Durham EMS paramedic team for one day. Methods of Evaluation: Attendings and senior residents will give feedback to students. For more information please contact Dr. David Gordon at 919-684-5537 or by email, davidc.gordon@duke.edu. Prerequisites: none. First day meeting: 9:00 a.m. in the conference room located in the emergency services administrative suite above the emergency department. Administrative contact: David Massung, email at david.massung@duke.edu or phone at 681-4458. Credit: 4. Enrollment: max 10. *David Gordon, MD*

Fourth Year Clinical Electives

SURGERY-401C. ADVANCED SURGICAL CLERKSHIP. 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 subspecialty 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. Trey Blazer at tblazer@notes.duke.edu or by phone at 684-6553. To obtain permission (and permission numbers) to enroll in the course, students should contact Honor Gifford. She can be reached via email at honor.gifford@duke.edu or by phone at 919-613-5069. Credit: 5. Enrollment: min. 1, max 24. *Trey Blazer, MD. Available mentors: Danny Jacobs, Bryan Clary, Thomas D'Amico, Paul Kuo, Theodore Pappas, Douglas Tyler, Christophe Mantyh, John Olson, Steven Vaslef, Scott Pruitt, Cynthia Shortell, John Scarborough, Anand Lagoo, Shu Lin, Alexander Perez, Lee Wilke, Jeffrey Lawson, Andrew Lodge, Jeffrey Gaca, Aurora Pryor, Robert Davis, David Harpole, Mitchell Cox, and Donald Glower.*

SURGERY-402C. EMERGENCY MEDICINE SUBINTERNSHIP. 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 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 Monday morning medical student lectures, Wednesday morning resident conferences, and deliver a final case presentation. For more information please contact Dr. David Gordon at 684-5537 or via email, davidc.gordon@duke.edu. Prerequisites: Students

must have already completed a prior emergency medicine rotation and permission of the instructor is required. First day meeting: 9:00 a.m. in the conference room located in the emergency services administrative suite above the emergency department. Administrative contact, David Massung, email david.massung@duke.edu or phone at 681-4458. Credit: 5. max 2, except for fall 41 (5 students), fall 42 (4 students), fall 43 (1 student), and fall 44 (1 student). *David Gordon, MD*

SURGERY-412C. EMERGENCY MEDICINE. 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 University 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. 2) Medical student lectures will be held every Monday morning. 3) Students will attend resident conferences on Wednesday mornings. 4) Students will shadow a Durham EMS paramedic team for one day. Methods of Evaluation: Attendings and senior residents will give feedback to students. For more information please contact Dr. David Gordon at 919-684-5537 or by email, davidc.gordon@duke.edu. Prerequisites: none. First day meeting: 9:00 a.m. in the conference room located in the emergency services administrative suite above the emergency department. Administrative contact: David Massung, email at david.massung@duke.edu or phone at 681-4458. Credit: 4. Enrollment: max varies by term. Fall 41 (5); fall 42 (4); fall 43 (9); and fall 44 (9). *David Gordon, MD*

SURGERY-420C. GENERAL SURGICAL ONCOLOGY. The course is designed for the student interested in surgical oncology. The students are involved in patient care with a specific surgeon but, in addition, are expected to attend multidisciplinary conferences related to gastrointestinal and breast carcinoma. 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. This course is designed for students who have an interest in the basic sciences in relation to surgical oncology. Attendance at research conferences involved in the molecular and cellular biology of human cancers is also expected. For more information please contact Dr. Bryan Clary, 684-6553 or via email, clary001@mc.duke.edu. Permission of instructor is required. Credit: 4. Enrollment: min 1, max 2. *Trey Blazer, MD; Bryan Clary, MD; Douglas Tyler, MD; John Olson, MD/PhD; Scott Pruitt, MD/PhD; Lee Wilke, MD; H. Kim Lyerly, MD; Thomas D'Amico, MD; and David Harpole Jr., MD*

SURGERY-423C. ADVANCED SURGERY-EMPHASIS CARDIOVASCULAR/THORACIC. 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 668-0561. Credit: 8. Enrollment: min 1, max 5. *Thomas D'Amico, MD; Mark F. Berry, MD; Robert Davis, MD; Jeffrey G. Gaca, MD; Donald Glower, MD; David Harpole,MD; Chad Hughes, MD; Shu Lin, MD; Andrew*

Lodge,MD; Carmelo Milano, MD; Mark W.Onaitis, MD; Peter K. Smith, MD; Betty C. Tong, MD

SURGERY-426C. ADVANCED CLERKSHIP IN PEDIATRIC SURGERY. 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. This is a four week experience is probably optimal for most students. It may be combined with other advanced surgical clerkships such as SURGERY-401c or with four weeks of neonatology (PEDS-426C) or other courses depending on the interests of the student. For more information please contact Kristin Dickerson at 681-5085 or via email at kristin.dickerson@duke.edu. Prerequisite: Permission of instructor and brief pre-enrollment interview with Dr. Henry Rice. Credit: 4 or 8. Enrollment: max 1. *Henry Rice, MD*

SURGERY-427C. ADVANCED UROLOGIC CLERKSHIP. Students are exposed to the complete realm of urology including diagnosis, non-operative management, surgical treatment, and post-operative care of adult and pediatric patients. The course includes personal interaction with the entire faculty in clinics, operating rooms, rounds, and teaching conferences. Students will be exposed to endoscopic, laparoscopic, oncologic, and reconstructive adult and pediatric surgery. Students are involved in direct patient care with the house staff while following patients during their pre-, intra-, and post-operative course. For students interested in a specific area of urology, focused exposure to a single discipline is welcomed but dependent upon faculty approval. In addition to participation in conferences, students are expected to give a brief case presentation at Grand Rounds. For more information please contact Dr. Sherry Ross via email at sherry.ross@duke.edu or Cheryl Conway via email at cheryl.conway@duke.edu. Duke students report to rounds on 6300 at 6:30 a.m. Credit: 4 or 8. Enrollment: max 3. *Sherry Ross, MD; David Albala, MD; Craig Donatucci, MD; Stephen Freedland, MD; Brant Inman, MD; Kelly Maloney, MD; Judd Moul, MD; Glenn Preminger, MD; Cary Robertson, MD; Philip Walther, MD/PhD; and George Webster, MD*

SURGERY-435C. SUBINTERNSHIP IN NEUROLOGICAL SURGERY. This course is designed for those students with a career interest in one of the neurological sciences. Duties include the work-up and care of inpatients, work-up of clinic patients, assistance in the operating room, daily rounds, and night call. Students will be expected to assume intern-level responsibilities. Weekly conferences are held in neurosurgery, neurology, neuropathology, and neuroradiology. There are also special lectures. Permission of instructor is required. For more information and permission numbers, please contact Karen Koenig at 684-3271 or via email at koeni002@mc.duke.edu. First Day of Classes: students are to meet promptly at 6:00 a.m., 4200 (Neuro ICU) at Duke Hospital. Credit: 5 Enrollment max: 3 Min: 1 *Allan Friedman, MD; David Adamson, MD; Carlos Bagley, MD; Gavin Britz. MD/MPH; Herbert Fuchs, MD/PhD; Gerald Grant, MD; Michael Haglund, MD/PhD; Robert Isaacs, MD; John Sampson, MD/PhD; Dennis Turner, MD; and Ali Zomorodi, MD, Oren Gottfried, M.D.*

SURGERY-436C. INTERMEDIATE CLINICAL NEUROSURGERY. This elective, 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 works up one to

three patients and assists at their operations the following day either once or twice per week, and attends the Saturday, neurosurgical conference. Permission of instructor is required. For more information and permission numbers, please contact Karen Koenig at 684-3271 or via email at koeni002@mc.duke.edu. First Day of Classes: students are to meet promptly at 6:00 a.m., 4200 (Neuro ICU) at Duke Hospital. Credit: 1-2. Enrollment max: 1. *Allan Friedman, MD; David Adamson, MD; Carlos Bagley, MD; Gavin Britz. MD/MPH; Herbert Fuchs, MD/PhD; Gerald Grant, MD; Michael Haglund, MD/PhD; Robert Isaacs, MD; John Sampson, MD/PhD; Dennis Turner, MD; and Ali Zomorodi, MD, Oren Gottfried, M.D.*

SURGERY-439C. CLINICAL OTOLARYNGOLOGY. 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 division. Students are expected to schedule one night of call each week and give a 10-minute 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. Credit: 4. Enrollment: max: 2. *Liana Puscas, MD; Harvey Jay Cohen, MD; Raymond Esclamado, MD; Samuel Fisher, MD; David Kaylie, MD; Richard Scher, MD; Debara Tucci, MD; and David Witsell, MD/MHS*

SURGERY-441C. SUBINTERNSHIP IN SURGICAL INTENSIVE CARE. This course is designed to broaden the student's knowledge and experience in dealing with 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. There is a morning lecture on aspects of critical care each day. 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. Four weeks are spent in the SICU at Duke University Medical Center (trauma, vascular surgery, liver-kidney-pancreas transplantation, general surgery). 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. Steven Vaslef at 684-3636 or via email, vasle001@mc.duke.edu. The schedule is available in the SICU or by calling the SICU at 681-2241 to find out who is rounding that week. Rounds begin at 6:30 a.m. in the SICU. C-L: ANESTH-441C. Credit: 5. Enrollment: max 2. *Steven Vaslef, MD/PhD; Mark Shapiro, MD; Janet Tuttle-Newhall, MD; and staff.*

SURGERY-443C. TRAUMA SERVICE. This course is designed to provide students interested in trauma care 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. 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 and the residents on the Trauma Service. For more information please contact Dr. Steven Vaslef at 684-3636 or via email at vasle001@mc.duke.edu. Students should meet in the SI-

CU at 6:30 a.m. on the first day of the rotation. Credit: 4. Enrollment: max 2. *Steven Vaslef, MD/PhD and Gregory Georgiade, MD*

SURGERY-444C. INTRODUCTION TO PLASTIC, RECONSTRUCTIVE AND MAXILLOFACIAL SURGERY. 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. For more information, please contact Lori Allsbrook via email lori.Allsbrook@duke.edu. Credit: 4. Enrollment: max 1. *Michael Zenn, MD; Jeffrey Marcus, MD; and Detlev Erdmann, MD*

SURGERY-448C. SUBINTERNSHIP IN OTOLARYNGOLOGY HEAD AND NECK SURGERY. This course is a full educational experience in OHNS with duties and responsibilities similar to a first year resident. This course provides the student with a comprehensive survey of clinical activities, inpatient care, assisting in the operating room and emergency room call. The student participates in ward rounds and in various conferences held by the division. At the end of the subinternship, the student will present at Grand Rounds Conference a 20-30 minute presentation on the topic of his/her choice (usually based on a patient the student has taken care of during the subinternship). Credits: 5. Enrollment max: 2. *Liana Puscas, MD and staff*

SURGERY-451C. SUBINTERSHIP IN UROLOGIC SURGERY. Students will participate in the diagnosis, management, and surgical treatment of patients with urologic disorders. Sub-internship students will take on intern-level responsibilities, including daily management of inpatients, clinic responsibilities, participation in surgery, and overnight call. Prerequisite: Permission of the instructor is required. Please contact Dr. Ross at sherry.ross@duke.edu for more information and to obtain your permission number. Credit: 5. Enrollment max: 3 *Sherry Ross, MD and staff.*

Thesis

Basic Science Electives

THESIS-301B. THESIS. 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 manuscript of 15-20 double-spaced pages, in addition to any relevant figures. The requirement can also be fulfilled with the submission of a manuscript (including a 3-5 page addendum) 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 by mid-June for ten-month students and mid-August for 12-month students. In addition, instructions and details on the formatting of the thesis are located on the Thesis Requirements tab of the third year website: http://thirdyear.mc.duke.edu or on BlueDocs. The thesis will receive a separate grade and number of credits from the research course. Credit: 3. 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.

Special Interdisciplinary Training Programs

Anesthesiology, Surgery & Environmental Physiology

ASEP-301B. RESEARCH IN ASEP. Program Director: Richard Moon, M.D. The Anesthesiology, Surgery and Environmental Physiology study track provides opportunities for research in cardiovascular and respiratory physiology, molecular pharmacology, neurobiology, surgery, clinical investigation and environmental science. At the beginning of the year each student will define an area of independent study and a hypothesis. ASEP informal group meetings are held during hosted meals. At the end of the year, each student is expected to have completed a project of sufficient merit to warrant presentation and publication. Further, the Departments of Anesthesiology, Surgery, Pediatrics and Medicine offer unique opportunities for students to present their projects in a formal setting moderated by an external reviewer of national stature. A course in Physiology and Medicine of Extreme Environments is also available. . FACULTY: Richard L. Auten, Jr., M.D.; Elliott Bennett-Guerrero, M.D.; Joshua Broder, M.D.; Tong Joo Gan, M.B.B.; Eric DeMaria, M.D.; Stephen Jay Freedland, M.D.; William E. Garrett, M.D., Ph.D.; Ashraf Samir Habib, M.B.B.; Billy Huh, M.D.; Danny Jacobs, M.D., M.P.H.; Stephen M. Klein, M.D.; Monica Kraft, M.D.; Paul Kuo, M.D.; Madan M. Kwatra, Ph.D.; Sandhya A. Lagoo-Deenadayalan, Ph.D., M.S.; Jeffrey H. Lawson, M.D., Ph.D.; Terri Monk, M.D.; Richard Moon, M.D.; Judd Moul, M.D.; David Needham, Ph.D.; Paul Noble, M.D.; John A. Olson, M.D., PhD.; Claude A. Piantadosi, M.D.; Thomas Polascik, M.D.; Glenn M. Preminger, M.D.; Scott Schulman, M.D.; Sidney A. Simon, Ph.D.; Mark Stafford-Smith, M.D.; Jeffrey M. Taekman, M.D.; Douglas Tyler, M.D.; David S. Warner, M.D.; David Witsell, M.D., M.H.S.

Behavioral Neurosciences Study Program

BSP-301B. RESEARCH IN BSP. Program Director: Andrew D. Krystal, M.D., M.S. 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 are encouraged to select an area of research concentration and then to match their interests with a faculty member as a research preceptor by discussing the array of options with the study program director. They are given the opportunity to focus on some determinant of human behavior which may include neurobiological, developmental, or psychosocial factors. Specific science interests can be augmented through seminars, guided readings, and appropriate courses providing a greater familiarity with current issues in the biobehavioral sciences. FACULTY: Lisa Amaya-Jackson, MD; James A. Blumenthal, Ph.D.; Sheila Collins, Ph.D.; P. Murali Doraiswamy, M.B.B.;.Jau-Shyong Hong, Ph.D.; K. Ranga Krishnan, M.B.B.; Andrew D. Krystal, M.D., M.S.; Cynthia M. Kuhn, Ph.D; Madan Kwatra, Ph.D.; Edward D. Levin, Ph.D.; David J. Madden, Ph.D.; Gregory McCarthy, Ph.D.; Rajendra Morey, M.D., M.S.; Jeffrey R. Petrella, M.D.; Jed E. Rose, Ph.D.; Rochelle D. Schwartz-Bloom, Ph.D.; Andrew Sherwood, Ph.D.; David C. Steffens, M.D., M.H.S.; Richard S. Surwit, Ph.D.; Marvin S. Swartz, M.D.; Warren Taylor, M.D.; Richard D. Weiner, M.D., Ph.D.; William C. Wetsel, Ph.D.; Keith Whitfield, Ph.D.; Redford B. Williams, M.D.

Biomedical Engineering Study Program

BES-301B. RESEARCH IN BES. Program Director: Bruce Klitzman, Ph.D. (Alternate Director: Farshid Guilak, Ph.D.). 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, people and populations, as well as the efficacy of various therapies and their delivery. The mentors investigate these areas at the microscopic and macroscopic levels. The course of study may emphasize either the employment of whole animal models or in vitro simulation of disease states. The development and employment of new instrumentation may be a component of the research effort, but not typically its exclusive objective. 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 form 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. FACULTY: Roger C. Barr, Ph.D; Michael Bolognesi, M.D.; Mark Dewhirst, Ph.D.; Mark Easley, M.D.; Detlev Erdmann, M.D., Ph.D., MHSc; Robert D. Fitch, M.D.; Morton H. Friedman, Ph.D.; William Garrett, M.D., Ph.D.; Farshid Guilak, Ph.D.; Craig S. Henriquez, Ph.D.; Bruce Klitzman, Ph.D.; Andrew D. Krystal, M.D.; Jeffrey H. Lawson, M.D., Ph.D.; Kam Leong, Ph.D.; Howard Levinson, M.D.; Wolfgang Liedtke, M.D.; Heather Lipscomb, Ph.D., M.P.H.; James Lowe, M.D.; Jeffrey Marcus, M.D.; Barry S. Myers, M.D., Ph.D.; Paul Noble, M.D.; James A. Nunley, M.D.; Steven Olson, M.D.; Ricardo Pietrobon, M.D., Ph.D.; Scott K. Pruitt, M.D., Ph.D.; William M. Reichert, Ph.D.; David Ruch, M.D.; Daniel Schmitt Ph.D.; Lori A. Setton, Ph.D.; David K. Smith; Peter K. Smith, M.D.; Dean C Taylor, M.D.; Andrea Beth Taylor, Ph.D.; George A. Truskey, Ph.D.; Olaf T. Von Ramm, Ph.D.; Patrick D. Wolf, Ph.D.; Fan Yuan, Ph.D.

Biomedical Imaging & Medical Physics Study Program

BIMP-301B. RESEARCH IN BIMP. Program Director: Joseph Y. Lo, Ph.D. This program encourages medical students to explore many exciting research topics in radiology and radiation oncology. These topics span the full range of research, including the following examples:

1) **Clinical trials:** breast tomosynthesis and dedicated breast CT imaging; computer-aided diagnosis; hyperpolarized gas MRI for lung function
2) **Clinical evaluations:** pediatric CT dose reduction; ED imaging utilization; interventional radiology; dynamic contrast enhanced MRI; radiation oncology utilization and optimization
3) **Translational Science:** nanocontrast imaging; imaging and predictive modeling of Alzheimer's; optical imaging and 3D dosimetry; functional MRI studies to understand psychological behavior
4) **Basic laboratory science:** molecular imaging of stem cells and mouse cardiac function; lung cancer proteomics; effect of exercise physiology on radiation therapy; MR microscopy; diffusion tensor imaging and brain histology

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

strongly emphasizes the use of quantitative methods to solve clinically significant problems. Although it is desirable to possess prior experience in areas such as mathematics, computer science, physics, chemistry, or engineering, the program also welcomes students of all backgrounds. Program students have published in many of the field's top journals: *Radiology*; *AJR American Journal of Roentgenology*; *Medical Physics*; and *Int J Radiation Oncology, Biology, Physics*.

FACULTY: Jay Baker, M.D.; David Brizel, M.D.; Joshua Broder, M.D.; Michael Campa, Ph.D.; H. Cecil Charles, Ph.D.; Bennett B. Chin, M.D.; Shiva K. Das, Ph.D.; James T. Dobbins, Ph.D.; Bastiaan Driehuys, Ph.D.; Donald Frush, M.D.; Laurens E. Howle, Ph.D.; Scott Huettel, Ph.D.; G. Allan Johnson, Ph.D.; Lee Winston Jones, Ph.D.; Charles Kim, M.D.; David G. Kirsch, M.D., Ph.D.; Joseph Y. Lo, Ph.D.; James R. MacFall, Ph.D., M.S.; Rendon C. Nelson, M.D.; Mark Oldham, Ph.D.; Edward F. Patz M.D.; Jeffrey Petrella, M.D.; James Provenzale, M.D.; Ehsan Samei, Ph.D., M.E.; Martin P. Tornai, Ph.D.; Timothy G. Turkington, Ph.D.; Terence Z. Wong, M.D., Ph.D.

Biostatistics and Bioinformatics

CRSP-301B. RESEARCH IN CLINICAL RESEARCH. Clinical Research Study Program Coordinating Director: Bimal Shah, MD; Co-Director: Christopher O'Connor, M.D. This study program offers students the opportunity to explore the quantitative and methodological principles of clinical research. Under the direction of two preceptors, typically 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. Students in this study program may apply for admission as degree candidates in the Clinical Research Training Program, earning a Master of Health Sciences in Clinical Research. *FACULTY: David Albala, M.D; John Alexander, M.D., Kathryn M. Andolsek, M.D., M.P.H. ; John Bartlett, M.D., Lori A. Bastian, M.D.; Daniel K. Benjamin, M.D., PhD., M.P.H.; Andrew Berchuck, M.D.; Hayden Bosworth, Ph.D, ; Ann Brown, M.D. Wesley Burks, M.D.; Chris Cabell, M.D., Robert M. Califf, M.D.; Elixabeth Clipp, Ph.D.; Harvey Cohen, M.D.; G. Ralph Corey, M.D., Gerorge Delong, M.D.; Rowena Dolor, M.D.; David Edelman, M.D.; Gerda Fillenbaum, Ph.D. ; Henry Friedman, M.D.; Anthony Galanos, M.D.; Linda K. George, Ph.D.; Steven Grambow, Ph.D.; Christopher Granger, M.D.; Robert A. Harrington, M.D., Victor Hasselblad, Ph.D., Mitchell Todd Heflin, M.D.; Charles Byron Hicks, M.D.; Helen Marie Hoenig, M.D., M.P.H.; James Jollis, M.D.; Sheri Keitz, M.D.; Harold Koenig, M.D.; William E. Kraus, M.D.; Mitchell Krucoff, M.D.; Maragatha Kuchibhatla, Ph.D.; Paul Lee, M.D., J.D.; Kerry L. Lee, Ph.D.; Jennifer Shiunroh Li, M.D.; Kenneth W. Lyles, M.D.; David Joseph Madden, Ph.D.; Daniel Mark, M.D., David B. Matchar, M.D.; Douglas C. McCrory, M.D., M.H.S.; Claude Moorman, M.D.; Miriam C. Morey, Ph.D.; Andrew Joseph Muir, M.D.; Amy P. Murtha, M.D., Evan R. Myers, M.D., M.P.H.; Laura Kristen Newby, M.D.; Christopher M. O¿Connor, M.D.; Maren Olsen, Ph.D.; Truls Ostbye, M.D., M.H.S.; Scott M. Palmer, M.D., M.H.S.; Eric Peterson, M.D.; Carl F. Pieper, D.P.H.; Dawn T. Provenzale, M.D.; David Alan Rizzieri, M.D.; Don Rockey, M.D.; John Sampson, M.D., Ph.D.; Kenneth Schmader, M.D.; Daniel John Sexton, M.D.; David L. Simel, M.D., M.H.S.; Karen Steinhauser, Ph.D., Laura Svetkey, M.D.; Courtney Dawn Thornburg, M.D.; James A. Tulsky, M.D.; Galen Strohm Wagner, M.D.; Emmanuel B. Walter, M.D., M.H.S.; Eric Westman, M.D., M.H.S.; John David Whited, M.D.; William E. Wilkinson, Ph.D.; John Wiley Williams, M.D.*

Cardiovascular Study Program

CVS-301B. RESEARCH IN CVS. Program Director: Neil J. Freedman, M.D. 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. Directed at students potentially interested in a career in cardiovascular research, this program affords a wide variety of opportunities for basic research under the guidance of a faculty mentor. Students in this program are not required to take any formal course work, but students interested in graduate-level courses may enroll in them if they have the permission of their faculty mentor. *FACULTY:; Marc G. Caron, Ph.D.; Neil J. Freedman, M.D.; Geoffrey S. Ginsburg, M.D., Ph.D.; Michael D. Gunn, M.D.; Barton F. Haynes, M.D.; Margaret Kirby, Ph.D.; Bruce M. Klitzman, Ph.D.; Christopher D. Kontos, M.D.; William E. Kraus, M.D.; F.C.C.P., Madan M. Kwatra, Ph.D.; Robert J. Lefkowitz, M.D.; Ann LeFurgey, Ph.D.; Anthony R. Means, Ph.D.; Claude A. Piantadosi, M.D.; Geoffrey Pitt, M.D., Ph.D.; Mihai Podgoreanu, M.D.; Howard A. Rockman, M.D.; Paul B. Rosenberg, M.D.; Marilyn Jo Telen, M.D.; Antonius M.J. VanDongen, Ph.D.; Xiao-Fan Wang, Ph.D.; ; Zen Yan, M.D., Ph.D. (Singapore).*

Epidemiology and Public Health Study Program

MEDICINE AND PUBLIC HEALTH PROGRAM

EPH-301B. RESEARCH IN EPI & PUBLIC HEALTH. 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

1) Obtaining a masters of public health degree or

2) A year- long experience at the Centers for Disease Control, Atlanta, Georgia

It combines formal course work in epidemiology and population health, allowing students an opportunity to participate in the 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 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. Each student selects a Duke Faculty mentor in consultation with the study track director.

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- Chapel Hill (or an alternate accredited school of public health.) or apply to the CDC yearlong experience for medical students.

Required Research. Each student will have the equivalent of 10-12 months' participation in research. Students should identify a mentor, and 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, finance, 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 or CDC experience. For MPH students, the student must apply to the relevant MPH school (and program within the school) and to Duke School of Medicine by completing the Duke Third Year Elective Form.

For students who plan to apply for an MPH at the University of North Carolina, School of Public Health: There are currently 5 "pre-approved" MPH programs at the School of Public Health. These include Epidemiology; Health Care and Prevention; Health Policy, Maternal and Child Health and Nutrition. The amount of 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 they have an interest. This determination is made semester by semester. For details see: *http://gradschool.unc.edu/student/residency/*

Students interested in another study track at the School of Public at UNC, or an MPH at another University must work with Dr. Andolsek to petition the Duke third year committee for "acceptance". Students complete all requirements for the MPH degree during one-two academic years as part of fulfilling their third year requirement. If interested, they can extend their research for an additional year.

At the end of the students' third year, they are required to submit a **quantitative thesis**/ manuscript/grant application and present their findings orally at a suitable venue to satisfy Duke's third year requirements, in addition to the requirements of their masters or CDC program. Upon receipt of the MPH degree and completion of a quantitative thesis, students are awarded a full year of basic science credit toward the MD degree.

Students should consult the UNC School of Public Health for information on eligibility, application requirements and deadlines, and course requirements of the degree. Most students are successful in obtaining this degree but it takes a great deal of organization, coordination, and proactive effort.

Students may also work with in the field of public health (but without pursuing a second degree) through the Clinical Research Study Track, headed by Dr. Galen Wagner, in Global Health, with Dr. Dennis Clements, or in an area of qualitative research through the Humanities study tract, headed by Dr. Margaret Humphreys. In addition, students may propose an individually tailored Study Away option. Students interested in the MPH or CDC experience may want to compare and contrast this opportunity with Masters of Public Policy or Masters of Business Administration (Study track director, Dr. David Edelman)

Review and approval is on individual basis is made by the Third Year Committee. Placements in the Cloister Program at the National Institutes of Health and at the National Institute of Environmental Health Sciences in Research Triangle Park are options. Faculty from a number of study programs provides supervision of students in the study away programs.

Tuition: *For entering class of 2009 and beyond 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 additional information on the MPH program, contact the Director of the

MD/MPH Program, Kathryn Andolsek, MD, MPH; Associate Director Graduate Medical Education; DUMC Box 3190, Room M139, Green Zone, Davison, Durham,

North Carolina 27710, (919) 668-3883, *kathryn.andolsek@duke.edu (Reviewed April 2010)*.

FACULTY: Martha Adams, M.D.; Kathryn M. Andolsek, M.D., M.P.H.; Jay Baker, M.D.; John Bartlett, M.D., Lori A. Bastian, M.D., M.P.H.; Daniel G. Blazer, M.D., Ph.D.;

Michael Bolognesi, M.D.; Haywood Brown, M.D.; Barbara J. Burns, Ph.D.; Robert M. Califf, M.D.; Pratap Challa, M.D.; Dennis A. Clements, M.D., Ph.D., M.P.H.; Harvey Cohen, M.D.; Leslie H,. Curtis, Ph.D.; John M. Dement, Ph.D.; Rowena Dolor, M.D.; David Edelman, M.D.; Christopher Edwards, Ph.D.; Jeffrey Ferranti, M.D.; Sharon Freedman, M.D.; William Fulkerson, M.D.; Anthony Galanos, M.D.; Deborah T. Gold, Ph.D.; Carol Dukes Hamilton, M.D.; Judith C. Hays, Ph.D.; Catherine Hoyo, Ph.D., M.P.H.; Margaret Humphreys, M.D., Ph.D.; Samuel L. Katz, M.D.; Alex R. Kemper, M.D., M.P.H., M.S.; Linda Kinsinger, M.D.; Jeffrey Lawson, M.D., Ph.D.; Paul Lee, M.D., J.D.; Phyllis Leppert, M.D., Ph.D.; Hester Lipscomb, Ph.D., M.P.H.; Elizabeth Livingston, M.D.; Joseph Lo, Ph.D.; David Lobach, M.D., Ph.D., M.S.; Anne Lyerly, M.D.; David B. Matchar, M.D.; James Lloyd Mitchener, M.D.; Eugene W. Moretti, M.D.; John Murray, M.D.; Evan R. Myers, M.D., M.P.H.; Steven Olson, M.D.; Truls Ostbye, M.D., M.P.H.; George Parkerson, M.D., Ph.D.; Edward Patz, M.D.; Ricardo Pietrobon, M.D., Ph.D.; William James Richardson, M.D.; John Sampson, M.D., Ph.D.; Joellen M. Schildkraut, Ph.D., M.P.H.; Kevin A. Schulman, M.D., M.B.A.;William Scott, Ph.D.; Mina R. Silberberg, Ph.D.;David L. Simel, M.D.; Frank Sloan, Ph.D.; Anthony So, M.D.; Laura Svetkey, M.D.; Geeta K. Swamy, M.D. ; Marvin Swartz, M.D.; Nathan Thielman, M.D., M.P.H.; James A. Tulsky, M.D.; David K. Walmer, M.D., Ph.D.; Emmanuel Walter, M.D., M.P.H.; Eric Westman, M.D., M.H.S.; David Witsell, M.D., M.H.S.; Christopher Wildrick Woods, M.D.

Global Health Study Program

GHS-301B. GLOBAL HEALTH STUDY PROGRAM. Program Director: Dennis Alfred Clements, M.D., Ph.D., M.P.H. 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 one of Duke¿s international GH field sites, as well as with other locations offering appropriate opportunities. Currently, DGHI is collaborating with institutions in China, Haiti, India, Kenya, Singapore, Tanzania, and Uganda, and is pursuing collaborative partnerships in Costa Rica, Ghana, Honduras, Indonesia, Nicaragua, Sri Lanka, Thailand, and others. The Institute focuses on six 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, as well as a Duke Faculty member, to develop and conduct research that is of benefit both to the international site and to the educational goals of the student. DGHI and SOM are developing processes for consolidating and disseminating information about past students Study Away experiences. They also vet various funding opportunities for international fieldwork and research and will be active in evaluating the qualifications of international mentors involved in supporting students undertaking the GH study program. For more information please contact the GH Third Year Study Program Coordinator. 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 field sites, all relevant proposals will be considered. Please contact the GH Third Year Study Program Coordinator to learn more. FACULTY: John Bartlett, M.D.; Dennis Clements, M.D., Ph.D., M.P.H.; Gordon R. Corey, M.D.; John A. Crump, M.B.B.; Coleen K. Cunningham, M.D.; John M. Dement, Ph.D.; Michael Haglund, M.D., Ph.D.;

Catherine Hoyo, Ph.D., M.P.H., Sandhya Anand Lagoo-Deenadayalan, Ph.D., M.S.; Hester J. Lipscomb, Ph.D., M.P.H.; David F. Lobach, M.D., Ph.D., M.S.; David B. Matchar, M.D.; Michael H. Merson, M.D.; James L. Michener, M.D.; Truls Ostbye, M.D., M.P.H.; George Parkerson, M.D., M.P.H.; Joellen M. Schildkraut, Ph.D., M.P.H.; Kevin Schulman, M.D., M.B.A.; Svati Hasmukh Shah, M.D., M.H.S.; Mina Ruth Silberberg, Ph.D.; Martha Snyder, M.D.; Ralph Snyderman, M.D.; Nathan M. Thielman, M.D, M.P.H.; David K. Walmer, M.D., Ph.D.; Jeffrey Wilkinson, M.D.; Christopher Wildrick Woods, M.D.

