This handbook describes the organization of the University of Minnesota Medical Scientist Training Program (referred hereafter as “the Program”) and is intended to help students become familiar with the Program and conduct their studies in a productive fashion. The guide therefore represents the current policies governing the Program. These policies may evolve, and this guide may be amended on a yearly basis. Under the terms of the University of Minnesota Program Agreement governing the administration of the Program, the Program Director has the authority to interpret or change existing policies. The Program Director will be available for discussion and clarification regarding any aspect of the Program.

It is the policy of the University of Minnesota to support the equality of educational opportunities.

All MSTP students are responsible for knowing the content of this handbook and complying with policies and practices.

Details concerning the general regulations and organization of the Medical School and the Graduate School are included in the respective University of Minnesota handbooks. The information summarized in these handbooks is an extension of policies in place for students in the Medical Scientist Training Program at the University of Minnesota.
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University of Minnesota MSTP Policies and Practices 2015-2016
Updated 2/9/2016
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The MSTP Policies and Practices was updated on February 9, 2016. It is subject to change without notice, as is the information accessible via the handbook’s embedded hyperlinks.
University of Minnesota Medical Scientist Training Program (MD/PhD)

Mission Statement

The mission of the University of Minnesota Medical Scientist Training Program (MD/PhD) is to train a diverse group of intellectually gifted students to become physician-scientists and leaders in the global effort to preserve and restore human health.
To be a responsible physician by:

- Becoming effective listeners, in order to gain the patient’s perspective.
- Encouraging the exchange of knowledge with colleagues, patients, and the community.
- Gaining a deeper understanding of the cultural and socioeconomic context in which each patient is experiencing their illness, so that we can respond to their needs for care appropriately.
- Respecting the autonomy of the patient.
- Embracing the principle of nonmaleficence.
- Learning to advocate for the patient in a time of uncertain and non-uniform coverage of care.
- Respecting the privacy and confidentiality of every patient.
- Learning to work effectively with a team of healthcare workers.
- Upholding high standards of conduct, such that we will not tolerate inappropriate or discriminatory behavior towards anyone on the basis of race, gender, religion, sexual orientation, or differing cognitive or physical abilities, in ourselves or in others.

To be a responsible scientist by:

- Becoming intimately familiar with the previous and current literature in our area of study, so as to increase the efficiency and relevance of our own work.
- Developing a deeper understanding of the scientific process, to allow a critical analysis of research outside of our field of focus.
- Being honest in our representation of the data we collect, and of its meaning, while also giving credit to others who have contributed intellectually or physically to its discovery.
- Respecting the lives and being personally responsible for the humane care of animals that we use in our research, as well as looking for ways to reduce the numbers of animals used.
- Ensuring the just selection and treatment of human subjects, as well as a true informed consent.

To excel as physician scientists by:

- Contributing to the advancement of our chosen field of research.
- Developing the skills and experience for successful collaboration with both full-time clinicians and basic scientists.
- Becoming translators between the languages of basic science and clinical medicine, in order to bridge the gap between these two.
- Using the scientific method in our clinical problem solving, and modeling the practice of evidence-based medicine.
- Drawing from our clinical experiences to focus on those things that will have the most impact on improving human health.
- Becoming adept at effective time management, in order to best meet the many demands put upon us.
- Gaining sophistication in ethical reasoning as it applies to all aspects of science.
- Embracing a continuing commitment to excellence in all aspects of our training.

updated 2003
Contact Information

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Medical Scientist Training Program Office
Medical School
MMC 293
B681 Mayo Building
420 Delaware Street S.E.
Minneapolis, MN 55455
Tel: (612) 625-3680
Fax: (612) 626-5994
http://www.med.umn.edu/mdphd/

Medical School Student Support Services
B604 Mayo (MMC 293)
Tel: (612) 624-9608
Fax: (612) 626-4200
http://www.meded.umn.edu

University of Minnesota Graduate School
420 Johnston Hall
Tel: (612) 625-3394
Fax: (612) 626-7431
http://www.grad.umn.edu

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mdphd-student@lists.umn.edu

MSTP Steering Committee E-mail:
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MSTP Student Advisory Committee E-mail:
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1. MSTP Office

The MSTP office is located in B-680/681 Mayo Building, housing workspace for the Assistant Director and the Program Assistant. The Director's office is located in Room D610C Mayo Building. All official documents for inter- and intra-University communication should be routed through the MSTP office for appropriate handling. A study space for MSTP students is located in the Medical School Student Resources Room, B691 Mayo.

2. PROGRAM GOVERNANCE

2a. MSTP Executive Oversight Committee

The MSTP Executive Oversight Committee promotes integration of the MSTP with the Medical School by providing oversight of student monitoring and advising, and addressing programmatic issues within the MSTP and the Medical School critical to the mission of the MSTP. The Executive Oversight Committee meets quarterly and consists of the MSTP Director, MSTP Associate Directors, MSTP Assistant Director, Senior Associate Dean for Undergraduate Medical Education, and Medical School Faculty Advisor for MSTP students. Members of the Executive Oversight Committee are listed in the Appendix.

2b. MSTP Steering Committee

The MSTP Steering Committee evaluates applications, interviews applicants, provides guidance on MSTP policies, and provides a link between the MSTP and graduate programs. Members of the Steering Committee assist the Director, Associate Directors, and Assistant Director in ensuring the maintenance of academic standards through annual reviews of the progress of all students.

The Steering Committee is composed of health sciences faculty members from both basic science and clinical departments. The Director appoints all Steering Committee members and chairs the Committee. In the Director’s absence, Steering Committee meetings are chaired by one of the Associate Directors. Members of the Steering Committee are listed in the Appendix. The term of service for Steering Committee members is four years. Individuals may serve for more than one term, but these terms must be non-consecutive.

Student representation on the Steering Committee consists of two members of the MSTP Student Admissions Committee (one voting representative and one alternate) and one MSTP Student Representative selected by the MSTP Student Advisory Committee.

2c. MSTP Student Advisory Committee

The mission of the MSTP Student Advisory Committee (SAC) is to improve the University of Minnesota MSTP by creating and overseeing opportunities for MSTP students to enhance their scientific and medical knowledge, develop relationships beneficial to their career development, and build a sense of community within the program. As the primary student-run oversight committee, members of the SAC help to organize all MSTP group social activities, develop new events and experiences that will benefit all MSTP students, as well as integrate and analyze ideas about new ways to improve our program from MSTP students, steering-committee members, internal faculty members and external review faculty.

The SAC consists of two members from each MSTP class (based on year of entry). Each SAC member serves for a two year term and identifies a MSTP student from his/her class to serve on the
SAC upon conclusion of the two year term. A student chair is elected each year. MSTP SAC members are listed in the Appendix.

The SAC also supervises the activities of the following subcommittees:

- Monthly Meeting Subcommittee
- Social Events Subcommittee
- Newsletter Subcommittee
- Volunteer Events Subcommittee
- Retreat Planning Subcommittee

2d. MSTP Student Admissions Committee

The MSTP Student Admissions Committee consists of MSTP students who are in the graduate phase of their training. At least one member of the Student Admissions Committee will interview a MSTP applicant during the formal interview day. Primary responsibilities for committee members are:

- Reviewing all application materials before meeting with an applicant
- Interviewing 1-2 applicants on each of the program’s interview days, as well as escorting them to and from the interview if possible.
- Completing an evaluation form for each applicant interviewed that will go into the applicant’s file.
- Meeting with members of the student admissions committee within a few days after each interview day to discuss the applicants. The student committee formulates a recommendation for each applicant that is brought to the MSTP Steering Committee.

It is not essential for all committee members to be present on all MSTP interview days but the expectation is that committee members will coordinate their schedules to fit the interviews and will not miss a day unless absolutely necessary. Anytime a day needs to be missed, the committee member should let the Assistant Director know well ahead of time so arrangements can be made for another student to conduct the interview.

3. FINANCIAL ASSISTANCE

Students are financially supported throughout the duration of their formal training in the MSTP, contingent upon satisfactory progress in meeting the requirements and fulfilling the responsibilities of each training phase. Several mechanisms exist to monitor progress and to determine whether the student is meeting the requirements of the Program. These are defined in Section 19. A written contract between the student and the Program forms the basis for support being awarded on a yearly basis. Annual renewal of this contract is governed by the following guidelines:

3a. General Policies

Subject to the availability of funds, financial support of a student who is progressing satisfactorily in the Program is renewed each year. Financial support will be terminated if satisfactory progress is not made. The present stipend level for first- and second-year MSTP students is $26,500/year. Students in their third and fourth years of medical school receive a $28,000/year stipend. For students on NIH-funded fellowships, the NIH-mandated stipend is supplemented from other funds to reach the stipend level appropriate for the student’s status in the program. The stipend during the graduate phase is paid at a level equal to that of other graduate students in the chosen graduate program or equal to the amount paid to incoming MSTP students during that year, whichever is greater.
Students are also awarded payment of tuition and all required fees while in Medical School. The Program does not pay for "optional fees" assessed by the University to support student groups. These optional fees are automatically posted to student accounts whenever tuition charges are present. Students may opt out of paying these fees, but action must be taken by each student early in the semester to avoid these charges. Assistance on how to opt out will be sent to each student by the Medical School, or students may stop by the MSTP office for assistance. In the graduate phase, MSTP students are governed by the rules of their chosen graduate program and may be required to pay fees during this time. Clarification about whether a specific graduate program provides assistance to cover required University fees should be obtained directly from individual graduate program offices.

3b. Health Insurance

While in Medical School, MSTP students are eligible for two distinct University of Minnesota sponsored health insurance plans, the Graduate Assistant (GA) Health Plan and the Academic Health Center Student Health Benefit (SHB) Plan. Students will be given the opportunity annually while in Medical School to choose between the GA plan and the SHB plan. The GA and SHB plans provide similar coverage, but the coverage provided is not identical. In very general terms, the upfront cost of the GA plan is higher than SHB, but costs for actual care are higher for SHB than GA. See the Summary of Coverage for each of these plans (GA, SHB) for specifics on coverage and the costs associated with each plan.

Some general points about the two plans are listed below. Again, specifics for each plan should be reviewed at the Summary of Coverage for each plan (GA, SHB):

1. **Care location.** The SHB plan may be more cost effective for students who will receive care primarily on-campus at Boynton Health Services. There is also a broader network available but at additional cost. Coverage can also be obtained at out-of-network locations. The GA plan has a less complicated in-network/out-of-network structure.

2. **Upfront cost to students (i.e. premium charges).** The University requires enrollees in the GA plan to pay 5% of the premium cost. This 5% is each student's responsibility and cannot be paid by the Program. This charge is normally posted to the student's University account in Fall and Spring semesters. There is no student-paid portion of the SHB plan premium.

3. **Co-pay vs. co-insurance.** SHB plan charges are based on a co-insurance rate. The GA plan primarily charges co-pays with occasional co-insurance charges, depending on the service.

4. **Deductible.** The SHB plan has no deductible. The GA plan has a $200 deductible for out-of-network expenses.

5. **Total out of pocket costs.** In 2014-15, this limit was $6,250 for the SHB plan and $2,500 for the GA plan

6. **Dependents.** Both plans allow for enrollment of dependents for an additional fee (paid by student).

7. **Dental insurance.** Separate dental insurance registration is required for the SHB plan. This is paid by the MSTP, but students are required to fill out the registration paperwork to activate coverage. The GA plan includes dental.

During the graduate phase, health insurance is provided in accordance with the policies and practices of the graduate program.

Information on health insurance is available at the following websites:

• Graduate Assistant (GA) Health Plan:  
http://www.shb.umn.edu/twincities/graduate-assistants/graduate-assistant-health-plan.htm

3c. MSTP Responsibility for Support

The Program supports the student during the time they are registered in Medical School. Funding is initiated on or about July 1 prior to the formal start of Medical School classes. This period before the start of Medical School classes is spent in a full time laboratory rotation. Funding by the Program continues through the first two years of Medical School. Students will complete clinical rotations at the end of the second year (see section 12. Curriculum) and will be supported by the Program through the last official day of these rotations. The second phase of the Program’s responsibility for support begins the first day the student enters clinical rotations following completion of their PhD thesis. Stipend support will be provided for the total number of credits/weeks of clinical rotations completed plus 12 weeks of program allowances and 1 week for graduation week. Students who choose to spend time abroad (i.e. international travel) must check with the Program to determine whether they are still eligible for financial support.

Funding for student tuition, fees, insurance, and stipend comes from a variety of sources, including the National Institutes of Health Medical Scientist Training Program Grant, the Mayo Graduate Education Scholarship Fund, the Bakken/McKnight MD/PhD Endowed Scholarship Fund, University Fellowships, and the Medical School Dean’s Office. Assignment of the funding sources is at the discretion of the Program Director and Assistant Director.

3d. Mentor/Graduate Program Responsibility for Support

Upon completion of the initial two-year medical school training phase, financial responsibility shifts from the MSTP to the student’s mentor/graduate program. The funding becomes the responsibility of the student’s chosen thesis advisor. **It is the student’s responsibility to consult with his or her mentor and graduate program to determine the policies on stipend, tuition and fees support.** The source of support can come from the mentor’s grants, individual fellowships, training grants, or graduate program support. Although mentors are aware of their overall responsibility for providing stipend support for the duration of the graduate training phase, all students should be proactive and responsible for their own funding. This element of financial responsibility continues through the duration of the graduate training phase, independent of how long it takes the student to complete the requirements for the PhD (i.e. until successful completion of the thesis defense).

3e. Internal and External Funding for MSTP Students

The Program expects MSTP students to apply for internal and external predoctoral fellowships, particularly NIH F30/F31 awards. Information on NIH F30/F31 awards is available online at http://grants1.nih.gov/training/F_files_nrsa.htm. Students should plan to submit applications no later than the end of the first year of graduate training. Resources to assist students in the development of these fellowship applications are available from the Director or Assistant Director. The Program office should be notified of any applications submitted for fellowships. If the awarded fellowship is less than the MSTP stipend, the Program will supplement the external award to the Program stipend level (while the student is enrolled in Medical School). In those cases where the fellowship itself is greater than the MSTP stipend, the student is entitled to the entire amount. **MSTP students may not engage in any other type of external employment (i.e. other than the MSTP) without prior permission of the Director.**
4. PAYBACK REQUIREMENTS

Students who matriculate in the MSTP receive a stipend, tuition and support for fees and healthcare throughout their training. In the event that a student voluntarily leaves the Program, he/she may be required to pay back the funding received from the MSTP, either in part or in full. A specific example wherein payback is automatically collected is recovery of tuition from the Medical School semester during which the student voluntarily withdraws from the Program.

5. INSTRUCTION IN THE RESPONSIBLE CONDUCT OF RESEARCH

Responsible conduct of research is defined as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. The MSTP adheres to the principles that responsible conduct of research training is an essential component of MSTP training, and that active involvement in the issues of responsible conduct of research should occur throughout a physician scientist’s career.

