

Important Policies Pertaining to MD-PhD Students

Support while in the Program. The standard acceptance letter indicates that you will be guaranteed support for a maximum of 6 years in the Program regardless of the source of support: MSTP/NIH training grant, University funds, individual NIH fellowship or private funds. This will include not only your stipend and health care coverage, but will also cover your tuition responsibilities for the Medical and Graduate Schools. Realistically, however, most students will take 7 – 8 years to complete the dual degrees. Consequently, both the Medical and Graduate Schools have agreed that when a student selects an advisor or graduate program, the advisor or department has a responsibility to support the MD-PhD student for any time required beyond the 6 years guaranteed by the Program needed to finish both degrees. In many cases, where students are eligible (US citizens, Permanent US Residents) the MSTP Training Grant will support a student for the first 4 years of the Program (that will take you into the 1st or 2nd year of your graduate training) and we will reserve 2 years at the end of your training for support during the final clinical years. The same sequence pertains to those who are ineligible for NIH support but in this case, the University is the source of funding. We are informing you of these rules so that you will be aware of what we have told your potential advisor.

Continuation in the Program is dependent on satisfactory completion of the course and clerkship work in the Medical School curriculum as determined by its Progress Committee and satisfactory progress toward completion of the PhD as determined by your mentor, the Director of Graduate Studies (DGS) and your thesis committee. The Program's role is to make sure that these committees meet with you and that you are informed in a timely manner of any concerns they may have.

Compliance: In light of the support each of you receives, the Program often requires information from each student that must be reported to various Program officials and agencies. If we ask you for information, it is because we need to collect and report that information and expect you to be professional and timely in your responses to our requests. Some of the items for which you will be asked to provide information include, but are not limited to:

Annual Student Progress Reports – this is information reviewed by Program faculty so that we can help you navigate through the Program and identify any problems that come up.

Annual Funding Agency Reports – this is information compiled and sent to the various funding agencies for students supported on the MSTP Training Grant, University funds or individual fellowships.

Updating Information – this is information that should be provided to the MD-PhD Program Office if you change your address, marital status, health insurance coverage, direct deposit information, etc.

Student Hosting during the Interview Season: We rely upon our students to host applicants who come through for interview. I am sure you remember how important it was to you to be hosted by a current MD-PhD student when you came for your interview. Please respond to our requests for hosting applicants. This is a very important part of our recruiting efforts and we are depending on you for assistance.

Acknowledgement of MD-PhD Fellowship Support in Publications. ALL students must acknowledge their financial support in all publications (except abstracts). The standard format

is: “This work was supported by NIH MSTP TG 5T32GM07205 {also list other funding sources}.” It does not matter if you are supported by our MSTP TG at the time of your publication. The MSTP TG made it possible for you to be at Yale and do the work and it should always be acknowledged.

USMLE– Step I and II of the Boards. The USMLE program recognizes that the recommended seven-year time limit may pose problems for medical licensure for some students pursuing a combined degree (*i.e.*, MD-PhD). It is for this reason that the USMLE program recommends to licensing jurisdictions that they be willing to consider exceptions to the seven-year limit for MD-PhD students who meet certain narrow requirements. The recommended requirements are as follows:

1. The candidate is working toward both degrees in an institution or program accredited by the LCME and regional university accrediting body and is a student in good standing, enrolled in the institution or program.
2. The PhD studies should be in a field of biological sciences tested in the Step I content. These fields include but are not necessarily limited to anatomy, biochemistry, physiology, microbiology, pharmacology, pathology, genetics, neuroscience, and molecular biology. Fields explicitly not included are business, economics, ethics, history, and other fields not directly related to biological science.
3. Candidates seeking an exception to the seven-year rule should be required to present a verifiable and rational explanation for the fact that he or she was unable to meet the seven-year limit. Although these explanations will vary considerably, each licensing jurisdiction will need to decide on its own which explanation justifies an exception.