Human Genetics Study Program

HGP-301B. RESEARCH IN HGP. Program Director: To Be Determined. Our genetic makeup plays a large role in dictating our health. With our improved knowledge of human genetic 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, public health practice, and 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 and epidemiologic 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, apoptosis gene therapy, biochemical genetics, animal models of genetics and development, epigenetics, and genetic epidemiology. Opportunities for both basic science and clinical/epidemiologic research projects are available in various laboratories participating in the HGP, and these opportunities spall all specialties of medicine. In addition to the research project and thesis, the program requirements include a year-long seminar series 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. FACULTY: Allison Ashley-Koch, Ph.D.; Blanche Capel, Ph.D.; Yuan-Tsong Chen, M.D., Ph.D.; Jen-Tsan Ashley Chi, M.D., Ph.D.; Robert Cook-Deegan, M.D.; Gregory Crawford, Ph.D.; Philip G. Febbo, M.D.; David B. Goldstein, Ph.D.; Elizabeth R. Hauser, Ph.D.; Michael A. Hauser, Ph.D.; Priya S. Kishnani, M.B.B.: John Klingensmith, Ph.D.; Dwight D. Koeberl, M.D., Ph.D.; Virginia B. Kraus, M.D., Ph.D.; Douglas Marchuk, Ph.D.; Thomas Petes, Ph.D.; Mihai V. Podgoreanu, M.D.; Joellen Schildkraut, Ph.D., M.P.H.;.; Svati Shah, M.D., M.H.S.; Bruce Sullenger, Ph.D.; Beth Ann Sullivan, Ph.D.; Huntington F. Willard, Ph.D.; Michelle P. Winn, M.D.; Fulton Wong, Ph.D.

Master of Science of Library Science Study Program

MSLS-301B. MASTER OF LIBRARY SCIENCE STUDY PROGRAM. 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.

MSIS-301B. MASTER OF SCIENCE OF INFORMATION SCIENCE STUDY PROGRAM. 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, M.D., Ph.D.; Raymond Barfield, M.D., Ph.D.; Allen Buchanan, Ph.D.; Robert Cook-Deegan, M.D.; Peter C. English, M.D., Ph.D.; Margaret Humphreys, M.D., Ph.D.; Anne Lylerly, M.D.; Keith Meador, M.D., M.P.H.; Ross McKinney, M.D.; Philip Rosoff, M.D.; Svati Hasmukh Shah, M.D., M.H.S.; Gopal Sreenivasan, Ph.D.; James A. Tulsky, M.D.; Pricilla Wald, Ph.D.

Medical Humanities Study Program

MEDHUM-301B. RESEARCH IN MEDHUM. Program Director: Margaret Humphreys, M.D., Ph.D. Overview: 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. 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 at least 4 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. 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 in the Searle Center that will be held each year on the first Friday in August. Final thesis: Students will prepare a thesis that represents the product of their research, usually 20 - 25 pages in length. This is due on the thesis deadline date set by the Registrar's Office. Presentations: Students are expected to present a paper based on their research to the humanities lecture series during the spring semester. 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. FACULTY: Jeffrey P. Baker, M.D., Ph.D.; Raymond Barfield, M.D., Ph.D.; Allen Buchanan, Ph.D.; Robert Cook-Deegan, M.D.; Peter C. English, M.D., Ph.D.; Margaret Humphreys, M.D., Ph.D.; Anne Lylerly, M.D.; Keith Meador, M.D., Th.M., M.P.H.; Ross McKinney, M.D.; Gopal Screenivasan, Ph.D.; James A. Tulsky, M.D. ; Pricilla Wald, Ph.D.

Microbiology, Infectious Disease and Immunology Study Program

MIDIP-301B. RESEARCH IN MIRCROBIOLOGY AND INFECTIOUS DISEASE STUDY PROGRAM. Program Director: James Andrew Alspaugh, M.D. Knowledge of infectious diseases and immunology is central to the effective management of disease in a vast array of public health and clinical settings. The Microbiology, Infectious Diseases, and Immunology Program (MIDIP) provides students with the opportunity to explore various aspects of infectious diseases and immunology in laboratory or clinical settings. For example, MIDIP will appeal to students interested in the public health initiatives of vaccine design and the management of infectious diseases. Duke University has many world leaders in the study of microbiology and immunology, many of whom have a 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 immunodeficiencies. 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 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 undertake 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. The MIDIP 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. FACULTY: Alejandro Aballay, Ph.D., Pharm, M.A.; J. Andrew Alspaugh, M.D.; John A. Bartlett, M.D.; Daniel K. Benjamin, M.D., Ph.D., M.P.H.; Rebecca H. Buckley, M.D.; Arvil Wesley Burks, M.D.; Maria Cardenas-Corona, Ph.D.; Jen-Tsan Ashley Chi, M.D., Ph.D.; Timothy M. Clay, Ph.D.; Gordon R. Corey, M.D.; Gary M. Cox, M.D.; Coleen K. Cunningham, M.D.; Vance Fowler, M.D., M.H.S.; Michael M. Frank, M.D.; Richard Frothingham, M.D.; Mariano A. Garcia-Blanco, M.D., Ph.D.; Eli Gilboa, Ph.D.; Michal Dee Gunn, M.D.; Russell P. Hall, M.D.; Carol Dukes Hamilton,

M.D.; Barton Ford Haynes, M.D.; Joseph Heitman, M.D., Ph.D.; Maureane Richardson Hoffman, M.D., Ph.D.; Sue Jinks-Robertson, Ph.D.; Jack D. Keene, Ph.D.; Garnett H. Kelsoe, Ph.D., M.S.; Michael S. Krangel, Ph.D.; Kenneth N. Kreuzer, Ph.D.; Joanne Kurtzberg, M.D.; Micah Luftig, PhD; Mary Louise Markert, M.D., Ph.D.; John H. McCusker, Ph.D.; Thomas G. Mitchell, Ph.D.; David C. Montefiori, Ph.D.; Michael Aaron Morse, M.D.; Joseph R. Nevins, Ph.D.; Scott Michael Palmer, M.D., M.H.S.; William R. Parker, Ph.D.; John R. Perfect, M.D.; Thomas Petes, Ph.D.; David J. Pickup, Ph.D.; David S. Pisetsky, M.D., Ph.D.; Christian R.H. Raetz, M.D., Ph.D.; David Ruch, M.D.; Patrick Casey Seed, M.D., Ph.D.; Daniel J. Sexton, M.D.; Joseph W. St. Geme, M.D.; Herman F. Staats, Ph.D.; William J. Steinbach, M.D.; Beth Ann Sullivan, Ph.D.; Paul Szabolcs, M.D.; Gregory Taylor, Ph.D.; Thomas F. Tedder, Ph.D.; Marilyn Jo Telen, M.D.; Nathan M. Thielman, M.D., M.P.H.; Georgia Tomaras, Ph.D.; Raphael Valdivia, Ph.D.; Joe Brice Weinberg, M.D.; Kent James Weinhold, Ph.D.; Kenneth H. Wilson, M.D.; Christopher W. Woods, M.D.; Aimee Zaas, M.D.; Xiaoping Zhong, M.D., Ph.D.; Yuan Zhuang, Ph.D.

Molecular Medicine

MOLMED-301B. RESEARCH IN MOLMED-ONCOLOGICAL SCIENCES. Study Program Director: Gerard Blobe, M.D., Ph.D. 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. There are four discreet sub tracks to accommodate the diversity of interest in Molecular Medicine.

ONCOLOGICAL SCIENCES: Co-Director: Cory Adamson, Ph.D. 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. FACULTY MENTORS: David Cory Adamson, M.D., Ph.D.; Andrew Berchuck, M.D.; Gerard Blobe, M.D., Ph.D.; Christopher Counter, Ph.D.; Mark Dewhirst, Ph.D.; Stephen Jay Freedland, M.D.; Matthias Gromeier, Ph.D.; Brigid Hogan, Ph.D.; Randy Jirtle, Ph.D.; Michael Kelley, M.D.; David Kirsch, M.D., Ph.D.; Sally Kornbluth, Ph.D.; Joanne Kurtzberg, M.D.; Daniel Lew, Ph.D.; Corinne Linardic, M.D., Ph.D.; Jeffrey Marks, Ph.D.; Donald McDonnell, Ph.D.; Paul Modrich, Ph.D.; Susan Kay Murphy, Ph.D.; Joseph Nevins, Ph.D.; Edward Patz, M.D.; Ann Marie Pendergast, Ph.D.; Salvatore Pizzo, M.D., Ph.D.; Victoria Seewaldt, M.D.; Douglas Tyler, M.D.; Xiao-Fan Wang, Ph.D.; Daniel Wechsler, M.D.C., Ph.D.; Hai Yan, M.D., Ph.D.; Tso-Pang Yao, Ph.D.; John David York, Ph.D.; Yunyan Zhang, Ph.D.

MOLMED-302B. RESEARCH IN MOLMED- REGENERATIVE MEDICINE. Program Director: Gerard Blobe, M.D., Ph.D. 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. FACULTY: David Cory Adamson, M.D., Ph.D.; Andrew Berchuck, M.D.; Gerard Conrad Blobe, M.D. Ph.D.; Blanche Capel, Ph.D.; Christopher Counter, Ph.D.; Mark Dewhirst, Ph.D.; Matthias Gromeier, M.D.; Brigid L.M. Hoga, Ph.D.; Randy L. Jirtle, Ph.D.; Michael John Kelley, M.D.; David Kirsch, M.D., Ph.D.; Sally A. Kornbluth, Ph.D.; Joanne Kurtzberg, M.D.; Daniel Julio Lew, Ph.D.; Corinne Linardic, M.D., Ph.D.; Jeffrey R. Marks, Ph.D.; Doland McDonnell, Ph.D.; Paul Modrich, Ph.D.; Joseph Nevins, Ph.D.; Edward F. Patz, M.D.; Ann Marie Pendergast, Ph.D.; Salvatore Pizzo, M.D., Ph.D.; Kenneth Poss, Ph.D.; Victoria Seewaldt, M.D.; Douglas Tyler, M.D.; Xiao-Fan Wang, Ph.D.; Daniel Steven Gary Wechsler, M.D.C., Ph.D.; Tso-Pang Yao, Ph.D.; John David York, Ph.D.; Yunyun Zhang, Ph.D.

MOLMED-303B. RESEARCH IN MOLMED-MOLECULAR BASIS OF DISEASE. Program Director: Gerard Blobe, M.D., Ph.D. 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 stu-

dent by the faculty preceptor. FACULTY: Richard L. Auten, M.D.; George Vann Bennett, M.D., Ph.D.; Perry Blackshear, M.D., D. Phi; Gerard Blobe, M.D., Ph.D.; Marc G. Caron, Ph.D.; Jen-Tsan Ashley Chi, M.D., Ph.D.; Jonathan Cohn, M.D.; Christopher Counter, Ph.D.; Michael Scott Freemark, M.D.; Larry Bruce Goldstein, M.D.; Joseph B. Heitman, M.D., Ph.D.; Homme Hellinga, Ph.D.; Sally A. Kornbluth, Ph.D.; Kenneth Kreuzer, Ph.D.; Madan Kwatra, Ph.D.; Daniel Lew, Ph.D.; Rodger Liddle, M.D.; Hiroaki Matsunami, Ph.D.; Donald McDonnell, Ph.D.; Anthony Ross Means, Ph.D., M.S.; Paul Modrich, Ph.D.; Christopher Nicchitta, Ph.D.; Thomas Ortel, M.D., Ph.D.; Ann Marie Pendergast, Ph.D.; Thomas Petes, Ph.D.; Geoffrey Pitt, M.D., Ph.D.; Christian R.H. Raetz, M.D., Ph.D.; Beth Ann Sullivan, Ph.D.; Judith Ann Voynow, M.D.; Xiao-Fan Wang, Ph.D.; Jo Rae Wright, Ph.D.; Tso-Pang Yao, Ph.D.; Heather Yeowell, Ph.D.; John York, Ph.D.; Yunyun Zhang, Ph.D.

MOLMED-304B. RESEARCH IN MOLMED-NUTRITIONAL & METABOLIC MECHANISMS OF CHRONIC DISEASES. : Program Director: Gerard Blobe, M.D., Ph.D. 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 are 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. FACULTY: Larry Gene Moss, M.D.; Deborah Marie Muoio, Ph.D.; Christopher Newgard, Ph.D.; Jeffrey Rathmell, Ph.D.

Neurosciences Study Program

NSS-301B. RESEARCH IN NSS. Program Director (Interim) Christopher Lascola, M.D. Overview: The Neurosciences Study Program provides 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. Importantly, there are no specific course requirements in the Program, but rather 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. Colton 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 the Searle Center that will occur in early June. Final Thesis: At the end of the spring semester (either in June or August), students are required to write a description of their hypotheses, the outcome of their experiments, and conclusions of their work (15-20 pages). FACULTY MENTORS: George J. Augustine, Ph.D.; James Burke, M.D, .Ph.D.; Nell B. Cant, Ph.D.; Nicole Calakos, M.D., Ph.D.; Carol Colton, Ph.D.; Joseph M. Corless, M.D., Ph.D.; Hana Dawson, Ph.D.; Sharyn Anne Endow, Ph.D.; David Fitzpatrick, Ph.D.; Michael M. Haglund, M.D., Ph.D.; William C. Hall, Ph.D.; Scott Huettel, Ph.D.; Erich Jarvis, Ph.D.; Yong-Hui Jiang, M.D., Ph.D.; Cynthia M. Kuhn, Ph.D.; Paul C. Kuo, M.D.; Daniel Laskowitz, M.D.; Wolfgang Liedtke, M.D.; Donald C. Lo, Ph.D.; Roger Madison, Ph.D.; Mohamed Mikati, M.D.; Roger E. McLendon, M.D.; James O. McNamara, Sr., M.D.; J. Victor Nadler, Ph.D.; Jeffrey M. Petrella, M.D.; Geoffrey Pitt, M.D., Ph.D.; Michael L. Platt, Ph.D.; James M. Provenzale, M.D.; Dale Purves, M.D.; John H. Sampson, M.D., Ph.D.; Rochelle D. Schwartz-Bloom, Ph.D.: Jesse H. Pate Skene, Ph.D.; Theodore A. Slotkin, Ph.D.; John E.R. Staddon, Ph.D.; Warren J. Strittmatter, M.D.; Dennis A. Turner, M.D.; Michael Vitek, Ph.D.; Fan Wang, Ph.D.; Wilkie Andrew Wilson, Ph.D.; Marty G. Woldorff, Ph.D.; Fulton Wong, Ph.D.

Ophthalmology and Visual Sciences Study Program

OVS-301B. RESEARCH IN OVS. Study Program Director: Catherine Bowes Rickman, PhD. 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 medical 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, 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: Catherine Bowes Rickman, Ph.D.; Robert Rand Allingham, M.D.; Nasrin (Natalie) A. Afshari, M.D.; Vadim Y. Arshavsky, Ph.D.; Edward G. Buckley, M.D.; Pratap Challa, M.D.; Scott W. Cousins, M.D.; David L. Epstein, M.D.; Paulo A. Ferreira, Ph.D.; Glenn J. Jaffe,

M.D.; Gordon Klintworth, M.B.B.; Paul P-J Lee, M.D., J.D.; P. Vasanth Rao, Ph.D.; Cynthia A. Toth, M.D.; David K. Wallace, M.D.; Fulton Wong, Ph.D.; Terri L.Young, M.D

Pathology Study Program

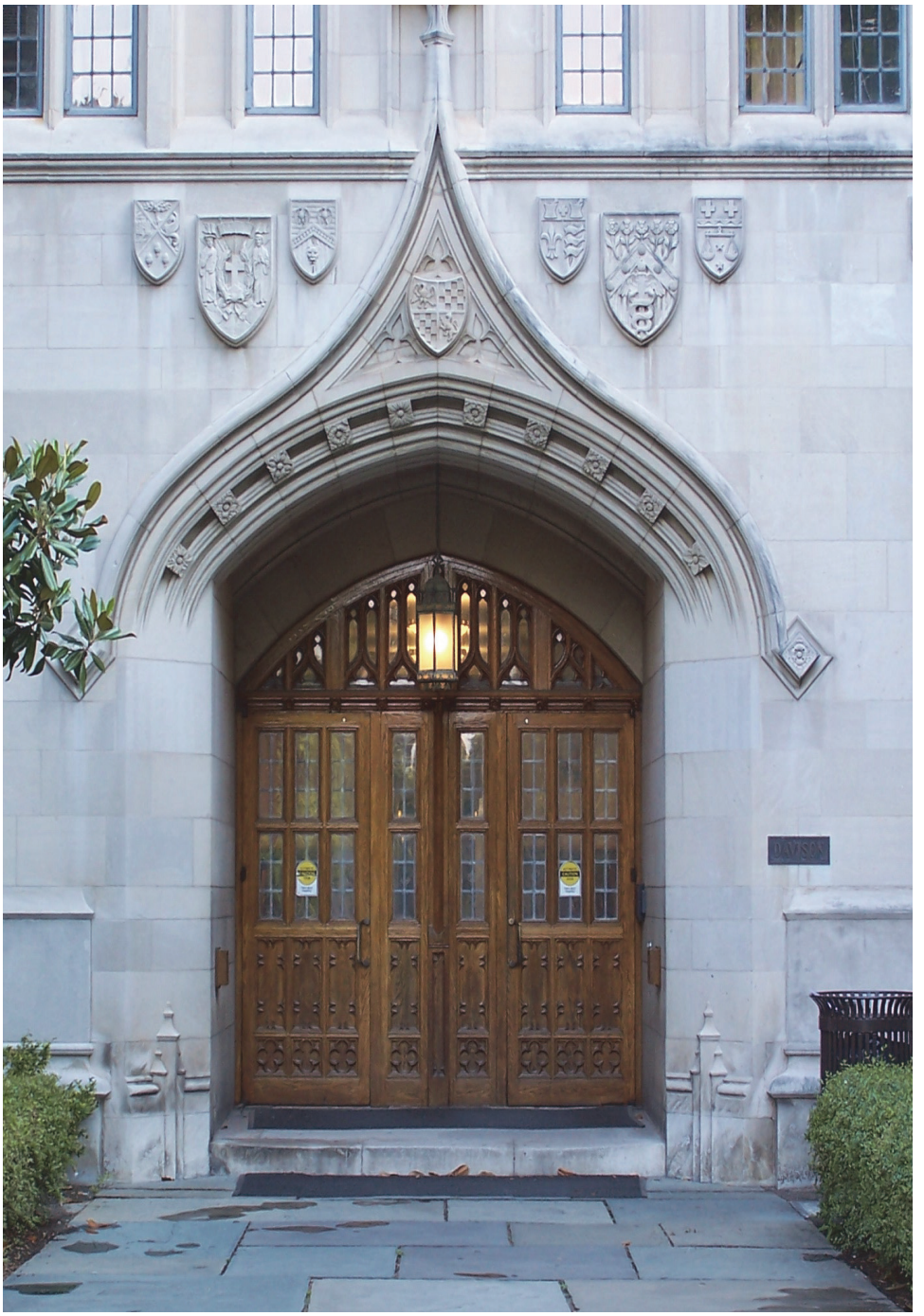
PSP-301B. RESEARCH IN PSP. Program Director: Mary E. Sunday, M.D., Ph.D. Pathology is the study of the essential nature of diseases and especially of the structural and functional changes produced by them. The goal of the Pathology Study Program is to provide the medical student with a thorough learning experience in pathology and laboratory medicine under the guidance of a senior faculty preceptor. The essential element of this program is an independent, but guided research experience. FACULTY: Soman N. Abraham, Ph.D., M.S.; Darell D. Bigner, M.D., Ph.D.; Sandra Bigner, M.D.; Edward H. Bossen, M.D.; Patrick Joseph Buckley, M.D., Ph.D.; Blanche Capel, Ph.D.; Dennis A. Clements, M.D., Ph.D., M.P.H.; Sheila Collins, Ph.D.; Michael Bradley Datto, M.D., Ph.D.; Mark W. Dewhirst, Ph.D.; Mark N. Feinglos, M.D.; Charles S. Greenberg, M.D.; Laura Pope Hale, M.D., Ph.D., M.S.; David H. Harpole, M.D.; Maureane Hoffman, M.D., Ph.D.; David N. Howell, M.D., Ph.D.; Randy L. Jirtle, Ph.D.; William Harrison Kane, M.D., Ph.D.; Gordon Klintworth, M.B.B.; Virginia B. Kraus, M.D., Ph.D.; Anand Shreeram Lagoo, M.D., M.B.B., Ph.D.; James E. Lowe, M.D.; Herbert K. Lyerly, M.D.; John F. Madden, M.D., Ph.D.; Neil Ross MacIntyre, M.D.; Roger McClendon, M.D.; Sara E. Miller, Ph.D.; Salvatore V. Pizzo, M.D., Ph.D.; Alan David Prioa, M.D. Ph.D.; Nancy L. Reinsmoen, Ph.D., M.S.; L. Barth Reller, M.D.; Victor L. Roggli, M.D.; Christopher Richard Shea, M.D.; John D. Shelburne, M.D., Ph.D; Herman Ford Staats, Ph.D.; Timothy Todd Stenzel, M.D., Ph.D.; Mary Elizabeth Anne Sunday, M.D., Ph.D.; John G. Toffaletti, Ph.D.; Robin T. Vollmer, M.D.; Philip John Walther, M.D., Ph.D., M.B.A.; Joe Brice Weinberg, M.D.

Pharmacology & Molecular Therapeutics Study Program

PMT-301B. PHARMACOLOGY AND MOLECULAR THERAPEUTICS. Program Director: Gerard Blobe, M.D., Ph.D. The PMT program is based on utilization of the basic concepts of biology and chemistry for determining mechanisms of human disease, targeting signal transduction pathways for the treatment of human disease and determining how drugs affect humans. It encompasses the study of the biological targets of drug action, the mechanism by which drugs act, the therapeutic and toxic effects of drugs, as well as the development of new therapeutic agents. Participating faculty members have particular strengths in the areas of receptor function and cellular signaling mechanisms as targets of drug action. Special emphasis is placed on the complex regulatory mechanisms that govern mammalian cell growth and differentiation, how these mechanisms are perturbed in human diseases (such as cancer) and how our knowledge of these regulatory mechanisms might lead to improved therapies. Current research interests of the faculty include: 1. cellular signaling mechanisms, including the actions of calcium and cyclic nucleotides on protein phosphorylation/dephosphorylation; 2. receptor function and cell signaling mechanisms regulating cell growth, proliferation and death; 3. the mechanism of action of neuropeptides and neurotransmitters; 4. ontogeny of signaling pathways in nervous, cardiovascular and immune tissue; and 5. the molecular basis of rational drug design. The major emphasis of the PMT program is on student-generated independent study/research projects conducted in close association with a faculty preceptor. In addition, a weekly seminar series, the Signal Transduction Colloquium, exposes participating students to a variety of topics presented by experts in the various relevant fields of research. *FACULTY: Richard Lambert Auten Jr., M.D.; Gerard C. Blobe, M.D., Ph.D.; Marc G. Caron, Ph.D.; Patrick J. Casey, Ph.D.; Jonathan A. Cohn, M.D.; Christopher M. Counter, Ph.D.; Michael Freemark, M.D.; Larry*

Goldstein, M.D.; Joseph Heitman, M.D., Ph.D.; Homme W. Hellinga, Ph.D.; Sally A. Kornbluth, Ph.D.; Madan Kwatra, Ph.D.; Daniel Lew, Ph.D.; Rodger A. Liddle, M.D.; Donald P. McDonnell, Ph.D.; Anthony R. Means, Ph.D., M.S.; Elliott Mills, Ph.D.; Paul Modrich, Ph.D.; Larry Gene Moss, M.D.; Thomas M. Murphy, M.D.; Christopher B. Newgard, Ph.D.; Christopher Nicchitta, Ph.D.; Christopher O'Connor, M.D.; Thomas L. Ortel, M.D., Ann Marie Pendergast, Ph.D.; David W. Schomberg, Ph.D.; Steven R. Vigna, Ph.D.; Judith A. Voynow, M.D.; Xiao-Fan Wang, Ph.D. ; Thomas Weber, M.D.; Jo Rae Wright, Ph.D.; Tso-Pang Yao, Ph.D.; Heather N. Yeowell, Ph.D.; John D. York, Ph.D.; Yunyan Zhang, Ph.D.

Doctor of Physical Therapy Division



Doctor of Physical Therapy

DPT Faculty

Chief: Michel D. Landry, BScPT, PhD

Robert Butler, PT, DPT, PhD; Laura Case, PT, DPT, MS, PCS, C/NDT; Richard Clendaniel, PT, PhD; Kyle Covington, PT, DPT, NCS; Jody Feld, PT, DPT; Carol Figuers, PT, EdD; Adam Goode, PT, DPT, PhD; Jan Gwyer, PT, PhD; Janice Loudon, PT, PhD, SCS, ATC; Corrie Odom, PT, DPT, MS, ATC; Amy Pastva, PT, PhD; Michael Reiman, PT, DPT, MEd, OCS, ATC, CSCS; Elizabeth Ross, PT, DPT, MMS; Kathy Shipp, PT, PhD; Andrea Taylor, PhD; and Leonard White, PhD

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 Curriculum

The Duke DPT curriculum 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 DPT program at Duke University has received full-accreditation status from the Commission on Accreditation of Physical Therapy Education of the American Physical Therapy Association (APTA), and has offered an accredited educational program for physical therapists since its inception in 1943.

Prerequisites for Admission. Requirements for admission to the DPT program include a baccalaureate degree, completion of prerequisite courses, Graduate Record Examination (GRE) Aptitude Test scores within the last five years, the filing of an application (including essays and reference letters), and upon invitation, a personal interview. The GRE must be taken no later than the November test date.

Prerequisite coursework: 6 semester hours of biological sciences (recommended courses include embryology, histology, microbiology), 3 semester hours of human anatomy,

3 semester hours of human physiology, 6 semester hours of chemistry, 6 semester hours of physics (including principles of light, heat, electricity, mechanics, and sound), 3 semester hours of statistics, 6 semester hours of psychology (recommended courses include abnormal psychology, child, or developmental psychology), and 9 semester hours of humanities/social sciences (recommended courses include scientific and technical writing, and social anthropology). Human anatomy and human physiology courses must be completed within five years of the date of the application. 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. 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. Application material can be found on the DPT website located at *http://dpt.duhs.duke.edu/*.

The admissions process involves submitting a completed application through the Physical Therapy Central Application System (PTCAS) and mailing all required documentation to PTCAS. There is no supplemental fee or application. 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.

For early decision process the application and all supporting documents must be submitted through PTCAS (*www.ptcas.org*) no later than August 15th of the year preceding admission. For the early consideration process, the application deadline is October 1st of the year preceding admission. Otherwise, the regular submission deadline is December 1st of the year preceding admission. Applications received after the December 1st deadline 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.

Candidates may work on the online application over multiple sessions before submitting. Once the application is submitted, changes cannot be made online. To submit new or additional information, applicants must contact the DPT Division Admissions Coordinator, Duke University Medical Center, Doctor of Physical Therapy Division, 2200 W. Main Street, Suite A-210, DUMC Box 104002, Durham, NC 27708, (919) 668-5206.

CRIMINAL BACKGROUND CHECK POLICY

Admissions. All applicants to the Duke Doctor of Physical Therapy (DPT) program are required to disclose any misdemeanors or felony convictions, other than minimal traffic violations including deferred adjudication. Non-disclosure/falsification may lead to revocation of an offer of acceptance into the DPT program or dismissal from the program.

A criminal background check (CBC) will be initiated at the time an applicant is accepted and matriculates to the DPT program, or at the request of the Chair of the Admissions Committee regarding anyone who is wait-listed for admission. The CBC will report on federal, state, and local records that extend back a minimum of five years. Results of the CBC will be valid for one year.

A CBC is not a component of the application, interview, or the admission decision-making process for the DPT Division. However, it is a mandatory component of the post-acceptance matriculation process. There shall be an explicitly stated contingency that the final decision about matriculation into the DPT program will be made after the Admissions Committee review of the accepted applicant's CBC report. Final decisions about the matriculation of an accepted applicant who's 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 he/she may have access to CBC data about himself/herself 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 his/her application materials.
- 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, non-admission file and will not become part of the students' permanent file. All reports are considered confidential. Information obtained from the CBC will only be used in accordance with state and federal laws. The CBC reports will be kept in a locked file for the duration of the student's enrollment. This information will be destroyed upon a student's graduation from the DPT Division.

Enrolled Students. Following enrollment in the Duke DPT program, students are required to disclose any misdemeanor or felony convictions other than minimal traffic violations, including deferred adjudication, within thirty days of occurrence to the Division Chief. Non-disclosure or falsification may be grounds for dismissal or degree revocation.

Students already enrolled in the DPT Division may, for good cause, be required at the request of the Chief to undergo an additional CBC. 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, he/she 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 Division Chief will evaluate all background checks and will make the determination if the individual student can participate in clinical experiences.

Drug Screen Policy. Students enrolled in the DPT Division may, for good cause, be required at the request of the Chief to undergo a drug screen. A clear drug screen is also required of students by many clinical education sites. The cost of the drug screen is the responsibility of the student.

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.

Duke Employee Occupational Health & Wellness (EOHW) Office is the only agency authorized to conduct Urine Drug Screening for students enrolled in the Duke DPT program. Results from any other agency **will not** be recognized.

The student is aware that, when applying for the drug screen, he/she 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.