In addition to the ethics training provided to all medical students and to graduate students in specific graduate programs, MSTP students must complete two additional RCR training components. First year MSTP students must complete the core Responsible Conduct of Research (RCR) curriculum offered by the Office of the Vice President for Research. A description of this training can be found at http://www.research.umn.edu/reo/education/index.html. This training is arranged by the Assistant Director during a student’s first year in the Program.

The MSTP also offers one-hour interactive RCR workshops on the following topics:

- Policies regarding human subjects in research
- Policies regarding live vertebrate animal subjects in research
- Mentoring and mentor/mentee responsibilities and relationships
- Responsible authorship, publication and peer review
- Data acquisition and management
- Conflict of interest (personal, professional, financial), intellectual property, and the scientist as a responsible member of society

A total of three workshops are offered each summer. Each topic is offered every other summer. MSTP students must attend each workshop by no later than the end of their fourth year in the program.

MSTP students must also attend a RCR Refresher Workshop in order to be sure that RCR instruction occurs at a frequency no less than once every 4 years. This RCR Refresher Workshop should be taken between the third and fourth year of the graduate phase.

6. LABORATORY ROTATIONS

The purpose of a laboratory rotation is to acquaint students with research opportunities in the laboratory research environment of a MSTP preceptor. The rotations do not constitute a course, and students will receive no credit toward either the MD or PhD degree for this requirement. The following guidelines apply:
1. All students are expected to complete a minimum of 2 laboratory rotations with different MSTP preceptors by the end of Fall semester of Medical School year 2. The first rotation occurs in the summer prior to the start of Medical School year 1. Students are also expected to complete 1-2 rotations between the middle of Medical School year 1 and the beginning of Medical School year 2.

2. Each rotation should be at least 4 weeks in length. When Medical School classes are not in session, students are expected to spend full-time in the laboratory.

3. Before committing to a rotation, students should evaluate potential preceptors and their research programs. Students should utilize the following resources:
   a. Monday Research Seminars
   b. The MSTP website and websites of MSTP partner graduate programs
   c. Other MSTP students
   d. Meet with the Director and/or Associate Directors
   e. Meet with Directors of Graduate Studies of MSTP partner graduate programs
   f. Attend graduate program seminars and events. A list is available on the MSTP website at http://www.med.umn.edu/mdphd/for-current-students/events/grad-program-institute-activities-and-seminars/index.htm
   g. A list of current MSTP students and the faculty members that each student rotated with is available in the Appendix. Students are encouraged to discuss potential rotations with other students in the program.
   h. PubMed. Assess not only the productivity of the lab, but the productivity of graduate students who have trained in the lab.
   i. NIH Reporter

4. It is also important to meet with faculty individually to discuss the possibility of a laboratory rotation. All first year MSTP students are expected to meet with at least 4 different MSTP preceptors during the fall and spring semester of Medical School year 1. Students should be sure to get clarification from faculty members regarding the faculty member’s interest in having a rotation student, potential projects available for a new graduate student, and availability and duration of funding for a new graduate student. Students are responsible for having a clear understanding of what each preceptor expects during a rotation. For example, will a rotation student learn a specific laboratory method, conduct a small project, conduct a literature search, or write a paper? In turn, students should make certain to communicate their expectations to the preceptor. The most productive rotations occur when student and preceptor are on the same page regarding goals and expectations.

5. Selection of rotations is a joint decision made by the student and the program. In order to finalize a rotation, students must follow this procedure:
   a. Submit to the Director a list of at least four faculty members, in order of preference. For each faculty member, provide a one paragraph statement outlining when the student met with the faculty member, and the reasons for wanting to conduct a research rotation with the faculty member. Students should submit this list no later than June 1 for the first rotation (prior to the start of Medical School year 1) and no later than April 1 of Medical School year 1 for the following 1-2 rotations. Students will discuss their faculty interest list with the MSTP leadership and finalize their rotation choice.
   b. The MSTP office will work together with the student to contact the faculty member and establish the guidelines and expectations for the rotation.
6. During the rotation, students will need to balance data generation versus compatibility testing. The rotation experience should be assessed in light of the following questions that need to be answered by the end of the rotation:
   - Are you excited about the research in the lab?
   - Do you like the lab environment?
   - Do you think you will have a productive working relationship with the faculty member?
   - Will the faculty member be your mentor and advocate?
   - Can you imagine spending 3-4 years of your life in this lab and enjoying it?

7. Following the completion of a rotation, students must submit a lab rotation evaluation to the MSTP office. The evaluation will briefly summarize the experience you had during the rotations.

7. MONDAY RESEARCH SEMINAR SERIES

The MSTP invites preceptors to present seminars about their research each Monday at 12:15 PM. The topics are diverse and all first- and second-year MSTP students are required to attend. These seminars are designed to keep students aware of and intellectually involved in biomedical research opportunities. Additionally, the seminars expose students to a variety of different areas of research, thereby facilitating their decision in selecting a faculty PhD thesis advisor and graduate program.

8. SELECTION OF PHD THESIS ADVISOR

Selection of the PhD thesis advisor is the most important decision made by a MSTP student during his/her tenure in the Program. The Director and Associate Directors are available to advise students at any time regarding this important decision. Laboratory rotations and the Monday Research Seminar Series are two primary mechanisms for identifying thesis advisors. Students must be proactive in determining that the laboratory of their choice has adequate grant support to cover the cost of their stipend and lab support.

8a. MSTP Student Research Commitment Statement

A PhD thesis advisor and graduate program must be declared no later than January 1 of the second year in Medical School. As part of this process, each student must submit a request for approval to the Director in the form of a detailed MSTP Student Research Commitment Statement. Advisor and laboratory selections are not officially approved without the Director’s permission. The Research Commitment Statement should outline the following:

1. Describe each laboratory rotation, including the nature of the project worked on, the methodologies employed and the outcome. The dates and approximate amount of time you were able to work in the laboratory should be included. Comment on the pros and cons of an individual laboratory as a choice for graduate training.
2. Indicate your mentor choice and the graduate program you have selected. Also list the required coursework in your graduate program and electives you may take. Indicate whether you will have teaching responsibilities.
3. Describe the nature of the research project you will pursue during the graduate training phase.
4. Describe your preceptor’s current and projected grant support that will provide the financial support for your research. Comment on plans for submitting individual fellowship applications to support your stipend.

A Graduate Phase Transition Meeting is held in January/February of the second year where advisor choices and graduate programs are finalized with the Director, Associate Directors, Assistant Director, and select Steering Committee members.

8b. Expectations and Responsibilities of MSTP faculty preceptors

The MSTP has established the following expectations and responsibilities for MSTP faculty preceptors:

- Active, externally funded research program that is suitable for rigorous PhD training. The MSTP’s expectation is that MSTP students will pursue rigorous PhD training that will be completed within 4 years and will result in a minimum of one first-authored paper published or in press prior to thesis defense. The MSTP also expects faculty preceptors to encourage and assist MSTP students in submitting a NIH F30 fellowship application (or equivalent) by no later than April of the second year of the PhD graduate phase.

- Track record of successful training of predoctoral students, postdoctoral trainees and/or medical fellows. This expectation does not preclude junior faculty with a less established track record of direct mentoring of MSTP students from becoming MSTP preceptors. However, junior faculty preceptors who mentor a MSTP student may be asked by the MSTP to establish a formal co-advising relationship with a senior MSTP preceptor and will meet on an annual basis with the student and MSTP leadership as part of the student's annual Individual Development Progress Report meeting.

- Participation in MSTP activities in addition to direct mentoring of an MSTP student in the PhD graduate phase, such as membership on MSTP student thesis committees, accepting MSTP students for laboratory rotations, serving as a Clinical Continuity mentor (for MD or MD/PhD faculty only), interviewing and recruiting MSTP applicants, participating in MSTP Responsible Conduct of Research training, and service on the MSTP Steering Committee or other faculty committees.

- Completion of the University of Minnesota Clinical and Translational Science Institute’s free, online, professional development course, entitled “Optimizing the Practice of Mentoring” – http://z.umn.edu/mstpmentoring. This online course takes 90-120 minutes to complete and should be completed before applying to become a preceptor.

Faculty interested in becoming a MSTP preceptor submit an application that consists of:

- Cover letter containing a written statement outlining the faculty member’s interest in and qualifications for being a MSTP preceptor. This cover letter should also confirm that the faculty member has completed the “Optimizing the Practice of Mentoring” online course.

- NIH biosketch or CV

- Other Support (NIH format)

- Letter of support from a current MSTP preceptor (http://www.med.umn.edu/mdphd/prospective-students/research-opportunities/faculty-research-preceptors/index.htm)

Applications for faculty preceptor status are evaluated by the MSTP Executive Oversight Committee.

9. SELECTION OF GRADUATE PROGRAM
At the time of the selection of a PhD advisor, students will also need to identify the graduate program that they will join during the graduate phase. MSTP students may choose among the following graduate programs:

- **Biochemistry, Molecular Biology & Biophysics (BMBB)**
- **Biomedical Engineering**
- **Biomedical Informatics and Computational Biology (BICB)**
- **Integrative Biology & Physiology (IBP)**
- **Chemical Engineering**
- **Chemistry**
- **Epidemiology**
- **Medicinal Chemistry**
- **Microbiology, Immunology & Cancer Biology (MICaB)**
- **Molecular, Cellular, Developmental Biology & Genetics (MCDB&G)**
- **Neuroscience**
- **Pharmacology**

The selection of a graduate program is dependent on the graduate program affiliation(s) of the chosen PhD thesis advisor. If the student’s advisor is affiliated with more than one of the graduate programs listed above, the student will need to select one program to join. Each graduate program has specific requirements for MSTP students and they can and do differ between programs. Students can consult their advisor and the MSTP Director for guidance on this selection.

Students do not need to apply for admission to their selected graduate program. This is handled by the MSTP office.

**10. REGISTRATION**

During the first two years of Medical School, course registration is handled by the Medical School Student Affairs office. Additional information on registering for clinical rotations can be found in section **11. Curriculum**. While in Graduate School, students are responsible for class registration and health insurance enrollment. Check with your graduate program office for details. Please keep in mind that the fall semester deadline for Graduate School registration will be either spring semester, or a later registration period that occurs in late August/early September. It is important for students to maintain full-time registration during every semester, including summer. Failure to do so will result in FICA and Medicare payments being withheld from stipend checks and can create problems with health insurance eligibility. Also, the Graduate School requires that you register in the fall and spring semesters in order to maintain active status as a graduate student. Failing to do so will require that you complete readmission paperwork and pay a fee. Please contact the MSTP office if you have any concerns or questions about registration.

**11. CURRICULUM**

MSTP students are required to complete the standard course work for both the MD and PhD degrees, plus the following:

*11a. USMLE Step 1 exam*
Students are expected to take the USMLE Step 1 exam within 6-8 weeks following the conclusion of year 2 medical school classes (typically, end of May to mid-June). Student perspectives on appropriate preparation and resources for Step 1 can be found in this [Google survey](#).

11b. **Clinical rotation(s) at the end of year 2**

Students are expected to complete a minimum of one required clinical rotation following completion of USMLE Step 1 during the summer prior to starting Graduate School. Registration for these rotations is handled by the MSTP office. Students must contact the Assistant Director in February of Year 2 of Medical School to make their rotation requests.

The following is the list of rotations that students can choose from:

- Medicine I (8 weeks)
- Pediatrics (6 weeks)
- Surgery (6 weeks)
- OB/Gyn (6 weeks)
- Psychiatry (6 weeks)
- Neurology (4 weeks)
- Family Medicine (4 weeks)

The selection of specific clinical rotations will depend on the clinical interests of the student and should be made in consultation with Program leadership.

11c. **Clinical Continuity and Mentoring Program**

The Clinical Continuity and Mentoring Program has the following goals:

- To train physician scientists who possess superior skills in both the clinical subspecialty area and research area
- To maximize the credentials of our MSTP students for matching in top-tier academic, research-focused residencies and physician scientist training pathways
- To develop a longitudinal clinical experience for physician scientists that informs their research careers and clinical careers.
- To develop longitudinal mentoring relationships with physician scientists in our University Community who care for patients and generate new knowledge through research

The program consists of the following courses that are completed by all MSTP students:

- Clinical Continuity Experience for Physician Scientist 1 (INMD 7542) – 3 credits
  - This course is completed in the second year of the graduate phase and involves one-on-one meetings between the student and the Clinical Continuity mentor totaling 16 half days during the academic year.
  - Mentors will provide ongoing clinical experiences, teach clinical care skills, and expose the student to translational research questions that occur in the clinic. Meetings may involve any number of activities, including clinical rounds, attendance of a clinical translation conference, or interactions with other faculty to meet a specific pedagogic goal.
  - Students will prepare and present a [MSTP Grand Rounds](#) presentation as part of this course.
  - Specific course objectives:
    - Maintain/develop basic clinical skills
• Integration of the MSTP student into the academic culture of the mentor’s department
• Observe mentor during leadership functions
• Learn time management skills
  o See Clinical Continuity Expectations and Responsibilities, and Student-Mentor Contract

• Clinical Continuity Experience for Physician Scientist 2 (INMD 7545) – 3 credits
  o This course is completed in the third year of the graduate phase and involves one-on-one meetings between the student and the Clinical Continuity mentor totaling 16 half days during the academic year.
  o Mentors will provide ongoing clinical experiences, teach clinical care skills, and expose the student to translational research questions that occur in the clinic. Meetings may involve any number of activities, including clinical rounds, attendance of a clinical translation conference, or interactions with other faculty to meet a specific pedagogic goal.
  o Students will submit a 1 page concept proposal in the form of an NIH Specific Aims page outlining a set of experiments to address a disease-based hypothesis as part of this course.
    ▪ The educational objective of the NIH Specific Aims is to encourage the student to recognize an unanswered and important question in the clinical setting, then propose specific basic or translational experiments to address that question. This activity is intended to capture the essence of being a physician scientist.
    ▪ Two online videos from Northwestern University discuss how to construct a Specific Aims page: Video 1, Video 2
  o Specific course objectives:
    ▪ Maintain/develop basic clinical skills
    ▪ Integration of the MSTP student into the academic culture of the mentor’s department
    ▪ Observe mentor during leadership functions
    ▪ Learn time management skills
  o See Clinical Continuity Expectations and Responsibilities, and Student-Mentor Contract

• Clinical Foundations for the Physician Scientist (INMD 7548) – 4 credits
  o This course is completed during the final year of the graduate phase and involves one-on-one meetings between the student and the MSTP clinical mentor in the clinic totaling 18 half days over one semester. This will be a hands-on clinical experience.
  o Completion of INMD 7548 will fulfill the Medical School’s Primary Care Selective Requirement.
  o Specific course objectives:
    ▪ Develop and refine patient evaluation and management skills, include H&P skills, patient write-ups, oral presentation, scientific basis of patient’s disease
    ▪ Learn to develop disease mechanism hypotheses
    ▪ Completion of a Quality Improvement (QI) on-line course and 1-page QI project proposal.
      ▪ The online course includes classes QI 101-104 (15 total lessons) provided by the Institute for Healthcare Improvement. The student will need to create a username and password for the IHI website (free). The student should obtain a certificate of completion of these 4 courses from
the IHI website and submit it to MSTP Assistant Director, Susan Shurson (sshurson@umn.edu).