Students who pursue both degrees should understand that while many states' regulations provide specific exceptions to the seven-year rule for dual degree candidates, others do not. Students pursuing a dual degree are advised to check the state-specific requirements for licensure listed by the FSMB. For additional information, please see www.uslme.org.

Conflict of Commitment and Conflict of Interest. All MD-PhD students are required to submit a Conflict of Interest (COI) form each year in order to comply with NIH requirements. Please see www.yale.edu/provost/html/coi.html for the complete University policy and principles and to obtain the form that you will need to fill out. Please be sure to give a copy of your COI form to the MD-PhD Program Office.

Thesis and Prizes. The MD-PhD thesis prepared by our students is not eligible for MD honors. The Program has its own Prize Committee and currently offers the following prizes:

The MD-PhD Thesis Prize: awarded for the most outstanding MD-PhD thesis. The student receiving this prize will also be asked to give a talk on Student Research Day.

The MD-PhD Award: awarded to outstanding members of the graduating MD-PhD class who have shown excellence in both research and clinical activities.

The MD-PhD Alumni Award: awarded to graduating MD-PhD students who have demonstrated outstanding academic achievements, leadership and service.

The Selma and Karl Folkers Prize in Biomedical Research: awarded to graduating MD-PhD students whose thesis research has demonstrated excellence in basic cell and molecular biology.

Time away from the MD-PhD Program. The MD-PhD Program is administered within the parameters of different funding sources and institutional guidelines. The Program does not have any stated “vacation” time for its students but there are procedures that have been in place to serve as guidelines for our students when there is a need to be away from the Program for a brief period of time.

- All students are permitted to take 2 weeks in addition to stated University holidays (Thanksgiving, Winter and Spring breaks, and major religious observances). However, students must refrain from being away during any time they are scheduled to participate in required courses, teaching obligations, and/or clerkships.

- Following affiliation, the MD-PhD student must also take into consideration that research labs operate during semesters and throughout the summer months. You should discuss time away from the lab with your thesis advisor. If the student is affiliated with a lab outside of Yale, the student should conform to the official holidays observed by the institution at which the thesis laboratory is located.

If a student wants to take additional time off beyond the permitted 2 weeks and University holidays, this must be cleared with your thesis advisor and the MD-PhD Program Director. MD/PhD students making satisfactory academic progress may receive stipends during this time.

Sick leave or other leave. A student who is interested in applying for a sick, medical or personal leave should review the policies and procedures stated in the Graduate School Bulletin and consult the appropriate University representatives.

MD-PhD Timeline Overview

Year One: MD-PhD students complete courses in the Medical School.

One of the first decisions entering MD-PhD students will have to make in the first two weeks of the Program is what graduate courses you should take for credit. You have to keep in mind that the Graduate School requires you obtain two Honors during the first two years of the Program in order to continue registration. That is their only requirement and it is rather strictly enforced. In order to satisfy this Graduate School requirement, there are several courses that first-year students need to be aware of that will count.

It is important to emphasize that there are **no course requirements per se** for MD-PhD students. What you will sign up to take should be your decision (with a bit of help from us). However, you do have a responsibility to take courses that excite you and are relevant to your future graduate program. You came here to be challenged and become exposed to the best research and graduate teachers there are. Go for it but don't cut corners in your education.

The first thing you should appreciate is that some of the Medical School courses that you “have to take” are co-listed as Graduate School courses and are required courses for some of the graduate programs. The more of these courses that you take for credit in the Graduate School during your first and second years, the fewer course requirements you will have to satisfy in the Graduate School years. In general, it is a good idea to take as many of the first- and second-year Medical School courses for credit in the Graduate School as you possibly can. In order to get credit for these courses in the Graduate School, you must list them on your Graduate School

Course Enrollment Form.