Academic Calendar

Class of 2015 Academic Calendar

SUBJECT TO CHANGE

YEAR ONE

SESSION 1 (Fall 2012) - 16 Weeks (14 didactic, 1 clinical, 1 vacation)

August 14-17	Orientation
August 20	Session 1 Begins
September 3	Labor Day Holiday
November 19-23	Thanksgiving Break
December 7	Session 1 Ends

SESSION 2 (Spring 2013) - 15 weeks (13 didactic, 1 clinical, 1 vacation)

January 2	Session 2 Begins
January 21	Dr. Martin Luther King Jr. Holiday
February 25 - March 1	Spring Break
April 12	Session 2 Ends

SESSION 3 (Summer 2013) - 16 weeks (13 didactic, 2 clinical, 1 vacation)

April 22	Session 3 Begins
May 27	Memorial Day Holiday
June 10-14	Summer Break
July 4	Independence Day Holiday
August 9	

YEAR TWO

SESSION 4 (Fall 2013) - 16 weeks (14 didactic, 1 clinical, 1 vacation)

August 26	Session 4 Begins
September 2	Labor Day Holiday
November 25 – 29	Thanksgiving Break
December 13	Session 4 Ends

SESSION 5 (Spring 2014) - 15 weeks (13 didactic, 1 clinical, 1 vacation)

January 6	Session 5 Begins
January 20	Dr. Martin Luther King Jr. Holiday
February 24 – 28	Spring Break
April 18	Session 5 Ends

SESSION 6 (Summer 2014) - 12 weeks (10 didactic, 2 clinical)

April 28	Session 6 Begins
May 26	Memorial Day Holiday
July 4	Independence Day Holiday
July 18	Session 6 Ends

YEAR THREE

SESSION 7 - CLINICAL INTERNSHIP I (Summer & Fall 2014) - 12 weeks

July 28	Session 7 – Clinical Internship I Begins
October 17	Session 7 – Clinical Internship I Ends

SESSION 8 - CLINICAL INTERNSHIP II (Fall 2014 & Spring 2015) - 12 weeks

October 27	Session 8 – Clinical Internship II Begins
January 16	Session 8 – Clinical Internship II Ends

SESSION 9 - CLINICAL INTERNSHIP III (Spring 2015) - 12 weeks

January 26	Session 9 – Clinical Internship III Begins
April 17	Session 9 – Clinical Internship III Ends

SESSION 10 - GRADUATION (Spring 2015) - 2 weeks

April 27	Graduation Week Activity
May 10 (tentative)	*Graduation*

Program of Study. The curriculum is comprised of 122 credits of academic work that is completed over eight academic semesters requiring 33 months of full-time attendance. Course work includes didactic courses in basic sciences, clinical sciences, patient management, evidence-based practice, health policy and business, plus third- year clinical internships (36 weeks). Clinical internships are conducted at approved clinical sites located in North Carolina and across the United States. International learning opportunities may be available.

Curriculum. 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.

Year One

Fall Semester

PT-D 601. Clinical STEP I	1 credit
PT-D 602. Body and Brain I	4 credits
PT-D 603. Applied Physiology I	3 credits
PT-D 604. Movement Sciences I	3 credits
PT-D 605. Professional Development I	2 credits
PT-D 606. Health Promotion across the Lifespan	2 credits
Total	**15 credits**

Spring Semester

PT-D 611. Clinical STEP II	1 credit
PT-D 612. Body and Brain II	3 credits
PT-D 613. Applied Physiology II	3 credits
PT-D 614. Movement Sciences II	2 credits
PT-D 615. Professional Communication I	2 credits
PT-D 616. Foundational Physical Therapist Examinations	2 credits
PT-D 617. Foundational Physical Therapist Interventions	2 credits
Total	**15 credits**

Summer Semester

PT-D 621. Clinical STEP III	2 credits
PT-D 622. Evidence-based Practice I	2 credits
PT-D 623. Cardiopulmonary Patient Management	2 credits
PT-D 624. Integumentary Patient Management	2 credits
PT-D 625. Diagnostic Imaging	2 credits
PT-D 626. Assessing Outcomes of Care	2 credits
PT-D 627. Physical Therapist Interventions I	2 credits
Total	**14 credits**

Year Two

Fall Semester

PT-D 701 Clinical STEP IV	1 credit
PT-D 702. Professional Communication II	2 credits
PT-D 703. Evidence-based Practice II	2 credits
PT-D 704. Musculoskeletal Patient Management I	3 credits
PT-D 705. Neurological Patient Management I	4 credits
PT-D 706. Physical Therapist Interventions II	3 credits
Total	**15 credits**

Spring Semester

PT-D 711. Clinical STEP V	1 credits
PT-D 712. Health and Disability Policy and Practice	2 credits
PT-D 713. Professional Development II	2 credits
PT-D 714. Musculoskeletal Patient Management II	3 credits
PT-D 715. Neurological Patient Management II	4 credits
PT-D 716 Physical Therapist Interventions III	2 credits
Total	**14 credits**

Summer Semester

PT-D 721. Clinical STEP VI	2 credits
PT-D 722. Management of Health Care Delivery	2 credits
PT-D 723. Health Promotion and Primary Care Practice	2 credits
PT-D 724. Evidence-based Practice Capstone	2 credits
PT-D 725. Elective I	2 credits
PT-D 726. Elective II	2 credits
Total	**12 credits**

Year Three

Fall Semester (8 weeks)

PT-D 801. Clinical Internship I	12 credits
PT-D 802. Clinical Internship II	12 credits
PT-D 803. Clinical Internship III	12 credits
PT-D 804. Professional Development III	1 credit
Total	**37 credits**

TOTAL FOR DEGREE	**122 credits**

DOCTOR OF PHYSICAL THERAPY PROGRAM POLICIES

Program Policies and Grading Standards. Enrolled students should refer to the DPT Student Handbook for detailed program policies. 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.

Attendance and Excused Absences. Students are expected to attend all classes and clinical internship hours, and are excused only for illness or personal emergency.

Academic Progression and Requirements for Graduation. The faculty of the DPT Division program accepts responsibility for monitoring the academic progress of each student enrolled in the program. The following policy describes the standards by which satisfactory academic progress will be assessed, the determination of academic standing, and the requirements for successful completion of the DPT degree.

I. Standards of Academic Progress

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

Didactic and Clinical Courses. For all didactic and clinical courses in the curriculum, except the STEPs courses, the following grading system will be used:

P Pass

F Fail

I Incomplete

Pass-Fail Grades. The raw score range for establishing Pass or Fail grades will range from 0 to 100 with a score of 70 and higher established as a passing grade. A raw score of 69 or less will result in a failing 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 mastery of course content and must pass the appropriate courses, in order to progress in the curriculum.

A student who fails to master course content and receives a failing course grade will automatically be withdrawn from the program. The student may appeal their withdrawal from the program within 3 weeks. All appeals must be in writing and sent, via certified mail, to the Division Chief. Upon receipt of the appeal the Chief will review the appeal and in consultation with the vice-chiefs, the student advisor and the course director and will make a decision to grant or deny the appeal.

If the student's appeal is not granted, then the student's withdrawal from the pro-gram will be sustained.

If the appeal to remediate the failed course content is granted, the student must pass the remediation in order to academically progress to the next semester.

A student, who is permitted to remediate failed course content and fails the remediation attempt, will be automatically withdrawn from the program.

All failing grades will remain on the student's transcript. Upon achieving a passing grade, the passing grade will be placed next to the failing grade. If the student fails their remediation attempt, the failing grade will be placed next to the original failing grade.

Clinical STEP Courses. The following grading system will be used for the six Clinical STEP courses in Years 1 and 2 (PT-D 601 Clinical STEP I, PT-D 611 Clinical STEP II, PT-D 621 Clinical STEP III, PT-D 701 Clinical STEP IV, PT-D 711 Clinical STEP V, and PT-D 721 Clinical STEP VI):

P Pass

LP Low Pass

F Fail

I Incomplete

The six Clinical STEP courses present an integrated progression of clinical skill and professional behavior development. A summative determination will be made following the completion of PT-D 621 and PT-D 721 to determine if the student may progress into the following session of the curriculum.

A student may earn no more than one final course grade of Low Pass in PT-D 601, PT-D 611, or PT-D 621 in order to progress in the curriculum. A student who earns two final course grades of Low Pass in PT-D 601, PT-D 611, or PT-D 621 will be withdrawn from the program.

A student may earn no more than one final course grade of Low Pass in PT-D 701, PT-D 711, or PT-D 721 in order to progress in the curriculum. A student who earns two final course grades of Low Pass in PT-D 701, PT-D 711, or PT-D 721 will be 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 discretion of the course instructor's or Division Chief's discretion, for the following reasons:

- Documented student illness that prevents the student from completing the required work in the session in which the course is offered.
- 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.
- A student who selects alternative or additional unplanned learning experiences that will impede his/her ability to complete coursework in the session in which the course is offered. Examples of such opportunities include: acceptance of a Fulbright Grant, Rhodes Scholarship, or other academic award, or participation in the Olympics or Pan American Games.
- 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 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 instructor will determine the manner in which the Incomplete grade will be converted to an earned grade. The instructor who gives an Incomplete grade for a course 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 Clinical Internship.

Incomplete grades that are not satisfied within one calendar year become failing grades. If an extension to this time limit is required, an appeal in writing must be made to the Chief just prior to expiration of the calendar year in which the Incomplete grade must be completed. When the faculty member certifies that an Incomplete grade has been satisfied, a passing grade is placed alongside the Incomplete grade on the permanent and official transcript.

If a student's grade in a course that contains specific subunits is passing, but one or more subunits have been failed, the student will receive an Incomplete grade in the course and must complete remedial work in order to earn a passing grade in the course.

Failing Grades. A failing grade is recorded on the permanent record of a student by the Registrar upon submission by the faculty member that unsatisfactory work has been performed by the student. Failures will not be erased from the permanent record and will result in immediate withdrawal from the DPT program. However, the student may appeal this withdrawal by following the process listed in "Appeals of Academic Status" (Academic Probation or Withdrawal).

Progression. Normally, all first-year courses must be satisfactorily completed before a student may enroll in the second-year courses, and all second-year courses must be satisfactorily completed before a student may enroll in the third-year courses. When requested by the student, altered sequences for students who require remediation may be considered for approval by the Division Chief.

II. Determination of Academic Standing.

All students' records are reviewed periodically by the faculty, and each student is assigned to one of the following three categories of Academic Standing.

Good Academic Standing. The student is considered to be in Good Academic Standing if they are not on probation and are receiving passing grades in all courses.

Academic Probation. Academic probation is an academic standing that indicates concern about the student's performance in the curriculum. By placing the student on academic probation, the student is notified of the faculty's concern regarding his/her past performance. The student also is informed that future performance must improve or the student risks being withdrawn from the program. In these instances, the Chief will notify the Registrar that the student should be placed on academic probation, and this status will be noted on the student's academic transcript.

A Failing grade is recorded on the permanent record of a student by the Registrar upon submission by the faculty member that unsatisfactory work has been per-formed by the student. Failures will not be erased from the permanent record and will result in immediate withdrawal from the DPT program.

A student who remediates failed course content will be immediately placed on academic probation. This probation will last until the completion of the next semester. If at the end of the next semester the student has earned all passing grades, the student will progress in the curriculum and will be removed from probationary status. If a student on probation receives a failure, or low pass, in any course in the next semester, the student will immediately be withdrawn from the program. The student may then appeal their withdrawal.

The Chief will notify the student that their performance will be evaluated at the end of each succeeding semester, and that future poor performance may result in withdrawal from the program (see the following section).

The faculty of the DPT program will use the following standards for assigning the status of academic probation.

- A student who successfully appeals a failing grade will be considered to be on Academic Probation (see Withdrawal below). The probationary status will be concomitant with the granting of the appeal.
- If the student passes remediation, their probationary status will continue through the end of the next semester.

Withdrawal. A student who fails to demonstrate successful academic progress will be withdrawn from the program.

The faculty of the DPT program will use the following standards for withdrawing a student from the program.

- A student will be automatically Withdrawn following the attainment of a failing grade in any one course in the curriculum. The student may appeal this withdrawal as described under the section "Appeals of Academic Status (Academic Probation or Withdrawal).
- A student who is currently on Academic Probation will be withdrawn following the attainment of a failing or low pass grade.

In order to run for and serve as a student class officer or committee representative, a DPT student must be in "good academic and professional standing." This means that the student must not be on probation of any kind.

Committee representatives will serve until graduation unless they choose to leave the position or become ineligible due to being on probationary status. At that point, the alternate or a newly elected student will replace the representative.

III. Appeals of Academic Status (Academic Probation or Withdrawal)

A student placed on Academic Probation or Withdrawn from the program may appeal by indicating in writing to the Chief: (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. The chief will notify the student of the decision on the appeal in writing within three weeks of receipt of the appeal. All appeals must be mailed to the chief via United States Postal Service Certified Mail.

Leave of Absence Policy. The Division Chief may approve a student's written request for a Leave of Absence for personal, medical, or academic reasons, for a period not to exceed one year. 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 Chief 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 (if any) and the assignment of grades.

Once the request is received, the Chief will inform the Curriculum Coordinator who will then notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the request 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 is required to contact these offices to ensure that 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 he or she was enrolled for the term and that he or she withdrew or took a leave of absence on the effective date of request.

Written notification of the approved time-frame of the leave of absence will be provided to the student, the Registrar, and the Director of Financial Aid. The student must provide written notification of their intent to return to the program at least 90 days prior to the anticipated date of re-entry. The student requesting an extension beyond one calendar year may be required to apply for readmission to the program and/or to repeat some or all

coursework. For purposes of deferring repayment of student loans during a school-approved leave of absence, federal regulations limit the leave to six months.

Voluntary Withdrawal Policy. Students who wish to voluntarily withdraw (drop all courses) from the DPT program will be required to drop all courses and submit a written request, via certified United States Mail, to the Division Chief. The postmark date of the withdrawal request will be the date used in determining the official date of withdrawal and in determining any refund of tuition and fees and the assignment of grades.

Once the request to withdraw is received by the Chief, the Chief will inform the Administrative Coordinator for Graduate Studies, who will then notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the with-drawal 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 that they have completed all required interviews and have fulfilled any responsibilities with regard to this process. The student's permanent academic record will reflect that he/she was enrolled for the term and that he/she withdrew on the effective date of their withdrawal.

Grades. Assignment of grades for withdrawing students is made on the basis of current grading policies detailed in the appropriate DPT Student Manual. Students withdrawing from the program prior to 70% of the completed session will receive a Withdrawn grade for all courses in which they are enrolled. Students withdrawing after 70% of the completed session will receive a Withdrawn Passing or a Withdrawn Failing grade, 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:	75 %
During third to fifth week:	50 %
During the sixth week:	25 %
After sixth week:	None

Refunds will be handled by the Bursar's Office. If a student withdraws from the DPT Division with outstanding financial obligations, the student's transcript will not be released until the obligations are satisfied. Questions concerning financial obligations should be referred to the Bursar's Office, 919-684-3531, *bursar@duke.edu*.

Tuition and Expenses. The DPT program practices a "need-blind admissions process," with adequate financial aid for those students with documented financial need. The tuition for the 122 credits of the program is assessed annually with payments due as scheduled by the Bursar prior to the start of each academic semester. The approved costs will be available from the Office of Financial Aid in May prior to admissions in the fall. Detailed student budgets are provided for all interviewed applicants.

Honor Code. Doctor of Physical Therapy students and faculty are governed by the School of Medicine Honor code, found in this Bulletin.

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. Examination administrations will not usually be proctored. 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.

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 Chief, who will consult with the instructor involved 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 Chief should be informed of this decision by the faculty member.

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 therapy education. Candidates must have motor-function capabilities and the emotional health to meet the demands of entry-level physical therapy 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 his/her 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 function effectively. A candidate must possess qualities of adaptability and flexibility and be able to function in the face of uncertainty. He or she 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.

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.

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. We value an open, collaborative, and congenial environment where safety is paramount. Efficient and dependable service to support state-of-the-art medical education is our goal.

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.

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. Contact Information: 919-684-6649; email address: financial_aid@mc.duke.edu or at the Duke University SOM Office of Financial Aid website: http://www.medschool.duke.edu/education/financial-aid-office

IV. Requirements for Graduation

A. Academic Standards for Graduation. The following standards must be met by the student to successfully complete the DPT program.

1. Completion with a passing grade of a minimum of 122 units of course credit, including all required courses. This includes the successful completion of a research project and of all clinical education courses.
2. Passing of all Practical Examinations administered by the faculty, and preparation for the Mock Licensure Exam in a manner which would give a basis for passing the exam.

B. Time Limits on Meeting Requirements for Graduation
   1. 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) that is completed in 33 calendar months. Under extraordinary conditions, a student may be permitted a time limit of two semesters of full-time 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 chief who will review each case.
   2. 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 Incomplete course grade. Under extraordinary circumstances, a student may apply for an exception to the typical pattern of progress towards degree requirements.

C. Incomplete Mastery of Content.
   1. If a student successfully appeals a failing grade in a course and is permitted to continue in the curriculum, the instructor is not required to provide individual remediation to the student. In this case, the only plan for remediation is for the student to retake the course in the session in which it is normally given. The student will bear all financial implications of repeated course work. All remediation efforts must be completed within the above-outlined time limits for completion of the program, or a failing grade will remain on the student's permanent record.

COURSES OF INSTRUCTION

PT-D 601. Clinical STEP I. Clinical Student Team Experience in Practice (STEP) is the first in a series of six courses that are embedded in the six didactic semesters 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. Each semester students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1.

PT-D 602. 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 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 moti-vate 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-D 603. 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 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-D-D 604. 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 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-D 605. 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 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. In this course, students will begin the development of their student portfolio project: a trans-curricular process in which the student will document their professional development and career aspirations. Credit: 2.

PT-D 606. Health Promotion across the Lifespan. This course begins with a four-week interprofessional course that uses a team-based learning approach to develop appreciation of the unique contributions of various health care providers in providing best practice prevention care to populations. Web-based modules on cultural competence, health literacy, and community health are also used. Interprofessional student teams meet in lecture and small group settings for organized activities and community assignments. A final team project is required. Following the interprofessional course, this course introduces lifespan issues related to health and wellness from birth to death, including physical, psychological, social, and economic aspects. Life stages from prenatal, childhood, adolescence, adulthood, and old age will be covered, with an emphasis on issues relevant to the practice of physical therapy in geriatric populations. Credit: 2.

PT-D 611. Clinical STEP II. Clinical Student Team Experience in Practice (STEP) is the second in a series of six courses that are embedded in the six didactic semesters 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. Each semester students will be expected to demonstrate skills and knowledge gained from the current and previous coursework. Credit: 1.

PT-D 612. Body and Brain II. This course completes 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 is the same as the first in the sequence, PT-D 602 Body & 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-D 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-D 602 surveyed these relationships in the postcranial body; PT-D 612 focuses 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-D 612 also covers the microanatomy, embryology, and pathology of the nervous systems, as well as the important pathophysiologyl of the immune system and neoplastia. 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: 4.

PT-D 613. 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 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-D 614. 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 coursework, and focuses on observational gait analysis of normal and pathological gait patterns. The second portion of the course focuses on normal development, 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 basic understanding of human movement provides a foundation for developing assessment and intervention strategies to improve and restore movement ability. Credit: 2.

PT-D 615. 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 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-D 616. 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 is integrated with PT 617. The course introduces fundamental examination skills used throughout physical therapy practice and among all practice settings. Credit: 2.

PT-D 617. 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, use of assistive ambulatory devices, stretching and flexibility, strength training, introduction to pharmacology and proprioceptive neuromuscular facilitation. Credit: 2.

PT-D 621. Clinical STEP III. 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-D 622. Evidence-based Practice I. In this course students are introduced to the science of clinical reasoning in health care and physical therapy, and the integration of clinical reasoning and evidence-based practice is developed. Students learn how to access knowledge for practice, and learn the methods of scientific inquiry, including research theory, design, methods, and measurement. Students read research literature weekly and participate in critical appraisal of the selected research methods and applicability of the findings for clinical decisions. The trans-curricular Evidence-Based Practice Capstone Project is started during this course. Credit: 2.

PT-D 623. Cardiopulmonary Patient Management. 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 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-D 624. Integumentary Patient Management. 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-D 625. Diagnostic Imaging. This course introduces the student to a spectrum of diagnostic-imaging techniques used for musculoskeletal, neurological, pulmonary, cardiac, and vascular systems. An overview of principles, techniques, purpose, process, and interpretation of diagnostic imaging is offered, as well as discussion of indications, contraindications, advantages, and disadvantages of various specific imaging techniques. Diagnostic imaging covered includes 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 is 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-D 626. Assessing Outcomes of Care. This course has three specific foci. First, the course introduces the metrics associated with outcomes assessment (e.g., reliability, validity, dimensionality, and interpretability). 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) process measures. The course compares and contrasts the merits of the measures, including discussion of the influence of bias for each. A third aspect of this course identifies policy-relevant outcomes such as secondary complications and hospital readmission. Credit: 2.

PT-D 627. Physical Therapist Interventions I. This is the second in the four-course Physical Therapist Intervention sequence. It builds on PT-D 617, Foundational Physical Therapist Interventions, by adding therapeutic exercise techniques including soft-tissue mobilization, aerobic exercise, airway clearance techniques, and skin and wound management. Special interventions for patients with medical dysfunction are covered in laboratories. Credit: 2.

PT-D 701. Clinical STEP IV. 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: 1.

PT-D 702. 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 their relationships with patients and families coping with the meaning of illness. Emphasis is placed on the psychosocial aspects of care, interdisciplinary communication, and cultural competence, which are reinforced by experiential learning, self-reflection, and work with standardized patients. Students will continue to develop their communication skills by designing and implementing formal learning experiences and assessing the outcomes of that practice opportunity. Credit: 2.

PT-D 703. 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 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-D 704. Musculoskeletal Patient Management I. This course introduces the student to musculoskeletal examination, evaluation, diagnosis, prognosis, and intervention for impairments, functional limitations, and disability in clients with pathologies of the cervical spine and upper extremities. Credit: 3.

PT-D 705. Neurological Patient Management I. This is the first of a two-course sequence, covering management of adults with complex CNS and multisystem disorders and co-morbidities. Examination, evaluation, diagnosis, clinical decision-making, prognosis, decision algorithms, standardized assessments and outcome measures, and interventions are stressed. Selected neuropathology and pharmacology are also presented. Stroke, Parkinson's disease, amyotrophic lateral sclerosis, and multiple sclerosis are highlighted. Availability and appropriate use of wheelchair and assistive technologies is

presented. Students participate in a pro bono Movement Matters Clinic in which they assess, treat, and progress patients with neuromuscular impairments and disabilities. Credit: 4.

PT-D 706. Physical Therapist Interventions II. This is the third course in the Physical Therapist Intervention sequence, and it focuses interventions on musculoskeletal and neurological impairments. Soft tissue, joint mobilization, and exercise techniques for problems of the tempero-mandibular joint (TMJ), cervical spine, and upper extremities are practiced. Management of children and adults with complex CNS/central nervous system, and multisystem disorders are presented, including handling skills such as proprioceptive neuromuscular facilitation. Students are introduced to the management of patients who require prosthetic or orthotic assistive devices. Students complete outside-of-class readings and participate in problem-solving laboratories with patients who use assistive devices. Credit: 3.

PT-D 711. Clinical STEP V. 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: 1.

PT-D 712. Health and Disability Policy and Practice. This course introduces the student to the historical development of the current health care system and reviews health care financing and reimbursement. Major forces which influence health care delivery are discussed. Local leaders in demographics, healthcare economics, health services, health policy, the insurance industry, and regulatory agencies provide lectures. Some lectures are complemented with small group discussions in a seminar format which relate lecture topics to physical therapy practice. Credit: 2.

PT-D 713. Professional Development II. In this course, students read about and discuss issues related to professional practice and interpret these concepts for their own careers. Students participate in seminars to stimulate their thinking about building a professional career in physical therapy, and evaluating that career on a regular basis. Professional topics related to clinical reasoning, professional ethics, professional resume and career development are topics for seminar discussion. Credit: 2

PT-D 714. Musculoskeletal Patient Management II. This course is designed to expand the knowledge base of the student into 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-D 715. 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. Specifically we will cover management of central nervous system (CNS) dysfunction, brachial plexus injuries, motor unit diseases, and other congenital, genetic and developmental disorders and related disorders in adults. Examination, evaluation, diagnosis, clinical decision-making, prognosis, standardized assessments, outcome measures and interventions will be emphasized. The neuropathology, pathophysiology, and pathokinesiology of representative 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, 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, congenital brachial plexus injury, Down syndrome, and arthrogryposis. Management across the lifespan and in various clinical settings will be addressed, including outpatient, school, early intervention, acute care, and home health settings.

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.

Advanced clinical knowledge and skills are needed for physical therapy evaluation and management of children with neurological and neuromuscular disorders. Neurological Patient Management II covers the etiology, pathology, pathokinesiology, and clinical presentation of common pediatric neurological and neuromuscular conditions and injuries, assessment and interventions for management of impairments and limitations in activity and participation. Credit: 4.

PT-D 716. Physical Therapist Interventions III. In this course, students continue to add to their knowledge in varied Physical Therapist interventions. Topics related to interventions for neurological and musculoskeletal issues include: functional electrical stimulation, wheelchair fitting and wheelchair skills, Pilates-based physical therapy, interventions for chronic pain, management of arthritis, and upper extremity prosthetics. Students will learn skills for providing patient care using the aquatic environment, and will learn about special gynecological assessments and interventions. Students will be expected to read and discuss selected literature and will design and implement assessment centers to teach patient care skills. Credit: 2.

PT-D 721. 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 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-D 722. Management of Health Care Delivery. This course introduces the student to the knowledge that supports the administration of a physical therapy practice setting. The course uses a developmental sequence beginning with the skills required to pursue a first professional position, moving through the administrative and management knowledge needed to successfully support a practice in a variety of settings. The course progresses the student to management responsibilities and skills that may be required as the practitioner moves into supervisory, administrative, and consultative roles as a physical therapist. Credit: 2.

PT-D 723. Health Promotion and Primary Care Practice. In this course, students learn to identify and assess the health needs of individuals, groups, and communities through screening for prevention of injury, developing wellness programs, and triaging appropriate patients for physical therapy. The students gain skills to design and execute programs to promote optimal health through the lifespan by providing information or consultation on many aspects of health risks and disability. Students are exposed to a multidisciplinary

approach to health promotion and injury prevention, and participate in an existing program. In addition, this course uses a case-based approach to prepare students to screen patients for medical referral and explores current issues in primary care practice. Credit: 2.

PT-D 724. Evidence-based Practice Capstone. In this course, students receive credit for their trans-curricular EBP Capstone project, a faculty-mentored, team-based project to identify the best physical therapy practice for specific patient impairments or functional losses, or beneficial health policies. Work completed on this project is presented in a professional poster session. Credit: 2.

PT-D 725, 726. Elective I, 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, Medical Spanish, Advanced Topics in Movement Science, Pediatrics, Sports PT, Vestibular Rehabilitation, and Women's Health. Credit: 2, 2.

PT-D 801, 802, 803. Clinical Internship I, II, III. 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. During these clinical rotations, students have opportunities for involvement in interdisciplinary care. Credit: 12, 12, 12.

PT-D 804. Professional Development III. In this course, students participate in sessions that replicate distance continuing education while on the third-year internships (PT-D 801, 802, 803). Students are provided with instructional content that is timely to professional development and issues. Credit: 1.

Master of Biostatistics Program

Department of Biostatistics and Bioinformatics

Department Chair: Elizabeth R. DeLong, PhD
Director of Graduate Studies: Gregory P. Samsa, PhD
Program Coordinator: Jonathan K. Hecht

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 Medical Center is a world-class medical research institution that provides the 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 that students develop the skills and knowledge necessary to succeed as biostatisticians.

Prerequisites for Admission. The minimum requirements for admission to the Master of Biostatistics Program include:

- A bachelor's degree (or the equivalent to a U.S. bachelor's degree) from an accredited institution.
- Mathematics coursework through calculus and a strong interest in biological science.

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 beyond the basic undergraduate level will be advantageous and viewed favorably in admissions decisions.

Application Materials. All applicants seeking admission to the Master of Biostatistics Program must submit the following materials by the program deadline. Please note that an admission decision cannot be made until all materials are received and your application is considered complete.

1. **Program Application.** The program application is available online or in paper form by request.
2. **Non-refundable $75 Application Fee.** You may pay your application fee online by credit card. Visa and Master Card are accepted and processed using a secure online payment system. More detail instructions can be found in the online application. If you prefer, you may choose to submit your application fee in the form of a check (in U.S. funds) that contains pre-printed electronic routing numbers for a bank located in the U.S., or an international money order. Checks and international money orders should be made payable to Duke University.
3. **Test scores from the Graduate Record Examination (GRE).** Test scores must not be more than five years old and an official copy must be sent to Duke University (institution code 5156) directly from the Educational Testing Service (ETS). A department code is not needed. Personal copies are not acceptable, nor are "attested" or notarized copies. The department receives

GRE scores electronically from the ETS. Because we match scores by an applicant's name, it is important that you advise us of any differences that might occur between your name as reported on your application forms and your name as recorded on your GRE scores. If this is the case, please notify the department by e-mail at: *biostat-admissions@mc.duke.edu*.

4. **Test scores from the Test of English as a Foreign Language (TOEFL).** The Master of Biostatistics Program requires that any applicant whose first language is not English to submit official scores from the Test of English as a Foreign Language (TOEFL). Test scores must not be more than two years old. An official copy must be sent to Duke University (institution code 5156) directly from the Educational Testing Service (ETS). A department code is not needed. Personal copies are not acceptable, nor are "attested" or notarized copies. The department receives the TOEFL scores electronically from the ETS.

   In lieu of TOEFL, applicants may submit their scores for another English language proficiency test, the International English Language Testing System (IELTS) test.

   NOTE: Students who have studied in an English speaking institution for at least four years are not required to submit a TOEFL score. However, please note that an interview may be requested prior to a final admissions decision. If recommended by the Admissions Committee, this interview may be in person, through a video conference, or an internet video communication platform such as Skype.

5. **Transcripts from all post-secondary institutions.** One copy of the official, confidential transcript from each post-secondary institution that you have attended or currently attend must be submitted by mail. Transcripts from any institution where you earned (or will earn) a degree, studied for one semester or more, or took classes that relate to your current application for graduate study (for example, prerequisite courses) are essential to the review of your application. Please ask the University Registrar to send an official copy directly to the Master of Biostatistics Program at the appropriate mailing address listed below.

   If you anticipate a delay in sending the official, confidential transcripts, you may send unofficial copies for review purposes only. However, your application will not be considered complete until the Program receives your official transcripts. International applicants should be sure to review the International Applicants information posted below.

   Upon matriculation to the program, we must also receive certification of degrees received, including the date the degree was awarded. This information may be included on the final transcript or the diploma.

6. **Three Letters of Recommendation.** Three letters of recommendation are required in support of your application to the Duke Master of Biostatistics Program. Please request letters of recommendation from persons best qualified to testify to your capacity for graduate and professional work in biomedical research. References should send their letters of recommendation using the appropriate mailing address listed below.

   You may send the letter from your reference, provided that the envelope remains unopened and the letter of recommendation has not been viewed by

you.

References may choose to e-mail letters of recommendation to: biostat-admissions@mc.duke.edu. Please note that e-mailed letters of recommendation must be printed on official letterhead and submitted from non-personal e-mail accounts (academic, professional). Letters of recommendation submitted without letterhead or from personal e-mail accounts (G-Mail, Yahoo, etc.) will not be accepted.

If using the United States Postal Service, please mail application materials to:

Master of Biostatistics Program
Department of Biostatistics and Bioinformatics
DUMC Box 2721
Durham, NC 27710

If using FedEx, UPS, DHL, or any other courier service that will not deliver to a P.O. Box, please mail application materials to:

Master of Biostatistics Program
Department of Biostatistics and Bioinformatics
Hock Plaza, Suite 1104
Durham, NC 27705-3860

ACADEMIC CALENDAR

Fall Semester

August 27, 2012: Classes begin
September 3, 2012: Classes in session
October 12, 2012: Fall Break begins 7:00 PM
October 15-16, 2012: No classes
October 17, 2012: Fall Break ends 8:30 AM
November 20, 2012: Thanksgiving recess begins 10:30 PM
November 21-23, 2012: No classes
November 26, 2012: Thanksgiving recess ends 8:30 AM
November 30, 2012: Classes end
December 1-10, 2012: Reading period
December 11, 2012: Final Exams begin 9:00 AM
December 16, 2012: Final Exams end 10:00 PM

Spring Semester

January 9, 2013: Classes begin (Monday class schedule)
January 10, 2013: Regular class schedule resumes (Thursday schedule)
January 21, 2013: Martin Luther King, Jr. Holiday - No classes
March 8, 2013: Spring recess begins 7:00 PM
March 11-15, 2013: No classes
March 18, 2013: Spring recess ends 8:30 AM
April 17, 2013: Classes end
April 18-28, 2013: Reading period
April 29, 2013: Final Exams begin 9:00 AM
May 4, 2013: Final Exams end 10:00 PM

Program of Study. The Master of Biostatistics degree requires 34 credits of graded course work plus a master's project for which 6 units of credit are given. The student's experiential learning opportunities will provide the setting and data for the required master's project. Completed in the second year, this masters project serves to demonstrate the student's mastery of biostatistics. The program is designed to provide students with the analytical, biological, and communication skills that will ensure successful contribution to the rapidly-expanding field of biomedical research.