- The 1-page QI project proposal should be reviewed with the clinical mentor.
- The educational objectives of the online Quality Improvement Modules and QI Project Proposal are to introduce the student to formal quality improvement methodologies, to encourage the student to identify an actual clinical situation in need of quality improvement, and then to propose a realistic QI project to address that situation.
  - See Clinical Foundations Expectations and Responsibilities, and Student-Mentor Contract

Selecting a MSTP Clinical Continuity Mentor

Students will meet in the summer with one of the Associate Directors to discuss the student’s specific objectives for the clinical continuity experience and identify potential Clinical Continuity mentors appropriate for the student. Students may elect to work with the same clinical mentor over multiple years or work with a different mentor each year. Final pairing of students with a mentor will be made by MSTP leadership.

Responsibilities of the MSTP Clinical Continuity Mentor

- Provide meaningful recurring clinical/translational experiences for the MSTP student over a 12 month period of time.
- Monitor student progress in comfort in the clinical setting including History, Physical, Assessment and Plan and documentation.
- Consider including the student in academic activities such as clinical publications relevant to the student.
- Be responsible to the student.

Responsibilities of the MSTP student during Clinical Continuity:

- Work with the Clinical Continuity mentor to identify mutually agreeable time schedule for activities.
- Be prepared for clinical activities by reviewing the EMR prior to clinic.
- Engage in discussions that would be of benefit to the student’s career path.
- Work to avoid absences.

11d. Clinical Rotations and Transition from Graduate Phase into Year 3-4 Clinics

The Medical School requires students to complete 76 credits/weeks of clinical rotations. Of the required 76 credits/weeks, 6 or 12 may be taken as "research for credit" electives. In order to exercise this option, an "Elective in Research or Independent Study" form will need to be completed, which is available from the Medical Education web site at www.meded.umn.edu/year34/forms.php. Please note that the Medical School will not grant retroactive credit for previous work. Additional information on the procedure for the transition from the Graduate Phase into Year 3-4 Clinics is provided in Section 18.

12. QUANTITATIVE TRAINING REQUIREMENT FOR MSTP STUDENTS

The NIH requires that MSTPs provide appropriate graduate training in quantitative biology or advanced statistical approaches for MSTP students to pursue cutting-edge biomedical research. To meet this requirement, MSTP students must complete one of the following graduate-level courses:
**BIOC 5361 - Microbial Genomics and Bioinformatics**  
(3.0 cr; Prereq-College-level courses in [organic chemistry, biochemistry, microbiology]; fall, spring, every year)  
Introduction to genomics. Emphasizes microbial genomics. Sequencing methods, sequence analysis, genomics databases, genome mapping, prokaryotic horizontal gene transfer, genomics in biotechnology, intellectual property issues.

**BIOL 5272 - Applied Biostatistics**  
(3.0 cr; =BIOL 3272; Prereq-One semester of college-level [[calculus or statistics or computer programming], general biology]]; A-F only, fall, every year)  

**BIOL 5485 - Bioinformatics: Experimental Design and Computational Analysis in Systems Biology**  
(3.0 cr; Prereq-4003 or &4003 or equiv; A-F only, fall, every year)  
Modern computational tools used in molecular biology and genomics research. When/how to use particular tools, how to interpret results. Principles, advantages/disadvantages of various methods.

**CSCI 3003 - Introduction to Computing in Biology**  
**CSCI 5980 – Special Topics in Computer Science (grad level, held in conjunction with CSCI 3003)**  
(3.0 cr; spring, every year)  

**CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics**  
(3.0 cr; Prereq-3003 or 4041 or #; spring, every year)  

**CSCI 5481 - Computational Techniques for Genomics**  
(3.0 cr; Prereq-4041 or #; fall, every year)  

**GCD 5005 – Computer Programming for Cell and Developmental Biology**  
(3.0 cr, starting fall 2014)  
The use of computer programming in biology is rapidly expanding, and in this course students will build their own biologically-oriented computer programs. Typical applications of computer programming in cell and developmental biology are for computational modeling, automated image analysis, and for data analysis. The objective of this course will be to teach basic MATLAB computer programming skills, with applications designed specifically for students to learn how programming is used for modeling of biological processes, for advanced data analysis, and also for quantitative image analysis. Students will gain confidence in building their own code, as well as in applying published code to specific problems. Students who proceed to graduate school, medical school, or employment
in industry will find programming a useful skill that will provide them a competitive advantage in the market.

**MicE 8992 – Discovering Patterns in the Microbiome**
(1.0 – 3.0 cr, starting spring 2016)
This class gives an introduction to analysis of microbial metagenomes. We will cover methods for analyzing marker gene sequences, shotgun metagenomics, and bacterial gene expression (metatranscriptomics). We will also explore the use of tools from machine learning, including feature extraction, clustering, and classification, to translate descriptive models into predictive models of microbiomes.

**NSC 8320, Sect 17 – Neurostatistics**
Offered every other fall

**PUBH 6414 - Biostatistical Methods I**
(3.0 cr; =PUBH 6450; Prereq-[Public hlth [MPH or certificate] student or environmental hlth [MS or PhD]] or #; A-F only, fall, spring, every year)

**PUBH 6450 – Biostatistics I**
(4.0 cr; =PUBH 6414; Prereq-[College-level algebra, health sciences grad student] or #; A-F only, fall, spring, every year)
Descriptive statistics. Gaussian probability models, point/interval estimation for means/proportions. Hypothesis testing, including t, chi-square, and nonparametric tests. Simple regression/correlation. ANOVA. Health science applications using output from statistical packages.

**PUBH 6451 - Biostatistics II**
(4.0 cr; Prereq-[[[6420, 6450] or [6414, 6415]] with grade of at least B, health sciences grad student] or #; spring, every year)
Two-way ANOVA, interactions, repeated measures, general linear models. Logistic regression for cohort and case-control studies. Loglinear models, contingency tables, Poisson regression, survival data, Kaplan-Meier methods, proportional hazards models.
*Geared towards trial and epidemiology cohort data analysis*

**PUBH 7445 - Statistics for Human Genetics and Molecular Biology**
(3.0 cr; Prereq-[6450, 6451 or equiv]] or #; background in molecular biology recommended; spring, every year)
Introduction to statistical problems arising in molecular biology. Problems in physical mapping (radiation hybrid mapping, DDP), genetic mapping (pedigree analysis, lod scores, TDT), biopolymer sequence analysis (alignment, motif recognition), and micro array analysis.

**PUBH 8446 - Advanced Statistical Genetics and Genomics**
(3.0 cr; Prereq-[7445, statistical theory at level of STAT 5101-2; college-level molecular genetics course is recommended] or #; spring, every year)
Genetic mapping of complex traits in humans, modern population genetics with an emphasis on inference based observed molecular genetics data, association studies; statistical methods for low/high level analysis of genomic/proteomic data. Multiple comparison and gene network modeling.

**STAT 5021 - Statistical Analysis**
(4.0 cr; = [STAT 3011, ANSC 3011, ESPM 3012]; Prereq =: 3011; College algebra or #; Stat course recommended; fall, spring, every year)
Intensive introduction to statistical methods for graduate students needing statistics as a research technique.

**STAT 5303 – Designing Experiments**
(4.0 cr; Prereq: 3022 or 4102 or 5021 or 5102 or instr consent)

**ChEn 8754 – Analysis, Design and Synthesis of Biotechnological Systems**
(3.0 cr)
This course is designed for graduate students from life sciences, chemical and physical sciences and engineering with keen interest in quantitative analysis and design of biological systems. The advances in genomic science and the advances in high throughput transcriptional and translational analytical tools have made biological research data multi dimensional; one can possibly relate biological processes at molecular level to physiological event at cellular level or even at the organisms or population levels. The exploitation of those advances also requires us to deploy new analysis tools that were noted in different disciplines. This course aims to introduce methodology for analyzing data attained at a genomic level to their integration for interpreting physiological events. It emphasizes the conceptual appreciation of the quantification of molecular event that constitutes "chemical processes" in living systems.

13. **GRADING POLICY**

Students receive pass or no pass grades while in the first two years in Medical School. Honors are given to approximately the upper 10% of each class. Grades are recorded on an H (honors), E (excellent), S (satisfactory), I (incomplete), N (no credit, fail) during Medical School years 3 and 4. Students who receive I or N grades in courses will be reviewed by the Medical School Committee on Student Scholastic Standing (COSSS) Committee to determine a course of action.

The Graduate School uses two grading systems: A-F or S-N. Grades of A, B, C, and S are acceptable, but grades of S are not calculated in the grade point average. At least two-thirds of the credits completed in the Graduate School and included on any degree program (including a minor or supporting program) must be taken under the A-F system. The Graduate School also requires 7 semesters of full-time registration (7 or more credits per semester) or its equivalent, to include at least 24 doctoral thesis credits.

14. **GRADUATE PROGRAM CREDIT TRANSFER**

Selected courses from the MD curriculum have been approved for transfer to the Graduate School to fulfill certain graduate program credit requirements. Consult individual graduate programs for details as to which courses will transfer.

15. **GRADUATE PHASE MILESTONES**

The following are key milestones that must be reached in order to successfully complete the graduate phase of the MSTP:
• Completion of graduate phase coursework
• Pass written and oral preliminary exams
• Seek independent funding by submitting a NIH F-series predoctoral fellowship application (or equivalent) by no later than the end of the second year of the graduate phase
• Select thesis committee and meet with thesis committee every 9-12 months
• Present research at a minimum of two national/international conferences
• Publish at least one first-authored paper in a peer-reviewed journal prior to return to clinic
• Complete Clinical Continuity and Mentoring Program
• Present chalk talk at MSTP retreat (end of year 1 of the graduate phase)
• Present research seminar at MSTP Monthly Student Meeting (third year of graduate phase)
• Present clinical/basic science seminar
• Write, submit and defend thesis no later than the end of the fourth year of the graduate phase

16. ORAL PRESENTATIONS DURING THE GRADUATE PHASE

Physician scientists must be able to clearly convey research and clinical findings in a variety of oral presentation format. The MSTP provides students with the opportunity to obtain experience with these various forms of oral presentations during the graduate phase. Students in the graduate phase give the following oral presentations:

• At the end of the first year of the graduate phase, students give a 10 minute “chalk talk” (no Powerpoint slides) on their thesis research. This presentation is given at the MSTP Annual Retreat.
• During the second year of the graduate phase, students give a MSTP Grand Rounds presentation as part of their activities in the MSTP Clinical Continuity and Mentoring Program. Information on MSTP Grand Rounds is provided in Section 17.
• In the middle of the third year of the graduate phase, students give a research presentation on their thesis research. This presentation is given at one of the MSTP Student Monthly Meetings.
• In the final year of the graduate phase, students give a MSTP Clinical/Basic Science Seminar in one of the existing research conferences held regularly by each Clinical Science Department in the Medical School. Additional information is provided in Section 18.
• The graduate phase culminates with a public PhD thesis defense. All MSTP students are strongly encouraged to attend this important MSTP milestone.

The diagram below outlines the oral presentations given by MSTP students during the graduate phase:
17. MSTP GRAND ROUNDS

MSTP Ground Rounds is a monthly case-based small group style discussion of a clinical problem and relevant state-of-the-art science. MSTP students will collaborate with their Clinical Continuity mentor to select and present a case that highlights the particular clinical problem and develop a “Morbidity and Mortality” style presentation of the case. Following the case presentation, the student and Clinical Continuity mentor will lead the group in an interactive grand rounds style presentation of the current science aimed at understanding the highlighted clinical problem.

Specific objectives of MSTP Grand Rounds include:
- To highlight the impact of basic, translational and epidemiological research on prevention, detection and treatment of human disease
- To provide an opportunity for students to network with established University of Minnesota physician scientists in a field of interest
- To provide a regular venue for interaction among students, residents, fellows, and faculty interested in the application of basic research to clinical medicine

MSTP students in the second year of the graduate phase are required to give one MSTP Grand Rounds presentation as part of the “Clinical Continuity for Physician Scientists 1” course. MSTP students in other phases of training may volunteer to present a case presentation.

a. Preparing for a MSTP Grand Rounds presentation.

- Students preparing for a MSTP Grand Rounds presentation should select the clinical case in consultation with their Clinical Continuity mentor. MSTP leadership can also be consulted for advice with regard to the selection of the clinical problem. Examples of cases from the Department of Medicine can be obtained from Dr. Bitterman and Pediatrics cases from Dr. Binstadt.

- In consultation with the Clinical Continuity mentor, select a day and time for the MSTP Grand Rounds Presentation. Notify Susan Shurson at sshurson@umn.edu at least three weeks in advance so that the MSTP Office can secure an appropriate room for the meeting.

- Develop the presentation in consultation with the Clinical Continuity mentor. There should be two components to the presentation:
  - Clinical case presentation (25 minutes) consisting of:
    - History
    - Physical exam
    - Initial imaging and laboratory information
    - Sequential release of information (in the sequence available to the primary MD team)
    - Engage the audience in analysis after each element of clinical data is presented
  - Interactive presentation of current science aimed at understanding the highlighted clinical problem (25 minutes)

- An example of a Grand Rounds presentation that represents the type of presentation expected for MSTP Grand Rounds is provided at the following link: Brad Miller, MD, PhD, “How Safe is Growth Hormone Therapy?”
18. MSTP STUDENT CLINICAL/BASIC SCIENCE SEMINAR

MSTP students in the graduate phase (generally in their final year) are required to give a formal presentation that bridges an area of basic research with a specific clinical problem. This presentation encourages independent thought by students regarding the future direction of experimentation in a topic area chosen by the student. The topic cannot be identical to the focus of their thesis research, but can be in the same general field (e.g. neuroscience, genetics, etc.). Each student must arrange and present his or her own seminar; assisting another MSTP student with his or her seminar will not fulfill the requirement.

The educational objective of the Clinical/Basic Science Seminar is to provide an opportunity to present a lecture at one of the major divisional or departmental clinical conferences (e.g. Pediatrics, Medicine, Lab Medicine Grand Rounds; CIDMTR, Pulmonary, HOT research/clinical conference) in order to showcase the student's research accomplishments to the Division/Department.

The MSTP office will contact students about scheduling their seminar prior to completion of the graduate phase of the Program. Students should then schedule a meeting with Associate Director Dr. Bitterman to discuss the general topic area that will be covered in the seminar. Based on this discussion, Dr. Bitterman will schedule the seminar in one of the existing research conferences held regularly by each Clinical Science Department in the Medical School. Feedback is provided to the student by the clinical department head or the vice chair for research. All students are strongly encouraged to attend these seminars, especially students who have completed their second year of Medical School.