In addition, you have to start thinking about your future research interests, and a graduate program that you will join after your rotations. An example of this would be the INP, which requires you to take Principles of Neuroscience (Neuroscience 501a) and Structural and Functional Analysis of the Human Nervous System (Neurobiology 500b). These are the only two specific course requirements for the INP and Neurobiology Program, and you will be taking one of them, Neurobiology 500b, automatically as part of the first-year Medical School curriculum. The INP strongly recommends that students who have a strong interest in the neurosciences take “Principles” in their first year. Deferring this course is not recommended because you will not be able to fit it into your medical school schedule in the second year and taking it after affiliating is after-the-fact. You should talk to Charles Greer, Director of the INP and Carol Russo, Administrator of the INP, for details.

Another example is the cell biology and histology parts of the Molecules-to-Systems (M-to-S) course. You will also be taking this automatically in your first year. It is listed as Cell Bio 502 a/b in the Graduate School catalogue, and is one of the required courses for the Cell Biology Program and an elective for the INP and MB&B Programs. In order to get credit for this course, we ask that you hand in the grades to Dr. Jamieson on the questions that are already graded as part of the bigger M-to-S qualifier.

Finally, MB&B 800 can be taken in place of the Biochem course conferences. That will entail reading original papers, etc. MB&B 800 is an elective for the INP and MB&B Graduate Programs. Talk to Susan Baserga about the details.

Cell Biology 601 and MB&B 800 are two courses that were primarily designed for MD-PhD students. Again, we strongly suggest that you sign up for these courses if your interests are in biochem, cell bio, genetics, developmental biology, etc. Cell Biology 601 is a requirement for the Cell Biology Graduate Program and electives for the INP and MB&B Graduate Programs. Because we are well aware of the special educational needs of MD-PhD students, we put a special spin on the contents that will relate to your future careers as physician-scientists. In addition, the formats of courses will give you valuable experience in researching, critically evaluating and presenting scientific information that will put you in good stead for the future. We know -- we have done this for several years and the performance of MD-PhD students has been awesome!

This summary is only to illustrate which courses are possible to take in your first year. Look carefully at the course requirements for individual programs in the pages that follow -- and be sure to check with the DGS of the relevant program(s). Requirements do change and there is a certain amount of flexibility depending on your background. However, the final say concerning requirements is left up to the DGS and graduate program faculty. Don't forget that there will be time to take Graduate School courses when you affiliate with a graduate program early in your third year. And be aware that Medical School courses listed as required graduate program courses may not substitute for upper-level graduate courses in the individual programs. Each program has its own upper-level courses you will take in order to ensure that your PhD training is on a par with that of regular PhD students.

Finally, in the first year of medical school and the Program, you will be exposed to things you never imagined such as gross neuroanatomy, and a host of clinical activities. But don't get overloaded by taking more courses than you can reasonably handle because you will become frustrated at the amount of material that may compromise your ability to focus on what you really need to study.

It is important to emphasize that you must talk to us about graduate courses (Jim, Mike, Fred, Susan B., Jerry, Cheryl or Susan S.) in the Program offices where we will have more details and contact numbers. And talk to the more senior MD-PhD students. They have been

through it and have survived! We know you are up to the challenges, and based on past experience with our students, you will do well, learn lots and not get bored as some have said happens if you only take Medical School core courses.

Early Matriculation

Incoming students have the option of matriculating early to do their first lab rotation at Yale. S/he must identify a particular lab in which to rotate and secure the lab advisor's consent to the rotation. The Graduate Program DGS must submit an "*Early Start Form*" to Associate Dean Richard Sleight by mid-May so that the student may be formally matriculated. Summer students who do rotations at Yale are to be supported by the advisor or the advisor's department. The Graduate Program DGS should arrange funding for the student well in advance of the student's arrival on campus. The MD-PhD Program cannot commence funding prior to July 1st.