Degree and Non-degree Study. All persons wishing to take courses in the Master of Biostatistics Program, even on a non-degree basis, must be admitted to the program.

The degree option leads to a Master of Biostatistics, a professional degree awarded by the School of Medicine at Duke University. The degree requires 34 credits of graded course work plus a master's project for which 6 units of credit are given. Seven courses (BIOSTAT 201, 202, 203, 204, 205, 206, 207) constitute 23 credits that are required for all degree candidates. The student's experiential learning opportunities will provide the setting and data for the required master's project. Completed in the second year, this master's project serves to demonstrate the student's mastery of biostatistics.

Selected courses in the program are available to qualified individuals who want to acquire specific skills but who do not want to pursue the master's degree. In addition to graduate students in other programs at Duke, such individuals include faculty members and post-doctoral trainees in the medical center. This option allows for the flexibility of taking various combinations of courses subject only to constraints imposed by course prerequisites and class size limitations. Non-degree study is granted at the discretion of the Director of Graduate Studies.

COURSE PLANNING

During Year One, students will typically take six core courses:

Fall Semester, Year One:
BIOSTAT 201: Introduction to Statistical Theory and Methods I (3 Credits)
BIOSTAT 202: Applied Biostatistical Methods I (3 Credits)
BIOSTAT 203: Introduction to the Practice of Biostatistics I (3 Credits)
BIOSTAT 221: Introduction to Statistical Programming I (1 Credit)

Spring Semester, Year One:
BIOSTAT 204: Introduction to Statistical Theory and Methods II (3 Credits)
BIOSTAT 205: Applied Biostatistical Methods II (3 Credits)
BIOSTAT 206: Introduction to the Practice of Biostatistics II (3 Credits)
BIOSTAT 222: Introduction to Statistical Programming II (1 Credit)

During Year Two, students will take the final core course, a set of elective courses, and receive credit toward the completion of a practicum as well as the master’s project. A typical sequence is as follows:

Fall Semester, Year Two:
BIOSTAT 207: Statistical Methods for Learning and Discovery (3 credits)*
BIOSTAT 301: Biostatistics Practicum (1-3 credits)
Elective Courses (Typically 2 credits each)
Master's Project (3 credits)

Spring Semester, Year Two:
BIOSTAT 301: Biostatistics Practicum (1-3 credits)
Elective Courses (Typically 2 credits each)
Master's Project (3 credits)

*This course is the final Core Course and covers statistical methods that are relevant to genomic and similar applications.

Elective Courses. Often, the student will wish to select elective courses that represent an area of concentration such as genetics, clinical trials, or health services and outcomes research. During Year Two, the student will design, in consultation with the Director of Graduate Studies and others, a program of study. The goal of Year Two is to provide the student with the appropriate background for general work in biostatistics. Students are required to complete at least 10 credit hours of elective credit. Course credit for BIOSTAT 301 will not count toward elective course credit.

Elective Courses are subject to availability.

Attendance Policy. Students are required to attend and participate in 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/Drop-Add Policy. Registration in the Master of Biostatistics Program is processed in accordance with instructions distributed by the Registrar's Office of 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. Full-time students who drop below nine credits are considered part-time students and are refunded the appropriate difference.

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. The standard $400 Audit Fee applies to each course audited.

Grades. Grades in the Master of Biostatistics Program consist of H (Honors), HP (High Pass), P (Pass), L (Low Pass), and F (Fail).

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

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 below) as well as meeting the requirements and standards for completion of the master's project as described in program guidelines.

For non-degree students, satisfactory academic progress consists of successful completion towards attainment of individual training goals, within the constraints imposed by course prerequisites.

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, the medical school registrar, and the director of financial aid. The student must notify the Director of Graduate Studies in writing of his or her wish to return to the Master of Biostatistics Program or to extend the personal leave at least 60 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 leave of absence, the student is required to complete the full curriculum to be eligible to earn the Master of Biostatistics degree.

Qualifying Examination. This examination will be based on the six first year courses (BIOSTAT 201, 202, 203, 204, 205, 206) and will be written, administered, and graded by a committee from the Biostatistics faculty. All students must pass the examination at a level sufficient to confirm both their ability in these six first year courses and their preparedness for conducting the master's project.

Examining Committee. Three faculty members shall constitute an examining committee to certify that each student has successfully completed the required master's project. The committee must include two statisticians, both of whom are on the faculty of the Department of Biostatistics and Bioinformatics. The third member of the committee should be a Duke faculty member who has substantive knowledge in the area in which the project is conducted. The chair of the committee must be a member of the Biostatistics and Bioinformatics faculty.

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 be re-taking the course.

Honor Code. Students enrolled in the Master of Biostatistics Program are expected to adhere to the program’s Honor Code.

Withdrawal. If a student withdraws, including involuntary withdrawal for academic reasons, tuition is refunded according to the following schedule:

Before Classes Begin:	Full Amount
During first or second week:	80%
During third to fifth week:	60%
During 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 Director of Graduate Studies, a mutual decision is reached with regard to the effective date of the withdrawal and any academic penalty to be assessed. Per letter, the Director of

Graduate Studies will notify the Offices of the Registrar and Financial Aid in the School of Medicine. The Office of the Registrar will process the withdrawal and remove the student from any current and/or future enrollments. The Office of Financial Aid may revoke any financial aid that has been disbursed. The student should also contact these offices to ensure that they have fulfilled any responsibilities with regard to this process. The student's permanent academic record will reflect that he/she was enrolled for the term and that he/she withdrew on the specific effective date.

Tuition and Fees. Tuition for the 2012-2013 academic year is $16,000 per semester for full-time study (9 credits or more). University fees and insurance apply to all enrolled students.

Tuition for the 2012-2013 academic year is $1,780 per credit hour for part-time study (8 credits or less).

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.

Financial Aid. Students are responsible for ensuring that they have the means to support themselves and the ability to pay tuition and fees due the university.

All accepted applicants for full-time study in the Master of Biostatistics Program are automatically considered for limited tuition scholarships on a highly competitive basis from the Department of Biostatistics and Bioinformatics. An applicant's completed Application Materials serve as their scholarship application.

Duke employees may be eligible for the University's Employee Tuition Assistance Program. Qualified students may be eligible for unsubsidized Federal Stafford Loans up to $20,500, and the Grad PLUS Loan up to the cost of education. The unsubsidized Federal Stafford Loan interest rate is a fixed rate loan at 6.8%. The Grad PLUS loan is fixed at 7.9%.

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
financial_aid@mc.duke.edu
http:www.medschool.duke.edu/education/financial-aid-office

Graduation Requirements. To receive the Master of Biostatistics degree, students must successfully complete 34 credits of graded course work plus a master's project for which 6 units of credit are given. Candidates for the Master of Biostatistics degree must apply to graduate through ACES in keeping with the instructions and deadlines announced by the School of Medicine Registrar's Office. Failure to do so may delay conferral of the degree and issuance of the diploma, even if all degree requirements have been met.

COURSES OF INSTRUCTION

Required Courses

BIOSTAT 201: 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, conditional probability, random

variables, parametric families of distributions, sampling distributions, and the central limit theorem. Core concepts are mastered through mathematical exploration, simulations, and linkage with the applied concepts studied in BIOSTAT 204. Prerequisite: 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with matrix algebra is helpful. Corequisites: BIOSTAT 202, BIOSTAT 203. Credits: 3

BIOSTAT 202: 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, 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 203. Computational exercises will use the R and SAS packages. Prerequisite: 2 semesters of calculus or its equivalent (multivariate calculus preferred). Familiarity with matrix algebra is helpful. Corequisites: BIOSTAT 201, BIOSTAT 203. Credits: 3

BIOSTAT 203: 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 statistical approach, this course helps unify the statistical concepts and applications learned in BIOSTAT 201 and BIOSTAT 202. In addition to didactic sessions on biomedical issues, students are introduced to different areas of biostatistical practice at Duke University Medical Center and gradually participate in the actual research. Biomedical topics are organized around the fundamental mechanisms of disease from both evolutionary and mechanistic perspectives, illustrated using examples from Mendelian disease, infectious disease, cancer and cardiovascular disease. In addition, students learn how to interpret common biomedical assays, including high-throughput data. Core concepts are mastered through individual reading and class discussion of selected biomedical papers, team-based case studies, analysis of authentic research problems encountered by program faculty, and guided participation in actual research projects. Corequisites: BIOSTAT 201, BIOSTAT 202. Credits: 3

BIOSTAT 204: 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 categorical outcomes. Core concepts are mastered through mathematical exploration, simulations, and linkage with the applied concepts studied in BIOSTAT 205. Prerequisite: BIOSTAT 201 or its equivalent. Corequisites: BIOSTAT 205, BIOSTAT 206. Credits: 3

BIOSTAT 205: Applied Biostatistical Methods II. This course provides an introduction to study design, descriptive statistics, an analysis of statistical models with continuous, dichotomous and survival outcomes, with one or more predictor variables. Topics include mixed effects models, likelihood and Bayesian estimation, generalized linear models (GLM) including binary, multinomial and log-linear models, basic models for survival analysis and regression models for censored survival data, clustered data, and model assessment, validation and prediction. Both parametric and non-parametric techniques are explored. Core concepts are mastered through team-based case study and analysis of authentic research problems encountered by program faculty and demonstrated in practicum experiences in concert with BIOSTAT 206. Computational exercises use the R and SAS

packages. Prerequisite: BIOSTAT 202 or its equivalent. Corequisites: BIOSTAT 204, BIOSTAT 206. Credits: 3

BIOSTAT 206: Introduction to the Practice of Biostatistics II. This course revisits the topics covered in BIOSTAT 203 in more challenging biomedical contexts, with reading and discussion of more complex studies, especially those integrating high-throughput data analysis, and with a continued emphasis on the development of communication skills via written and oral presentations. Additional topics include the creation of effective statistical graphics, and the generation of appropriate documentation for analysis programs. Prerequisite: BIOSTAT 203. Corequisites: BIOSTAT 204, BIOSTAT 205. Credits: 3

BIOSTAT 207: 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 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 201 through BIOSTAT 206, or their equivalents. Credits: 3

Elective Courses

BIOSTAT 208: 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, 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 201, BIOSTAT 204, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 209: Observational Studies. Methods for casual inference, including confounding and selection bias in observational or quasiexperimental research designs, including propensity score methodology, instrumental variables and methods for non-compliance in randomized clinical trials, and sensitivity analyses. Prerequisites: BIOSTAT 201, BIOSTAT 202, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 210: Statistical Genetics and Genetic Epidemiology. Topics from current and classical methods for assessing familality 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 201, BIOSTAT 204, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 211: Modern Methods for Assessing Disease/Gene Association. An introduction to the theory and methods for analyzing current genetic data for association with disease or other traits. Focus will be on analyzing data from current high-throughput genome-wide genotyping and next generation sequencing platforms. Topics include: association analysis of qualitative and quantitative traits; single marker and haplotype analysis; data quality control; haplotype reconstruction; tagSNP selection; detecting and

controlling for confounding due to population structure and/or admixture; imputing genotype data; detecting gene x gene and gene x environmental interactions; power and sample size estimation; permutation; methods for rare variants. Prerequisites: BIOSTAT 201, BIOSTAT 204, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 212: 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 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

BIOSTAT 213: 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, competing risks, multiple events and multiple endpoints, time dependent covariates; nonparametric and semi-parametric methods. Prerequisites: BIOSTAT 201, BIOSTAT 204, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 214: 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 regression; models for ordinal categorical data, repeated categorical measurements, and longitudinal analysis. Applications in a number of biomedical case studies. Prerequisites: BIOSTAT 201, BIOSTAT 202, BIOSTAT 204, BIOSTAT 205, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 215: 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 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

BIOSTAT 216: 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 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

BIOSTAT 217: 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 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

BIOSTAT 218: Analysis of Correlated and Longitudinal Data. Topics include linear and nonlinear mixed models; generalized estimating equations; subject specific versus population average interpretation; and hierarchical model.
Prerequisites: BIOSTAT 201, BIOSTAT 202, BIOSTAT 204, BIOSTAT 205, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 219: Generalized Linear Models. Using the Nelder and McCullough framework. Introduction to the concept of a link function and its use in generalizing standard linear regression to accommodate the analysis of certain types of data for which a linear functional form of the parameters can be estimated. Topics include conditional and marginal likelihood methods, estimating equations, log-linear models, log odds-ratio models, and models for dispersion effects and components of dispersion. Time permitting, multinomial response models, inverse linear and related models, quasi-likelihood functions, and model checking will be discussed. Prerequisites: BIOSTAT 201, BIOSTAT 202, BIOSTAT 204, BIOSTAT 205, or permission of the Director of Graduate Studies. Credits: 2

BIOSTAT 220: Master's Project. The master's project is performed under the direction of a faculty mentor and is intended to demonstrate general mastery of biostatistical practice. Prerequisites: BIOSTAT 201, BIOSTAT 202, BIOSTAT 203, BIOSTAT 204, BIOSTAT 205, BIOSTAT 206. Corequisite: BIOSTAT 207. Credits: 6

BIOSTAT 301: Biostatistics Practicum. To provide an opportunity to gain practical experience, using acquired competence in statistical analysis, the fundamentals of biology, and the skills of professional communication. This opportunity is used to assess and guide student initiative, leadership, decision-making, and accountability outside the classroom environment. These objectives can be met by an internship or another mechanism approved by the Director of Graduate Studies. This practicum may be continued through successive semesters, earning one credit per semester for up to three credits. (Credits may not be applied toward required elective credits.) Credit amount is contingent upon approval by the Director of Graduate Studies as well as successful completion of the practicum experience. Prerequisites: BIOSTAT 201, BIOSTAT 202, BIOSTAT 203, BIOSTAT 204, BIOSTAT 205, BIOSTAT 206. Credits: 1-3

Master of Health Sciences Degree Programs

The Clinical Leadership Program

MASTER OF HEALTH SCIENCES CURRICULUM

Department of Community and Family Medicine

Chairman: J. Lloyd Michener, MD
Program Director: Anh N. Tran, PhD, MPH
Clinical Leadership Program Steering Committee:
Ruth Anderson, Ph.D., R.N., C; Mary T. Champagne, Ph.D., R.N.; Christopher Conover, Ph.D.; Clark C. Havighurst, J.D.; Michelle J. Lyn, M.B.A., M.H.A.; J. Lloyd; Michener, M.D.; Gwendolyn Murphy, Ph.D., R.D.; Justine Strand de Oliveira, Dr.PH., PA-C; Duncan Yaggy, Ph.D., Brenda Nevidjon, MSN, RN, FAAN

The Clinical Leadership Program is designed to provide clinicians with the skills necessary to become leaders within today's changing health care environment. The MHS-CL, offered through the School of Medicine's Department of Community and Family Medicine in collaboration with Duke's Fuqua School of Business, Law School, Terry Sanford School of Public Policy, and the School of Nursing provides a comprehensive core curriculum that includes, from a health delivery perspective, management theory, health care administration, financial management, economics, law, organizational behavior, informatics, quality management, and strategic planning.

Prerequisites for Admission. The prerequisites for admission to the MHS in Clinical Leadership curriculum include:

1. A Bachelor's degree or the equivalent in a clinical discipline from an accredited institution is a prerequisite for admission. Candidates should have current clinical licensure and hold degrees such as MD, PA, NP, or the equivalent.
2. Prior preparation in statistics. A list of course offerings as well as online/self-paced tutorials is provided for students who do not have such training.
3. Prior experience in expense and revenue budget preparation and management.
4. Administrative or managerial experience desirable.

Admissions Procedures. Applicants seeking admission either as a degree candidate or as a non-degree participant should submit the application form and the following supporting documents.

1. Official transcripts from each post-secondary institution attended. Transcripts must be sent by the institutions attended directly to the Clinical Leadership Program. Personal copies are not accepted.
2. Three letters of recommendation, including one from an individual with direct

knowledge of the candidate's clinical experience and one from someone with direct knowledge of the candidate's administrative experience. All letters should be written by persons who are qualified to testify to the candidate's capacity for graduate work. The provided evaluation forms should be mailed to the Clinical Leadership Program directly by the evaluators.

3. Applicants who do not possess a graduate degree are required to provide Graduate Record Examination (GRE) General (Aptitude) Test results. Scores must not be more than five years old, and must be mailed directly to the Clinical Leadership Program from the Educational Testing Service.
4. Proof of current practice licensure. In addition, candidates must maintain licensure throughout enrollment in the Clinical Leadership Program.
5. Applicant finalists are required to complete an admissions interview.

Application Deadline. To be considered for admission to the summer semester, candidates must have all application materials submitted by February 1st. To be considered for admission to the fall semester, candidates must have all application materials submitted by May 1st. To be considered for admission to the spring semester, candidates must have all application materials submitted by September 1st. Applicants are encouraged to submit all application materials well in advance of the application deadline for the semester they wish to be considered for admission. Late applications cannot be guaranteed consideration. All application material, a $100.00 application fee, and correspondence concerning your application should be sent to the Clinical Leadership Program, Department of Community and Family Medicine, Box 104425, Duke University Medical Center, Durham, NC 27710. Applicants will be notified of admission decisions no later than one month prior to the semester they request to be considered for admission. Materials submitted in support of an application will not be released for other purposes and cannot be returned to the applicant.

ACADEMIC CALENDAR

Distance Class Schedule

Fall 2012	August 29, 2012-November 30, 2012
Spring 2013	January 10, 2013- April 17, 2013

On-Campus Class Schedule

Fall 2012	August 27, 2012-August 29, 2012
Spring 2013	January 16, 2013- January 18, 2013

*All dates are subject to change

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, and strategic planning. 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.

This 42 credit-hour, two-year professional degree program awarded by the Duke University School of Medicine allows participants to continue practicing in their profession while attending courses online and on the Duke University campus. Those accepted into the

program complete a longitudinal policy project and a seminar experience that give students the opportunity to explore topics in more depth outside the classroom setting. These experiences also allow the student to customize the program to meet individual needs.

Whether participating in the on-campus option or the online distance-based option, 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.

This program is distance learning based with students enrolled for 5-8 credit hours, on average, per semester. It is assumed that the candidate will continue to work in a clinical capacity while working toward the Master of Health Sciences in Clinical Leadership.

Attendance and Excused Absences. Students are required to attend in person the scheduled on campus sessions for 3-4 days at the beginning of each semester. Absences are excused only for 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.

Audits. Any student who wishes to audit a Clinical Leadership Program course must receive permission of the program director and course instructor and complete an Audit Application through the Clinical Leadership Program. The standard $400 Audit Fee applies to each course audited.

Grading Policies. Grades for all courses within the Clinical Leadership curriculum are assigned on the basis of the following: Honors (H), Pass (P), Low Pass (L), and Fail (F).

A grade of "Incomplete" (I) may remain on a student's transcript for one year only. After one year, a grade of "Incomplete" is automatically converted to an F (Fail) if the course instructor does not submit a follow-up grade, based on the student's additional coursework completed. 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 30 days prior to the expiration of the one year time limit.

Grade Appeal Process. A student wishing to appeal an official grade must present his/her 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 his/her independent decision relative to the documentation submitted.

If the student is not satisfied with the outcome of the grade appeal process, s/he may appeal to the Chair of the Department of Community and Family Medicine 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 s/he finds the process valid, the decision is final and binding. At this time, the Registrar's office will be notified of the final grade and it will be reflected on the student's permanent record. If the Chair finds the process invalid, a new review will be conducted by an independent observer who is also a member of the program steering committee.

Satisfactory Academic Progress. Satisfactory academic progress for students in the Clinical Leadership Program consists of the successful completion of all requirements necessary for the advancement from one semester to the next. This includes successful completion of the Clinical Leadership Seminar and at least one core course each semester. During the Clinical Leadership longitudinal project period the student must maintain consistent progress with their cohort 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, Suspension, Withdrawal, Dismissal) Policy. A student who receives a “Low Pass” grade in any two of the required courses will be placed on academic probation. If a student receives at least a “Pass” grade for all courses during the probationary semester, s/he will be removed from academic probation. The School of Medicine Registrar will be notified of the student’s academic status and will be noted on the student’s transcript at the completion of the semester(s) during which the status is assigned.

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:	Full amount
During first or second week:	80%
During third to fifth week:	60%
During 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 that they have fulfilled any responsibilities with regard to this process. The student's permanent academic record will reflect that he/she was enrolled for the term and that he/she withdrew on the specific effective date.

Re-admission after Program Withdrawal. Students who wish to re-enter the Clinical Leadership Program after withdrawing must provide the following to the program director:

1. A statement detailing:
    a. The reason(s) for withdrawing from the program, including relevant history leading up to the decision;
    b. How the issues relating to those reasons have been addressed;
    c. A discussion as to 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;
    d. A chronological list and brief description of actions since withdrawing from the Clinical Leadership Program;
2. An updated curriculum vitae;
3. A transcript of any academic courses taken since the withdrawal;
4. A letter of reference from a person with whom the student worked during the withdrawal period.

The applicant will then be scheduled for two interviews with either administrative staff or program faculty. After these meetings take place, a committee comprised 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 re-admission 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.

Honor Code. Students enrolled in the Clinical Leadership Program are expected to adhere to the Duke University School of Medicine Honor Code of Professional Conduct as detailed in the Policies for all School of Medicine programs found elsewhere in this Bulletin. In addition there is the expectation that students will maintain a minimum set of professional attributes and their corresponding demonstrated behaviors as defined by the Clinical Leadership Program.

Duke Master of Health Sciences in Clinical Leadership Program

Statement of Professionalism

1. Commitment to Learning
   a. Actively seeks teaching and feedback and uses them to improve knowledge and skills
   b. Makes significant contributions to team learning
2. Respect for Others
   a. Consistently respectful of others and able to adjust to differences in personal or cultural style
   b. Shares learning materials and information appropriately with team and fellow students
3. Honesty, Reliability and Integrity
   a. Provides a standard of integrity that inspires others; exceeds expectations for reliability
4. Conscientiousness
   a. Meets deadlines for reports, assignments and exams and appropriately seeks excused absences when necessary
   b. Completes non-academic compliance requirements by deadlines and does not need reminders (e.g., course registration, course evaluations)
5. Professional Boundaries
   a. Consistently exhibits sensitivity and appropriate social interaction with faculty, staff and peers
   b. Meticulous about safe-guarding confidential information

Costs and Financing. Tuition for the 2012-13 academic year is $1050.00 per unit. Duke employees may be eligible for the University's Educational Assistance Program. Other sources of support may exist in clinical departments; prospective applicants should consult with program directors and division chiefs regarding potential funding sources.

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.

Computer and Technology Policy. All students should possess computer skills that include proficiency with word processing, e-mail, spreadsheets, Internet research, and presentation programs. All students in the Master of Health Sciences in Clinical Leadership program are required to have a current model Personal Computer with high speed Internet access. A computer headphone with microphone is a required accessory.

Students must have a broadband connection to the Internet (DSL, cable, or satellite). Minimum system requirements of a Windows based system are that the operating system be no older than Windows XP with an 800 MHz processor and 256 mg memory. Storage space available to install and run required software is required. Software used: Current internet browser (i.e., Internet Explorer, Firefox) and Adobe Connect.

Financial Aid. Qualified students may be eligible for up to $20,500 in 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, financial_aid@mc.duke.edu, or online, http://medschool.duke.edu/education/financial-aid-office.

Graduation Requirements. The Master of Science in Clinical Leadership is a professional degree awarded by the Duke University School of Medicine. The degree re-quires completion of 26 units of graded course work plus and 5 seminars for which a total of 10 units of credits are given and a team project for which 6 units of credits are given for a total of 42 units.

Commencement Information. Graduation exercises are held once a year in May when degrees are conferred on, 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. 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.

Actual ceremonies are only held at the end of the spring term. Anyone who has a degree date of December or September is invited to participate in the May commencement program immediately following her or his actual graduation date.

COURSES OF INSTRUCTION

CLP-200. Perspectives on Health Care. Students will explore the principles behind the forces impacting 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 through the use of case studies and interaction with leaders in health care planning, financing, and programming. Credit: 2. *Graham*

CLP-201. 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 system structure in a healthcare setting. Discussion will focus on adaptive, non-traditional managing techniques. Credit: 2. *TBA*

CLP-202. 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 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. *TBA*

CLP-203. 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 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. *TBA*

CLP-204. Leading in a Chaotic Environment. Students will meet with industry experts on health care law and policy to work through case studies in risk, regulation, and antitrust. They will become familiarized with the challenging issues of working in the health care environment develop a plan of action for the implementation of their leadership roles and responsibilities when they return to their own work environment. Credit: 2. *Graham*

CLP-205. 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 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*

CLP-206. Quality Measurement 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, interdisciplinary team care, CQI/TQM, role of purchaser, and patient satisfaction. Credit: 3. *Bradley*

CLP-207. Operational Management. The course covers the practical aspects of communication, meeting management, and human resource management. Topics include performance appraisal, conflict management, demand management, aligning incentives, labor substitution/consolidation, role of extenders, analytical decision-making, project management, and process (systems) analysis. Credit: 3. *Lyn*

CLP-210. 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*

CLP-211. 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*

CLP-212. 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. 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 own organization and electronic medical records system. Credit: 3. *Yarnall*

NURSING-301. Population-Based Approaches to Health Care. Provides an overview of population-based approaches to assessment and evaluation of health needs. Selected theories are the foundation for using scientific evidence for the management of population-based care. Enables the health care professional to make judgments about services or approaches in prevention, early detection and intervention, correction or prevention of deterioration, and the provision of palliative care. Credit: 3. *TBA*

NURSING-401. Managing Complex Health Care Systems. This course is an in-depth analysis of selected organizational behavior topics and management practices related to patient care systems administration within a larger, integrated health care system. From a well developed theoretical orientation, students will critically identify issues, formulate questions, and pursue managerial interventions that will result in high quality, aggregate patient care, and organizational outcomes that are socially relevant and clinically cost-effective. Spring. Prerequisite: NUR 400 or consent of instructor. Credit: 3. *Nevidjon*

NURSING-405. Health Care Operations: Human Resources, Quality, Law and Ethics. Students develop a toolkit for continuous improvement within health care organizations and systems and explore selected health law, ethical, and human resources

issues in nursing and health care management. Students will apply concepts to practice using relevant theory, quality improvement parameters, ethics modeling, and analysis of landmark legal cases. Spring (distance based). Credit: 3. *Vroom*

The remaining credits will be selected from one of the following courses:

NURSING-408. Effective Meeting Management in Healthcare. Course emphasis is on the concepts and strategies for successful meetings of clinicians and executives in healthcare. Students will acquire the skills necessary to create, lead and assess group meetings in a variety of situations such as quality improvement, staff, executive, board, and informal meetings. Distance based. Credit: 1. *TBA*

NURSING-352 Business Writing in Healthcare. The emphasis in this course is the particular skills needed for effective business written communication for clinicians and executives in healthcare. Theories for appropriate written business communication are discussed. Students will apply the concepts in practical application to formal letters, memos, e-mails, and reports. Spring (distance-based). Credit: 1. *Nevidjon*

NURSING-407 Persuasive Presentations in Healthcare. The emphasis in this course is the particular skills needed for persuasive verbal business presentations for clinicians and executives in healthcare. Concepts for effective oral presentation, including use of visual aids will be discussed. Students will apply the concepts in practical application to speaking situations such as board room, executive meetings, funding bodies, community organizations, and professional groups. Fall (distance-based with one on-campus seminar) Credit: 1. *Nevidjon*

The Clinical Research Training Program

MASTER OF HEALTH SCIENCES CURRICULUM

Program Director: Steven C. Grambow, Ph.D.
Associate Director: Linda S. Lee, Ph.D.

This Duke University Medical Center 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 clinical research design, statistical analysis, medical genomics, research management 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 a core faculty from the Department of Biostatistics and Bioinformatics and the Department of Medicine who have extensive experience in clinical research, and with the participation of other members of the Medical Center faculty who have expertise in relevant areas.

Degree and Non-degree Admission. All persons who wish to take courses in the Clinical Research Training Program, even on a non-degree basis, must be admitted to the program. An advanced degree in a clinical health science from an accredited institution is a prerequisite for admission either as a degree candidate or as a non-degree student. Application forms and detailed instructions can be obtained by sending an e-mail to: crtp@mc.duke.edu or by calling 919-681-4560. Additional information may be found on the program's website at http://crtp.mc.duke.edu.

A complete application for admission, either as a degree candidate or as a non-degree student, consists of the application form and the following supporting documents: (1) a

current *curriculum vitae* (CV); (2) an official transcript from each post-secondary institution attended; (3) three letters of evaluation written by persons qualified to testify to the applicant's capacity for graduate work.

Any applicant who is admitted to an academic program of Duke University and who is not a U.S. citizen or national must provide documentation to verify his or her immigration status with Duke Visa Services prior to enrolling in coursework. This includes Lawful Permanent Residents ("green card"), Conditional Residents, Asylees, and Refugees. The Clinical Research Training Program will provide additional information regarding this documentation with letters of acceptance to the program.

Academic Calendar

Fall 2012	August 27, 2012 to December 13, 2012
Spring 2013	January 14, 2013 to April 29, 2013

Program of Study. The degree requires 24 credits of graded course work and a research project for which 12 units of credit are given. Five courses (CRP-241, 242, 245, 253 and 254) constitute 16 credits that are required for all degree candidates (see Courses of Instruction).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 fellow/student to integrate the program's academic program with clinical training.

Attendance Policy. Students are required to attend and participate in class sessions according to the expectations set forth by individual Course Director (s). In the absence of a specific course attendance policy, students should assume that attendance is expected and that absences require consultation with the instructor(s) regarding arrangements for missed work.

Registration / 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, which is the first three weeks of class. (see Withdrawal from a Course and Withdrawal from Program).

Grades. Grades in the Clinical Research Training Program consist of *HP* (High Pass), *P* (Pass), *L* (Low Pass) and *F* (Fail). 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 *I* in a prerequisite course. In any case, 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 student's enrollment as a degree candidate is terminated if he or she receives a single grade of *F* or two grades of *L* in the program. For these purposes, both *WF* (see below) and a permanent *I* are considered to be failing grades.

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 clinical 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 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 re-taking the course.

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 the six-year time limitation, or for non-degree students, toward attainment of individual training goals, within the constraints imposed by course prerequisites. This includes meeting the requirements and standards for completion of the research project as described in student orientation sessions and program guidelines, whether print or web-based.

Withdrawal from a Course. A course may be dropped at the student's discretion during the first three 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 three 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.