Students must complete the clinical/basic science seminar requirement before they return to medical school for clinical rotations. Third year medical school funding from the MSTP will not commence until this requirement has been fulfilled.

Examples of Grand Rounds presentations that represent the type of presentation expected for the Clinical/Basic Science Seminar are provided at the following links:
  - Peter Gordon, MD, PhD, “New Strategies for Targeting Leukemia”
  - Mark Osborn, PhD, “Gene Editing for Fanconi Anemia”

19. MSTP POLICY ON RETURNING TO CLINIC

The timing of re-entry into the clinical training phase is challenging and should not be underestimated. Careful planning on the part of the student and thesis advisor is essential. Students must complete their thesis and contact the MSTP office before attempting to re-enter the clinical training phase. This includes successful final oral defense of the thesis and submission of the final version of the thesis (i.e. approved by all graduate thesis committee members) to the Graduate School. If the student anticipates a problem in meeting this requirement he/she must meet with the Director to explain the circumstance.

The return to Medical School training after the time spent in the research phase is a significant adjustment that will require a large amount of each student's time. Completion of the thesis before resuming full-time clinical training is a policy adopted by the MSTP in order to prevent the inherent time conflicts between clinical training and fulfillment of thesis requirements. Any student who returns to full-time clinical training without having completed his/her thesis or meeting with the Director will be pulled from the first rotation and each successive rotation until the thesis is defended. This delay may jeopardize the continuation of stipend support and may prevent the student from completing the required rotation(s) in time to graduate.
Medical School requirements for the clinical training phase include the following:

A minimum of 76 total credits/weeks (1 credit = 1 week) of clinical courses.

- **50 or 52 credits/weeks in the following required courses:**
  - Medicine I (MED 7500): 6 weeks or 8 weeks
  - Medicine Externship II: Subinternship in Critical Care (MED 7900): 4 weeks
  - Pediatrics (PED 7501): 6 weeks
  - Obstetrics/Gynecology (OBST 7500): 6 weeks
  - Psychiatry (ADPY 7500): 6 weeks
  - Surgery (SURG 7500): 6 weeks
  - Neurology (NEUR 7510): 4 weeks
  - Family Medicine (FMCH 7600): 4 weeks
  - Primary Care Selective (INMD 7548/Clinical Foundations, FMCH7700, MED7700, MED7701 OR PED7700): 4 weeks
  - Emergency Medicine (EMMD 7500): 4 weeks

- **26 or 24 credits/weeks in electives**
  - 8 credits/weeks minimum being direct patient interaction or “hands on”
  - 12 credits/weeks non-direct patient interaction or non “hands on” (may be fewer with more “hands-on” credits/weeks)
    - Students may take 6 or 12 credits/weeks as “research for credit” electives. In order to exercise this option, an "Elective in Research or Independent Study" form must be completed, which is available from the Medical Education website at [www.meded.umn.edu/year34/forms.php](http://www.meded.umn.edu/year34/forms.php). Please note that the Medical School will not grant retroactive credit for previous work.

Although satisfactory completion of a minimum of 76 credits/weeks is required for the MD degree, students may register for a maximum of 85 credits.

<table>
<thead>
<tr>
<th>Required courses</th>
<th>Course #</th>
<th>Credits/weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine Externship I</td>
<td>MED 7500</td>
<td>6 or 8</td>
</tr>
<tr>
<td>Medicine Externship II: Subinternship in Critical Care*</td>
<td>MED 7900</td>
<td>4</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>PED 7501</td>
<td>6</td>
</tr>
<tr>
<td>Obstetrics/Gynecology</td>
<td>OBST 7500</td>
<td>6</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>ADPY 7500</td>
<td>6</td>
</tr>
<tr>
<td>Surgery</td>
<td>SURG 7500</td>
<td>6</td>
</tr>
<tr>
<td>Neurology</td>
<td>NEUR 7510</td>
<td>4</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>FMCH 7600</td>
<td>4</td>
</tr>
<tr>
<td>Primary Care Selective OR Revised Clinical Foundations (2016 or later)</td>
<td>FMCH7700, MED7700, MED7701, PED7700 OR INMD 7548</td>
<td>4</td>
</tr>
<tr>
<td>Emergency Medicine**</td>
<td>EMMD 7500</td>
<td>4</td>
</tr>
</tbody>
</table>

[Table of Required Courses]

Note:
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For MSTP students, completion of clinical courses should occur as follows:

<table>
<thead>
<tr>
<th>Clinical rotation(s) at the end of year 2</th>
<th>6-8 credits/weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Continuity 1 and 2 completed during PhD phase</td>
<td>6 credits/weeks</td>
</tr>
<tr>
<td>Clinical Foundations completed at end of PhD phase</td>
<td>4 credits/weeks</td>
</tr>
<tr>
<td>Clinical rotations after completion of PhD (Years 3 &amp; 4)</td>
<td>58-69 credits/weeks</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76-85 credits/weeks</td>
</tr>
</tbody>
</table>

In planning Year 3 & 4 schedules, MSTP students should also factor in the following program allowances:

<table>
<thead>
<tr>
<th>Vacation breaks (total during Years 3 &amp;4)</th>
<th>4 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Development Time (preparation for USMLE step 2 exam, residency interviews)</td>
<td>8-10 weeks</td>
</tr>
</tbody>
</table>

Transfer of PhD coursework credits. Students may use up to 6 credits of graduate-level coursework from your PhD studies to fulfill Medical School elective requirements. This request must be initiated by the student. Contact the Assistant Director for the transfer request form.

19a. Financial Support During the Clinical Training Phase

Financial support by the MSTP for the clinical training phase begins the first day the student enters clinical rotations following completion of their PhD thesis. Stipend support will be provided for the total number of credits/weeks of clinical rotations completed plus 12 weeks of program allowances and 1 week for graduation week. Thus, the total duration of stipend support will be between 77 and 84
continuous weeks (64-71 credits/weeks for clinical rotations plus 12 weeks of program allowances plus 1 week for graduation week) during the clinical training phase.

Stipends for the clinical training phase provided by external fellowships (such as an NIH F30/F31) will be paid to the student in accordance with the requirements outlined by the funding agency and may include stipend support beyond the maximum 84 weeks described above. However, the total duration of any supplementation provided by the Program will be determined as described above (62-71 credits/weeks for clinical rotations during Years 3 and 4 of Medical School plus 12 weeks of program allowances plus 1 week for graduation week).

19b. Timing of Return to Clinic

Although MSTP students may return to clinic during any period, careful planning is required if a student wishes to avoid a period between the end of stipend support and official graduation from Medical School. For example, a student who has completed 16 credits/weeks prior to the return to clinic (6 credits/weeks of clinical rotations after Year 2, 6 credits/weeks of clinical continuity, and 4 credits/weeks of Clinical Foundations) and plans to complete only the minimum of 76 credits/weeks of clinical rotations required by the Medical School should return to clinic no sooner than the beginning of period 4 (end of September).

Students should consult with the Assistant Director to carefully plan their M3 and M4 training sequence, as the exact timing is dependent on the total number of credits/weeks that will be completed in M3 and M4, the total number of credits/weeks that were completed following Year 2, and other objectives that the student wishes to complete during clinical training (such as away rotations and time for independent research). In general, most MSTP students should plan to return to clinic sometime between the beginning of period 2 and the end of period 4.

19c. Submitting a M3/M4 Schedule Request

MSTP students who anticipate completing their PhD thesis and returning to clinic during the following academic year must:

1. Attend a mandatory meeting that will provide an overview of the schedule request process. This meeting is held in the fall of the year prior to the student’s anticipated return to clinic. In other words, a student planning to return defend their thesis and return in clinic in 2015 must attend this meeting in the fall of 2014, and begin thinking about their desired M3/M4 schedule in fall of 2014.

2. Meet with the MSTP faculty advisor to discuss the student’s plans for the M3/M4 years

3. After meeting with the MSTP faculty advisor, submit a M3/M4 Schedule Request (see below) by November 1

The M3/M4 Schedule Request should be prepared using the following format:

1. A cover letter (1 page should be sufficient) addressed to the MSTP leadership. Provide the following in the cover letter:
   a. Summarize the MSTP requirements that must be completed before returning to clinic and provide a timeline for the completion of these requirements. These include, but are not limited to:
      i. A minimum of one first authored paper published or in press
      ii. Successful defense of thesis and submission of thesis to Graduate School
      iii. Completion of required Clinical Continuity & Clinical Foundations courses
      iv. Research Presentation at the MSTP Retreat

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v. Clinical/Basic Science Seminar

b. Describe your physician scientist career goals, interests and objectives

c. Provide a rationale for the schedule request that has been developed in consultation with the MSTP Faculty Advisor. Be sure to address the following:
   i. Any specific schedule issues that are relevant to your specific career objectives as a physician scientist
   ii. How any concerns about your Step I score have influenced the development of your schedule request
   iii. List up to 4 priority clerkships with preferred periods, preferred year and preferred site
   iv. If there are large gaps in your schedule between clerkships, indicate what you will be doing during these periods.
   v. Describe any plans you have for research activities during M3/M4.
   vi. Any other issues relevant to your schedule request and your career development as a physician scientist

2. Complete the Year 3/4 scheduling worksheet (to be provided by the Director) with your clerkship choices indicated. Indicate periods when you will be preparing for Step 2, interviewing for residencies, conducting research, vacation, etc.

The cover letter and completed Year 3/4 scheduling worksheet should be submitted as a single PDF to the Director and Assistant Director by November 15.

19d. Issues to Consider in Developing a M3/M4 Schedule Request

1. Develop a schedule that will optimize your competitiveness for a position in a research-intensive residency or PSTP at a top-tier academic institution. Aim to earn “Honors” in required and elective courses in your clinical specialty/subspecialty of interest. It is also important to establish relationships with faculty who will provide outstanding letters of recommendation.

2. Identify the clinical specialty/subspecialty of interest that you intend to pursue in residency/fellowship. If you are undecided, narrow your choices down to 2 or 3. Build your schedule around these areas of interest, and provide opportunities to explore areas of interest in M3 before residency applications are submitted.

3. The most critical part of your M3/M4 schedule will be the period between your return to clinic in M3 and the submission of your residency application in Year 4 (ERAS submission September 15).

4. Identify 3-4 key courses in M3/beginning of M4 and decide how to place them in your schedule. If a specific site is critical for a course, you must provide a justification for this site preference when you submit your schedule to the MSTP office that is based on your academic medicine career objective.

5. Electives in your clinical specialty of interest should be completed before residency applications are submitted in Year 4
   a. Good time – July (you will know the system better than new residents)
   b. Bad time – August (faculty who might write letters are often on vacation)

6. If you are planning to do an away rotation:
a. Apply early!
b. The best time to do an away rotation is Sept/Oct of Year 4 (right before residency applications will be reviewed)

7. If you are satisfied with your Step 1 score, determine if your top residency choices require Step 2 scores as part of your residency application. If not, you can take Step 2 in Year 4 (for example, during the period when you are interviewing for residency).

8. If you are NOT satisfied with your Step 1 score:
   a. Complete as many required rotations as possible before taking Step 2. The critical rotations to complete are Medicine I (MED 7500), Sub-I in Critical Care (MED 7900), Pediatrics (PED 7501), Obstetrics/Gynecology (OBST 7500), and Psychiatry (ADPY 7500).
   b. Take the Step 2 exam no later than the fall of Year 4 (so that your scores will be available when residency applications are being reviewed)

9. Residency interviews will typically occur during Periods 5 and 6 of M4. Plan accordingly.

10. Seek advice from:
   a. MSTP/Medical School leadership
   b. Other physician scientist faculty in your clinical area of interest
   c. Senior MSTP students in M4
   d. Recent MSTP graduates

19e. Thesis Update Report

In addition to the M3/M4 Schedule Request, MSTP students who anticipate completing their PhD thesis and returning to clinic during the following academic year will submit a Thesis Update Report. This report should be a clear and concise document with the following information:
   - Student's name, year entered, thesis advisor, and graduate program
   - Update on status of manuscripts detailing those papers published, in press, submitted, and in progress
   - An outline of research progress that includes experiments left to complete before research is done
   - A timeline of thesis research to be completed.

The Thesis Update Report must be turned into the MSTP office by January 15. Once the request has been submitted, students will be scheduled to meet with the Director, Associate Director, and several members of the MSTP Steering Committee. The meeting will give students an opportunity to update their status and obtain feedback on the feasibility and appropriateness of their plan.

20. EVALUATION OF STUDENT PROGRESS

Students are required to submit an Individual Development Plan (IDP) Progress Report that is due June 1 of each year. Forms are sent to students in mid-April. The IDP Progress Report has two components:

1. Generation of an IDP. An IDP is an ongoing exercise designed to help students develop long-term and short-term career plans. The purpose of the IDP is to help students identify professional career goals and objectives, assess critical skill sets relative to specific professional career goals and objectives, and to develop a plan to acquire skills and
competencies necessary to achieve these professional career goals. The IDP should be used to develop SMART (specific, measurable, action-oriented, realistic, and time-bound) goals for specific competency skill areas and implement a development plan that will allow the student to acquire and/or strengthen specific skills essential for reaching career objectives. Additional information to help students in this process is provided in the Appendix. The IDP Progress Report also asks for a summary of activities over the past year and plans for the next year.

2. Submission of an NIH biosketch in the F-award format. M3 students may submit either an NIH biosketch or a curriculum vitae.

The IDP Progress Report is used by the program in several ways. First, the IDP Progress Report documents satisfactory progress in the program and is required for yearly re-appointment in the program. Second, the information provided on student activities is used to meet reporting requirements to the NIH, to update student biographies on the MSTP website, and to document accomplishments in the Program. Third, the IDP Progress Report is used as a foundation for monitoring and advising by program leadership. The Director reviews each report and uses it as a starting point for discussions in one-on-one meetings.

While in the graduate phase, the IDP Progress Report is also provided to the student’s graduate program. The program also receives a yearly written evaluation from the student’s thesis advisor. The advisor’s evaluation assesses:

- Quality of the research
- Work ethic
- Status of first author publications
- Timeline for thesis completion
- Overall strengths and weaknesses

A meeting to discuss the IDP Progress Report and goals for the next year is held each year following submission of the IDP Progress Report. For most students, this is a one-on-one meeting with the Director to discuss progress, identify goals for the next year, determine how the Program can assist in helping the student meet key short-term and long-term career objectives, and to discuss any concerns. A written summary is provided to the student and advisor. For students being advised by a faculty advisor with minimal experience in mentoring a MSTP student, the student and the advisor meet with a faculty subcommittee consisting of the Director, one of the Associate Directors, and a member of the MSTP Steering Committee. At this meeting, the student provides a brief overview of the status of thesis research and goals for the next year. The student and the advisor will also meet separately with the subcommittee to discuss any concerns. The student, advisor, and subcommittee will develop a common understanding of specific goals and objectives for the coming year. A written summary will be prepared by the Director and provided to the student and advisor.