Lab Rotations

Every student should plan on doing two 6-week laboratory rotations during the summer after the first year. Selecting the labs in which you will rotate is one of the most important things you will do during your first year, since hopefully one of the people with whom you rotate will become your PhD thesis advisor. You should start thinking about the disciplines that interest you and the faculty members whose work you find interesting as soon as possible. You should use every opportunity offered to you to learn about the research opportunities in your fields of interest. For example, MD-PhD students are invited to most Departmental Retreats. You should accept these invitations, as they provide a unique opportunity to get to know faculty in a relaxed setting and to hear them discuss their work with their colleagues. You should start meeting with faculty, meeting with students in labs that interest you, and going to lab meetings. The more you know about a lot of different labs, the more informed your decisions will be.

Year Two: MD-PhD students take courses in the Medical School during the academic year. Students need to fulfill the 2 Honors requirements for the Graduate School by the end of Year Two. Part I of the Boards is taken.

Summer of Year Two to Fall Semester of Year Three: The majority of MD-PhD students engage in 6 months of clinical clerkships. (See Clinical Training and Clinical Correlation Seminars for MD-PhD Students During the PhD Years below.)

Remainder of Year Three: By January of the third year, a thesis lab should be identified and all paperwork should be completed (affiliation form completed and submitted to the MD-PhD Office). The student's stipend is supplemented by the PI/PI's primary department at the time of affiliation. The student begins Graduate School courses.

Year Four: MD-PhD students take courses in the Graduate School and begin thesis research. Each student must complete the Qualifying Examination within one year of laboratory/program affiliation, *i.e.*, the spring semester of Year Four. This is a Graduate School rule and Graduate School registration for the following semester may be held up if this requirement is not fulfilled in a timely manner.

Year Five to Completion of Thesis: MD-PhD students take courses in the Graduate School and continue thesis research. The Thesis Prospectus must be approved and submitted to the Graduate School by the end of the second year of affiliation, *i.e.*, the end of the fall Semester of Year Five. Registration for the following semester may be held up if this requirement is not fulfilled in a

timely manner. The Thesis Committee approves the Prospectus and required paperwork is then delivered to the PhD department so the department can complete the Admission to Candidacy paperwork and submit it to the Graduate School. The Prospectus must be submitted to the Graduate School at least six months before the dissertation is submitted.

Typically an MD-PhD student will complete and defend the dissertation at the end of the fall semester or the beginning of the spring semester. It is required that MD-PhD students defend their dissertations before returning to fulfill the remaining Medical School requirements.

The student returns to Medical School and completes all remaining requirements and graduates in May.

While this is considered a guideline for a typical MD-PhD student, we recognize that not every student will follow this path. Any digression from this timeline must be discussed and approved by the DGS, with appropriate notes to the student's file and copies to the MD-PhD Program Office. Continued participation in the MD-PhD Program is subject to the satisfactory completion of requirements in a timely fashion.

Medical School Curriculum

The first two years of the curriculum for regular medical students are spent building a foundation in the sciences basic to the study of medicine.

In the first year, Biochemistry, Cell Biology, and Physiology coordinate the content of their disciplines in an integrated course “Molecules to Systems”. Human Anatomy and Development are taught two-thirds of the academic year. Students also take courses in Neurobiology, General Pathology, Immunobiology, Genetics and The Biological Basis of Behavior. The courses “Professional Responsibility” and “Principles of Clinical Reasoning” introduce students to medical biostatistics, ethics and economic issues of health care delivery. The mandatory “Preclinical Clerkship” introduces students to the principles and skills in medical interviewing and physical examination and topics concerning end of life, issues of cultural awareness, interview techniques, etc. This clerkship involves significant clinical tutorial time with local practicing physicians. The curriculum has dramatically cut back on the hours that students are in lectures, providing them with 3 afternoons a week free to pursue graduate courses, study, and take part in other activities.