Duke Community Standard. Duke University is a community of scholars and learners, committed to the principles of honesty, trustworthiness, fairness, and respect for others. Students share with faculty and staff the responsibility for promoting a climate of integrity. As citizens of this community, students are expected to adhere to these fundamental values at all times, in both their academic and non-academic endeavors.

By accepting admittance to this program, students demonstrate their commitment to uphold the values of the Duke University community. Under the Duke Community Standard, students affirm their commitment not to lie, cheat, or steal in academic endeavors, nor accept the actions of those who do. In addition, as the School of Medicine is an integral part of the Duke Community, students affirm their commitment to conduct themselves responsibly and honorably in keeping with the Duke University School of Medicine Honor Code of Professional Conduct as detailed elsewhere in this Bulletin.

Tuition. Tuition for the 2012-2013 academic year is $720 per credit. 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.

Graduation. Candidates for the Master of Health Sciences in Clinical Research degree must apply to graduate through ACES in keeping with the instructions and deadlines announced by the School of Medicine Office of the Registrar. 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 on, 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.

COURSES OF INSTRUCTION

CRP-241. Introduction to Statistical Methods. This course is an introduction to the fundamental concepts in statistics and their use in clinical research. Through class lectures, directed textbook readings, and discussion of representative research reports from peer-reviewed journals, students are introduced to the core concepts in statistics, including: descriptive statistics, hypothesis formulation, statistical significance, confidence intervals, statistical power, common statistical tests and basic statistical models. In addition, the basic concepts of data analysis are presented using the R and SAS statistical analysis software platforms. Prerequisite: None. Credit: 4.

CRP-242. 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 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. Credit: 4.

CRP-243. 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 genetic variation, SNPs, comparative genomes, molecular mechanisms behind inheritance patterns, and mitochondrial genetics); mouse genetics (classical mouse genetics, genotype- and phenotype-driven approaches, QTL mapping); microarrays (expression, genomic, ChIP (chromatin IP on chip), bioinformatics and use of genome databases); genetic association studies (haplotype blocks, study design in complex disease and approaches to complex disease gene identification, pharmacogenetics and pharmacogenomics). Prerequisite: None. Credit: 2.

CRP-245. Statistical Analysis. This course extends CRP 241 (Introduction to Statistical Methods) to more advanced topics relevant in clinical research. Topics include regression models (linear and logistic regression models, their practical applications in assessment of multivariable relationships and formulation of predictive models, and the interpretation of model parameters), categorical data analysis (methods for analysis of nominal and ordinal response variables) and survival analysis (inferences from time-to-

event data with censored observations, including Kaplan-Meier curves, hazard functions, and the Cox proportional hazards regression model). Prerequisite: CRP 241. Credit: 4.

CRP-247. Clinical Research Seminar. This seminar integrates and builds on the core courses (CRP 241, 242, 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. Prerequisites: CRP 242 and CRP 245. Credit: 2.

CRP-248 .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 termination. Prerequisite: CRP 245. Credit: 2.

CRP-249. Health Services Research. Research methods in health services research are explored. Topics include measurement of health-related quality of life, case mix and comorbidity, 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. Prerequisites: CRP 242 and CRP 245. Credit: 2.

CRP-252. 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 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. Prerequisite: Basic knowledge of calculus. Credit: 2.

CRP-253. Responsible Conduct of Research. A variety of ethical and related issues that arise in the conduct of medical research are explored. 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. Prerequisite: CRP 242. Credit: 2.

CRP-254. Research Management. This course addresses operational issues that arise in the conduct of a clinical research project. Topics include administration (human resources, project management, budget development and management), data management systems (databases, case report 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.

CRP-256. Statistical Analysis of Gene Expression Data. The focus is on concepts in the design and data analysis of gene expression (microarray and serial analysis of gene expression) experiments. Statistical concepts include issues that arise when there are many more variables than samples, sources of variation (systematic and random), replication,

scope of inference, experimental design, data processing, multiple testing, and validation. Methods that address the general objectives of identification of class differences, class prediction, and class discovery are covered. Prerequisites: CRP 241 and CRP 243. Credit:2.

CRP-257. 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 flow cytometry. Structural biology and high-throughput screening methods are also discussed. Prerequisite: None. Credit: 2.

CRP-258. Principles of Clinical Pharmacology II. As a continuation of CRP 252, this course includes the topics of drug transport mecha-nisms and their relevance in 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.

CRP-259. 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 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 tech-niques 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.

CRP-262. 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 software. Topics in-clude: computing effect sizes, computing a combined effect, fixed effect vs. random effects analyses, heterogeneity in effect sizes, and methods to detect publication bias. Prerequisite CRP 242. Corequisite CRP 245. Credit: 1.

CRP-263. 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 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 SAS and Enterprise Guide. Lectures are supplemented with readings from texts and journal articles. Prerequisite: CRP 245. Credit 2.

CRP-264. 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, 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. Prerequisite: None. Credit: 2

CRP-265. 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 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. Credit: 2.

CRP-266. Concepts in Comparative Effectiveness Research. This course provides students a foundation in comparative effectiveness research (CER) as applied to existing data sets. Through course readings, in-class discussions, and development of an abstract for submission to a scientific meeting, students develop research skills and competencies related to understanding, conducting and interpreting CER. Topics include: quasi-experimental study designs, sensitvity analysis and statistical adjustment in quasi-experiments, controlling for bias in observational data, and critical review of clinical literature. Prerequisite: CRP 242. Credit: 2.

CRP-267. Special Topics. This course focuses on new perspectives and methods in clinical and translational research, with specific content to be determined each semester. Prerequisite: None. Credit: 2.

CRP-270. 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. Credit: 12.

CRP-271. Patient-Reported Outcomes in Clinical Research. Patient-reported outcomes (e.g., fatigue, pain, physical functioning, social functioning, etc.) can provide great value to research but present significant challenges. This course provides students with the knowledge necessary to incorporate patient-reported outcomes into observational studies and clinical trials. Topics include the different types and suitability of measures, the development of new measures, and techniques for analyzing and interpreting patient-reported outcomes. Prerequisite: 242. Credit: 2.

The Pathologists' Assistant Program

MASTER OF HEALTH SCIENCES CURRICULUM

Professor and Chairman, Department of Pathology: Salvatore V. Pizzo, MD, PhD
Director, Pathologists' Assistant Program: Rex Bentley, MD
Associate Director, Pathologists' Assistant Program: Pamela Vollmer, B.H.S., PA(ASCP)
Medical Director, Pathologists' Assistant Program: Roger McLendon, MD
Director, Surgical Pathology: Roger McLendon, MD
Surgical Pathology Training Coordinator: Nicholas Tofolo, M.H.S., PA(ASCP)
Director, Autopsy Pathology: Alan Proia, MD, PhD
Supervisor, Autopsy Pathology: Louis DiBernardo, MD
Autopsy Pathology Training Coordinator: Meridith Hennessey, M.H.S., PA(ASCP)
Director, Autopsy Service, Veterans Affairs Medical Center: David Howell, MD, PhD
Director of Surgical Pathology, Veterans Affairs Medical Center: Robin Vollmer, MD

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,

http://www.naacls.org). Graduates are qualified to sit for the American Society of Clinical Pathology Board of Registry examination.

Prerequisites for Admission

1. A baccalaureate degree in a biological or chemical science from an accredited institution which includes course work in general chemistry, organic chemistry and/ or biochemistry, biological science, microbiology, mathematics and English composition.

-or-

A baccalaureate degree in a non-science major to include the courses defined above in #1 and at least 24 credit hours 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.

2. Scores for the Graduate Record Examination (GRE) preferred, or Medical College Admissions Test (MCAT) taken within the last five years. 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. Shadowing in anatomic pathology, particularly surgical pathology, or anatomic pathology laboratory work experience is required.
4. All candidates for the Masters 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).

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
   a) 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.
   b) Observe specimens accurately and completely, both at a distance and directly. This requires functional vision, hearing, and sensation
2. Communication
   a) Effectively speak, write, hear, read and use a keyboard utilizing the English language;
   b) Perceive non-verbal communications, including facial expressions, body language, and affect;
   c) Communicate effectively and sensitively with patients and their families via speech as well as reading/writing;
   d) Communicate in oral and written form with the healthcare team in an effective, accurate, and efficient manner.
3. Motor
   a) Elicit information from surgical specimens and postmortem examinations by

palpation and use of dissection instruments;
   b) 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;
   c) 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).
4. Intellectual/conceptual, Integrative, and Quantitative Abilities
   a) Perform calculations necessary to solve quantitative problems as required by the curriculum;
   b) 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;
   c) Apply knowledge and reasoning to solve problems as outlined by the curriculum;
   d) Comprehend the three dimensional spatial relationships of structures;
   e) Remain awake and alert.
5. Behavioral, Emotional and Social Attributes
   a) Possess the emotional health to fully apply his/her intellectual skill, exercise good judgment, and to complete all responsibilities attendant to the diagnosis and care of surgical specimens and postmortem examinations;
   b) Develop a mature, sensitive, and effective relationship with patients and colleagues;
   c) Tolerate the physical, mental and emotional stress experienced during training and patient care;
   d) Possess qualities of adaptability, flexibility, and the ability to function in the face of uncertainty;
   e) Form a compassionate relationship with his/her patients while maintaining appropriate boundaries for a professional relationship;
   f) Behave in an ethical and moral manner consistent with professional values and standards;
   g) Exhibit sufficient interpersonal skills, knowledge, and attitudes to interact positively and sensitively with people from all parts of society, ethnic backgrounds, and belief systems;
   h) 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.

Application Procedures. Application materials are mailed to prospective candidates for admission up to January 15th of the year of expected matriculation. Applications can be obtained by writing to: Pamela Vollmer, BHS, PA(ASCP)CM, Associate Director, Pathologists' Assistant Program, Department of Pathology, Box 3712, Duke University Medical Center, Durham, NC 27710, (919) 684-2159. Application forms may also be downloaded from our Web site: pathology.mc.duke.edu. All applications must be received by January 15th.

Applications must include:

1. A completed application form and a non-refundable application fee of $55;
2. Official transcripts of all colleges and universities attended;
3. GRE (preferred) or MCAT scores;
4. TOEFL or IELTS scores, if applicable;
5. Three letters of recommendation.

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 non-refundable deposit of $450.00 to retain their places in the class. This deposit will apply to background checks and program fees.

Criminal Background Checks. Candidates offered admission to the Pathologists' Assistant Program will undergo criminal background checks.

Pathologists' Assistant Program Academic Calendar

(Master of Health Sciences and Certificate)

1st year	Fall Semester 2012	08/13/12 to 01/31/13
	Thanksgiving Break	11/20/12 to 11/25/11
	Holiday Break	12/21/12 to 01/03/13
	Spring Semester 2013	02/04/13 to 06/28/13
	Spring Break	03/23/13 to 03/31/13
	Summer Break	06/29/13 to 07/07/13
	Summer Semester 2013	07/08/13 to 08/30/13
2nd year	Fall 2012	09/10/12 to 12/21/12
	Thanksgiving Break	11/17/12 to 11/25/12
	Holiday Break	12/21/12 to 01/02/12
	Spring Semester 2013	01/03/13 to 05/10/13
	Spring Break	03/23/13 to 03/31/13
	Summer Semester 2013	05/14/13 to 07/18/13

Program of Study. This is a 24-month program beginning with the start of the medical school academic year in August of each year. 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.

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 Masters of Health Science degree and institutional certificate of completion if the program should unexpectedly be discontinued for any reason.

Curriculum

Year 1 Fall	**Credits**
PATHASST 100 Molecules and Cells	6
CBI 701 Human Structure and Function	12
Term Total	18
Year 1 Spring	
PATHASST 102 Body and Disease	16
PATHASST 204 Introduction to Practical Anatomic Pathology Techniques	4
Term Total	20
Year 1 Summer	
PATHASST 210 Introduction to Autopsy Pathology	4
PATHASST 215 Histology Techniques	1
PATHASST 221 - Introduction to Surgical Pathology-Duke	2
PATHASST 222 - Introduction to Surgical Pathology-VAMC	2
Term Total	9
Year 2 Fall	
PATHASST 217 Special Diagnostic Techniques	1
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	19
Year 2 Spring	
PATHASST 331 Surgical Pathology II -Duke Site	4
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	19
ACADEMIC DEGREE AWARDED	**85**
Year 2 Summer	
PATHASST 330 Autopsy Practicum	4
PATHASST 351 Surgical Pathology Practicum-Duke	2
PATHASST 352 Surgical Pathology Practicum-VAMC	2
PATHASST 390 Senior Seminar	2
Term Total	10
CERTIFICATE AWARDED	95

Attendance and Excused Absences. 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 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.

Registration and drop/add policy. Registration in the Pathologist's 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. As the program is only offered full-time, and all courses are mandatory, dropping and adding courses 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: Honors (H), Pass (P), Low Pass (L), and Fail (F). Exceptions are PATHASST 100 (Molecules and Cells), CBI 701 (Human Structure and Function), PATHASST 102 (Body and Disease), PATHASST 361-362 (Pathologic Basis of Clinical Medicine) and PATHASST 390 (Senior Seminar) which are graded as either Pass (P) or Fail (F). Honors in any didactic course is defined as an overall average score of 90% and an overall average score of less than 70% constitutes failure.

The program is designed to integrate classroom and clinical learning experiences considered necessary for competency as health care providers and each course in the curriculum is required. Therefore, the failure of any course in which the student is unable to successfully remediate will ultimately result in withdrawal from the program. Determination of satisfactory academic progress is made by the program director upon advisement of the program advisory committee.

The advisory committee will evaluate all student deficiencies and will invite the student to a hearing. The student has the option of including a faculty member or fellow student in the hearing. The decision made by the advisory committee is sent to the Program Director, who will evaluate and accept, reject or modify the recommendations from the committee. The student has the benefit of appeal to the Dean of the School of Medicine. An appeal to the Dean may only be made on the grounds of improper procedures in the appeals process rather than continued disagreement regarding the outcome of the process. The Dean will review the data related to the process of the appeal and determine whether the process was valid. If the process is found to be valid, the decision is final and binding. It 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 probation, suspension or withdrawal from the program.

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 pass (P). 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 47 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 48 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 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 his or her wish to return to the program at least 60 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 Masters of Health Science degree and the Pathologists' Assistant institutional certificate.

Withdrawal. If a student withdraws, including involuntary withdrawal for academic reasons, tuition is refunded according to the following schedule:

Before classes begin:	Full amount
During first or second week:	80%
During third to fifth week:	60%
During 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 he/she was enrolled for the term and that he/she withdrew on the specific effective date.

Honor code. Students enrolled in the Duke Pathologists' Assistant Program are expected to adhere to the Duke University School of Medicine Honor 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** 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.

Tuition, Fees, and Estimated Costs for Year One, 2012-2013

Tuition	$25,172
Technology fee	2,400
Recreation fee	128
Books	687
Student health fee	812
Student insurance (single)	2,055
Vehicle registration	627
Graduate Activity Fee	32
Rent, food, and miscellaneous	22,392
Total	54,305

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.

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.

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 education. The Federal Unsubsidized Stafford Loan interest rate is a fixed rated loan at 6.8%. The Grad PLUS loan is fixed at 7.9%. 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, financial_aid@mc.duke.edu or at the School of Medicine's Office of Financial Aid Web site: http://medschool.duke.edu/education/financial-aid-office.

Degree Requirements. Passage of 85 units of graduate credit is required for the MHS degree. An additional 10 credits earned during the final summer are required to receive a certificate 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 85 credits, including all scheduled courses and clinical rotations, in order to receive the Masters of Health Science degree at the general university commencement ceremonies held in May. In order to receive institutional certification of completion and be eligible to sit for the American Society of Clinical Pathology (ASCP)

Board of Certification Examination, an additional 10 credits (for an overall total of 95 credits), to include the remaining autopsy and surgical pathology practical rotations, and the Senior Seminar must be completed 2 months later by the end of July. Granting of the degree and certificate is not contingent upon the students passing any type of external certification or licensure examination.

COURSES OF INSTRUCTION

PATHASST-100. Molecules and Cells. A course designed for first year pathology assistant students with a focus on the molecular and cellular principles of human disease. The course has four components, which are tightly integrated: biochemistry, cell biology, genetics, and a series of clinical correlations. The biochemistry component re-emphasizes the relationship between structure and function of the major classes of macromolecules in living systems including proteins, carbohydrates, lipids, and nucleic acids. The metabolic interrelationships and control mechanisms are discussed as well as the biochemical basis of human diseases. The cell biology component emphasizes the structure and function of the cells and tissues of the body. The laboratory provides practical experience with light microscopy studying and analyzing the extensive slide collection of mammalian tissues. The genetics component emphasizes molecular aspects of the human genome, the structure of complex genes, regulation of gene expression, experimental systems for genetic analysis, human genetics -- including population genetics and genetic epidemiology, the use of genetic analysis for the identification of disease causing genes, cytogenetics, cancer genetics, and genetic diagnosis and counseling. The series of clinical correlations links the material covered in the basic science lectures to clinical problems. Many of the correlations include an interview with a patient. Also included are a day symposium on nutrition and a day symposium on aging. Credit: 6. *Garcia-Blanco, Nicchitta, Raetz, and staff*

CELLBIO-701. Human Structure and Function. Core course of preclinical curriculum pre-sents scientific principles underlying structure and function of the normal body. Focuses on gross anatomy, microscopic anatomy, and physiology of nine organ systems providing the foundation for the practice of medicine. Registration of non-Pathologists' Assistant students requires permission of Course Director. Credit: 12. *Jakoi*

PATHASST-102. Body and Disease. This core course is presented from February through June of the first year. The course begins with fundamental principles of the 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. *Nadler, Dawson, Hulette, and Mitchell.*

PATHASST-204. Introduction to Practical Anatomic Pathology Techniques. Students are introduced to autopsy pathology and the daily activities of a busy autopsy service, and 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 professionalism and basic laboratory safety. Credit: 4. P. *Vollmer, Hulette, Boland and staff*

PATHASST-210. 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 service and assist residents in full autopsy dissections. Credit: 4. *DiBernardo, Hennessey and staff*

PATHASST-215. 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 and immunohistochemistry procedures. Credit: 1. *Terrell and Burchette*

PATHASST-217. Special Diagnostic Techniques. Students are introduced to ancillary diagnostic technologies and techniques used to assess cellular and subcellular pathology, to include immunohistochemistry, flow cytometry, molecular diagnostic studies and electron microscopy in various laboratory settings. Credit: 1. *Perkinson and staff.*

PATHASST-221. Introduction to Surgical Pathology-Duke. This is the initial practical rotation conducted during the first summer session. It is designed to reacquaint 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. P. *Tofolo and staff*

PATHASST-222. 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 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. R. *Lark and staff*

PATHASST-302. 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. *Radisch and staff*

PATHASST-321 (DUKE), 322 (VAMC). Surgical Pathology I. These courses runs 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. *Tofolo, Lark and staff*

PATHASST-323, 324. Autopsy Pathology I, 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. *DiBernardo, Hennessey and staff*

PATHASST-331 (DUKE), 332 (VAMC). Surgical Pathology II. 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: 4, 4. P. *Tofolo, Lark and staff*

PATHASST-340, 341. Photography I, II. This is an introduction to medical photography. Students become familiar with photography equipment and the fundamentals of gross specimen photography. Credit: 1, 2. *Conlon*

PATHASST-330. 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 preliminary autopsy reports. In addition, special dissection skills are taught in this course. Credit: 4. *DiBernardo, Hennessey and staff*

PATHASST 351 (Duke), 352 (VAMC) . Surgical Pathology Practi-cum-Duke and 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 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. P. *Vollmer, R. Vollmer and staff*

PATHASST-359. 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, as well as practical applications of fine needle aspiration and bone marrow aspiration and biopsy. Credit: 2. *Department of Pathology faculty and staff.*

PATHASST361, 362. Pathologic Basis of Clinical Medicine I, 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, 3. *Department of Pathology and Medicine faculty.*

PATHASST-390. 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 presented to the PA Program administration and the Department of Pathology faculty and staff as a final senior seminar. Credit: 2. *Bentley and staff.*

The Physician Assistant Program

MASTER OF HEALTH SCIENCES CURRICULUM

Department of Community and Family Medicine

Department Chairman: J. Lloyd Michener, MD
PA Division Chief: Justine Strand de Oliveira, DrPH., PA-C
Program Director: Patricia M. Dieter, MPA, PA-C
Medical Director: Margaret Gradison, MD , MHS-CL
Associate Director: Karen J. Hills, M.S., PA-C
Director Preclinical Education: Sherrie Spear, MHS, PA-C
Academic Coordinator: Betsy Q. Melcher, MS, ATC, MHS, PA-C
Academic Coordinator: Annamarie Streilein, MHS, PA-C
Clinical Coordinator: Melinda Blazer, MHS, PA-C
Clinical Coordinator: Nicholas M. Hudak, MSEd, MPA, NCC, PA-C
Clinical Coordinator: April Stouder, MHS, PA-C
Assistant Professor: Peggy R. Robinson, MS, MHS., PA-C
Director of Recruitment and Minority Affairs: Lovest T. Alexander, MHS, PA-C
Director of Research: Perri Morgan, PhD., PA-C
Surgical Coordinator: Paul C. Hendrix, MHS, PA-C
Evidence-Based Medicine II Coordinator: Prema R. Menezes, PhD, PA-C
Pharmacology Coordinator: Jean Mesaros, PharmD
Anatomy Coordinator: Claire Terhune, PhD

The physician assistant (PA) concept originated at Duke 45 years ago. Dr. Eugene A. Stead Jr., then chairman of the Department of Medicine, believed that mid-level practitioners could increase consumer access to health services by extending the time and skills of the physician. Today, physician assistants are well-recognized and highly sought-after members of the health care team. Working interdependently with physicians, 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 50 states, PAs have the authority to write prescriptions. Their job descriptions are as diverse as those of their supervising physicians, and also may include patient education, medical education, health administration, and research.

PAs practice in all specialty fields; 33 percent of all PAs provide primary care services, especially in family and general internal medicine. While PAs remain dependent in that they provide medical services with the supervision of physicians, other non-physician tasks have been integrated into the role, particularly in the institutional and larger clinic setting. While not always clinical in nature, these tasks are essential to the practice of the PA's supervising physician. 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 provided job advancement for PAs in these settings.

Additional non-clinical positions are developing for PAs. While these positions do not involve patient care, they depend on a strong clinical knowledge base. The M.H.S. 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.

Prerequisites for Application. The prerequisites for application to the M.H.S. physician assistant curriculum include:

1. A baccalaureate degree from an 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 (30 semester credits) of additional undergraduate or graduate study at an accredited U.S. college or university prior to application to the program.
2. Specific prerequisite college courses:

- At least five biological science courses of three semester credits or four quarter credits each are REQUIRED. Of these five courses, at least one must be in anatomy, one in physiology, and one in microbiology. Courses in human anatomy and human physiology are preferred to courses of a more general nature, and courses with labs are preferred. To fulfill the remaining biological science course prerequisite, the PA Program recommends courses in cell biology, molecular biology, genetics, embryology, histology, or immunology. While none of the latter courses are required, they provide a good foundation for the study of medicine.
- At least two chemistry courses with labs are REQUIRED. Each of these courses must be at least four semester credits or five quarter credits each.
- At least one statistics course of at least two semester credits or three quarter credits is REQUIRED.
- All prerequisite courses must be completed with grades of *C* or better (not *C* minus).

3. Scores of the Graduate Record Examination (GRE general test), taken within the last four years, and no later than October 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 October 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 http://pa.mc.duke.edu. The application is available from April 18 – October 1. In addition to completing and submitting the web-based application by October 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 October 1;
- three completed recommendation forms, including at least one from a health care provider with whom the applicant has worked;
- the on-line supplemental application (access provided to the applicant after submission of CASPA application)

Selection Factors. The program has a specific interest in enrolling students from diverse social, ethnic, and educational backgrounds. Emphasis is placed upon personal maturity, quality of health care experience, dedication to the health field, and academic potential. 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 in November, December, January and February; 80 students are chosen from among those interviewed. Only full-time students are admitted.

Candidates are notified of the Admission Committee's decision as soon as possible after the interview, and no later than March 15. Those candidates who have been accepted are asked to respond in writing with their decision and to confirm their place in the class by submitting the non-refundable registration and deposit fees by the requested date. Each year, a ranked alternate list of 15-20 candidates is selected from those candidates who have been interviewed for a position in the class. Should an accepted candidate withdraw from the program prior to the start of classes, the position is offered to the highest ranked candidate on the alternate list.

Criminal Background Check. Candidates offered admission to the Physician Assistant Program will undergo criminal background checks prior to matriculation and at least once during enrollment.

Physician Assistant Program
Academic Year Calendar
Fall Semester 2012

August	
13	Monday, 9AM - Orientation Week (8/13-8/17) begins
15	Wednesday - Fall Semester classes begin
September	
3	Monday - Labor Day, no classes
October	
9	Tuesday, 5PM - Begin Fall Break
15	Monday - Classes resume
November	
20	Tuesday, 5PM - Begin Thanksgiving Holiday
26	Monday, 8AM - Classes resume
December	
14	Friday, 5PM - Winter Break begins

Spring Semester 2013

January	
7	Monday, 8AM - begin Spring Semester classes
21	Monday - Martin Luther King Day - no classes
February	
21	Friday, 5PM - begin Spring Break
March	
4	Monday, 8AM - Classes resume
April	
17	Wednesday, 5PM - Semester Break begins

Summer Semester 2013

April	
22	Monday, 8AM - begin Summer Semester
May	
23	Thursday, 5PM - end classes for AAPA Conference
June	
27	Thursday, 5PM - end of Summer Term and First Year

Physician Assistant Program
Clinical Year Calendar

July 16 - 20	PHYSASST 299-Clinical Orientation Week
July 17 and 18	ACLS

July 23 - August 17	Rotation #1	
August 20 - Sept 14	Rotation #2	
Sept 17 - Oct 12	Rotation #3	
Oct 15 - Nov 9	Rotation #4	
Nov 12 - Dec 7	Rotation #5	
Dec 8, 2012 - Jan 6, 2013	WINTER BREAK	
Jan 7- Feb 1	Rotation #6	
Feb 4 - March 1	Rotation #7	
March 4 - March 29	Rotation #8	
April 1 - April 26	Rotation #9	
April 27 - May 5	SPRING BREAK	
May 6 - May 31	Rotation #10	GRADUATION, Sunday, May 12
June 3 - June 28	Rotation #11	
July 1 - July 26	Rotation #12	
July 29- August 9	Senior Seminar	Certificate of Completion, August 9, 2012
August 16	Eligible to sit for PANCE	

Program of Study. The curriculum is 24 consecutive months in duration and is designed to provide an understanding of the rationale for skills used in patient assessment, diagnosis, and management. The first 12 months of the program are devoted to preclinical studies in the basic medical and behavioral sciences, and the remaining 12 months to clinical experiences in primary care, medical and surgical specialties, and advanced study in evidence-based medicine.

Each student is assessed a technology fee for both the first and second years. As part of the technology fee, the program provides computers and mobile handheld devices which are used for a variety of in-class and clinical assignments and activities, as well as communication.

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 and basic science laboratory, small group tutorials, and patient case discussions. Regular patient contact is an important part of the first year curriculum. Students begin to see patients during the spring semester as part of the Patient Assessment course; this patient contact continues through the summer term of the preclinical year. Standardized patient evaluations, using simulators and actors, are also a part of the preclinical curriculum.

As part of the clinical practicum, students are required to take rotations in internal medicine, surgery, emergency medicine, primary care, pediatrics, obstetrics/gynecology, and behavioral medicine. In addition, two elective clinical rotations are included in the clinical year schedule, as is a four-week period devoted to advanced study in Evidence-Based Medicine. At least two clinical rotations must be completed in a medically underserved site. The final weeks of the clinical year are spent in a senior seminar which includes 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 many of their clinical experiences. Housing will be made available for out-of-town clinical rotations.

Curriculum. Before proceeding into the clinical phase of the curriculum, students must satisfactorily complete the following:

PRECLINICAL YEAR

Fall Semester	
PHYASST-200. Basic Medical Sciences	2 credits
PHYASST-201. Physiology	2 credits
PHYASST-203. Interprofessional Introduction to Prevention	1 credit
PHYASST-205. Anatomy	4 credits
PHYASST-210. Diagnostic Methods I	3 credits
PHYASST-220. Clinical Medicine I	5 credits
PHYASST-223. Pharmacology and Therapeutics I	1 credit
PHYASST-231. Patient Assessment and Counseling I	3 credits
PHYASST-255. Evidence-based Medicine I	2 credits
Total	**23 credits**
Spring Semester	
PHYASST-211. Diagnostic Methods II	2 credits
PHYASST-221. Clinical Medicine II	10 credits
PHYASST-224 Pharmacology and Therapeutics II	1 credit
PHYASST-230. Fundamentals of Surgery	3 credits
PHYASST-232. Patient Assessment and Counseling II	3 credits
PHYASST-251. Practice and the Health System	3 credits
Total	**22 credits**
Summer Term	
PHYASST-212. Diagnostic Methods III	1 credit
PHYASST-222. Clinical Medicine III	9 credits
PHYASST-225 Pharmacology and Therapeutics III	1 credit
PHYASST-236. Patient Assessment and Counseling III	3 credits
Total	**14 credits**

Clinical Year

Following successful completion of the preclinical courses, students enter the clinical phase of the program, completing the following experiences:

PHYASST-300A, 300B. Primary Care	4 credits; 4 credits
PHYASST-305. Evidence-based Medicine II	3 credits
PHYASST-310. Behavioral Medicine	4 credits
PHYASST-320A, 320B. Internal Medicine	4 credits; 4 credits
PHYASST-340. General Surgery	4 credits
PHYASST-350. Emergency Medicine	4 credits
PHYASST-360. Pediatrics	4 credits
PHYASST-370. Obstetrics/Gynecology	4 credits
Elective	4 credits
Elective	4 credits
PHYASST-390. Senior Seminar	2 credits
Total	**49 credits**

The student receives four credits for rotations which are four weeks in length, and eight credits for rotations which are eight weeks in length.

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 summative evaluation to graduate from the PA Program.

Attendance and Excused Absences. 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 program faculty in advance of an expected absence.

Registration/Drop-Add Policy. All courses are required and are offered as a cohort. There is no opportunity to Drop or Add a course.

Program Policies and Grading Standards. Grades for all courses and clinical rotations in the Physician Assistant curriculum are assigned on the basis of the following: Honors (*H*), Pass (*P*), and Fail (*F).* 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 promotions committee, at the conclusion of each semester/term.

A grade of "Incomplete" (*I*) may remain on a student's transcript for one year only. After one year, a grade of "Incomplete" automatically is converted to an *F* (Fail). 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 30 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, appearance, 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 probation, suspension, or expulsion from the program.

Appeals of Course Grades. A student may appeal a course grade by writing to the program director, 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 promotions committee, at the conclusion of each semester/term. Satisfactory academic progress for students in the Physician Assistant Program consists of the successful completion of all requirements necessary for the advancement from one semester to the next. These requirements are as follows:

Preclinical Year: Completion of all required courses (a total of 59 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 all required core rotations, elective rotations, and a senior seminar (a total of 49 credits) during the fall, spring, and summer terms; rotations begin in

the semester immediately following the completion of the preclinical year and must proceed as scheduled without interruption for three semesters/terms (12 months).

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 Physician Assistant 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.