In addition to the IDP Progress Report, each student will have periodic meetings with the Director, Associate Directors, and/or Assistant Director to discuss his/her progress in the Program. These meetings are mandatory and take place during the following times during a student’s tenure in the Program:

- July before the start of Year 1 of Medical School
- Fall of Year 1 of Medical School
- End of Year 1 of Medical School
- January/February of Year 2 of Medical School (Graduate Phase Transition Meeting with Director, Associate Directors, Assistant Director)
- August prior to start of graduate phase
- Yearly during graduate phase (summer)
• 6-9 months before thesis defense (meeting with Director, Associate Directors, Assistant Director)
• End of Year 3 of Medical School (with Director, Associate Director, MSTP Medical School faculty advisor)
• Following conclusion of residency interviews (with Director, Associate Directors, Assistant Director, MSTP Medical School faculty advisor)
• End of Year 4 of Medical School (exit interview)

Students should progress toward the completion of their degrees in a manner consistent with a full-time investment in the Program.

Required elements of satisfactory progress include:

1. Maintaining adequate academic standards in the first two years of Medical School with no failed courses in clinical training and at least a B average (3.0) in Graduate School.

2. Maintaining ethical standards of academic and personal conduct in accordance with the policies and practices of the Medical School, Graduate School and University of Minnesota.

3. Passage of USMLE steps 1 and 2. Step 1 must be completed before beginning clinical rotations and prior to entering the graduate phase. Step 2 must be completed in year four of medical school.

4. Fulfillment of required activities in the Program that include but are not limited to:
   a. Attendance of the Monday Research Seminars by year 1 and 2 students.
   b. Submission of completed IDP Progress Reports by June 1.
   c. Attendance at and participation in the annual MSTP retreat.
   d. Presentation of posters annually at the Biomedical Sciences Graduate Programs Research Recognition Day.
   e. Participation in the monthly student meetings.
   f. Attendance and participation in the MSTP Student-Invited Physician Scientist Scholar Lecture Series
   g. A minimum of one MSTP Grand Rounds presentation during the graduate phase.
   h. Completion of the MSTP Clinical Continuity and Mentoring Program prior to returning to clinic.
   i. Fulfillment of the Clinical/Basic Science Seminar requirement prior to returning to clinic.

5. Demonstration of full-time effort and progress toward completion of the PhD dissertation. This includes:
   a. Selection of a thesis mentor and graduate program by January 1 of year 2 of Medical School.
   b. Completion of the thesis in a timely manner. This will vary with the area of research focus and the graduate program affiliation. As a guideline, three to four years is generally sufficient. However, quality of science rules the day and students should not compromise this goal by attempting to prematurely return to clinical training.
   c. Students must have at least one first-authored refereed manuscript published or in press prior to returning to clinic.
21. REMEDIES FOR UNSATISFACTORY STUDENT PROGRESS

A trainee may be dismissed from the Medical Scientist Training Program for failure to make satisfactory progress as defined by the Policy and Procedures of the Committee on Student Scholastic Standing in the Medical School, and policies inherent to the individual graduate program in which the trainee is pursuing their PhD. The dismissal of a MSTP trainee can also occur because of failure to successfully traverse major checkpoints in Years 1 and 2 of Medical School, the graduate training phase, or Years 3 and 4 of Medical School. Major checkpoints are: 1) successfully passing all courses and completing USMLE part 1, 2) completion of the graduate phase of training within 4 years, and 3) successful completion of all clinical requirements and graduation from Medical School no more than two years after completing the PhD.

Any student making inadequate progress or having non-academic problems will be requested to meet with the Director. Upon clarification of the circumstance or identifying potential deficiencies or problems, the Director may either: 1) conclude that no further action is warranted, or 2) discuss the student’s circumstance with the Associate Directors. Following discussion with the Associate Directors, the Director will send a letter to the student restating the problem, what must be accomplished by the student to resolve the problem, and a time frame in which the problem must be resolved. A student who receives such a letter will be placed on probation. One week prior to the deadline for resolving the problem, the student will submit in writing to the Director precisely what has been done to resolve the problem. The Director will share this information with the Associate Directors, a recommendation will be made, and the outcome communicated to the student in writing. If the student is dismissed from the Program, all financial support from the Program will cease coincident with the date of the dismissal letter. The final authority to remove the probationary status or dismiss the student is at the discretion of the Director.

22. LEAVES OF ABSENCE

Circumstances may arise that require a student to take a leave of absence. This must be approved by the Director and arranged with the MSTP office and the graduate program or Medical School, as appropriate. A leave of absence will not be honored if the student does not notify the Program administration and receive approval. Students should submit a formal written request for a leave with the MSTP office. Whether or not the student continues to receive financial support during the leave of absence will be dictated by the circumstances, under the authority of the Director.

23. SUPPORT FOR TRAVEL TO SCIENTIFIC MEETING

Since scientific meetings are an important component in the education of medical scientists, travel to scientific meetings is encouraged. Funds are available from the MSTP for students to travel to a national or international scientific meeting of their choice. A budget limit of $1,000 per student, which can be used at any time during a student’s tenure in the Program, has been adopted. To exercise this option, students should submit a written request to the Assistant Director, well in advance of the chosen meeting. The request should include the following:

- Name of the meeting
- Where and when the meeting will occur
- Relevance of the meeting to the thesis project
- An itemized proposed budget
- An endorsement from the student’s thesis advisor.
The MSTP will only consider providing support if the student is exhibiting at a poster session or giving an oral presentation.

Additionally, the MSTP encourages students to travel to the yearly National MD/PhD Student Conference, the American Physician Scientists Association Annual Meeting, and the National Conference for Physician-Scholars in the Social Sciences and Humanities. The MSTP will provide funds for several students per year to travel to these conferences. Notices are sent to students each winter/spring and interested students are asked to submit their names for consideration. Priority is given to those students with seniority in the Program and to those doing research in an area most closely related to the topic of the conference.

24. PROGRAM MEETINGS AND STUDENT-INITIATED ACTIVITIES

24a. Monday Research Seminars
The MSTP Monday Research Seminar (12:15 PM) promotes the intellectual involvement of first and second year MSTP students in research and provides a venue for students to learn of the many exciting research opportunities at the University of Minnesota that might be suitable for subsequent PhD thesis research. Seminars include overviews of research opportunities available in our partner graduate programs, and presentations by MSTP faculty preceptors. Faculty discuss past research accomplishments, opportunities for future thesis projects, and their career development to date. In addition to research presentations, students lead discussions of research articles from the scientific literature in a journal club format. All first and second year MSTP students are required to attend.

24b. Annual MSTP Retreat
The retreat occurs each summer (usually in July) and is organized by the student MSTP Retreat Committee with logistical support from the MSTP Office. The retreat showcases the research being conducted by MSTP students, and also features presentations by guest speakers and workshops on a variety of topics relevant to MSTP training and career development. The retreat provides an important venue for students in various phases of the Program to meet, socialize and discuss topics of concern. The retreat is an important element of the Program and attendance is mandatory. Students in clinical rotations must work with the MSTP office to secure the necessary leave.

24c. Monthly student program meetings
Student-organized program meetings are held on the second Monday of each month in the evening. Meetings will cover a range of topics, including science/research presentations by students and faculty guest speakers, career development discussions and panels, networking opportunities with other physician scientists, and social activities. These meetings will also provide students with updates on the Program and the Medical School, and an opportunity to provide feedback to the Director and MSTP Student Advisory Committee on program activities. The monthly program meetings are an essential element of the MSTP and attendance by all MSTP students is mandatory.

24d. MSTP Grand Rounds
MSTP Ground Rounds is a monthly case-based small group style discussion of a clinical problem and relevant state-of-the-art science. MSTP students will collaborate with their Clinical Continuity mentor to select and present a case that highlights the particular clinical problem and develop a “Morbidity and Mortality” style presentation of the case. Following the case presentation, the student and Clinical Continuity mentor will lead the group in an interactive grand rounds style presentation of the current science aimed at understanding the highlighted clinical problem. MSTP students in the second year of the graduate phase are required to give one MSTP Grand Rounds presentation as part of the “Clinical Continuity for Physician Scientists 1” course. MSTP students in other phases of training may volunteer to present a case presentation. See Section 17 for additional information.
24e. Women in Science and Medicine Group
The mission of the MSTP Women in Science and Medicine Group is to inspire, encourage, and enable the women physician scientists in the Medical Scientist Training Program (MD/PhD) to achieve their personal and professional goals in becoming academic physician scientists through open discussion of potential career obstacles and interaction with successful female role models. The MSTP Women in Science and Medicine Group hosts regular social dinners for women MSTP students and University of Minnesota faculty to engage in discussions focused on career development, mentoring, and leadership. These meetings foster relationships between students and female role models in the scientific and medical communities. In addition, the MSTP Women in Science and Medicine Group, in collaboration with the Office of Medical Education, co-sponsors research seminar presentations by invited external women physician scientists. Opportunities are provided for MSTP students to meet with these invited speakers.

24f. Biomedical Sciences Graduate Programs Research Recognition Day
Research Recognition Day is held annually in May and consists of student poster sessions, talks by recipients of the Beatrice Z. Milne and Theodore Brandenburg Award, and a guest keynote address. MSTP students in the graduate phase are required to submit an abstract and participate in the poster session. It will be the responsibility of the student and his/her faculty advisor to prepare the posters; display materials will be provided by the Research Recognition Day organizers.

24g. Student Invited Physician Scientist Scholar Lecture Series
The objective of the MSTP Student Invited Physician Scientist Scholar Lecture Series is to invite an exceptional investigator to give a formal research presentation to the medical school community and to meet informally with all students. It also provides a means to help showcase the role of the physician scientist in clinical medicine, basic research, and in health care delivery. The Program is committed to supporting one speaker per year. While the Student Advisory Committee is responsible for implementing the lecture series, all students in the Program provide input. In addition, the Committee is committed to cooperating with other groups in order to provide programs of mutual interest. These groups include all clinical and basic science departments.

25. ACKNOWLEDGMENT OF MSTP FELLOWSHIP SUPPORT IN PUBLICATIONS
All students who have been supported by the MSTP T32 training grant at some time during their studies should acknowledge the support in all publications (except abstracts) as follows: “Jane Doe was supported by NIH MSTP grant T32 GM008244” or “This work was supported by (list of other support) and by NIH MSTP grant T32 GM008244 (J.D.).

It does not matter whether the student is supported by the MSTP grant at the time the work is done or the manuscript is submitted. The important point is that the MSTP grant made it possible for the student to be here and do the work: “once an MSTP [student], always an MSTP!” Students who are/have been supported by any other fellowship should acknowledge the support using the format for acknowledging MSTP support.

26. FELLOWSHIPS AND AWARDS
The Program expects MSTP students to apply for internal and external predoctoral fellowships, particularly NIH F30/F31 awards.

26a. NIH F30 and F31 Predoctoral Fellowship
Information on NIH F30/F31 awards is available online at http://grants1.nih.gov/training/F_files_nrsa.htm. Students should plan to submit applications just prior to or during the first year of graduate training, but no later than the end of the second academic year of the graduate phase (April 8 deadline). Application deadlines are August 8, December 8 and April 8. Please contact the Director well in advance of the deadline for the required “Additional Educational Information” attachment.

Multiple resources are available to assist students in preparing a competitive F30/F31 application:

- Grant writing workshops are held by graduate programs. If a student’s graduate program does not offer a grant writing course, students may opt to take the graduate course “Professional Skills Development for Biomedical Scientists” (PHSL 8242) offered by the Integrative Biology & Physiology Graduate Program.
- The MSTP holds a yearly NIH F30/F31 workshop. Students in the first year of the graduate phase are required to attend.
- The book, “A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant” by Andrew Hollenbach can be accessed online through the University of Minnesota Biomedical Library at http://z.umn.edu/f30guide
- A series of online videos “So You Want to Apply for an NRSA” is available from the University of Southern California CTSI at http://vimeopro.com/scctsiecde/so-you-want-to-apply-for-an-nrsa/page/1
- Copies of F30/F31 applications prepared by MSTP students, and information on the NIH review criteria, are available from the Director. Students will receive a link to this information before entering the graduate phase.

26b. American Heart Association Predoctoral Fellowship

The American Heart Association offers predoctoral fellowships that help students initiate careers in cardiovascular and stroke research. There are two funding cycles per year. Additional information is available at http://my.americanheart.org/professional/Research/FundingOpportunities/Funding-Opportunities_UCM_316909_SubHomePage.jsp#

26c. Paul and Daisy Soros Fellowships for New Americans

The Paul and Daisy Soros Fellowships for New Americans supports the graduate education of New Americans (permanent residents or naturalized citizens if born abroad; otherwise children of naturalized citizen parents). Each fellowship supports up to two years of graduate study – in any field and in any advanced degree-granting program – in the United States. Additional information is available at http://www.pdsoros.org/.

26d. Graduate School Bridging Funds

The Graduate School has a Bridging Fund program that covers tuition, health insurance and fees that exceed the amount provided by externally funded predoctoral fellowships. MSTP students who are awarded an externally funded fellowship are encouraged to apply for these bridging funds once a fellowship award notice is received. Additional information is available on the Graduate School website at http://www.grad.umn.edu/funding_tuition/fellowships_grants/bridgingfunds/.

26e. Warwick Fellowship

The Warwick Fellowship was established in 2006 by a generous gift from Warren and Henrietta Warwick. The award provides a stipend of $27,000, Graduate School tuition, health insurance, plus a
research grant of $3,000. The Program nominates one MSTP student each year. Nominees are selected via an internal competition announced to the MSTP community in the spring.

26f. Doctoral Dissertation Fellowship

The Doctoral Dissertation Fellowship (DDF) program gives the University's most accomplished Ph.D. candidates an opportunity to devote full-time effort to dissertation research and writing during the fellowship year. Students should consult with their graduate program to obtain details on the nomination process. Students must have completed program coursework, and passed the written and oral preliminary examinations.

26g. University of Minnesota Foundation Awards

The University of Minnesota recognizes academic excellence and achievement with yearly honors and awards made possible by the University of Minnesota Foundation and its donors. These honors and awards include the Beatrice Z. Milne and Theodore Brandenburg Award, which recognizes exceptional thesis research by graduate students in the basic biomedical sciences. A complete list of awards is available at the University of Minnesota Foundation website. MSTP students are encouraged to apply for any and all eligible awards.

26h. CTSI Translational Research Development Program

The Clinical and Translational Science Institute Translational Research Development Program provides institutional research funds for postdoctoral and predoctoral trainees with a demonstrable and significant interest in clinical or translational research focused on human health. The program aims to provide an opportunity for early stage investigators to gain significant experience with clinical and translational research as a foundation for the development of an independent research career focused on human health. Funds are designed to support a modest research project that will result in a publication in a peer reviewed journal.