First Year:

Molecules to Systems*	211 hr	Pathology	37 hr
Human Anatomy and Development	130 hr	Child and Adolescent Development	16 hr
Neurobiology*	94 hr	Principles of Clinical Reasoning	16 hr
Professional Responsibility	41 hr	Biological Basis of Behavior	14 hr
Genetics	24 hr	Preclinical Clerkship	90 hr
Immunobiology	24 hr	History of Medicine	12 hr

* Courses indicated by an asterisk are also listed as graduate level courses. These can be taken for Graduate School credit by MD-PhD students.

Second Year: Teaching of pathophysiology is systems-based and begins with presentation of core concepts in a course entitled "Pathological Basis of Human Disease". This portion of the second-year curriculum presents material in Systems Pathophysiology and Pharmacology. Medical Microbiology runs concurrently. The bulk of the second year is organized according to organ systems. The modules are: Cardiovascular, Clinical Neuroscience, Psychiatry, Endocrinology, Reproductive Medicine, GI/Liver, Oncology, Hematology, Lung/Respiratory, Musculoskeletal, Renal/Urinary Tract, Ophthalmology, and Skin. Students also have lectures in History of Medicine and Principles of Epidemiology and Public Health. Clinical training, begun in the first year, continues with the Preclinical Clerkship.

Details of Courses Co-listed as Medical School and Graduate School Courses

(These can be taken for credit in years 1 & 2 without scheduling conflicts)

Cell Biology 601a (2006) and 601b (2007) “Molecular and Cellular Basis of Human Disease.” This course emphasizes the connections between diseases and basic science using a lecture and seminar format. It is designed for students who are committed to a career in medical research, those who are considering such a career, or students who wish to explore scientific topics in depth. The course is organized in 4 to 5 week blocks that typically parallel the 502 Cell Biology course. Examples of blocks from past years include “Diseases of protein folding” and “Diseases of ion channels”. Each topic will be introduced with a lecture given by the faculty. That will be followed by sessions in which students review relevant manuscripts under the supervision a faculty mentor. Several special sessions are dedicated to technologic advances. In addition, three sessions are devoted to academic careers and will cover subjects such as obtaining an academic position, promotions, and grant writing. The course is open to MD and MD-PhD students who are taking or have taken the Cell Biology 502a,b. Student evaluations are based on attendance, participation in group discussions, formal presentations, and a written review of an NIH proposal. Graduate School credit is available. Meetings are held on Monday’s from 4:30 to 6 pm in the 3rd floor Harkness conference room. Our introductory meeting will be on Sept 11, 2004, at 4:30pm, ESH 311. *1st year course.* Course director: Fred Gorelick (fred.gorelick@yale.edu); co-director: James Jamieson (james.jamieson@yale.edu)

Of note is the enthusiasm with which medical and MD-PhD students interact in the preparation and presentation of topics in Cell Biology 601. Since the beginning of this course, several of the medical students taking it have become interested in a research career, applied to the Program and were admitted. This course will continue to provide a dedicated and committed pool of potential MD-PhD applicants that we intend to encourage into careers as physician-scientists.

Cell Biology 601 is a requirement for the Cell Biology Graduate Program and electives for the INP and MB&B Graduate Programs.

Cell Biology 502a/b “The Cellular Basis of Human Biology.” This course consists of cell biology lectures and histology labs that are part of the Molecules to Systems course that MD-PhD students take automatically in their first year with all medical students. In order to get credit for this course, MD-PhD students hand in their grades for questions relating to cell biology to the course director. Course director: James Jamieson; co-director: Fred Gorelick. The Histology Lab Director is Dr. Thomas Lentz. Cell Biology 502 a/b is one of the required courses for the Cell Biology and Genetics Graduate Programs and an elective for the INP and MB&B Programs. *1st year course*