Determination of Academic Standing. All students' records are reviewed at the end of each term by the Progress and Promotions 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 he/she completes no more than one course in a semester or term with an overall grade of less than 78 (but greater than or equal to 70).
B. Academic Probation: Academic probation indicates concern about the student's performance in the curriculum. By placing the student on academic probation, the student is notified of the faculty's concern regarding past performance. The student also is informed that future performance must improve or the student risks dismissal from the program. In any future semester, if a student previously assigned to probation completes more than one course with an overall grade of less than 78, the student will be dismissed from the program. Any overall course grade of F (less than 70), earned at any point in the program, requires that the student be dismissed from the program. Once a student is placed on probation a continued pattern of misconduct, deficiencies in clinical skills, poor interpersonal communication or unprofessional conduct could also result in the student's dismissal from the PA Program.

The PA student is considered to be on academic probation if he/she completes 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 issues and may result in the assignment of Academic Probation: deficiencies in clinical skills, interpersonal communication abilities, and/or professional conduct, greater than one exam remediation and/or failure of a complete integrated unit (i.e. failure of the clinical medicine, pharmacology and diagnostic methods portions of the same exam)**.

The School of Medicine Registrar will be notified of the student's status of Academic Probation and the status will be noted on the student's transcript at the completion of the semester(s) during which this status is assigned. Also, students should be aware that they may be required to report academic probation when seeking medical licensure and/or credentialing.

Appeals of Academic Status (Academic Probation or Withdrawal). A student placed on academic probation or withdrawn from the program may appeal by indicating in writing by registered mail to the program director (a) reasons why he/she did not achieve minimum academic standards, and (b) 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 on the appeal in writing within three weeks of receipt of the appeal.

Leave of Absence. A PA student, after presenting a written request to the PA 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 his or her wish to return to the PA Program or to extend the personal leave at least 60 calendar days prior to the anticipated date of reentry. The student desiring an extension beyond one calendar year may be required to apply for readmission to the PA 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. In all cases of leave of absence, the student is required to complete the full curriculum to be eligible to earn the PA certificate.

For purposes of deferring repayment of student loans during a school-approved leave of absence, federal regulations limit the leave to six months.

Withdrawal. If a student withdraws, including involuntary withdrawal for academic reasons, tuition is refunded according to the following schedule:

Before classes begin:	Full amount
During first or second week:	80%
During third to fifth week:	60%
During 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 he/she was enrolled for the term and that he/she withdrew on the specific effective date.

Duke University School of Medicine Honor Code of Professional Conduct.‡

Preamble. The Duke University School of Medicine strives to attract, matriculate, and train health professional students who have a high capacity for ethical professional behavior. Since training in professional behavior is a part of training in the health professions, professional conduct during training is an academic issue, and when a student accepts an offer of admission into these programs, he or she commits him or herself to comply with all regulations regarding conduct established by Duke University, the School of Medicine, and the individual's program. Despite these initial intentions, circumstances may arise during a student's enrollment that call into question the capacity or commitment to maintain this academic standard, and the school and training program retain the responsibility and authority to determine a student's fitness to continue in the program of study for a health profession. The rights and responsibilities of students with regard to University-wide regulations pertaining to student conduct can be found in the current Bulletin of Information and Regulations of Duke University. As a distinct learning community within the University, the School of Medicine has established an Honor Code of Professional Conduct,

‡ Currently under review and subject to change.

accompanied by specific policies and procedures, for the guidance and protection of students in two circumstances:

1. while they are enrolled as a student in the school, and
2. after they have left the school in matters pertaining to their credentials, transcripts, and degrees that have been granted by the school.

The principles from which the Honor Code is derived include but are not limited to:

1. University regulations regarding student conduct
2. Guidelines for standards of conduct adopted by national organizations that accredit our programs (AAMC, LCME, ARC-PA and APTA) or license or certify our learners (USMLE, state licensing board)
3. Standards of ethical and professional behavior adopted by national or local professional organizations (AAPA, AMA, APTA)
4. Standards of fairness, privacy, and due process derived from the civil judicial system

It is the responsibility of each matriculating student to review the honor code and its policies and procedures before beginning formal educational activities, and the responsibility of the school to ensure that students understand the code and document their understanding. Students should read and discuss the honor code and the rules and regulations of their chosen programs of study before beginning classes. Entering students will be asked to sign statements saying that they have read, understand and will abide by the Honor Code of the Duke University School of Medicine and the Rules and Regulations of their various programs. Matriculation in the Duke University School of Medicine constitutes de facto acceptance of this Honor Code and the policies and procedures involved in administering the Honor Code. A copy of each student's signed Honor Code Agreement will be retained in his or her permanent educational record.

Scope of the Honor Code. The Honor Code is intended to guide the professional behavior of students studying in the health professions programs and applies to all endeavors and conduct pertaining to those studies. It is not intended to guide behavior that is a part of a student's private life away from his or her studies in a direct way, but such behavior may come to the attention of the school in several ways and become the focus of an Honor Code investigation:

- conduct may be reported to a member of the faculty or administration by a variety of sources (police, friends, parents, other agencies) that raises a concern about the student's capacity to continue his or her studies. If such reported conduct raises a significant concern about the safety of the student or the safety of others that the student may have contact with at the school, or includes behavior that could indicate a weakness of moral, ethical or personal values that would preclude functioning as a health care professional, an investigation may be done and action taken on the basis of the investigation.
- if a student is charged with an offense in the civil justice system and the school becomes aware of and verifies this circumstance through self-report of the student or a reliable source of verification, the school will generally not pursue an investigation until the outcome of the civil court proceeding is known, unless the alleged offense is such that allowing the student to continue his or her studies could be detrimental to the safety of patients or other members of the school, as determined by the Vice Dean for Education.

- if a student is charged with a criminal offense, he or she is obligated to report this to the Vice Dean for Education immediately. If a matriculating student has been charged with a criminal offense between the time he/she wrote an application and the time he/she arrives at school, he/she should inform the Vice Dean before or upon arrival. If the school later discovers that a student has withheld disclosure of a criminal charge, he/she may be subject to immediate dismissal by the Vice Dean. In all situations, the student will not be allowed to continue the course of study until cleared of a criminal charge. This does not reflect a "guilty until proven innocent" standard, but rather, the obligation of the school to ensure the safety of patients and other members of the school.

Statement of the Honor Code of Professional Conduct. The students of the Duke University School of Medicine understand that it is a privilege to learn the practice of their chosen professions in a clinical setting. At the same time, they recognize the obligation that they have to the health and welfare of their patients and to their patients' families. As they enter professions in which they will have an extraordinary responsibility for others' lives and health, students will strive to hold themselves to the highest standards of academic integrity and conduct. As part of their education and training, students must begin to practice the ethic of service that they will uphold for the rest of their professional lives. Since training in ethical and professional behavior is integral to the education of the health professional, violations of this Honor Code will be considered as an academic issue and may jeopardize advancement and graduation in the same way as other academic matters.

The Honor Code is written to promote a sense of intellectual honesty, trust, responsibility, and professionalism among students, faculty and staff of the School of Medicine. It should be understood that these guidelines represent standards to strive for, and that not every infraction will necessitate investigation. It should also be recognized that this honor code can not anticipate every potential offense and that unethical behavior not specifically mentioned in this code can still be investigated. Specific incidents will be considered in the context in which they occur. In addition, the magnitude and chronicity of infractions will be taken into account.

To demonstrate intellectual integrity and honesty, the student will:

- submit for course credit only one’s own work and not that of another, in whole or in part, and will give credit for passages taken either word-for-word or paraphrased from the work of another (i.e., plagiarizing other sources to write or present academic papers, research reports, or clinical reports is dishonest).
- not collaborate with others on work that is claimed to be one’s own. Instructors will make clear when collaboration is permissible, and students should ask for clarification when in doubt.
- give full and obvious acknowledgement to collaborators when collaboration to produce a project or report is permitted.
- offer original work for course or research credit and not submit work done previously for credit in another course.
- not use, give, or receive unauthorized materials or assistance to gain unfair academic advantage over colleagues prior to, during or after an examination or other evaluative procedure.
- not take an examination nor complete an assignment for another person.

- respect the intellectual property and learning materials of others understanding that to take, keep, tamper with or destroy such property would result in unfair academic advantage.
- take all examinations when scheduled unless appropriately excused. Students should never delay taking examinations for the sole purpose of gaining academic advantage over colleagues.
- not alter or falsify academic, research or patient documents.
- not gain unauthorized access to academic or administrative files, patient medical records, or research documents, via computer or otherwise.
- use only access codes, passwords, login codes, keys, and facility access cards issued to the student.
- report promptly any suspected violations of the Honor Code to appropriate authorities.
- refrain from other behaviors that clearly compromise intellectual integrity and honesty.

To show concern for the welfare of others and act responsibly, the student will:

- treat patients, research subjects, and their family members with respect and dignity both in their presence and in discussions with others.
- undertake clinical duties and persevere to the best of the student's ability, striving to recognize limits on the capacity to persevere due to limited knowledge or skills, exhaustion, or impairment.
- strive to recognize the limitations of the student's knowledge and skills, and seek supervision or advice before acting when appropriate.
- learn to recognize when his/her ability to function effectively is compromised, ask for relief or help, and notify the responsible person if something interferes with the ability to perform clinical or research tasks safely and effectively.
- not compromise patient care, interactions with members of the Duke community, nor his/her medical education through the use of alcohol or illegal substances
- not engage in romantic, sexual, or other nonprofessional relationships with a patient, even upon the apparent request of a patient.

Students should voluntarily remove themselves from patient care duties and seek professional help or advice from their program director, advisory dean or director of the Wellness Center when they recognize any physical, mental, or emotional problems that could impair effective patient care, their interactions with members of the Duke community, or their educational program. It is the obligation of the school and its officials to help the student seek appropriate help for an impairment, and the student would become subject to an Honor Code charge only if he/she did not follow recommendations and referrals for appropriate help.

To demonstrate respect for the rights of others, build trust in professional relationships, and demonstrate professional demeanor, students will:

- deal with professional, staff and peer members of the health care team in a considerate manner and with a spirit of cooperation.
- act with an egalitarian spirit toward all persons encountered in a professional capacity regardless of race, religion, gender, sexual preference, disability or socioeconomic status.

- avoid offensive language, gestures, or remarks, including those based on others' race, religion, gender, sexual preference, disability, or socioeconomic status.
- avoid disruptive behavior in the classroom, clinic, hospital, or laboratory that might interfere with the learning or clinical care of others
- respect the right of the patient or research subject and his or her family to be informed about and participate in patient care.
- respect patients' and research subjects' modesty and privacy.
- be truthful in communications with others, admit errors and not knowingly mislead others or promote themselves at the patient's expense.
- maintain and safeguard the confidentiality of patient and research subject information, including paper records, computerized records, and verbal communication.
- not misrepresent themselves as a licensed or certified health care provider.
- strive to maintain their composure under pressures of fatigue, professional stress or personal problems.
- maintain neat and clean appearance, and dress in attire that is acceptable as professional to the patient population served.

HONOR CODE PROCEDURES

1. Initiation of Complaints

Complaints about potential Honor Code violations may be initiated by personnel within the School of Medicine (students, faculty, staff, and administration) or by external sources (patients, families, visitors, extramural rotation sites, other agencies with whom a student has had contact). The initial complaint may be reported to the student's advisory dean or program director, or directly to the Vice Dean for Education.

2. Role of the Advisory Dean or Program Director

The advisory dean or program director will conduct an initial investigation of the complaint to determine its merit and may elect to:

a. recommend that a formal Honor Code violation be charged and report that recommendation to the Vice Dean for Education, or
b. consider the potential violation an educational or advisory matter and formulate a plan for remediation with the student, or
c. refer the student to another resource for help or remediation if the complaint is valid but the behavior is thought not to merit the charge of Honor Code violation, or
d. process the complaint with the party who made the complaint to explain why the complaint will not be pursued.

In all cases, the advisory dean or program director will inform the student who is the subject of the complaint regarding the complaint. The student will be informed of any investigation, of his/her right to remain silent during any investigation that will be conducted, and of which option (A-D) is chosen for action after any investigation. The conduct of any investigation should be confidential, and breach of confidentiality by another student will be considered an Honor Code violation. Information about the complaint will be kept in the student's file if options A, B, or C are elected. If option A is chosen, this information will become a permanent part of the record. If option B or C is chosen, this information will be removed from the file at graduation and destroyed if no further complaints about the student are filed, at the discretion of the program director or advisory dean.

3. Role of the Vice Dean for Education

The Vice Dean for Education may receive complaints directly or upon the recommendation from an advisory dean or program director that an Honor Code violation be charged. The Vice Dean may convene an ad hoc investigative task force to gather information about the validity of the complaint in addition to any information gathered by the advisory dean or program director. If the Vice Dean for Education concludes, on the basis of all information about the complaint that has been gathered, that the complaint constitutes an Honor Code violation, the Vice Dean may initiate the charge of an Honor Code violation and either:

a. determine the appropriate action to be taken (e.g. reprimand, probation, suspension, dismissal) and inform the student of that decision, or
b. refer the matter to the Honor Council for a formal hearing if he/she prefers to have that body make a decision about the verdict and the action to be taken.

4. The Honor Council

Membership: The Honor Council will be a standing body consisting of the following representation:

a. A faculty member from each degree and certificate-granting program within the SOM. The process for the selection of faculty representatives will include an election of a primary representative and alternate representative by the students of each program, based on a slate of candidates recruited by the program director. Each faculty representative will serve a two-year term and may be re-elected once.
b. A student representative from each degree and certificate-granting program within the SOM. The process for the selection ofstudent representatives will involve the election by the entire student body from each program, as coordinated by the student government of that program, which may determine the timing of the election and the dates of service of the representatives. The elected alternate must be from a different class than the primary representative.
c. A member of the hospital Ethics Committee, to be chosen by that committee.
d. The Director of the Professionalism and Wellness Center in the SOM.

The Honor Council will elect one of its members to serve as the Chair of the Council for a term of one academic year. The Chair will be responsible for keeping the file for each proceeding, for conveying the decisions of the Honor Council to the Vice Dean, and shall be a non-voting member of each proceeding. When the Honor Council is convened to hear a case, any member of the Council should excuse him/herself from the proceeding if he/she has had a personal or formal academic relationship with the student in question. The student member of the Council from the program of the accused student should excuse him/herself if he/she is from the same class, and the student alternate should serve instead. A quorum consists of three quarters of the voting membership.

Conduct of the Hearing:

a. Except as hereafter provided, the hearing of any case shall begin with a reading of the charge by the Chairman in the presence of the student who is accused of an Honor Code violation, hereafter referred to as "the student." The student shall then plead guilty or not guilty or move to postpone the hearing for good cause shown. The student may qualify a plea, admitting guilt in part and denying it in another part.

b. The student has the right to remain silent in regard to the charges brought against him/her, before, during and after the hearing. No inference of guilt shall be made from his/her silence. Any information pertinent to the charges volunteered by the student may be used as evidence against him/her. If s/he elects to offer testimony as to a specific act of misconduct, s/he then waives his/her right to remain silent as to this specific act, and must answer truthfully all questions pertaining to it asked of him/her.

c. The chairman of the Honor Council shall call for a reading of the report from the Vice Dean concerning the case. The Honor Council shall request the student to present his case. The student may call and question witnesses. The Council may call and question witnesses to clarify matters which have been the subject of testimony. It should not attempt to act as a prosecutor or as a defense counsel. Since the hearing involves an academic matter, representation of either the School or the student by an attorney will not be permitted at the hearing.

d. All evidence which the Council considers relevant shall be admitted except as hereafter provided. Specifically, the fact that evidence offered is hearsay or an expression of opinion will not in itself bar the admission of the evidence. Written statements may be admitted but wherever possible, oral testimony rather than any written statement should be employed. No one shall be convicted solely on the declaration of one whom the student has had no opportunity to question.

e. The student may not be questioned for more than one hour without recess.

f. Pending verdict on charges (including appeal) against the student, his/her status as a student shall not be changed, nor his/her right to be on campus or to attend classes suspended, except that the Vice Dean may impose an interim suspension upon any member of the School of Medicine who demonstrates by his/her conduct that his/her continued presence on the campus constitutes an immediate threat to the physical well-being or property of members of the School or the property of orderly functioning of the school. The imposition of interim suspension requires that the suspended individual shall immediately observe any restriction placed upon him/her by the terms of the suspension. The suspended individual shall be entitled to a hearing within three days before the Honor Council on the formal charges. If s/he required additional time to prepare his/her case before the Honor Council, s/he shall be entitled to an informal review of the decision imposing interim suspension by a three-person committee chosen from the members of the Council by its Chairman. Interim suspension is an extraordinary remedy, which will be invoked only in extreme cases where the interest of the School and members of its community require immediate action before the Honor Council can adjudicate formal charges against the suspended individual. If interim suspension is imposed and the student is later found not to be guilty by the School, shall grant restitution as provided the Honor Council with respect to that student's academic responsibilities incurred during the period of suspension.

g. A tape recording and a digest shall be kept of the initial hearing for a minimum of three years. The basis for the decision shall be summarized clearly in brief, numbered paragraphs. Any dissenting opinions shall be similarly explained.

h. The Honor Council, with the consent of the student, shall have the right to amend the charges at any time during a hearing to conform to the evidence. If the student does not consent to the amendment of the charges, the Council may, nevertheless, order them amended to conform to the evidence. If, in the judgment of the Honor Council, a delay is not necessary to enable the student to defend himself/herself against the amended charge, the hearing shall continue. If a delay appears necessary, the Honor Council shall so order it.

The Verdict:

a. After hearing the evidence and summations offered by the parties, the Honor Council shall consider its verdict and judgment in closed session. The verdict shall consist of a simple statement of the significant acts done or not done by the student. If the Honor Council is unable to say that there is clear and convincing evidence that an act was done, then the Honor Council shall conclude that the evidence was insufficient. The verdict (the finding of guilty or not guilty) and the judgment, a statement of the sanction, must be concurred in by at least three fourths of a quorum, (a quorum is three fourths of the voting members of the council.)
b. The Honor Council by a majority vote may decide to rehear a case in which significant new evidence may be introduced on behalf of the student.
c. The Chairman of the Honor Council shall promptly inform in writing the Vice Dean of the decision of the hearing committee. The Vice Dean shall promptly notify the student of the decision in his/her case and shall, at the same time, inform him/her of his/her rights of appeal.

Sanctions:

Possible options for sanction by the Honor Council include:

a. Expulsion: Dismissal from the School of Medicine with the recommendation that the person never be readmitted.
b. Suspension: Dismissal for a specified period of time in which the student is ineligible to proceed with work for credit.
c. Probation: An action that places the student on notice that his/her conduct has not been satisfactory.
d. No disciplinary action.
e. Other lesser penalty deemed so warranted in a particular case. This might include censure, admonition, etc.
f. The student will be notified in writing of the decision and findings of the Honor Council, and a copy of the letter will remain in the student's permanent record.

5. Right of Appeal

It is a student's right to appeal any decision of the Vice Dean or Honor Council that he/she perceives as adverse to his/her interests. The student must file a written draft of the appeal with the Vice Dean within two weeks of being notified of the original decision. An appeal for a rehearing by the Honor Council will be considered only in the following circumstances:

a. Procedural error substantially affecting the rights of the accused.
b. Incompatibility of the verdict with the evidence.
c. Excessive penalty not in accord with "current community standards".

d. New evidence of a character directly to affect the verdict but on which the original tribunal had refused a new hearing.
e. Error in applying or interpreting the rule under which the case was originally tried.

If none of these circumstances apply but the student is not willing to accept an adverse decision, he/she may appeal as follows:

a. If the initial decision was rendered by the Vice Dean for Education, the student may appeal the decision to the full Honor Council and go through the process described in this document under "Honor Council".
b. If the Vice Dean originally referred the decision to the Honor Council, or the student has received a decision from the Honor Council on appeal, and the decision from that body was adverse for the student; the student may appeal the decision to the Dean of the School of Medicine.

The following procedures would then apply:

In no case shall an appeal from the Honor Council result in a *de novo* hearing of testimony of other evidence. However:

a. The documents transmitted from the original hearing shall include the tapes of the testimony taken at the hearing. The student may, at his/her own expense, have a transcription of the tape made.
b. The original Honor Council shall provide for the Dean, written opinions, containing the reasoning upon which the majorities based their decision and any dissenting opinions of members thereof.
c. The student shall submit to the Dean a written statement containing the ground(s) for his/her appeal and his/her arguments.
d. The student shall be allowed to make an oral statement to the Dean to amplify his/her written arguments. The Dean may question the defendant at this time about his/her oral statement or his/her written statement, but shall limit himself/herself to the issues on appeal. These additional statements and arguments shall be recorded.
e. The Dean may call a representative of the original Honor Council to answer questions concerning written opinions submitted in accordance with the paragraph B of this section. This material shall likewise be incorporated in the record.
f. In cases where the Dean dismisses the charges, enters a different decision, or directs the original Honor Council to conduct a new hearing, he/she shall submit to the Council a detailed written opinion as to his/her reasoning. This opinion would be similar to that prescribed in paragraph B of this Section.

Decisions of the Dean shall be promptly communicated to the student and forthwith to the applicant with a copy to the original tribunal.

The term “Dean” shall include not only persons appointed to the office but also any other person or persons appointed to perform the functions of the office. With the consent of the student, the Dean shall be authorized to consult with such members of the University community as he/she chooses concerning the disposition of the appeal.

6. Procedural Safeguards in the Honor Code Procedure

a. The hearing of all charges shall take place promptly, ordinarily within ten days following the presentation of the charges to the student. The

student shall be given notice to appear, written notice of the charge against him/her and a written text of the regulations that he/she is accused of violating, the report of the Vice Dean, a statement of his procedural rights, a list of members of the Honor Council, and any other material that the Honor Council instructs the Vice Dean to supply him/her at least 72 hours before the hearing. If he/she desires additional time in which to prepare his/her defense, he/she may petition the Chairman of the Council and be granted a reasonable delay of the hearing. The student may waive the notice and the 72 hours notification period.

b. No person presenting evidence against the student shall at any time sit in judgment upon him/her.

c. The student has the right to challenge on the grounds of prejudice any member of the Council sitting in his/her case. If a student makes such a challenge, the Council shall deliberate in private to determine whether cause exists. By a majority vote of the members of the Council (excluding the member being challenged), a member shall be removed from the case and replaced by a person who is an alternate representative or, if not alternate can serve, is designated by the Chairman.

d. The student has the right to produce witnesses (including no more than two character witnesses), introduce documents, and offer testimony in his/her own behalf. He/she may question all witnesses. The student, with the assistance of an advisor (his/her advisory dean, another faculty member from the School of Medicine, friend or family member), may submit questions in writing to the Chairman. The Chairman shall answer questions submitted to him/her if they are fair and relevant. A copy of the questions shall be appended to the record.

e. A person having direct knowledge relevant to a case being heard by the Board is a material witness. The Vice Dean may require the appearance of material witnesses. He/she shall notify them of the time, place and purpose of their appearance. He/she shall also require, upon written request of the complaint of the student, the appearance of material witnesses. He/she shall notify such witnesses of the time, place, and purpose of their appearance.

f. The student has the right to examine the written statement of any witness relevant to his/her case at least 72 hours before the hearing. He/she has the right to be faced by any witness who has given a statement relevant to his/her case at the hearing if the witness' attendance can be secured.

g. The hearing will be conducted in private unless the student requests an open hearing. If any objection is raised to conducting an open hearing in any particular case, the Council shall decide the issue by majority vote. If the decision is made not to hold an open hearing, the student shall be informed in writing of the reasons for the decision.

Technical Standards. All candidates for the Physician Assistant Certificate must have the intellectual ability to learn, integrate, analyze and synthesize data. They must have functional use of the senses of vision, hearing, equilibrium and taste. Their exteroceptive (touch, pain, temperature) and proprioceptive (position, pressure, movement, stereognosis and vibratory) senses must be sufficiently intact to enable them to carry out all activities required for a complete PA education. Candidates must have motor function capabilities to meet the demands of PA education and the demands of total patient care.

The candidate for the PA certificate must possess the following abilities and skills:

Observation:

- The ability to observe is required for demonstrations, visual presentations in lectures and laboratories, laboratory evidence and microbiologic cultures, microscopic studies of microorganisms and tissues in normal and pathologic states.
- A candidate must be able to observe patients accurately and completely, both at a distance and closely. This ability requires functional vision, hearing and somatic sensation.

Communication:

- A candidate should be able to speak, hear and observe patients in order to elicit information, perceive nonverbal communications, and describe changes in mood, activity and posture.
- The candidate must be able to communicate effectively and sensitively with patients and families including not only speech but reading and writing.
- Communication in oral, written, and electronic form with the health care team must be effective and efficient.

Motor:

- A candidate should have sufficient motor function to elicit information from patients by palpation, auscultation and percussion, as well as carry out diagnostic maneuvers.
- 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.
- A candidate should be able to manipulate equipment and instruments to perform basic laboratory tests and procedures required to attain curricular goals (e.g. needles, stethoscope, ophthalmoscope, tongue blades, intravenous equipment, gynecologic speculum, and scalpel).
- A candidate must be able to transport themselves from one location to another in a timely fashion in order to facilitate patient care responsibilities and to receive educational training.

Intellectual-Conceptual, Integrative and Quantitative Abilities:

- Problem solving is a critical skill demanded of PAs and this requires all these abilities.
- The candidate must also be able to comprehend three dimensional relationships and the spatial relationships of structures.
- A candidate must be able to collect, organize, prioritize, analyze and assimilate large amounts of technically detailed and complex information within a limited time frame. This information will be presented in a variety of educational settings, including lectures, small group discussions, and individual clinical settings. The candidate should be able to analyze, integrate, and apply this information appropriately for problem solving and decision-making.

Behavioral and Social Attributes:

- A candidate must have the emotional health to fully use his/her intellectual ability, exercise good judgement, complete all responsibilities attendant to the diagnosis and care of patients.

- A candidate must be able to develop mature, sensitive and effective relationships with patients and colleagues.
- A candidate must be able to tolerate physical, mental, and emotional stress in training and continue to function effectively.
- A candidate must possess qualities of adaptability, flexibility and be able to function in the face of uncertainty. He/she 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.
- A candidate must be able to accept criticism and respond by appropriate modification of behavior.

In the first year of the program, all PA students are required to attend all classes and educational sessions, master physical examination skills, complete all surgery laboratory exercises, attend assigned patient interactions and complete BLS, ACLS. In the clinical year, students must successfully complete all assigned rotations which may include extended hours of instruction, evenings, nights and weekends. Students must be able to transport themselves to all training sites. It is the responsibility of each applicant to affirm that they meet these technical standards upon entrance to the Physician Assistant Program. During enrollment, the program's Progress/Promotions Committee will monitor students for continuing compliance with technical standards. The faculty of the Physician Assistant Program recognizes its responsibility to present candidates for the PA certificate who have the knowledge and skills to function in a wide variety of clinical situations and to render a broad spectrum of patient care.

Tuition and Fees[**] **.** On notification of acceptance, prospective PA students are required to pay a non-refundable first registration fee of $150, as well as a non-refundable program deposit of $475. Each candidate is required to submit an additional nonrefundable fee of $75 for a clinical background check. For those who do matriculate, the program deposit is applied to the cost of tuition.

Estimated yearly expenses[††] for the 2013 entering class of the Master of Health Sciences Physician Assistant Program are as follows:

Tuition, First (Preclinical) year	35,093
Tuition, Second (Clinical) year	32,195
Books, uniforms, and instruments, first year	2,485
Books, uniforms, and instruments, second year	700
Technology Fee, First (Preclinical) year	1,750
Technology Fee, Second (Clinical) year	1,750
Other fees	302
Food, board, and miscellaneous	22,392
First Year Fee (laboratory)	1,449
Student Health Fee	766
Student Accident and Hospitalization Insurance per year (single)	2,055
Total, First year	67,867
Total, Second year	65,091

[**] Subject to change and Board approval

[††] Includes Stead Society dues $60, Recreation $68, Parking $82, Graduate Activity $32

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.

Email and Computer Use. Important information is usually communicated by email in the PA Program. Students are expected to check their email twice a day.

Use of email should be consistent with professional standards. Use of computers during class must be limited to tasks associated with the learning activity. Email may not be sent to large lists of addressees other than within the PA Program without clearance from the PA Program and the organization involved.

Please review the Duke Group Email Policy at: http://oit.duke.edu/email-accounts/group_email/group_email_policy.php for specific criteria. Email addressed to PA classes should be addressed as bcc (blind copy) to suppress the long list of addresses. Appropriate use of computers and email, both in the classroom and elsewhere, is an academic issue.

In addition, these University policies apply:

- Use resources only for authorized purposes.
- Do not share your userid and password with family or friends. Protect your userid and system from unauthorized use. You are responsible for all activities on your userid or that originate from your system. Your userid and password act together as your electronic signature.
- Do not create user accounts on your Duke issued laptop so that others may use your computer.
- Access only information that is your own, that is publicly available, or to which you have been given authorized access.
- Use only legal versions of copyrighted software in compliance with vendor license requirements.
- Be considerate in your use of shared resources. Refrain from monopolizing systems, overloading networks with excessive data, degrading services, or wasting computer time.

"Peer-to-Peer" (P2P) file sharing programs consume a disproportionate share of Duke's bandwidth, and files shared on these or similar networks may be protected by copyright. Sharing copyrighted files is a violation of federal law and not a permissible use of Duke resources. Please review Duke's policy on file sharing at http://www.oit.duke.edu/net-security/security/secure_computer/downloading.php

In making acceptable use of computer resources you must NOT:

- Use another person's system, files, or data without permission.
- Give your password to another person.
- Use computer applications to decode passwords or access-controlled information.
- Attempt to circumvent or subvert system or network security measures.
- Engage in any activity that might be purposefully harmful to systems or to any information stored on them, including but not limited to propagating viruses, worms, Trojan horse programs, or damaging files.
- Make or use illegal copies of copyrighted software, videos, or audio files.

- Use mail or messaging services to harass or intimidate another person.
- Waste shared computing or network resources, for example, by intentionally placing a program in an endless loop, sending chain letters or unsolicited mass mailings, or downloading large files unrelated to the educational program.
- Use the university's systems or networks for commercial, political, or illegal purposes.
- Please review Duke's Computing and Networking: Acceptable Use Policy at http://www.security.duke.edu/acpub-acceptableuse.html

Wireless networking at home. Strangers have the ability to attach to the wireless Internet service you have in your home. This could allow strangers access to your information. You can prevent this.

- Activate encryption on your wireless router and configure your workstation/ laptop with the corresponding encryption key.
- Configure your wireless router to refrain from broadcasting the SSID.
- Filter the connections by MAC address.

Social Networking Policy. Many individuals participate in social media for a variety of reasons: to connect with professional networks, to find out quickly what's happening at other places, to enhance productivity and teambuilding, and to put together ad-hoc groups or meetings are just a few examples of why someone uses social networking. Exchanging and sharing information can improve our personal and professional lives. However, social networking exposes one to an unsolicited audience and set of experiences, and requires continual attention to successfully manage our personal and professional lives online.

The following are general policies regarding social networking as a Duke University student.

- Think before you post. There's no such thing as a "private" social media site. Search engines can turn up your posts years later. Don't post something today that may haunt you later.
- Maintain confidentiality. Do not post or discuss sensitive, confidential, proprietary, or protected health information about students, employees, patients, or other members of the Duke community. Use good ethical judgment; follow federal guidelines and university policies such as the Duke Confidentiality Agreement.
- Be respectful. If readers see your affiliation with Duke, they may read your words as representing the university, even if you provide a disclaimer saying your views are your own. As a general rule, be respectful and don't post anything you would be uncomfortable saying in a public setting – or in front of your colleagues, fellow learners, supervisor, etc.
- Be transparent about your role at Duke. If you participate in or maintain a social media site on behalf of the university, clearly state your role and goals. Strive for accuracy, correcting errors quickly and visibly. If you have questions about whether it is appropriate to write about certain material, ask your supervisor, advisor, or program director first.