All MSTP students are eligible to apply for a CTSI Translational Research Development Program grant. Additional information is available at the CTSI website.

27. MISCELLANEOUS POLICIES AND PRACTICES

27a. Vacation policy.

Program students are entitled to two weeks (10 business days) of vacation per year. Any additional vacation time awarded by the Medical School or graduate degree program should be viewed as an opportunity to devote more concerted time to lab rotations or thesis research.

27b. Reimbursement policy for meals.

Dinner and beverage charges for spouses/significant others are not allowed by the University of Minnesota. Spouses/significant others can attend program events but must pay for their own meals and beverages.

Reimbursement for alcohol is permitted at dinner only if cleared by the Assistant Director and is limited to one drink per attendee. If alcohol is purchased, it must be listed on a separate receipt. Alcohol reimbursement is not permitted for lunch events.
Per University of Minnesota policy, tipping is allowed up to 20% of the pre-tax total of the meal. Tips paid beyond the 20% pre-tax limit are non-reimbursable, regardless of the quality of service or experience.

27c. Free time during clinical years.

Free time during clinical years should be used for interviewing, residency application, studying for Step 2, research or other elective rotations. The Program expects that students will continue to be productive in research. See Section 18a Financial Support During the Clinical Training Phase for additional information on policies governing Program financial support during clinical training.

27d. Thesis copies.

The Program requires a bound copy of your finalized thesis for the MSTP office. The Program maintains a library of completed MSTP student theses in the Program office for applicants who are curious about the work of past students. The Program will reimburse you for the cost of one bound thesis if a receipt is submitted in a timely manner.

27e. Medical School graduation.

Attendance of graduating MSTP trainees at the Medical School commencement ceremony is mandatory. Special recognition is given to MSTP graduates during the ceremony, and hooding is performed by the Director and Associate Directors.
28. TIMELINE FOR MSTP TRAINING

The overall “timeline” (including critical dates) of the training program is summarized below (for a 7-8 year program of study).

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<tr>
<th>Date</th>
<th>Comments</th>
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<tr>
<td>Summer before Year 1</td>
<td>• Lab rotation</td>
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<td>• Monday Research Seminars</td>
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<td>• Responsible Conduct in Research training</td>
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<td></td>
<td>• Meet with Director (July)</td>
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<tr>
<td>Year 1</td>
<td>• First year Medical School curriculum</td>
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<td>• Monday Research Seminars</td>
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<td>• Meet with Director (fall)</td>
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<td>• Lab rotation (spring semester)</td>
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<td>• Submit annual progress report (June 1)</td>
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<td>• Meet with Director (June/July)</td>
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<tr>
<td>Summer of Year 1</td>
<td>• Lab rotation</td>
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<td>• Responsible Conduct in Research training</td>
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<td>Year 2</td>
<td>• Second year Medical School curriculum</td>
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<td>• Monday Research Seminars</td>
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<td>• Complete laboratory rotations</td>
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<td>• Choose thesis advisor/Graduate Program and submit MSTP Student Research Commitment Statement (January 1)</td>
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<td></td>
<td>• Graduate Phase Transition Meeting</td>
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<td>• Submit annual progress report (June 1)</td>
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<tr>
<td>May-June of Year 2</td>
<td>• USMLE Step 1 Examination</td>
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<tr>
<td>June-August of Year 2</td>
<td>• Complete clinical rotation(s)</td>
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<td>• Meet with Director (August)</td>
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<tr>
<td>Graduate Phase Years 3-5/6</td>
<td>• Complete required graduate courses</td>
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<td>• Initiate full-time thesis research</td>
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<td>• Seek independent funding by submitting a NIH F-series predoctoral fellowship application (or equivalent)</td>
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<td>• Present research at Biomedical Sciences Graduate Programs Research Recognition Day (annually)</td>
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<td>• Submit annual progress report (June 1)</td>
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<td></td>
<td>• Meet with Director (annually)</td>
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<td>• Present chalk talk at MSTP Annual Retreat (end of graduate phase year 1)</td>
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<td>• Complete and pass preliminary written and oral examinations</td>
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<td>• Select thesis committee</td>
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<td>• Meet with thesis committee (every 9-12 months)</td>
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<td>• Enroll and complete Clinical Continuity Experience for Physician Scientists 1 (year 2 of graduate phase)</td>
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</tbody>
</table>
- Present a minimum of one MSTP Grand Rounds (in year 2 of graduate phase)
- Enroll and complete Clinical Continuity Experience for Physician Scientists 2 (year 3 of graduate phase)
- Enroll and complete Clinical Foundations for the Physician Scientist (end of graduate phase)
- Present research at a minimum of two national/international conferences
- Present research seminar at MSTP student monthly meeting (middle of grad phase year 3)
- Submit M3/M4 Schedule Request (by November 1 of last year of graduate phase)
- Submit Thesis Update Report (by January 31 of last year of graduate phase)
- Present Clinical/Basic Science Seminar (last year of graduate phase)
- Publish at least one first-authored paper in a peer-reviewed journal prior to return to clinic
- Write, defend and submit thesis no later than the end of the fourth year in graduate phase

<table>
<thead>
<tr>
<th>Year 6/7</th>
<th>Year 7/8</th>
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<tbody>
<tr>
<td>Resume clinical rotations</td>
<td>Apply to residency training programs</td>
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<tr>
<td>Submit annual progress report (June 1)</td>
<td>Complete clinical rotations</td>
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<tr>
<td>Meet with Director, MSTP Faculty Advisor, and Associate Directors (June - August) for residency application preparation</td>
<td>USMLE Step 2 Examinations</td>
</tr>
<tr>
<td>Prepare residency application</td>
<td>Meet with Director and Associate Directors after completion of residency interviews and before submission of residency rank list (January/February)</td>
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<tr>
<td></td>
<td>Residency Match results (March)</td>
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<tr>
<td></td>
<td>Complete Program with both MD and PhD degrees</td>
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<tr>
<td></td>
<td>Attend Medical School graduation</td>
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<tr>
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<td>Meet with Director (exit interview)</td>
</tr>
</tbody>
</table>
**UNIVERSITY OF MINNESOTA MSTP TRAINING TIMELINE**

<table>
<thead>
<tr>
<th>Summer</th>
<th>MD Courses</th>
<th>PhD Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS 1</td>
<td>Research</td>
<td>Monday Research Seminar &amp; Journal Club</td>
</tr>
<tr>
<td>MS 2</td>
<td>Research</td>
<td>Research</td>
</tr>
<tr>
<td>GRAD 1</td>
<td>MSTP Grand Rounds</td>
<td>PhD courses</td>
</tr>
<tr>
<td>GRAD 2</td>
<td>Clinical Continuity 1</td>
<td>PhD Research</td>
</tr>
<tr>
<td>GRAD 3</td>
<td>Specific Aims Proposal</td>
<td>Clinical Continuity 2</td>
</tr>
<tr>
<td>GRAD 4</td>
<td>MSTP Grand Rounds</td>
<td>Clinical Foundations</td>
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<tr>
<td></td>
<td>Clinical/Basic Science Seminar</td>
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<tr>
<td>MS 3</td>
<td>Clerkships</td>
<td>Research Elective</td>
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<tr>
<td>MS 4</td>
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I. INTRODUCTION

These are the policies and procedures followed by the Committee on Student Scholastic Standing (COSSS) when evaluating medical students' academic performance and related issues. The role of the Committee is to monitor each student’s progress through Medical School and to ensure that each student is qualified to receive the Doctor of Medicine degree. These policies and procedures will be applied taking into account the unique circumstances of each student’s situation.

The policies of the Committee are developed to conform to broader University policies on academic performance and ethics. Insofar as student behavior reflects on any student’s qualifications or potential to become a competent and ethical professional, such conduct will be within the jurisdiction of the Committee.

The responsibilities of the Committee on Student Scholastic Standing (COSSS) are: to ensure that the students of the Medical School have met the requirements for awarding the M.D. degree; to monitor each student’s progress through Medical School; and to ensure that the work of the Committee has been conducted properly, providing fairness to each student. These responsibilities are defined in the Constitution of the University of Minnesota Medical School (Article II, Section B.2) and the Bylaws to the Constitution (Article I, Section D.3) (pdf).

The responsibility of the Committee on Student Scholastic Standing is expressed in the following statement:
A.  CO consult the Associate Dean for Students and Student Learning. Final decisions on student progress and promotions a
evaluations received in each course. Any student with questions about examinations or grading procedures is encouraged to
procedure could result in the forfeiture of the student's opportunity to take an examination at another date. Not following t
complete all regularly scheduled assignments; take all scheduled examinations; and follow the procedures outlined in the
Medical School Handbook or as stated by the Office of Curriculum and Evaluation, th
Medical students must complete all required courses satisfactor
deliberation and consideration of an action item without regard to whether a quorum will remain in place.

II. GRADUATION REQUIREMENTS

Medical students must complete all required courses satisfactorily and meet the credit requirements, and successfully complete the Clinical Competency Assessment and Milestone Examinations for the M.D. degree as outlined in the current Medical School Handbook or as stated by the Office of Curriculum and Evaluation, the course director, and/or the COSSS; complete all regularly scheduled assignments; take all scheduled examinations; and follow the procedures outlined in the Student Handbook when there is a problem in taking an examination at the scheduled time. Failure to follow this latter procedure could result in the forfeiture of the student's opportunity to take an examination at another date. Not following this procedure also could result in a failure for the course. It is each student's responsibility to be aware of any grades and/or evaluations received in each course. Any student with questions about examinations or grading procedures is encouraged to consult the Associate Dean for Students and Student Learning. Final decisions on student progress and promotions are made by the COSSS.

A. COMPLETION OF ALL YEAR 1 AND 2 COURSEWORK

Medical students must complete all Year 1 and 2 basic science and clinical coursework during the first two years of medical school. Extensions of this two-year time limit may be granted on a case by case basis by the COSSS.

Grading. In Years 1 and 2 the grades used are P (Pass), N (Fail), and I (Incomplete). Students who have not completed all coursework including any outstanding makeup examinations may not begin any Year 3 clinical coursework without receiving permission of the COSSS.

Re-Examinations. Students who receive an N (Failing) grade in a Year 1 or 2 course must petition the COSSS for permission to either sit for a re-examination (if available) or retake the course. The decision rests with the COSSS; however, the course director's recommendation will be solicited and given serious consideration. If re-examination is approved by the COSSS and the student passes the re-examination, a passing grade will replace the original N (failing) grade on the student transcript. If the student fails the re-examination, the N (failing) grade will remain on the transcript and the student will be required to repeat the course. If the COSSS deems that re-examination is not appropriate, the student must repeat the course. The original N (failing) grade as well as the grade received upon repeating the course will be recorded on the student's transcript. Should the COSSS decide to not grant the student permission to either sit for a re-examination or repeat a failed course, the student will then be subject to a hearing for dismissal.
Grade Changes: Passage of a failed course by re-examination shall result in a change of an N grade to a P grade. Standards set for re-examinations shall reflect the standards of the regular course examinations.

Repeating Basic Science Courses: After taking the re-examination(s), students who have not achieved a passing grade(s) may repeat the course(s) the following year if COSSS approval is obtained. Failure to obtain COSSS permission is evidence of failure to make satisfactory academic progress and will trigger a hearing for dismissal from Medical School (see VI. Dismissal Hearings and Appeals). The repeat of any Medical School course takes precedence over any other coursework, and requires taking all examinations, unless a COSSS-approved alternative arrangement has been made with the course director.

It is the student's responsibility (in consultation with the Office for Medical Education) to register and integrate the course into the schedule during the following year. In instances where an individual retakes a basic science course, both grades, i.e. the original N and the subsequent P will be recorded on the student's transcript. Any student with an N or I grade in any Year 1 or 2 course will not be eligible to begin Year 3 courses until successful completion of these courses.

A student is permitted to take a Year 1 or 2 course twice, but is only permitted one re-examination (pending COSSS approval) in that course. Failure to pass the course the second time will trigger a hearing for dismissal.

B. COMPLETION OF ALL CLINICAL SCIENCE COURSEWORK
All medical students are required to complete a minimum of 76 clinical credits in Years 3 and 4 in addition to the clinical course(s) in Years 1 and 2.

Grading. In Years 3 and 4, the grades used by the Medical School are as follows:

H (Honors), E (Excellent), S (Satisfactory), P (Pass), I (Incomplete), and N (Failing). An H represents outstanding achievement. An E represents achievement that is significantly greater than the level required to satisfy course requirements but not judged to be at honors level. An S represents achievement that satisfies the basic clinical course requirements.

I (Incomplete Grade)

An I (Incomplete) grade is given when work in a course has not been completed, either through an excused absence from course activities or delay in completion of requirements as permitted by the Course Director. The student should contact the Course Director to determine what is required to remove the Incomplete.

N (Failing) Grade

An N (Failing) grade is given after the final course examination, when a student's performance in the course fails to meet the Medical School's minimum passing standards. It may also be given when, through an unexcused absence, a student fails to meet course requirements. N grades may also be assigned for failure to meet the Medical School's established standards of professionalism within a course.

Grade Changes

In clinical courses an N grade can be changed only by successful repetition and completion of the course. Both grades will appear on the student transcript.

Repeating Clinical Courses. Students who receive an N (Failing) grade in a clinical course will be required to appear before the COSSS to request permission to repeat that course. Clinical courses include Physician and Society, Physician and Patient, and/or Essentials of Clinical Medicine and all required courses in the Years 3 and 4 curriculum. Failure to receive permission to repeat the course from the COSSS is evidence of failure to make satisfactory academic progress, and triggers a hearing for dismissal (see VI. Dismissal Hearings and Appeals).

C. FLEXIBLE MD PROGRAM
Some students may elect to apply for the Flexible MD program. This program is designed to promote independent exploration, learning and growth for medical students on a path towards achievement of the MD degree. In order to qualify for the Flexible MD program, a student must propose to the the Flexible MD Oversight Committee an academic project or experience that will serve as an alternative or addition to the standard curriculum, that is designed to achieve personal educational goals, and that provides an alternative to achieve specified competencies as part of progress towards the MD degree. The Flexible MD Program may take up to one year. Students must have successfully completed all Year 1 and 2 courses and be in good academic standing to be eligible. All proposals must be approved by the Flexible MD Oversight Committee. Those students who are approved will be monitored by the COSSS.
D. SUCCESSFUL COMPLETION OF THE USMLE STEP 1 AND STEP 2 CK AND STEP 2 CS EXAMINATIONS
Students are expected to successfully complete Years 1 and 2 curriculum and Step 1 of the United States Medical Licensing Examination (USMLE) within four years from the student's beginning date of enrollment, and the Years 3 and 4 curriculum and USMLE Step 2 CK and CS within a three year period, not to exceed seven years total from the beginning date of enrollment. Students enrolled in dual degree programs such as the MD/PhD program or others (i.e., MD/MPH, MD/JD, MD/MHI, MD/MS in Biomedical Engineering, and MD/MBA) are granted additional time as long as they otherwise remain in good academic standing in the Medical School. Students who fail to meet these expectations must appear before the COSSS to request permission to remain in the program. Failure to receive permission constitutes evidence of failure to make satisfactory academic progress and will trigger a hearing for dismissal.