MB&B 800a “Molecular Mechanisms of Disease.” The Department of Molecular Biophysics and Biochemistry, under the teaching leadership of Associate Director, Dr. Susan Baserga, has initiated a course called MB&B 800a (Molecular Mechanisms of Disease) designed for MD-PhD students and advanced first-year medical students. MB&B 800a can be taken in place of the Biochemistry course conferences. This course entails reading original papers with a molecular biological/biochemical focus on topics of interest in science and medicine including: emerging infections, molecular therapeutics, new diagnostic techniques like microarrays, model systems of

disease and biotechnology. The course requires weekly student presentations where discussion is led by the students in the presence of a faculty mentor. *1st year course*

NSCI 510b, “Structural and Functional Organization of the Human Nervous System.” An integrative overview of the structure and function of the human brain as it pertains to major neurological and psychiatric disorders. Neuroanatomy, neurophysiology, and clinical correlations are interrelated to provide essential background in the neurosciences. Lectures in neurocytology and neuroanatomy survey neuronal organization in the human brain, with emphasis on long fiber tracts related to clinical neurology. Weekly three-hour laboratory sessions devoted to neuroanatomy in which students dissect the human brain and examine histological sections in close collaboration with faculty members. Lectures in neurophysiology cover various aspects of neural function at the cellular level, with a strong emphasis on the mammalian nervous system. Each student may participate in a weekly physiology conference with a faculty member, covering such topics as vision, sensory physiology, motor systems, simple nervous systems, or general neurophysiology. Clinical correlations consist of five sessions given by one or two faculty members representing both basic and clinical sciences. These sessions relate neurological symptoms to cellular processes in various diseases of the brain. Variable class schedule; contact course instructor. Required course for the INP Program. (Michael Schwartz, Pasko Rakic) *1st year course*

NSCI 501a “Principles of Neuroscience.” A survey course which consists of lectures, readings and discussions in a small group on how approaches at the molecular, cellular, physiological and organismic levels have led to understanding of neuronal and brain function. Principles of Neuroscience is one of two course requirements for the INP. The other requirement is Structural and Functional Organization of the Human Nervous System (neuroanatomy; NBIO 500b) which is taken automatically by MSTP students as part of the first-year medical school curriculum. (Mark Yeckel and Marina Picciotto) *1st year course*

GENE 500b “Principles of Human Genetics.” A genetics course taught jointly for graduate students and medical students, covering current knowledge in human genetics as applied to the genetic foundations of health and disease. Allen Bale. *1st year course*

Pathology 650b “Cellular and Molecular Biology of Cancer.” A comprehensive survey of cancer research from the cellular to the clinical level. The relationship of cancer to intracellular and intercellular regulation of cell proliferation is emphasized, as are animal models for cancer research. Background in molecular genetics and cell biology is assumed. Required course for Experimental Path Program for MD-PhD students. (David Stern and Archibald Perkins). *1st or 2nd year course*; meets MWF 1-2.

Pathology 690b “Molecular Mechanisms of Disease.” The course is directed to graduate students and is designed to link the experimental and basic molecular mechanisms of cellular and organ functions to the pathogenesis of the most common human diseases. The course will address the molecular basis of viral infections and AIDS, inflammatory and immune-mediated diseases, and of several hematologic disorders. As for last year, the course is coordinated with the Department of Genetics to provide the students with a comprehensive, in-depth perspective on the significance and impact of genetic mechanisms in human diseases. In addition to formal lectures, the course will offer monthly Journal clubs and a Special seminar given by a prominent guest speaker. Required course for the Experimental Pathology Program. *2nd year course*.

Choosing a Lab

Deciding on Research Topics: MD-PhD students are strongly encouraged to carry out two 6-week lab rotations during the summer between the first and second years of medical school. These are designed to familiarize students with research options before they start thesis work. Assistance in making the choice of a rotation lab is provided at several levels.