- Protect your identity. Don't provide personal information about yourself or others that scam artists and identity thieves might steal. This includes telephone numbers, mailing addresses, and e-mail addresses.
- Respect university time and property. As stated in Duke's "Computing and Networking: Acceptable Use" policy, university computers and work time are to be used for university-related business. It's appropriate to post at work if your comments are directly related to accomplishing work goals, but maintain your personal site on your own time using non-Duke computers.
- Any violation of HIPAA or other university policies may result in appropriate disciplinary action including, but not limited to, dismissal from your program and criminal and/or civil charges and fines.

Financial Aid. All financial aid awards are made on the basis of documented financial need. Most Duke PA students finance their education through student loans up to the cost of the school-approved budget, by qualifying for student federal, state, private, and PA tuition loans.

Qualified students may be eligible for unsubsidized Federal Stafford loans up to $20,500, and the Grad PLUS loan up to the cost of education. The Federal Unsubsidized Stafford Loan interest rate is a fixed rated loan at 6.8%. The Grad PLUS loan is fixed at 7.9%. 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 cancelled 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 U.S. 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 1-800-221-9393 or go to http://nhsc.bhpr.hrsa.gov/ for further information.

Limited scholarship funds are available through the Duke Physician Assistant Program. The Physician Assistant Scholarship Committee will review each applicant and make decisions in the Spring prior to matriculation. This scholarship may reduce the amount a student borrows.

All financial aid awards are made on the basis of documented financial need. Financial aid application packets are distributed on the admissions interview date. The application process includes a Duke application and completion of the Free Application for Federal Student Aid (FAFSA).

Once these have been received, a review will be made and an award notification is provided to the student. It is extremely important that instructions on the award notification are followed in order to apply for loans in a timely manner and to have funds available at the beginning of the academic year.

Applicants are urged to request information and application forms from clubs, organizations, foundations, and agencies as soon as possible after applying for admission to the program. Many libraries have information on sources of financial aid. Also, the financial aid offices at nearby colleges and universities often have information on sources of funding. Applicants are strongly urged to use web search engines in locating scholarships. At no time, however, should an applicant pay a person or company to search for scholarships. Scholarship information is available free to applicants by using their local and web resources.

Some first-year students are employed part-time; however, the rigor of the academic curriculum usually prevents the student from maintaining part-time employment. Students who wish to be employed during their training must comply with the program's academic schedule and are prohibited from working more than 20 hours per week. Part-time employment must never interfere with class or clinical schedules. Any student unable to maintain adequate academic standing will be required to terminate his/her employment. Because of the demands of the clinical year, it is difficult or impossible for the second year student to work.

More detailed information regarding financial aid can be obtained from the Office of Financial Aid, Box 3067, Duke University Medical Center, Durham, NC 27710 (http://medschool.duke.edu/education/financial-aid-office) or by emailing financial_aid@mc.duke.edu.

Commencement. To receive the M.H.S. degree at the May commencement ceremony, the physician assistant student must successfully complete 98 credits including all preclinical courses, Evidence-Based Medicine II (PHYASST 305), and all clinical rotations scheduled to that date. The PA program certificate of completion is awarded four months later, following the student's completion of a total of 108 credits, the remaining clinical rotations, and the senior seminar.

PA students should be aware that failure to begin or complete a clinical rotation as scheduled could delay receipt of both the M.H.S. degree and the PA program's certificate of completion. Furthermore, any incomplete rotations must be completed prior to receiving the PA Program certificate.

COURSES OF INSTRUCTION

Course credits are the recognized units for academic work in the PA Program. **All courses are required, no transfer credit is accepted, and no credit is granted for past experiential learning.**

PRECLINICAL YEAR COURSES

PHYASST-200. Basic Medical Sciences. The basic facts, concepts, and principles which are essential in understanding the fundamental mechanisms of immunology, pathology, genetics, 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. Credit 2. Spear

PHYASST-201. Physiology. The basic concepts and principles that are essential to comprehending the fundamental mechanisms of human physiology at the cellular, tissue and organ levels and the requirements for the maintenance of homeostatic control. This course lays the foundation for understanding the underlying principles of the etiology, management and prevention of human disease processes. Credit 2. Spear.

PHYASST-203. Interprofessional Introduction to Prevention. This interprofessional course uses a team-based learning approach to develop appreciation of the unique contributions of various health care providers in providing best practice prevention care to populations. Web-based modules on cultural competence, health literacy and community health are also used. Interprofessional student teams meet in lecture and small group settings for organized activities and community assignments. A final team project is required. Credit: 1, Polito.

PHYASST-205. Anatomy. Functional and applied anatomy stressing normal surface landmarks and common clinical findings. Topics for this course are sequenced with physical diagnosis (PHYASST-215). Cadaver prosections, anatomic models, lectures, and computer software are utilized in teaching this course. Credit: 4. Terhune

PHYASST-210, 211, 212. Diagnostic Methods I, II, III. The essentials of ordering, interpreting, and performing diagnostic studies used in the screening, diagnosis, management, and monitoring of common diseases. Topics for this course are sequenced with Clinical Medicine (Phys Asst 220, 221, 222). Lectures, small group discussions, and hands-on laboratory sessions are the teaching strategies utilized in this course. Credit: 3; 2; 1. Streilein

PHYASST-220, 221, 222. Clinical Medicine I, II, III. 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 conjunction with appropriate correlative lectures and labs in pathophysiology, emergent and preventive care. Patient and medical ethics cases are used in the small group setting to enhance readings and lectures, and students assess standardized patients in a controlled setting. This is a core course around which most other courses are organized and is a corequisite for pharmacology and therapeutics. Credit: 5; 10; 9. Spear

PHYASST- 223, 224, 225. Pharmacology and Therapeutics I, II, III. The essentials of basic pharmacological principles and disease process therapeutics. Topics for this course are sequenced with Clinical Medicine (Phys Asst 220, 221, 222) and are provided in lecture format. Credit: 1; 1; 1. Mesaros

PHYASST-230. Fundamentals of Surgery. The course focuses on the basic surgical concepts needed for the PA to function in primary care settings as well as major surgical areas. The course emphasizes surgical concepts, topics and surgical technique. A substantial part of this course consists of essential hands-on laboratory exercises emphasizing surgical skills required in a primary care setting. Credit: 3. Hendrix.

PHYASST-231, 232, 233. Patient Assessment and Counseling I. An introduction to history-taking, physical examination techniques, counseling, documentation and presenting clinical information along with the practical application of these clinical skills. .Emphasis is placed on acquiring the skills, knowledge and 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, outpatient and long-term settings. Audiovisuals and asynchronous learning are used. Credit: 3; 3; 3. Hudak

PHYASST-251. Practice and the Health System. An introduction to the structure and administrative principles in use in health care organizations, and professional issues review. A lecture series taught by an interdisciplinary faculty and by community experts in health care organization. Topics include the patient as consumer, third-party payment, public policy trends, organizational behavior, legal problems, and the unique place of PAs in the health care system. Includes asynchronous learning activities. Credit: 3. Strand de Oliveira

PHYASST-255. Evidence-based Medicine I. A lecture and seminar course that provides a practical approach to making sound medical decisions on the basis of current evidence in the medical literature. Through a series of didactic presentations, group exercises, and reading, students will 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. Credit: 2. Morgan

PRECLINICAL YEAR ELECTIVES

PHYASST-260. Introduction to Global Health. An overview of the history, culture and language of a destination country for PHYASST 301, the Global Health international clinical elective. The public health, health system and common clinical conditions will be reviewed. Credit: 1. Strand de Oliveira.

PHYASST-261. Beginning Medical Spanish. This elective course is designed to improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on learning conversational skills in order to take clinical histories, 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. Strand de Oliveira

PHYASST 262. Intermediate Medical Spanish. This elective course is designed to improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on strengthening conversational skills in order to improve students' 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. Strand de Oliveira

PHYASST 263. Advanced Medical Spanish. This elective course is designed to refine students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on strengthening conversational skills specific to taking clinical histories, conducting physical examinations and giving instructions to Spanish speaking patients. For students with extensive previous experience speaking Spanish. Credit 1. Strand de Oliveira

CLINICAL YEAR COURSES - REQUIRED

PHYASST 299. Clinical Orientation Week. This one-week course provides physician assistant students with preparation to begin the clinical year rotations. Topics covered include: preceptor expectations, self-care, electronic medical records access, professionalism and Advanced Cardiac Life Support. Credit: 0. Hudak

PHYASST 300A, 300B. Primary Care. These two, four-week rotations are 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, 4. Staff

PHYASST-305. Evidence-based Medicine II. During this four-week course during the clinical year, 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, Menezes

PHYASST-310. Behavioral Medicine. This four-week rotation provides physician assistant students with an opportunity to participate in the care of patients with psychiatric illness and/or behavioral disorders. Rotation sites may provide students with inpatient, outpatient, or mixed experiences. This rotation facilitates the acquisition of communication

and behavioral modification skills which are useful in the primary care setting. Credit: 4. Staff

PHYASST-390. Senior Seminar. In small group and lecture settings, students review clinical cases and common medical topics and procedures. A final written summative evaluation is part of this course, which also serves as preparation for the PA National Certifying Examination (PANCE). Credit: 2. Stouder

MEDICINE

PHYASST-320A, 320B. Internal Medicine. These two, four-week rotations provide 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 medical practice. Students confront a diversity of health care needs and issues impacting general medical health and learn about resources required to meet these needs. Credit: 4, 4. Staff

OBSTETRICS/GYNECOLOGY

PHYASST-370. Obstetrics/Gynecology. This rotation is a four-week opportunity for physician assistant students to understand the principles of obstetrics and gynecology. Special emphasis is placed on preventive gynecologic care, common gynecological complaints, and prenatal care. Credit: 4. Staff

PEDIATRICS

PHYASST-360. Pediatrics. This four-week rotation provides the opportunity for physician assistant students to understand the principles of pediatric care in the outpatient setting. Students are introduced to problems commonly encountered by pediatric primary care providers, 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. Credit: 4. Staff

SURGERY

PHYASST-340. General Surgery. This four-week rotation is an opportunity for physician assistant students to understand the general principles of surgery and develop surgical skills. Special emphasis is placed on preoperative evaluation and preparatory procedures, assisting at the operating table, and management of patients through the postoperative period. Credit: 4. Staff

PHYASST-350. Emergency Medicine. This four-week rotation is an opportunity for physician assistant students to understand the principles of emergency medicine. Students are introduced to medical and surgical problems commonly encountered in the emergency department setting. The 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

CLINICAL YEAR COURSES – ELECTIVE

In addition to the above required core rotations, each student is required to complete two electives that can be chosen from among the following rotations. All are four weeks long. Each of these electives is 4 Credit. Staff

Community and Family Medicine

PHYASST-301. Occupational Medicine. This rotation offers experiences in occupational medicine assessment and problem management. Credit: 4. Staff

PHYASST-302. Geriatrics. This rotation emphasizes the evaluation and management of geriatric patients in a long-term care or hospital setting. Credit: 4. Staff

PHYASST-304. Prevention and Health Promotion. This rotation is an intensive experience in health maintenance and disease prevention. Direct care of patients constitutes approximately 50% of the clinical rotation. The remaining effort will be focused on activities designed to learn and incorporate health promotion and disease prevention activities intoclinical practice. Credit: 4. Staff

PHYASST-306. Integrative Medicine. This elective provides an evidenced-based didactic and experiential understanding of integrative medicine. The core focus is on key overlaps between patient-centeredness, prevention, mindfulness, health behaviors, long range health planning, patient empowerment, and complementary/alternative health practices. Credit: 4. Staff

GENERAL ELECTIVES

PHYASST-300E Primary Care. This rotation emphasizes the outpatient evaluation and treatment of conditions common at the primary care level and the appropriate health maintenance measures for different age groups. Credit: 4. Staff

PHYASST-303. Global Health. This rotation offers clinical experience in international rotation sites. Public health, health system and common clinical conditions will be emphasized. Additional costs will be incurred by the student for immunizations, travel, housing, and educational fees for the host country. Credit: 4. Staff

PHYASST-307. Medical Informatics. This elective provides the students with an opportunity to explore the integration of medicine and information technologies. Through a combination of lecture, observation, and project participation, students will gain an understanding of the role informatics plays in point of care management, patient safety, and healthcare quality improvement. Credits: 4. Staff

PHYASST-310E. Behavioral Medicine. This rotation provides additional emphasis on communication and behavioral modification skills, which are useful in the primary care setting. Credit: 4. Staff

PHYASST-320E. Internal Medicine. This rotation provides the student with an opportunity to apply basic medical knowledge to the problems and situations encountered in an internal medicine setting. Credit: 4. Staff

PHYASST-340E. General Surgery. This rotation emphasizes preoperative evaluation and preparatory procedures, assisting at the operating table, and management of patients through the postoperative period to discharge. Credit: 4. Staff

PHYASST-350E. Emergency Medicine. This rotation provides opportunity for students to increase their knowledge of the triage and management of medical emergencies. Credit: 4. Staff

PHYASST-360E. Pediatrics. The rotation provides familiarity with normal growth and development, pediatric preventive medicine, and evaluation and management of common childhood illnesses. Credit: 4. Staff

PHYASST-370E. Obstetrics/Gynecology. This rotation provides students with the opportunity to learn about common gynecological problems, pregnancy, and delivery. Credit: 4. Staff

OBSTETRICS/GYNECOLOGY

PHYASST-371. Maternal/Fetal Medicine. This rotation emphasizes prenatal and postpartum care. Credit: 4. Staff

MEDICINE

PHYASST-321. Cardiology. This rotation offers experiences in cardiovascular assessment and problem management. Credit: 4. Staff

PHYASST-322. Dermatology. This rotation offers experiences in dermatological assessment and problem management. Credit: 4. Staff

PHYASST-323. Endocrinology. This rotation offers experiences in the evaluation and treatment of a variety of endocrine problems. Credit: 4. Staff

PHYASST-325. Hematology/Oncology. This rotation offers exposure to the principles of hematology and oncology and their application in clinical practice. Credit: 4. Staff

PHYASST-327. Infectious Diseases. This rotation emphasizes the evaluation and treatment of various infectious diseases. Credit: 4. Staff

PHYASST-328. Gastroenterology. This rotation emphasizes the evaluation and treatment of various gastro-intestinal problems. Credit: 4. Staff

PHYASST-329. Palliative Care. This rotation offers experience in palliative and end of life care. Credit: 4. Staff

PHYASST-331. Nephrology. This rotation emphasizes renal assessment and problem management. Credit: 4. Staff

PHYASST-332. Neurology. This rotation emphasizes experiences in neurological assessment and problem management. Credit: 4. Staff

PHYASST-333. Pulmonary Medicine. This rotation emphasizes prevention, cause, diagnosis and treatment of various pulmonary diseases. Credit: 4. Staff

PHYASST-334. Rheumatology. This rotation emphasizes experience with the assessment of joint and connective tissue disorders. Credit: 4. Staff

PHYASST-336. Medical ICU. This rotation offers an opportunity to understand the principles of medicine in an intensive care setting. Credit: 4. Staff

PHYASST-337. Coronary Care Unit. This rotation offers an opportunity to understand the principles of medicine in a coronary care unit. Credit: 4. Staff

PHYASST-338. Radiology. This rotation offers exposure to the variety of diagnostic and radiologic methods. Credit: 4. Staff

OPHTHALMOLOGY

PHYASST-381. Ophthalmology. This rotation offers exposure to the evaluation and treatment of the eye. Credit: 4. Staff

PEDIATRICS

PHYASST - 308. Pediatric Healthy Lifestyles Program. In this elective, students will explore the myriad 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. Credit: 4. Staff

PHYASST-361. Pediatric Cardiology. This rotation offers experiences in pediatric cardiovascular assessment and problem management. Credit: 4. Staff

PHYASST-362. Pediatric Surgery/Cardiothoracic Surgery. This rotation offers experiences in cardiothoracic surgery for pediatric patients. Credit: 4. Staff

PHYASST-363. Pediatric Hematology/Oncology. This rotation offers exposure to the principles of hematology and oncology and their application for pediatric patients. Credit: 4. Staff

PHYASST-364. Pediatric Allergy/Respiratory. This rotation offers exposure to evaluation and treatment of allergy and respiratory problems in the pediatric patient. Credit: 4. Staff

PHYASST-365. Pediatric Endocrinology. This rotation offers exposure to the evaluation and management of endocrine problems in the pediatric patient. Credit: 4. Staff

PHYASST-366. Pediatric Infectious Disease. This rotation emphasizes the evaluation and treatment of various infectious diseases in the pediatric patient. Credit: 4. Staff

PHYASST-367. Intensive Care Nursery. This rotation emphasizes the care of the neonate in the intensive care nursery. Credit: 4. Staff

PHYASST-368. Pediatric Emergency Medicine. This rotation offers opportunity to manage the problems and needs of the pediatric patient in the emergency department. Credit: 4. Staff

SURGERY

PHYASST-341. Cardiothoracic Surgery. This rotation offers experiences in cardiothoracic surgery. Credit: 4. Staff

PHYASST-342. Otolaryngology. This rotation offers experiences in otolaryngology. Credit: 4. Staff

PHYASST-343. Neurosurgery. This rotation offers surgical experiences in neurological problems. Credit: 4. Staff

PHYASST-344. Orthopaedics. This rotation offers experiences in the evaluation and treatment of orthopaedic problems. Credit: 4. Staff

PHYASST-345. Plastic Surgery. This rotation offers experiences in the plastic and reconstructive surgery setting. Credit: 4. Staff

PHYASST-346. Sports Medicine. This rotation offers experiences in the evaluation and treatment of sports medicine problems. Credit: 4. Staff

PHYASST-347. Urology. This rotation offers experiences in the evaluation and treatment of urologic problems. Credit: 4. Staff

PHYASST-348. Pre-Operative Screening Unit. This rotation offers the opportunity to evaluate pre-operative patients. Credit: 4. Staff

PHYASST-352. Trauma. This rotation offers the opportunity to evaluate and treat trauma patients. Credit: 4. Staff

PHYASST-353. Surgical ICU. This rotation offers exposure to the problems commonly encountered in a surgical intensive care setting. Credit: 4. Staff

POSTGRADUATE PHYSICIAN ASSISTANT COURSES

PHYASST-450. Introduction to Health Care Policy. An introduction to the U.S. health care system. A lecture series taught by an interdisciplinary faculty and by community experts in health care policy and organization. Topics include major determinants of health and disparities, how health care is organized, delivered and financed in the U.S., health law and regulation, international comparisons and future trends. 3 Credit. Conover, Strand de Oliveira (Not offered each year.)

School of Medicine Professional Certificate Programs

Duke University Medical Center has responded to the increased need for qualified individuals at all levels in the health care system by developing educational programs designed to equip people for a variety of positions. These programs, which vary in admission requirements and length of training, offer students both clinical and didactic experience. Graduates of these programs are awarded certificates.

Financial information is noted within each program's informational section for all certificate programs.

OPHTHALMIC MEDICAL TECHNICIAN

Medical Director: Julie Woodward, MD

Program Director: Deborah K Smith, COMT, BSBA

The Ophthalmic Medical Technician Training program is sponsored by the Department of Ophthalmology, Duke University Medical Center. This is a one-year certificate program designed to prepare the student to be employed as an ophthalmic medical technician. The program consists of didactic lectures and clinical experiences designed to provide the background information necessary for students to understand and perform the technical tasks designated to them by an ophthalmologist. The first two months consist of core curriculum lectures supplemented with clinical introductory labs and workshops. In approximately the third 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. Orientation and classes begin on the first Monday in July, and consist of 51 instructional weeks including 12 days of personal leave.

Upon satisfactory completion of the curriculum, students receive a certificate from Duke University Medical Center and are required to sit for the national certification examination offered by the Joint Commission of Allied Health Personnel in Ophthalmology at the Technician level.

Prerequisites for Admission. Official documentation of prior educational experience is required for applicants to the program. Applicants must have either completed high school or passed a high school equivalency test. Preference will be shown to applicants who have completed college level courses and/or have some ocular-related work experience. Students must be capable of providing adequate ophthalmic medical clinic patient care.

Duke is unable to issue visa documents for this program. Therefore, only individuals who do not require visa sponsorship are eligible to attend.

Application Procedures. Applications are reviewed between January 1 and March 15 of the year for which admission is requested and must contain the following:

1. The completed Duke University Medical Center Application for Admission for the Ophthalmic Medical Technician Training Program, which can be sent by mail or found on-line at www.dukeeyecenter.duke.edu/modules/eyectr_tech/index.php?id=1. This includes a nonrefundable processing fee;
2. Official transcript(s) from the most recent schools attended;
3. Two original letters of recommendation from a previous employer or course instructor;

4. An essay on your reasons or motivations for wanting to enter the OMT Training Program. Minimum of 250 words is required.

A personal interview with members of the Admissions Committee may be requested following receipt and approval of the application and other information. If you are selected for an interview, you will be asked to take a written test on the day of the interview. The deadline for applications is March 15 of the year for which admission is requested. It is strongly recommended that applications be submitted as early as possible. The Admissions Committee will request that eligible applicants come for an interview following receipt of all necessary information. Applicants are notified no later than May 15 regarding admission to the program. Orientation and classes will begin on the first Monday in July. Requests for further information should be directed to the Program Director: Deborah K. Smith.

Applications and more information may be obtained at http://dukeeyecenter.duke.edu/modules/eyectr_tech/index.php?id=1.

Criminal Background Check. Candidates offered admission to the Ophthalmic Medical Technician Program will undergo criminal background checks.

Academic Calendar 2012-2013

(51 weeks)

Fall 2012	July 2 - December 14, 2012
Spring 2013	January 2 - June 21, 2013

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 on an expected absence. Students with 3 unexcused absences or tardies will be dismissed. An unexcused absence/tardy is one where the program director was not notified in advance. Each student is allowed 12 personal days that may be used for vacation, sickness or interview days. In addition, the Eye Center is closed for 8 holidays yearly as follows:

New Year's Day	Monday, January 1, 2013
Martin Luther King, Jr. Holiday	Monday, January 21, 2013
Memorial Day	Monday, May 27, 2013
Independence Day	Thursday, July 4, 2013
Labor Day	Monday, September 2, 2013
Thanksgiving	Thursday, November 28 & 29, 2013
Christmas Day	Tuesday, December 24 & 25, 2013

Registration and drop/add policy. Registration in the Ophthalmic Medical 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, 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 course work. The initial three-month period is considered probationary. 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 course.

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 she/he must study and bring up the grade through individual effort. If the student fails to achieve a "C" a second time she/he 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 scale. 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 course work or rotations are to follow the hierarchy of program coordinator - medical director - School of Medicine authorities.

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.

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 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. The Duke Ophthalmic Medical Technician Training Program is an accelerated program. Time away will result in missing necessary hours, and important information. Excessive time away must be made up. 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 is refunded according to the following schedule::

Before classes begin:	Full amount
During first or second week:	80%
During third to fifth week:	60%
During 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 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 he/she was enrolled for the term and that he/she withdrew on the specific effective date.

Honor code. Students enrolled in the Ophthalmic Medical Technician Program are expected to adhere to the Duke University School of Medicine Honor Code of Professional conduct as detailed in the Policies for all School of Medicine Programs found elsewhere in this Bulletin.

Fees and Expenses. Tuition for the program is $6,500.00 The student is responsible for housing, board, books, student health fee, parking fee and health insurance. Upon acceptance to the program, a $500.00 non refundable deposit must be submitted. This will be applied toward tuition.

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.

Financial Aid. For information, please contact the Financial Aid Office, Box 3067, Duke University Medical Center, Durham, NC 27710, or refer to http://medschool.duke.edu/education/financial-aid-office.

Transportation Required. Students should be aware that they will rotate to clinical sites outside of the university campus. The student is responsible for transportation to these sites.

COURSES OF INSTRUCTION

Students must satisfactorily complete the following courses. The curriculum includes, but is not limited to, the following:

OPTECH 151. Orientation Lectures. Orientation Lectures will familiarize the student with the eye center, ophthalmic equipment and medical terminology. Students will accompany first year ophthalmology residents to lectures. Independent study is required. .Credit: .50. *Staff*

OPTECH 152. 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. *Staff*

OPTECH 153, 153L. 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: 1.0, 1.0. *Staff*

OPTECH 154. Physiology and Anatomy of the Eye. This course will provide the student with knowledge on the development and workings of the human eye. Credit: 1.0. *Staff*

OPTECH 155. 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, caring manor. Credit: 1.0. *Staff*

OPTECH 156. Cardiopulmonary Resuscitation. CPR is required for certification as an ophthalmic technician. Credit: 1.0. *Staff*

OPTECH 158, 158L. 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 lenses. Credit: 1.0, 1.0. *Staff*

OPTECH 159, 159L. 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: 1.0. 1.0. *Staff*

OPTECH 160. Medical Terminology. Learning medical vocabulary and abbreviations and when and how to apply them. Credit: .50. *Staff*

OPTECH 161, 161L. Spectacles. Learning to read the prescription on a pair of glasses or contact lenses including bi-focal power, prism power and direction.Trouble-shooting problems with eye wear. Credit: 1.0, 1.0. *Staff*

OPTECH 162. Pharmacology. This 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. *Staff*

OPTECH 163, 163L. 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 medications, lasers and surgeries. Credit: 1.0, 1.0. *Staff*

OPTECH 164. 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: 1.0. *Staff*

OPTECH 165. 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. *Staff*

OPTECH 166, 166L. 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: 1.0, 1.0. *Staff*

OPTECH 167, 167L. 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: 1.0, 1.0. *Staff*

OPTECH 168. 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 to the eye. Credit: 1.0. *Staff*

OPTECH 169. 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. Staff

OPTECH 170. Clinical Rotations. Credit: 30.00. Staff

TOTAL Credit Hours: 54.75

General Information for Students

Student Life

CONDUCT OF STUDENTS

Duke University expects and requires of all its students cooperation in developing and maintaining high standards of scholarship and conduct.

All students are subject to the rules and regulations of the university which are currently in effect or which, from time to time, are put into effect by the appropriate authorities of the university.

Any student, in accepting admission, indicates the willingness to subscribe to and be governed by these rules and regulations and acknowledges the right of the university to take such disciplinary action, including suspension and/or expulsion, as may be deemed appropriate for failure to abide by such rules and regulations or for conduct adjudged unsatisfactory or detrimental to the university.

LIVING ACCOMMODATIONS

Duke University has one apartment facility on campus that is dedicated to graduate and professional students: Town House Apartments. The apartments are available for either continuous or academic term occupancy, are fully furnished and wired for cable, telephone and DukeNet. Information, including an on-line application, can be found at the Residence Life and Housing Services Web site at http://rlhs.studentaffairs.duke.edu.

The Town House Apartments are located approximately three blocks from the main East-West Campus bus line. These apartments are more spacious than other apartments on campus. Because of its location, residents find that these apartments offer more privacy and a change from the routine campus life and activities.

Each air-conditioned Town House Apartment includes a living room, a master bedroom, a second bedroom, a bath and a half and an all electric kitchen with dining room. Spacious closets and storage space are provided within each apartment. A swimming pool, located in the center of the complex, is open during the late spring and throughout the summer months. All utilities-water, heat, air-conditioning, gas and electricity-are provided. Residents must make arrangements with Duke University OIT Residential Services to connect cable, voice, and data services.

The apartments house single and married students. Single students may choose their own roommates or Residence Life and Housing Services will assign students with similar interests and schedules together. Each single student pays rent per academic term to Duke University. Married rental rates are available on the Web site.

Application Procedures. Information about Graduate and Professional Student Housing and an on-line application can be found at http://rlhs.studentaffairs.duke.edu. In recognition of the unique challenges that face newly accepted international students, priority for assignment to graduate student housing is awarded to students who arrive from abroad on student visa status. Due to limited availability of space, assignment to university housing cannot be guaranteed.

COMMUNICATION BETWEEN DUKE UNIVERSITY AND STUDENTS

Electronic mail (email) is the official medium by which Duke University School of Medicine communicates policies, procedures, and items related to course work or degree requirements to students enrolled at the university. All students matriculated at the university are assigned a Duke University email account upon acceptance of an offer of admission. It is the student's responsibility to check this email account regularly and to respond promptly to requests made by email.

Off Campus Housing. Duke Community Housing is a resource to locate off-campus rental housing options in the Durham area. Duke Community Housing maintains a database of available rental housing which is accessible through the Duke Community Housing website, http://communityhousing.duke.edu or the campus office. The Duke Community Housing office is located at 218 Alexander Avenue, Apt. B., telephone (919) 684-4304, email communityhousing@duke.edu. Office hours are 8:30 a.m. to 5:00 p.m. Monday-Friday. Appointments are recommended to meet with staff.

Dining Facilities. In addition to the food service venues in the Medical Center, a number of dining facilities are located within a short distance from the Medical Center. Duke Dining Services operates a variety of dining facilities including coffee bars, traditional cafeteria-style facilities, and fast food facilities. The many dining locations on campus give Duke students, faculty, staff, and visitors virtually unlimited dining options. For more information about campus dining options, contact Dining Services, 029 West Union, Box 90898, Durham, NC 27708-0898, (919) 660-3900,http://studentaffairs.duke.edu/dining.

Food and Other Expenses. Duke Dining Services and Duke University Stores operations are located on campus to service the needs of the Duke community. The Duke University identification card, the DukeCard, serves as official identification for activities such as library book check out, recreational center, parking gate, and academic building access. The DukeCard is also the means of accessing the Dining and Flexible Spending (FLEX) Accounts. These two prepaid accounts allow students to make purchases with their DukeCard at certain Medical Center and campus Dining Services locations, retail stores, photocopiers, vending, and laundry machines. The Dining and FLEX Accounts may also be used to purchase pizza and sub sandwiches delivered to campus from several approved off-campus merchants. A FLEX Account can be opened via cash or check at either of the two DukeCard Office locations (Medical Center Parking Garage II and West Union Building) or by sending a signed contract and check in the mail to the address listed below. Additional deposits can be made at the DukeCard Office or by visiting any of the Value Transfer Stations located across campus and the Medical Center. The Dining Accounts can be activated at the DukeCard Office and will be billed to the student's bursar account. For more information about establishing an account, contact The DukeCard Office, 100 Union West, Box 90911, Durham, NC 27708-0911, (919) 684-5800, http://dukecard.duke.edu.

MOTOR VEHICLE REGISTRATION

Each motor vehicle operated on Duke University campuses by students enrolled in the School of Medicine must be registered at the Medical Center Traffic Office, room 04290 Duke Clinics, (adjacent to Medical Center Bookstore) and thereafter must display the proper registration permit. Hours of operation: Monday and Friday, 7:30 a.m. to 3:00 p.m.; Tuesday and Wednesday 10:00a.m. to 3:00 p.m.

All students must pay an annual permit fee for a four-wheeled motor vehicle permit. Each motorcycle, motorbike, or motor scooter must b registered but carries no additional fee. Payment is accepted by Bursar billing only. To register a vehicle, the student must provide the license tag number of each vehicle to be registered. Bicycles are registered free of charge at University Transportation Services, 2010 Campus Drive. (Fees were under review at time of publication.)Parking, traffic, and safety regulations are given

to each student at the time of registration of the vehicle(s), and are subject to change. Students are required to abide by these regulations.