It is the policy of the Medical School, as approved by the Executive Faculty, that each student must pass Step 1, Step 2 CK, and Step 2 CS of the United States Medical Licensure Examination (USMLE) before receiving the MD degree. Passing standards are those established by the NBME. Year 2 students on the Minneapolis campus and transfer students from Duluth taking the Step 1 Examination for the first or second time may enroll in the Year 3 curriculum pending notification of the results. Under no circumstances will such a student be permitted more than 18 weeks of clinical work before receiving notification of passing USMLE Step 1. Students receiving a failing Step 1 score for the second time may not enroll in any additional clinical work. Students accepted on transfer from all other medical schools must provide evidence of having passed Step I before commencing clinical work.

E. GRADUATION
Graduation from Medical School requires successful completion of all basic science coursework, completion of the required clinical courses in Years 1 and 2, and the required number of clinical credits in Years 3 and 4, and successfully passing Step 1, Step 2 CK and Step 2 CS of the United States Medical Licensure Examination.

III. REFERRALS TO COSSS
Student issues brought to the attention of the COSSS may or may not require the individual student to meet directly with the Committee. If an appearance is required, a written notice will be sent by the Associate Dean for Students and Student Learning.

A. DECELERATED PROGRAMS
Requests for a decelerated program during Years 1 and 2 and extension of Years 3 and 4 beyond two years require approval of the COSSS. Students must submit adequate reasons and/or documentation in support of any request that will extend graduation beyond the traditional four years (see II.C. for details on the Flexible MD Program). A student desiring an extended clinical program must submit a "Delayed Graduation Request Form" (available in Office for Medical Education) or a letter stating the reason for the request and a description of the proposed extension to the COSSS at least two months prior to the requested effective date. The COSSS also may recommend or require a student with academic difficulties or other problems to be placed on a decelerated program.

B. LEAVES OF ABSENCE
Leaves of absence are granted to students at the sole discretion of the COSSS. Students must submit adequate reasons and/or documentation in support of a leave of absence request. Reasons for leaves include, but are not restricted to, the pursuit of academic research and study, academic difficulties and personal or health issues. The approval process for the Flexible MD Program includes a request for delay of graduation. A student desiring a leave of absence must submit a completed and signed "Request for Leave of Absence" form (available in Office for Medical Education) or letter stating the purpose for the leave and its anticipated duration, to the COSSS at least two months prior to the requested effective date. The Committee may also require a student to take such a leave. If a decision regarding a leave of absence needs to be made prior to the next COSSS meeting, the Chair may act on behalf of the Committee. This decision will be reviewed at the next COSSS meeting. Leaves are granted for a specific period of time. Two months prior to the end of that period of time, the student must either request permission to return from the leave or file for an extension. If the student fails to contact the Committee when the leave expires, the COSSS will hold a hearing for dismissal.

C. ACADEMIC PROGRESS AND PERFORMANCE REVIEWS
The COSSS will review the academic performance of each student to assure that he/she is making satisfactory academic progress. The COSSS will request this information from the Basic Science and Clinical Course Directors and/or the Associate Dean for Students and Student Learning. Students experiencing performance difficulties may be required to appear before the COSSS or its subcommittee for further review.

D. BASIC SCIENCE OR CLINICAL COURSE FAILURES
Students who have failed any basic science or clinical course must appear before the COSSS or its subcommittee who will report to the full committee. If a student is granted permission to re-take a course and fails the course again or fails any other clinical or basic science course, a hearing for dismissal will be held.

E. NON-SATISFACTORY ACADEMIC PROGRESS
At the discretion of the COSSS, a student who has not completed a basic science course or clinical rotation on schedule, or who has failed to make satisfactory academic progress in completing the basic science or clinical curriculum as prescribed, may be required to appear before the COSSS.

F. USMLE STEP 1, STEP 2 CK OR STEP 2 CS FAILURES

The Committee on Student Scholastic Standing has established the following policies with regard to the United States Medical Licensing Examinations:

1) Students who fail to pass Step 1 after two attempts, or either part of Step 2 – Clinical Knowledge (CK) or Clinical Skills (CS) – after one attempt must appear before the COSSS or meet with a Committee representative to obtain permission to retake the licensing examination. The Committee may recommend or require remedial action before the student retakes the exam.

2) Failure to pass Step 1 after three attempts or either part of Step 2 – Clinical Knowledge (CK) or Clinical Skills (CS) – after two attempts will result in a hearing for dismissal at which time the student’s entire academic record will be considered.

G. BEHAVIORAL, CONDUCT CODE OR PROFESSIONALISM VIOLATIONS

Any student who has violated any policy of the medical school may be required to appear before the COSSS. At that time, the student’s entire academic record will be considered and the COSSS may impose sanctions, make recommendations, and/or decide to hold a hearing for dismissal.

IV. COSSS DECISIONS AND OUTCOMES

The COSSS is empowered by the Executive Faculty to make decisions which can affect, alter, modify or even halt a student’s academic progress. The COSSS may make its decisions with or without the student’s consent or approval. Students who wish to challenge or appeal decisions made by the COSSS may do so, but only in accordance with the terms and guidelines found in Section IV: Hearings and Appeals.

A. ACADEMIC DIFFICULTIES (BASIC SCIENCE, CLINICAL SCIENCE AND USMLE)

Students who experience academic difficulty will be required to appear before the COSSS. At its discretion, the Committee will then determine whether the student shall be:

1) allowed to continue academic progress without interruption;
2) allowed to continue academic progress at a reduced academic load;
3) required to suspend academic progress in Medical School until specified conditions are met;
4) given the opportunity to take re-examinations, if available;
5) complete defined remedial coursework;
6) placed on academic probation; or
7) subject to a hearing for dismissal.

B. NON-SATISFACTORY ACADEMIC PROGRESS

The Committee may subject students who have failed to make satisfactory academic progress to a number of options including, but not limited to:

1) Allowing the student to complete the currently enrolled course;
2) Granting a leave of absence, or
3) Recommending a hearing for dismissal.

C. BEHAVIORAL, CONDUCT CODE OR PROFESSIONALISM VIOLATIONS

The Committee may subject students who have violated the University of Minnesota Student Conduct Conduct (pdf), Medical Student Professionalism Code or the Statement of Intellectual Responsibility to a number of options including, but not limited to:

1) Allowing the student to continue academic progress without interruption;
2) Requiring that certain conditions be met to resume academic progress;
3) Imposing a leave of absence;
4) Suspending academic progress in Medical School until specified conditions are met;
5) Requiring additional or specially-designed coursework;
6) Requiring participation in programs outside of the Medical School; or
7) Recommending a hearing for dismissal.

V. ACADEMIC STANDING AND SATISFACTORY ACADEMIC PROGRESS
A. GOOD ACADEMIC STANDING
Students are in good academic standing when they obtain a passing grade in each course in the curriculum, complete other requirements including Milestone Examination, and make satisfactory academic progress toward degree completion. In order to make satisfactory academic progress, students must adhere to the established Medical School schedule for degree completion within four years of the beginning date of enrollment, including satisfactory completion of the established curriculum in each successive term. The COSSS may modify this schedule by giving a student permission for a leave of absence, part-time status or other modified programs, such as the Flexible MD.

Even with modifications approved by the COSSS, students will be expected to complete Years 1 and 2 curriculum and USMLE Step 1 within four years of the beginning date of enrollment, and the Years 3 and 4 curriculum and USMLE Step 2 within a three-year period, not to exceed seven years total from the beginning date of enrollment, with the exception of those enrolled in the MD/PhD or other dual degree programs as noted above. Students who fail to meet this expectation are not making satisfactory academic progress and must appear before the COSSS (see III. Referrals to COSSS).

B. ACADEMIC DIFFICULTIES
At Risk Status. An important function of the COSSS is to help the student attain satisfactory academic performance. If a student has received a failing grade (N) or an incomplete grade (I) in any basic or clinical course, or has failed the USMLE Step 1 or Step 2 CK or Step 2 CS once, the student is notified by letter from the Associate Dean for Students and Student Learning, and placed on "At Risk" status. The student may be required to meet with the COSSS. Note that students placed on At Risk status are no longer in good academic standing. Students on At Risk status who experience further academic difficulties may be placed on Academic Probation, or be subject to a hearing for dismissal.

Students with a grade of N in a basic science or clinical course must appear before the COSSS to receive permission to take a re-examination, or to repeat the course. Students who successfully pass the course through re-examination or by repeating the course return to good academic standing. Failure to pass the course on re-examination or by repeating the course will result in the student being placed on Academic Probation (see below, 2. Academic Probation) and will trigger a hearing for dismissal.

In certain cases the COSSS may determine the circumstances surrounding a course failure are of sufficient concern to justify placing the student on Academic Probation (see below, 2. Academic Probation).

Any student who has questions concerning overall academic progress in Medical School, is encouraged to make an appointment to discuss the matter with the Associate Dean for Students and Student Learning. Students may also be placed on At Risk status by the COSSS if, in the Committee's judgment, the student is not demonstrating progress on an approved decelerated schedule.

Academic Probation. Students with continuing and/or more serious academic deficiencies including any of the following will be placed on Academic Probation:

a) Students who fail a basic science or clinical course upon re-examination or after re-taking the course,
b) students with two failures on USMLE Step 1,
c) students with one failure on USMLE Step 2 CK or Step 2 CS,
d) and any student who otherwise fails to make satisfactory academic progress toward degree completion.
e) In addition, any student who has previously failed a course (irrespective of whether they had subsequently passed the course via re-examination or retake) will be immediately placed on Academic Probation should they fail a second course.

Students placed on Academic Probation will meet with the COSSS. At the conclusion of this meeting the COSSS members will determine whether to continue the student on Academic Probation, or to hold a hearing for dismissal. Students who are placed on Academic Probation will be provided with written notification of the conditions they must satisfy in order to return to good standing. Failure to satisfy these conditions will trigger a hearing for dismissal.

VI. DISMISSAL HEARINGS AND APPEALS
Serious academic deficiencies or other violations of Medical School or University policies, including but not limited to those outlined herein, may result in a student dismissal from Medical School. While it is anticipated that in many instances students who receive notification of a hearing for dismissal are likely to already have been placed on At Risk or Academic Probation status, it should be understood that under appropriate circumstances a student previously in good academic standing could be subjected to a hearing for dismissal.
A hearing will be held by the COSSS prior to dismissal. The hearing is intended to allow presentation of relevant facts and arguments to the COSSS before a decision is reached. At that time the student's entire overall performance in Medical School and other pertinent information about the student's qualifications to become a physician will be reviewed. Based on that review and on evidence presented at the hearing, the COSSS will render its decision. As an alternative to dismissal, the COSSS may require successful completion of remedial course work or modifying the standard curriculum.

A. GROUNDS FOR DISMISSAL OR OTHER ACTION

Grounds for dismissal from the University of Minnesota Medical School by the COSSS include, but are not limited to:

1. **Academic Deficiencies.** A student may be required to take remedial work or may be dismissed for failure to demonstrate satisfactory academic performance including, but not limited to, any one of the following:
   a) One or more failures in Medical School coursework;
   b) Three failures on USMLE Step 1 or two failures on Step 2 CK or Step 2 CS;
   c) Failure to satisfactorily complete any required Medical School course; or
   d) Failure to make satisfactory academic progress.

2. **Behavioral, Conduct Code or Professional Violations.** A student will be subject to COSSS recommendations, sanctions or dismissal for the following behaviors:
   a) Conduct which violates any of these behavior codes: University of Minnesota Student Conduct Code (pdf), Medical Student Professionalism Code or the Statement of Intellectual Responsibility; policies/rules of affiliated sites which apply to students in a clinical experience.
   b) Conduct which violates behavioral and/or ethical standards of the medical profession; disrupts the operations of the University, Medical School or clinical training sites; or disregards the rights or welfare of patients, fellow students, Medical School clinical staff or other individuals.
   c) Unlawful conduct or improper behavior within or outside the University of Minnesota community which impairs the student's capacity to function as a medical student/prospective physician.

B. PROCEDURES FOR HEARING TO CONSIDER DISMISSAL

1) While considering dismissal, the COSSS will be guided by considerations of fairness to the student and other persons involved. Any student subject to a formal hearing to consider dismissal will be given the opportunity to be present before the COSSS, and the hearing will be recorded. An oral recording of the hearing will be available to the student within thirty (30) days from the date of the hearing.

2) Students will be sent written notice of such a hearing at least ten (10) days before the hearing date. The notice will include a statement of the grounds for possible dismissal.

3) The COSSS will consider as evidence in a case all material contained in the student's file in the Office for Medical Education, grades and examination scores, documents submitted at the hearing, and the statements of all witnesses appearing before the COSSS.

4) Students who are the subject to a hearing may:
   a) Examine their student file prior to or at the hearing.
   b) Examine witnesses appearing before the COSSS and present their own statement and/or the statements of their witnesses.
   c) Have an advisor appear at the hearing. The advisor may be a faculty member, fellow student, attorney, or any other person. If students intend to have an advisor present they must notify the COSSS of the advisor's name and status two days prior to the scheduled hearing date.

5) A quorum of 2/3 of voting members must be present to conduct the hearing. At the beginning of the hearing, students have the right to challenge any member of the COSSS whose objectivity they feel is in question. Likewise, COSSS members are permitted to voluntarily remove themselves from a hearing. The COSSS will rule on all challenges.

6) All witnesses will be advised that the proceedings will be recorded.

7) In an executive session after the hearing, the COSSS members hearing the evidence will reach a decision by simple majority vote.

8) For students subject to a dismissal hearing on academic grounds, the COSSS may:
a) Continue the student's present enrollment in the curriculum on either a full-time or part-time basis.

b) Place the student on Academic Probation or At Risk status with specific criteria to satisfy in order to return to good academic standing and/or remain in the Medical School.

c) Require the student to stop academic progress in order to receive appropriate intervention before being allowed to proceed in the full curriculum. Re-entry in the full curriculum is contingent upon successful completion of the designated remedial program.

d) Interrupt the student's curriculum for a specified period. At the end of the stipulated time, the student may petition for permission to resume the full curriculum. Failure to contact the COSSS at that time will be interpreted as a resignation from Medical School.

e) Dismiss the student from Medical School.

9) For students found to have committed non-academic behavioral violations, the COSSS may impose disciplinary sanctions, including but not limited to: warning, required compliance, probation, suspension and/or dismissal. Such sanctions will become a permanent part of the student's academic file.

10) The COSSS will notify the student of its decision and provide the student with a statement of the reasons for the decision.

11) Students may submit a written request to the COSSS for reconsideration of the decision within ten (10) days of the hearing, but only upon the basis of new information not reasonably available at the time of the hearing.