First, all of the first- and second-year MD-PhD students meet with Michael Caplan and Susan Baserga as a group, and individually, to discuss issues related to selecting a research mentor. Meetings with the first-year students focus on the processes of defining an exciting research question and establishing useful criteria for identifying the appropriate research environment in which to address this question. Strategies for approaching potential research mentors are discussed, and the students discuss their plans for summer laboratory rotations. Meetings with the second-year students focus on their rotation experiences. Students discuss their research experiences and impressions of the training environment. These meetings allow students to ask questions or express concerns about their choice of a dissertation laboratory. Students who are undecided or who harbor concerns about their choices meet individually with Dr. Caplan. Through these meetings, strategies for addressing concerns or identifying alternative research mentors are developed. These interactions help to ensure that by the end of their second year, students have established a productive relationship with their ultimate research mentor.

Second, Dr. Jamieson meets all first-year students at least twice formally in the fall term of the first year and interacts with most MD-PhD students on a weekly basis in his role as a major lecturer in the cell biology part of the Molecules to Systems course and during histology labs that he runs.

Third, informal faculty contacts are available through Departmental Retreats. The Departments of Genetics, Cell Biology, Cellular & Molecular Physiology, Pathology and Molecular Biophysics & Biochemistry conduct annual retreats that take place at the Marine Biological Laboratory in Woods Hole, Massachusetts or at other conference facilities off the Yale campus. MD-PhD students are invited to these retreats and are strongly encouraged to attend. The costs of their attendance are covered by the host departments. These retreats provide a unique opportunity for MD-PhD students to meet and hear faculty members present their work to their colleagues. These retreats also allow MD-PhD students to meet Departmental graduate students and postdoctoral fellows in a relaxed off-campus setting. Through these interactions they are better able to identify laboratories that will provide training environments best suited to their own individual needs.

Electronic Databases of Interest to MD-PhD Students

There are many other routes for obtaining information on research at Yale: a searchable online database of faculty research interests run by the Office of Student Research; web pages of individual graduate programs and our own web page which links to seminar notices of interest to MD-PhD students and other relevant information sources that we have identified. The web pages listed below are some of the electronic sources of information available to MD-PhD students:

Yale MD-PhD Program: <http://info.med.yale.edu/mdphd/index.html>

Medical School Program: <http://info.med.yale.edu/medadmit/>

Biological and Biomedical Sciences Graduate Programs: <http://info.med.yale.edu/bbs/>
School of Public Health: http://publichealth.yale.edu/index.html?/education/edu_phd.html
Biomedical Engineering: <http://www.eng.yale.edu/biomedical/>

MD-PhD Student Seminars

Dr. Michael Caplan, Associate Director for Basic Sciences, continues to organize the bimonthly MD-PhD student seminars, Research-in-Progress. These seminars, which are held at 1:00pm with lunch, enable students nearing the completion of their thesis work to present it publicly and critically to students and faculty. We believe that it is very important for students in the first two years of the Program to be exposed to the research accomplishments of the more advanced students. These seminars are well attended and enthusiastically received. Students in the early stages of their training come away with an immense appreciation for the progress made by their more senior peers. This helps to build confidence in their own ability to carry out all that will be required of them. Connections made between the junior and senior students helps to unify the Program and fosters a spirit of shared participation. Often, these seminars become occasions for the senior students to offer advice based on their own experience concerning choosing a discipline, a laboratory, a mentor or a career direction. For the senior students, these seminars provide a valuable opportunity to practice their presentation skills. Many students use these seminars as an opportunity to practice and critique their thesis defense presentations. The participation and comments of Program-affiliated faculty helps to ensure that the seminars are viewed as an important part of the MD-PhD experience.

Ethics

Dr. Susan Baserga teaches a combined Ethics course for the MCGD Track students and the MD-PhD students, **“CBIO/GENE/MCDB 901b First Year Introduction to Research Ethics: Scientific Integrity in Biomedical Research.”** The course is mandatory for all first-year MD-PhD students (attendance is taken) and is offered during the Spring semester.