SERVICES AVAILABLE

Student Health Services (SHS) at Duke University is a joint program supported by the Division of Student Affairs and the Department of Pediatrics. A wide variety of services are available through SHS.

Student Health Center

The Student Health Center (SHC) is the primary location for healthcare services including general medical care, nutrition counseling, laboratory, pharmacy, (Duke Outpatient Pharmacy - 1st floor), travel and immunization clinics, and allergy/immunotherapy clinic. Most services are covered by the Student Health Fee (see below). Radiology studies, prescription drugs, some laboratory tests, and all specialty services received at the SHC are not covered by the Fee. The SHC is located on Flowers Drive in the Duke Clinic complex (Duke South, sub-basement, Orange Zone). Medical services are provided by board-certified faculty physicians and by physician assistants, nurse practitioners, and resident physicians under faculty supervision. Students are seen by appointment, (919) 681-9355, M,T,Th,F from 8:30 a.m. to 5:00 p.m. and W from 9:30 a.m. to 5:00 p.m. Limited walk-in services are also available on a daily basis. An Acute Care Clinic is held on weekends. Nurse advice is available at all hours when the SHC is closed. See http://www.studentaffairs.duke.edu/studenthealth for more information.

Students are encouraged to use the Student Health Center as their portal of entry to other health resources, including the specialty clinics within the general community and Duke University Health System. This helps with coordination of care. In the event of an oblivious life-threatening emergency, students should go directly to the Emergency Department. If necessary, Duke Police (911 or (919) 684-2444) provides on-campus transportation to the Duke Emergency Department.

Duke Student Wellness. Student Wellness staff are available to assist students in making informed decisions that promote their health. Topics include fitness assessment, alcohol and other drug usage, sexual activity and sexually transmitted diseases, stress management, and others. We will connect you with the proper people to assist with nutrition, fitness assessment or disordered eating. Consult our website at http://studentaffairs.duke.edu/duwell.

Student Health Physical Therapy. The Student Health Physical Therapy Consultation Service is located in the Student Health Center. A physical therapist is available weekdays when undergraduate classes are in session. Students are seen by appointment to assess exercise-related problems and to outline short-term treatment plans, aid recovery, and help prevent re-injury. For more comprehensive physical therapy, students are referred to local consultants.

Confidentiality. Information regarding the physical or mental health of students is confidential and is released only with the student's permission except in life-threatening circumstances. As a member of the Duke University Health System, the Student Health Center is fully compliant with HIPAA federal regulations.

Student Health Fee

All currently enrolled full-time students and part-time degree candidates are assessed a mandatory Student Health Fee each semester. This covers most services delivered within Student Health. Students not enrolled in the University for medical, judicial, or personal reasons are not eligible to pay the health fee or receive services normally covered by the Fee. The Health Fee may be waived under certain conditions. A waiver can be granted if the student resides more than 50 miles away from campus and does not come to campus for research or other academic activity for the entire semester. Students studying at the Duke

Marine Lab are not eligible for waiver. Duke employees and spouses of employees who are also students may request wavier. An optional summer health fee for students not enrolled in summer sessions is also available.

Services Covered by the Student Health Fee. The health fee covers most of the services at the Student Health Center if medically indicated and ordered by a student health provider. These include:

- medical care for acute and chronic illness and minor injuries
- one complete physical exam every two years including
- annual gynecological exam
- laboratory services performed at Student Health: CBC, urinalysis, rapid tests for strep throat, mononucleosis, vaginitis, pregnancy
- administration of allergy/immunotherapy shots
- nutrition consultation
- health promotion services

Services not Covered by the Health Fee. If unsure whether a service is covered, students should ask the Student Health reception staff in the clinic prior to receiving the service. Students are financially responsible for the following:

- prescription drugs
- laboratory studies not list above
- x-rays and other radiology studies
- medical care provided in the Emergency Department, hospital, or other non-student health facility
- care provided by specialist consultants, including those working within the Student Health facilities
- dental care
- routine eye exams
- pregnancy care or deliveries
- tests, procedures, and prescriptions not medically indicated, not on the approved list, or not ordered by Student Health providers
- immunizations/titers required for matriculation and travel

Student Medical Insurance Plan

Health insurance is essential to protect against the high cost of unexpected illnesses or injuries which require hospitalization, surgery, or the services of specialists outside of Student Health. Therefore, all full-time and part-time degree seeking candidates who are in programs that require payment of the health fee are required to have insurance. For those who do not have insurance, Duke University sponsors a plan (SMIP) designed with students needs in mind. The SMIP provides protection 24 hours per day during the 12-month term of the policy of each student insured and is specifically designed to complement the coverage provided by the Health Fee. Students are covered on and off campus, at home, while traveling between home and school, and during interim vacation periods. Coverage for the student's spouse and dependent children also may be purchased. The charge for the SMIP will appear on the tuition bill and may be waived only by providing proof of adequate insurance coverage. Certain restrictions apply, for more information, see http://www.studentaffairs.duke.edu/studenthealth. Enrollment in the Duke SMIP is mandatory for J1/F1 visa holders.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) is located in Suite 214, Page Building on West Campus. CAPS, a department of the Division of Student Affairs, provides a range of counseling, psychological and psychiatric services to assist Duke students with concerns ranging from adjustment difficulties to clinical issues like depression and anxiety.

The professional staff is composed of psychologists, clinical social workers, and psychiatrists experienced in working with university students. They provide direct services to students including individual evaluation and brief counseling/psychotherapy, couples counseling, group therapy, and psychiatric assessment with medication management. CAPS addresses a wide range of students concerns, including issues such as self-esteem and identity, depression, anxiety, family relationships, academic performance, dating, intimacy, and sexual concerns. Ordinarily, students are seen for counseling by appointment. If a concern requires immediate attention, an on-call consultant is always available during business hours for telephone or face-to-face consultation.

In addition, CAPS offers a series of programs, support groups, and life-skills workshops. Recent offerings have focused on stress, anxiety, interpersonal relationships, meditation, eating and body image concerns, and grief support.

Another function of CAPS is to provide consultation regarding student development and mental health issues affecting not only individual students but the campus community as a whole. The staff works with other campus personnel including administrators, faculty, the student health staff, and student groups in meeting needs identified through such liaisons. Contact CAPS at (919) 660-1000 or visit our website at http://studentaffairs.duke.edu/caps.

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 four 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 his or her individual needs and career goals, to gain access to resources the student needs for his or her professional development, and to have a confidential advisor for any matter. Students are welcome to seek help from any of the four 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 committee that oversees the interest of our students.

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.

- 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, located in the Seeley G. Mudd Building, provides the services and collections necessary to further educational, research, and clinical activities in the medical field. Services are available to Medical Center faculty, staff, and students from the School of Medicine, School of Nursing, Division of Allied Health, and Duke Hospital, as well as graduate departments in the basic medical sciences. Over 247,664 volumes are available, including the Trent Collection in the History of Medicine. Approximately 248,383 volumes, 94 current print-only subscriptions and 4,679 electronic journal titles are available. Most books published before 1995 and journals published before 1985 have been stored in the Duke Library Service Center located off Briggs Avenue. A computer classroom for hands-on training is located on the lower level of the Library. The Frank Engel Memorial Collection consists of a small group of books on consumer health and non-medical subjects for general reading, together with several newspapers and popular magazines. Library services include reference, circulation, Internet assistance, document delivery, mediated and self-service database searching tutorials and training, and consultations. Workstations are available in the entrance lobby and other areas of the library. Detailed information on services and resources may be found in the information guide at the Library and on the website at http://www.mclibrary.duke.edu.

Medical Center Library Hours: Monday-Friday, 8:00am - 12:00am; with restricted access after 6:00pm; Saturday, 12:00 pm - 8:00 pm and Sunday, 12:00pm - 12:00am with restricted access only. Holiday hours are announced.

Associate Dean for Library Services & Archives: Patricia L. Thibodeau, MLS (Rhode Island, 1976), MBA (Western Carolina University, 1991). Deputy Director: Richard A. Peterson, M.S.L.S. (Case Western Reserve University, 1977)

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 Monday through Friday from 8:30 a.m-5:30 p.m. They are open on designated Saturdays specifically just prior to the start of a new semester. Please call if you have questions concerning Saturday dates/hours. The telephone number is (919) 684-2717.

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 on-site staff. Accepting credit cars/ procurement cards, IRs and other forms of payment. For information, call (919) 684-2244or http://aramarkcafe.com/dukemed.

Manager: Michael A. Evans

Medical Center Commons. The Medical Center Commons restaurant is open for fine dining at lunch time, Monday-Friday. Accepting credit cards, IRs, 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 Mudd Building. The restaurant is a Bistro style atmostphere 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 $7 to $10. 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 http://aramarkcafe.com/dukemed.

Manager: Michael A. Evans

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/ plasticware service. The hours of operation are Monday through Friday from 7:00am until 5:00pm. Call (919) 684-2904 for assistance or http://aramarkcafe.com/dukemed. Accept credit cards/procurement cards, IRs, and other forms of payment.

Manager: Michael A. Evans

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

Under the leadership of Colleen O'Connor Grochowski, PhD, Associate Dean for Curricular Affairs and Edward Buckley, MD, Vice Dean for Medical Education, 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 office also conducts educational research for the continual improvement of the curriculum and trains faculty in innovations in educational methodology and assessment.

Located on the 4th Floor of Davison Building, the Office of Curricular Affairs provides program support including initial course set-up; coordination for interdisciplinary, longitudinal courses and programs; all assessment and evaluation activities; laboratory set up and maintenance; standardized patient training; staff support for the Curriculum Committee, its standing subcommittees, and ad hoc task forces; maintenance of the curriculum management system, BlueDocs; liaison with Duke-National University of Singapore; amenities for students including copying, faxing, and assistance with logistical requirements; and, oversight of the educational facilities.

Facilities for the educational program include an amphitheater, the Thomas D. Kinney Central Teaching Laboratory (CTL) for basic science and small group instruction, the Gross Anatomy lab, and the Clinical Skills lab for teaching and assessment of clinical skills (described in more detail below). In January, 2013, the Office of Curricular Affairs will be moving into a state-of-the-art learning center specifically designed for the education of medical students.

Clinical Performance Examination (CPX). The CPX is a standardized patient exam which consists of 8 individual patient encounters for which the student is in the role of primary provider. Some cases will involve evaluating an undifferentiated physical complaint through a focused history and physical exam. After these encounters with the standardized patient, the student will write a patient note -similar to a SOAP note - on a computer. The other type of case involves patient counseling or screening. These cases 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 represent through the clerkship year. The major purposes of the CPX are (a) to evaluate, in a more standardized way, each student's approach to patients with common complaints, demonstrating the orchestration of history-taking, physical examination and communication skills that cannot be adequately assessed through written tests, (b) to provide a measure of curriculum effectiveness and (c) to prepare students for Step 2 CS, a standardized patient-based assessment that is part of the physician licensing system in the United States. This preparation is achieved by giving students an experience that closely resembles the actual Step 2 CS.

Each student's encounters with standardized patients are videorecorded. Videorecordings are available for students to review. Full-class feedback and discussion with faculty physicians occurs during assessment week at the end of the second year. The CPX 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 six major clinical skills. Passing the CPX is required for graduation.

Duke Hospital. Duke University Hospital, one of the largest private hospitals in the South, is part of Duke University Health System and currently is licensed for 924 acute care beds. The mission and vision statements of Duke University Hospital are as follows:

Our mission is to serve our patients and the global community by providing the finest clinical integration of patient care, education, and research while respecting the needs of the human spirit.

Our vision is to be the leading academic health services provider by delivering high-quality, innovative responses to society's changing health care needs.

Duke University Hospital, a tertiary and quaternary-care hospital, is consistently rated one of the top hospitals in the United States. It offers comprehensive diagnostic and therapeutic facilities, including a regional emergency/trauma center; a major surgery suite containing 31 operating rooms; an endosurgery center; an Ambulatory Surgery Center with 9 operating rooms; and an extensive diagnostic radiology area. The facility also functions as a research hospital where medical advances are achieved and applied, and as a teaching hospital for students of medicine, nursing, and the allied health sciences. Approximately 40,000 patients are discharged and more than 33,000 surgeries are performed each year.

Duke's home care, hospice, and infusion services provide opportunities for continued care of patients after they leave Duke Hospital.

Ambulatory services include the outpatient clinics, ambulatory surgery center, the employee health service, and the emergency department, with more than one million combined patient visits annually. The clinical faculty of the Duke University School of Medicine participate in undergraduate and graduate medical education and practice medicine in the hospital and in the Private Diagnostic Clinic.

Duke Hospital, is approved for residency training by the American Medical Association, the Accreditation Council for Graduate Medical Education, and is accredited by the Joint Commission on Accreditation of Healthcare Organizations.

Veterans Affairs Medical Center. . The Durham Veterans Affairs Medical Center, established in 1953, is a 271-bed (151 operating beds and 120 nursing home beds - Community Living Center) tertiary care referral, teaching and research facility affiliated with Duke University School of Medicine. Durham provides general and speciality medical, surgical, psychiatric inpatient and ambulatory services, and serves as a major referral center for North Carolina, southern Virginia, northern South Carolina, and eastern Tennessee. Community Based Outpatient Clinics (CBOCs) are located in Greenville, NC, Morehead City, NC, and Raleigh, NC. 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 120-bed Extended Care Rehabilitation Center (CLC) is reflective of an ongoing emphasis on wellness, preservation of functions, and rehabilitation. Special programs at Durham include a comprehensive Women's Health Center; a Home Based Primary Care program; a Telemedicine Home Care program; a

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.

Lenox Baker Children's Hospital. On November 1, 1987, the Lenox Baker Children's Hospital became a part of Duke University Medical Center, entering a new phase in its development as an orthopaedic and rehabilitation outpatient center for the children of North Carolina. A full spectrum of outpatient orthopaedic and rehabilitation services is offered to identify and meet realistic goals and to educate, support, and assist families, schools, and communities in providing a rich environment for disabled children.

Durham Regional Hospital. Durham Regional Hospital, a 369-bed acute care hospital, has been serving the healthcare needs of Durham, Orange, and surrounding communities for over 35 years. As a comprehensive healthcare facility, Durham Regional offers a comprehensive range of medical, surgical, and diagnostic services including Weight Loss Surgery, Orthopaedics, Obstetrics, Gynecology, Cardiology, Radiology, on-site Radiation Oncology service, Emergency Medicine, and Outpatient Surgery. Durham Regional features a level II Special Care Nursery, Durham Rehabilitation Institute and the Davis Ambulatory Surgical Center. Durham Regional is a Magnet Hospital designated by the American Nurses Credentialing Center. The hospital also earned The Joint Commission's Gold Seal of Approval™ for its joint replacement program as well as certification as a Primary Stroke Center.

Built on the tradition of caring of its predecessor hospitals, Lincoln and Watts - Durham Regional is proud to be a part of Duke University Health System and remains dedicated to providing the exceptional medical care with the personal touch and convenience only a community hospital can offer.

Duke Raleigh Hospital. Duke Raleigh Hospital offers the world-renowned resources of Duke Medicine conveniently located in Wake County. Duke Raleigh has been an important member of the Duke University Health System since 1998 and has served Wake County residents as a trusted health care resource for more than 30 years.

Duke Raleigh is a 186-bed hospital providing a comprehensive array of services including a cancer center, cardiovascular center, orthopaedic and spine center, neurosciences, weight loss surgery, wound healing center, diabetes center, wellness services, outpatient imaging center, intensive care unit, progressive care unit, pain clinic, same day surgery center, emergency department and community outreach and education. Duke Raleigh Hospital has achieved Magnet ™ designation for excellence in nursing by the American Nurses Credentialing Center. Phone: 919-954-3000. Web: www.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 including Asheville Veterans Administration Medical Center in Buncombe County, John Umstead Hospital in Butner, Fayetteville Area Health Education Center in Fayetteville, and Cabarrus Memorial Hospital in Concord, North Carolina.

Medical Center and Health System Buildings and Facilities

The 97 buildings and additions which make up the medical education, research, and patient care facilities are located on approximately 200 acres, mostly on or near the West Campus of the university

The Clinic Zone The Clinic Zone is contiguous with the main quadrangle of the university and consists of the following: Duke Clinic-Ten contiguous buildings, includ-ing: Clinic Reception Building-Entrance lobby, clinics, food court, and amphitheater; Edwin A. Morris Building-Clinics, diagnostic, treatment and support services, Depart-ment of Radiation Oncology administration, departmental research laboratories, and offices; Davison Building-Department of Pathology administration, research laboratories and

offices, Central Teaching Facility, Medical Center and Health System Administration, and School of Medicine Administration; Original Hospital, 1940 and 1957 Additions-Clinics, diagnostic, treatment, and support services including: Clinical Laboratories, Physical Therapy, Pharmacy, departmental offices, Medical School Admissions, Registrar, Financial Aid, Central Teaching facilities, and Student Health Clinic; Baker House-Department of Obstetrics and Gynecology administration, clinics, diagnostic, treatment and support services including: Speech and Hearing, Oral Surgery, Pastoral Care and Counseling, departmental offices and NeuroOncology Program; Barnes Woodhall Building-Psychiatry inpatient care unit, Clinical Research unit, diagnostic, treatment, and support services, outpatient pharmacy, pre-operative screening, Radiology, departmental research laboratories, and offices, and Hospital administration; Diagnostic and Treatment #3 Building-Clinics, diagnostic, treatment, and support services, departmental research laboratories and offices; Ewald W. Busse Building-Center for the Study of Aging and Human Development, diagnostic, treatment, and support services, department research laboratories, and offices; Eugene A. Stead Building-General Clinical Research Center (Rankin), departmental research laboratories and offices; Clinical Research II-Department of Surgery offices, Department of Psychiatry administration, departmental research laboratories and offices, hyperbaric medicine unit. Other buildings within the Clinic zone include Marshall Pickens Building-Clinics, Employee Health Services; Parking Garage I; and the new Cancer Center facility: diagnostic, treatment and support services.

The Hospital Zone consists of the following buildings: Duke Hospital (Anlyan Tower and Ancillary Building)-Inpatient care units, diagnostic, treatment, and support services including surgical suite, cath labs, Emergency Department, Labor and Delivery suite, Operating and Recovery Suite, Full-Term Nursery, Radiology, Clinical Laboratories, MRIs, Respiratory Therapy, Pharmacy, the Departments of Anesthesiology, Medicine, Radiology, Surgery administration, Cardiology Division offices, and Brain Imaging and Analysis research; Children's Health Center-Children's clinics, diagnostic, treatment and support services, Department of Pediatrics administrative offices; Joseph A.C. Wadsworth Building (Eye Center)-Department of Ophthalmology administration, clinic, diagnostic, treatment, and support services including: operating rooms, recovery, research laboratories and offices; Albert Eye Research Institute-Ophthalmology faculty offices and research space and Peds Ophthalmology Clinic; Civitan Building and Child Development & Behavioral Clinic-Clinics, laboratories, and offices for the Departments of Pediatrics and Psychiatry. Hanes House and Clipp Research Facility, Physician Assistant Program, Clinical Research Training Program, Community and Family Medicine, Departments of Medicine and Surgery administrative and departmental offices, teaching facilities, School of Nursing facility - School of Nursing offices and educational facilities; Seeley G. Mudd Communications and Library-Medical Center Library, Medical Center Commons, the Searle Center for Continuing Education, and the Center of Medical Ethics and Humanity; Parking Garage II-House Staff and Student Exercise Facility, and Nursing Recruitment and the Duke Medicine Pavilion (under construction) and the Trent Semmons Center for Health Education (under construction).

The Research Zone consists of the following: Joseph and Kathleen Bryan Research Building for Neurobiology-Department of Neurobiology administration, Alzheimer's Disease Research Center, Neurobiology departmental research laboratories and offices; Nanaline H. Duke Medical Sciences Building-Departments of Biochemistry and Cell Biology administration, departmental research laboratories and offices; Alex H. Sands Medical Sciences Building-Departments of Anesthesiology, Biochemistry, Cell Biology,

Obstetrics and Gynecology, Ophthalmology, Medicine and Psychiatry research laboratories and offices; Edwin L. Jones Basic Cancer Research Building-Departments of Immunology and Molecular Genetics & Microbiology administration, departmental research laboratories and offices. Medical Sciences Research Building-Comprehensive Cancer Center administration, Departments of Medicine, Obstetrics and Gynecology, Ophthalmology, Pathology, Pediatrics, Radiology, Radiation Oncology, Surgery, Cancer Center research laboratories and offices, and Howard Hughes Medical Institute administrative offices;. Clinical and Research Laboratory Building, Departments of Cell Biology, Molecular Genetics & Microbiology, Medicine and Psychiatry research laboratories and offices; Leon Levine Science Research Center, section C-Department of Pharmacology and Cancer Biology administration, research laboratories, and offices; Surgical Oncology Research Building; Environmental Safety Building; Research Park Buildings I, II, III and IV-Departments of Anesthesiology, Medicine, Pediatrics, Radiology, Pharmacology, and Surgery research laboratories, offices, and hospital clinic laboratories; Vivarium & Surgical Research Pavilion; Cancer Center Isolation Facility; Snyderman Genome Science Research Building; and Genome Science Research Building-II-genomic science research; Medical Sciences Research Building-II -- Departments of Medicine and Surgery laboratories and offices; and Global Health Research Building -- Department of Medicine laboratories and offices.

The West Zone consists of the Lenox Baker Children's Hospital—Clinics, diagnostic, treatment, and support services, departmental offices, and mobile MRIs; Dialysis Center-Treatment facility. Center for Living Campus-five buildings including: Sarah Stedman Nutrition Center-Stedman Nutrition Center administrative offices and food facility; Andrew Wallace Clinic Building-Clinics, diagnostic, treatment, and support services and departmental offices; PepsiCo Fitness Center-Exercise facilities including indoor track, exercise equipment, swimming pool; Aesthetic Services and Dermatologic Surgery Clinic-clinics, diagnostic treatment, and support services and CFL administrative offices; and Duke Integrative Medicine -treatment facility.

The North Campus Zone consists of the following buildings: North Pavilion-Ambulatory Surgery center, Adult and Pediatric Bone Marrow Transplant, Duke Clinical Research Institute (DCRI), Anesthesiology offices, and Elba and Elder Street Buildings-Diagnostic and treatment services, offices for the Departments of Pathology, Psychiatry and Medicine, the Center for the Study of Aging, Hospital transport and laboratory services, Occupational and Environmental Safety, and Medical Center Engineering and Operations.

Contact Information for other Professional Programs at Duke University

- Pratt School of Engineering (919) 660-5386 http://www.pratt.duke.edu
- School of Nursing (919) 684-3786 http://www.nursing.duke.edu
- Nicholas School of the Environment and Earth Science (919) 613-8000 http://www.nicholas.duke.edu/
- School of Law (919) 613-7006 http://www.law.duke.edu
- The Graduate School (919) 681-3257 http://www.gradschool.duke.edu
- Fuqua School of Business (919) 660-7700 http://www.fuqua.duke.edu
- Divinity School (919) 660-3400 http://www.divinity.duke.edu
- Duke Bursar (919) 684-3531 http://www.bursar.duke.edu
- Duke University Registrar (919) 684-2813 http://www.registrar.duke.edu

Graduate Program Information

Graduate Program Information

Accreditation Council for Graduate Medical Education Programs. Appointments are from July 1 through June 30 with a few exceptions. Trainees receive stipends, professional liability insurance, disability insurance, life insurance, health insurance, parking, psychological counseling, uniforms, and laundry of uniforms.

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

Adult Cardiothoracic Anesthesiology	Mark Stafford-Smith, MD
Allergy and Immunology	Joseph Roberts, MD
Anesthesiology	Catherine Kuhn, MD
Cardiovascular Disease	Andrew Wang, MD
Child and Adolescent Psychiatry	Adrian Angold, MB, MD
Child Neurology	William Gallentine, DO
Clinical Cardiac Electrophysiology	Patrick Hranitzky, MD
Clinical Neurophysiology	Aatif Husain, MD
Critical Care Anesthesiology	Christopher Young, MD
Cytopathology	Rajesh Dash, MD
Dermatology	Russell Hall, MD
Dermatopathology	Maria Selim, MD
Diagnostic Radiology	Charles Maxfield, MD
Emergency Medicine	Joshua Broder, MD
Endocrinology, Diabetes and Metabolism	Thomas Weber, MD
Family Medicine	Brian Halstater, MD

Gastroenterology	Andrew Muir, MD
General Surgery	Bryan Clary, MD
Geriatric Medicine	Mitchell Heflin, MD
Geriatric Psychiatry	Mugdha Thakur, MD
Hematology/Medical Oncology	Carlos de Castro III, MD
Hematopathology	Anand Lagoo, MD
Hospice and Palliative Medicine	Katja Elbert-Avila, MD
Infectious Disease	Gary Cox, MD
Internal Medicine	Aimee Zaas, MD
Internal Medicine/Pediatrics	Suzanne Woods, MD
Interventional Cardiology	Michael Sketch, MD
Joint Surgery and Thoracic Surgery	Thomas D'Amico, MD
Medical Genetics	Marie McDonald, MD
Medical Microbiology	Barbara Alexander, MD
Medicine/Psychiatry	Sarah Rivelli, MD
Neonatal-Perinatal Medicine	Ronald Goldberg, MD
Nephrology	Stephen Smith, MD
Neurological Surgery	Michael Haglund, MD
Neurology	Saurabh Sinha, MD
Neuromuscular Medicine	Vern Juel, MD
Neuropathology	Roger McLendon, MD
Neuroradiology	James Eastwood, MD
Nuclear Medicine	R. Edward Coleman, MD
Nuclear Radiology	R. Edward Coleman, MD
Obstetrics and Gynecology	Fidel Valea, MD
Ophthalmology	Pratap Challa, MD
Ortho: Adult Reconstruction	Michael Bolognesi, MD
Ortho: Sports Medicine	Dean Taylor, MD
Orthopaedic Foot and Ankle	James Nunley, MD
Orthopaedic Surgery	William Hardaker, MD
Orthopaedics: Hand Surgery	David Ruch, MD
Otolaryngology	Liana Puscas, MD
Pain Medicine Anesthesiology	David Lindsay, MD
Pathology	Anand Lagoo, MD
Pediatric Anesthesiology	Craig Weldon, MD
Pediatric Cardiology	Stephanie Wechsler, MD
Pediatric Critical Care Medicine	David Turner, MD
Pediatric Endocrinology	Michael Freemark, MD
Pediatric Hematology-Oncology	Susan Kreissman, MD
Pediatric Infectious Diseases	William Steinbach, MD
Pediatric Pulmonology	Joseph Majure, MD
Pediatric Radiology	Donald Frush, MD

Pediatric Rheumatology	C. Egla Rabinovich, MD
Pediatrics	Betty Staples, MD
Plastic Surgery	Michael Zenn, MD
Preventive Medicine	Dennis Darcey, MD
Primary Care Sports Medicine Fellowship	Blake Boggess, DO
Psychiatry	Grace Thrall, MD
Pulmonary Diseases/Critical Care Medicine	Loretta Que, MD
Radiation Oncology	W. Robert Lee, MD
Rheumatology	Lisa Criscione-Schreiber, MD
Sleep Medicine	Aatif Husain, MD
Surgical Critical Care	Steven Vaslef, MD
Thoracic Surgery	Thomas D'Amico, MD
Transplant Hepatology	Andrew Muir, MD
Undersea and Hyperbaric Med.-Prev. Med.	John Freiberger, MD
Urology	Glenn Preminger, MD
Vascular Surgery	Cynthia Shortell, MD
Vascular/Interventional Radiology	Paul Suhocki, MD

Duke University Hospital is a participating member of the National Resident Matching Program, 2450 N Street N.W., Suite 201, Washington, DC 20037-1141. 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. The full-time professional staff of the V.A. Medical Center are all faculty members of the School of Medicine. All training programs are integrated with corresponding programs at the Duke University Medical Center, including rotation of house officers at each hospital.

Duke Graduate Medical Education Employment Requirements

The qualifications for membership to the Associate Medical Staff (Graduate Medical Trainee) eligibility areas follows:

- 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:
    1. Have received a currently valid certificate from the Educational Commission for Foreign Medical Graduates

    or

    2. Have a full and unrestricted license to practice medicine in a U.S. licensing jurisdiction.
- Graduates of medical schools outside the United States who have completed a Fifth Pathway program provided by an LCME accredited medical school
- Have a Full State License or Resident Training License (RTL)
- Current ACLS/BLS/PALS certification
- Proof of identity and US Employment Eligibility (I-9)
- Health Record Clearance, which includes drug screening

- A signed Agreement of Appointment
- Application for Appointment (which requires 3 reference forms, criminal background check, Databank check, EPLS check, OIG check, signature on confidentiality agreement and ECFMG check for FMG's.)
- Copy of Medical School Diploma
- Official Medical School Transcript
- Copy of Certificates of Prior Training
- Completion of all required Online Safety Training
- Completion of the Competency Self-Assessment
- Completions of several payroll forms which include: Life insurance, fitness Center registration,
- All applicants to Duke University Hospital sponsored graduate medical educations programs must document passing scores in the first two parts of appropriate medical licensure examinations (USMLE Step 1, Step 2CK, Step 2CS (if applicable), COMPLEX, or equivalent Canadian examinations, etc.) to be eligible for entry into any program. This policy applies to all graduate medical trainees whether United States or International Medical School graduates. An Agreement of Appointment will not be valid without satisfying this requirement.
- Once the above requirements have been met, new trainees must complete the Duke GME Institutional Orientation (comprised of live, webcast and hands-on workshops/presentations). In addition, the new trainee must complete an Orientation Post-test and Evaluation before being cleared for training/work. A trainee may begin his or her clinical work when he or she has met the above Graduate Medical Education Requirements.

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 the written permission of the course instructor and the dean for continuing studies and by paying the current audit fees. House staff members are not permitted to take courses offered through the division of undergraduate medical education. For more information, please contact Dr. Paula E. Gilbert, Academic Dean for Continuing Studies, The Bishop's House, Duke University, Durham, North Carolina 27708, (919) 684-2621; Web site: www.learnmore.duke.edu/academics/auditing; email:pgilbert@duke.edu.

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 ECMFG and the examination requirements, physicians must write to ECFMG, 3624 Market Street, Philadelphia, Pennsylvania, 19104, or visit the Web site at http://www.ecfmg.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 on-line applications, visit the Office of Graduate Medical Education Web site at http://www.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, please visit the Duke Visa Services Web site at: http://www.visaservices.duke.edu, or you may e-mail visahelp@mc.duke.edu.

Continuing Medical Education

Continuing Medical Education

The mission of the Continuing Medical Education (CME) Program 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 CME program seeks to distill complex research and medical information into formats useful to physicians, scientists and healthcare workers to effect implementation of that information in the healthcare setting. The Duke University Office of CME certifies and seeks to certify all types of activities: live presentations, on-line education, simulation, medical games and enduring materials (monographs, DVD, etc).

To obtain a listing of current CME activities, to request CME credit for a meeting, to view your Duke CME transcripts, to fill out a disclosure form, or to contact a staff member, please visit the web page at http://cme.mc.duke.edu. Our address and phone number are: Duke Office of Continuing Medical Education, Duke University School of Medicine, DUMC 104500, Durham, North Carolina 27710, (919) 401-1200. You may also contact us via email at cme@mc.duke.edu.

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