12) Following reconsideration, decisions of the COSSS are final, subject to the student's right to appeal findings of behavioral violations to the Provost's Appeal Committee.

VII. STUDENTS WITH PERSONAL, MEDICAL OR EMOTIONAL PROBLEMS

The COSSS considers the student as a whole person and realizes a student may have personal, medical or emotional problems which contribute to the student's academic deficiencies and/or behavioral violations. These problems may be recognized by the student, faculty members, fellow students, or the COSSS.

If the problem is substance abuse/dependence the student will be required to follow a standard monitoring plan developed by the Medical School. This monitoring information does not become a permanent part of the student's file unless the student violates the plan. If this occurs, the student must meet with the Associate Dean for Students and Student Learning and/or COSSS chair, who will determine whether the student is required to appear before COSSS.

When a student appears before the COSSS based either on academic deficiencies or alleged behavioral violations, the Committee may recommend evaluation and/or counseling for the student if it determines that personal, medical or emotional difficulties have contributed to the student's situation. The student's progress in addressing these difficulties may be a factor in the Committee's decision regarding the student's status in the Medical School. If a student with academic deficiencies or behavioral violations is placed on a mandatory leave of absence, the student may be required to demonstrate progress in treatment or counseling as a condition of re-entry into the Medical School and continuing student status. The student's provider must provide a letter to COSSS certifying that the student is ready to re-enter medical school. Any evaluation or treatment information transmitted to the COSSS is private, will be maintained separate from the student file and will not be released outside the Committee without the written consent of the student, except as legally required.
Appendix

MSTP Executive Oversight Committee
December 2015

Yoji Shimizu, PhD  MSTP Director
Bryce Binstadt, MD, PhD  MSTP Associate Director
Peter Bitterman, MD  MSTP Associate Director
Susan Shurson, MA  MSTP Assistant Director
Marshall Hertz, MD  Medical School Faculty Advisor for MSTP Students

Cameron McDonald-Hyman  Student Representative
Yoji Shimizu, PhD  
Laboratory Medicine and Pathology

Bryce Binstadt, MD, PhD  
Pediatrics

Peter Bitterman, MD  
Medicine

Victor Barocas, PhD (2016)  
Biomedical Engineering

Paul Mermelstein, PhD (2016)  
Neuroscience

Erik Peterson, MD (2016)  
Medicine

Angela Panoskaltsis-Mortari, PhD (2016)  
Pediatrics

Li-Na Wei, PhD (2016)  
Pharmacology

Patrick Arndt, MD (2017)  
Medicine

Anja Bielinsky (2017)  
Biochemistry, Molecular Biology & Biophysics

Ann Parr, MD, PhD (2017)  
Neurosurgery

Linda McLoon, PhD (2017)  
Ophthalmology and Visual Neurosciences

James Ervasti, PhD (2018)  
Biochemistry, Molecular Biology & Biophysics

Mike Verneris, MD (2018)  
Pediatrics

Melissa Gardner, PhD (2018)  
Genetics, Cell Biology & Development

Sabita Roy, PhD (2018)  
Surgery

Alvaro Alonso, MD, PhD (2018)  
Epidemiology

Courtney Aldrich, PhD (2019)  
Medicinal Chemistry

Kaylee Schwertfeger, PhD (2019)  
Laboratory Medicine and Pathology

Jop van Berlo, MD, PhD (2019)  
Medicine

Greg Metzger, PhD (2019)  
Radiology

Tucker LeBien, PhD**  
Laboratory Medicine and Pathology

Dimple Patel**  
Associate Dean for Admissions

Susan Shurson**  
MSTP Assistant Director

**ex officio
MSTP Student Advisory Committee  
2015 - 2016  
mstp-student-advisory@lists.umn.edu

Jose San Miguel-Ruiz  2014-2016  2007 entering class
Sam Cramer  2014-2016  2008 entering class
Carlos Ayala  2015-2017  2008 entering class
Scott Warren  2014-2016  2009 entering class
Michael Lane  2015-2017  2009 entering class
Cameron McDonald-Hyman  2014-2016  2010 entering class
Anja Srienc  2015-2017  2010 entering class
Ian Cheong  2014-2016  2011 entering class
Mayank Verma  2015-2017  2011 entering class
Balvinder Singh*  2014-2016  2012 entering class
Brian Mikolajczyk**  2015-2017  2012 entering class
German Velez-Reyes  2014-2016  2013 entering class
Elise Breed  2015-2017  2013 entering class
Carlos Santos Perez  2014-2016  2014 entering class
Emily Chiu  2015-2017  2014 entering class
Erik Faber  2015-  2015 entering class
Anja Swenson  2015-  2015 entering class

*SAC Chair  
**SAC Co-Chair

Monthly Meeting Subcommittee  
Lee Meier  
German Velez-Reyes

Retreat Planning Subcommittee  
Iffy Akinnola  
Adam Cheng  
German Velez Reyes  
Sarah West

Social Events Subcommittee  
Erik Faber  
Lee Meier  
Lien Phung  
Carlos Santos Perez

Newsletter Subcommittee  
Brian Sweis  
Paul Wang  
Scott Warren
Volunteer Event Subcommittee:
Lee Meier
Lien Phung
Stephanie Rhee
Megan Schmit
Sruthi Valluri
MSTP Student Admissions Committee
2015 - 2016

Mat Angelos
Amanda Barks
Elise Breed
Adam Cheng
Michelle Corkrum
Cliff Csizmar
Lauren Jelenchik
Cameron McDonald-Hyman
# Directors of Graduate Studies (DGS)

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<tr>
<th>Graduate Program</th>
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Research Rotation Information

The table below lists research rotations performed by current and recently graduated students in the MSTP. This is provided as a resource for incoming MSTP students seeking information about potential rotations and research opportunities in the program. An * indicates that the student has completed or is completing their PhD under the mentorship of the indicated faculty member.

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<td><a href="mailto:kuro0024@umn.edu">kuro0024@umn.edu</a></td>
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<tr>
<td>Oz, Gulin</td>
<td>Ian Cheong*</td>
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<tr>
<td>Panoskaltsis-Mortari, Angela</td>
<td>Iffy Akinnola</td>
<td><a href="mailto:akinn007@umn.edu">akinn007@umn.edu</a></td>
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<tr>
<td>Parr, Ann</td>
<td>Rebecca Speltz</td>
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<td>Balvindar Singh</td>
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<tr>
<td>Pennell, Chris</td>
<td>Nicole Skinner*</td>
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<tr>
<td>Perlingeiro, Rita</td>
<td>Mayank Verma</td>
<td><a href="mailto:verma014@umn.edu">verma014@umn.edu</a></td>
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<tr>
<td>Redish, David</td>
<td>Brian Sweis*</td>
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<tr>
<td>Schimmentis, Lisa</td>
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<tr>
<td>Seelig, Burckhard</td>
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<tr>
<td>Shimizu, Yoji</td>
<td>Shawn Mahmud</td>
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<td>Emily Chiu</td>
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<td>Siegfried, Jill</td>
<td>German Velez Reyes</td>
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<td>Spector, Logan</td>
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<tr>
<td>Thomas, David</td>
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<td>Lien Phung</td>
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<td></td>
<td>Anja Swenson</td>
<td><a href="mailto:swens971@umn.edu">swens971@umn.edu</a></td>
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<td>Brian Trieu</td>
<td><a href="mailto:trieu016@umn.edu">trieu016@umn.edu</a></td>
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<tr>
<td>Tolar, Jakub</td>
<td>Lee Meier</td>
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<td>Tranquillo, Robert</td>
<td>Mat Angelos</td>
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<td>Wagner, R. Carston</td>
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<td>Vitek, Jerrold</td>
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<tr>
<td>Wickman, Kevin</td>
<td>Judit Perez Ortiz</td>
<td><a href="mailto:perez211@umn.edu">perez211@umn.edu</a></td>
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</table>
Other Resources for Lab Rotations and Advisor Selection:

**NIH Reporter:** Searchable database for NIH funding

**PubMed**
Graduate Program Requirements for MSTP Students

Course, exam and teaching requirements for specific graduate programs are provided on the following pages. Students should always consult the graduate program leadership to confirm these requirements for MSTP students.

All PhD students at the University of Minnesota must complete a minimum of 48 credits: a minimum of 24 graduate-level course credits AND a minimum of 24 thesis credits.

Biochemistry, Molecular Biology and Biophysics (BMBB) Graduate Program

Consult the BMBB Handbook for additional information.

Biomedical Engineering Graduate Program

PhD requirements are on the BME website.

Biomedical Informatics and Computational Biology (BICB) Graduate Program

Consult the BICB Student Handbook for additional information.

Chemical Engineering Graduate Program

Consult the Chemical Engineering Handbook for additional information.

Chemistry Graduate Program

Consult the Chemistry Graduate Handbook for additional information.

Epidemiology Graduate Program

PhD requirements are on the Epidemiology website.

Integrative Biology and Physiology (IBP) Graduate Program

| Required Courses | • ANSC 5700 – Cell Physiology (4 credits)  
|                 | • Biostatistics course (3 or 4 credits, see IBP Handbook for options)  
|                 | • PHSL 5096 – Integrative Bio & Phys Advances (1 credit, taken fall year 1, spring year 1, and fall year 2)  
|                 | • PHSL 8242 – Professional Skills Development for Biomedical Scientists (1 credit)  
|                 | • PHSL 8232 – Critical Journal Reading (2 credits)  
|                 | • PHSL 5101 – Medical Physiology (5 credits)  
|                 | Medical School credits count for PHSL 5101 |
### Supporting Courses

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<tr>
<th>Course</th>
<th>Description</th>
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<td>12 credits completed in the minor field or supporting program (non-PHSL credits)</td>
<td>Medical School coursework may be used to fulfill supporting course requirement</td>
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</table>

### Written preliminary exam

- Essay format test taken within 2 weeks of completion of spring semester year 1

### Oral preliminary exam

- Oral preliminary exam taken no later than end of fall semester of year 2

### Teaching

Consult the [IBP Handbook](#) for additional information.

### Medicinal Chemistry Graduate Program

#### Required Courses

- MEDC 8001 – General Principles of Medicinal Chemistry (3 credits)
- CHEM 8321 – Organic Synthesis (4 credits)
- MEDC 8050 – Physical and Mechanistic Organic Chemistry (2 credits)
- MEDC 5495 – Vistas in Medicinal Chemistry Research (1 credit)
- MEDC 8002 – General Principles of Medicinal Chemistry (3 credits)
- BioAssay Design (1 credit)

#### Supporting Courses

- Two elective courses from the Department of Medicinal Chemistry
- One Biochemistry Course
- One elective course from inside or outside the Department of Medicinal Chemistry

### Written preliminary exam

- Generally the last Thursday and Friday in June at the end of year 1

### Oral preliminary exam

- Written proposal due July 1 and oral exam in July – August at the end of year 2

### Teaching

- Two semesters

Consult the [Medicinal Chemistry Policies and Procedures](#) for additional information.

### Microbiology, Immunology and Cancer Biology (MICaB) Graduate Program

Consult the [MICaB Handbook](#) for additional information.
Molecular, Cellular, Developmental Biology and Genetics (MCDB&G) Graduate Program

Consult the MCDB&G Handbook for additional information.

Graduate Program in Neuroscience (GPN)

Consult the GPN Handbook for additional information.

Pharmacology Graduate Program

Consult the Pharmacology Handbook for additional information.
MEDICAL SCIENTIST TRAINING PROGRAM (MD/PhD)
University of Minnesota
Individual Development Plan

The purpose of an Individual Development Plan (IDP) is to: 1) identify professional career goals and objectives; 2) assess your skill set relative to your professional career goals and objective; and 3) develop a plan to acquire skills and competencies necessary to achieve your professional career goals.

An important component of the IDP is to conduct a self-assessment of your skills, strengths, and areas that need further development. You can engage mentors, faculty, colleagues and friends in the assessment process. With your specific career objective in mind, list individual goals for the next year in each of the categories below. Think about methods to achieve these goals, methods to assess progress and a plan for time management to accomplish these goals within a one to two year time frame. Your goals should be SMART: specific, measurable, action-oriented, realistic, and time-bound.

The questions for each category are to assist you in thinking about your specific objectives and goals in each area. Specific questions may not be directly applicable to your specific stage of MSTP training.

**Scientific and Medical Knowledge**
- Am I spending enough time and effort on my coursework in order to learn what I need to know?
- Am I adequately prepared for the USMLE Step 1 exam?
- What courses will provide me with the foundational knowledge needed in my field(s) of interest?
- What courses will provide me with the specialized background needed in my field(s) of interest?
- What primary literature should I be reading?
- How do I learn about new developments in my field?

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<tr>
<th>Goals</th>
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<tr>
<td><strong>Scientific and Medical Knowledge</strong></td>
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**Clinical Skills**
- What clinical skills do I need?
- How will I maintain my clinical skills during the graduate phase?
- Am I able to effectively integrate clinical medicine with basic research and vice versa?
- Do I have a plan for identifying a clinical area for my residency and fellowship?

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<th>Goals</th>
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<tr>
<td><strong>Clinical Skills</strong></td>
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**Research Skills**
- What laboratory skills do I need?
- Am I spending enough time and effort in the lab to accomplish my goals?
- Am I managing my time for experiments, reading and writing?
- Can I plan and execute an experiment and record the results in a form that could be published?
- Can I interpret my results and assimilate new knowledge to formulate good scientific questions?
- Am I thinking creatively, troubleshooting my own experiments, and developing my independence?
- Am I willing to learn new techniques and to take risks?
- Do I have a clear plan for completing my PhD thesis research?

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<th>Goals</th>
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<td>Research Skills</td>
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<th>Goals</th>
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<td>Funding</td>
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- What grants will I apply for and when are the deadlines?
- What feedback have I received on my grant writing skills?
- How will I improve my grant writing skills?
- Can I write an original and competitive research proposal?

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<th>Goals</th>
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<td>Publications and Written Communication Skills</td>
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- Have I developed a focused set of goals that will lead to publication of a paper?
- How do I efficiently translate results into publication quality data?
- How far away am I from my first publication?
- How can I improve my writing?

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<th>Goals</th>
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<td>Conferences and Oral Communication Skills</td>
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- Have I presented my work and/or attended a scientific meeting?
- How can I improve my presentation skills?
- Am I increasing the depth and breadth of my knowledge by attending seminars within and outside of my field?

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<th>Goals</th>
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<td>Networking</td>
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- Have I formed appropriate support relationships with mentors, peers and administrative staff?
- Do I have opportunities to network with individuals who will be a good fit for my future career aspirations?
- Who are key contacts, in addition to my thesis advisor, for editing and helping me think through ideas?
• Am I discussing my timetable for completion and career plans with my mentors?

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Leadership and Mentoring/Teaching Skills

• How can I improve my multi-tasking skills?
• Am I seeking out and taking advantage of opportunities to present my research?
• Do I ask questions and enter into discussions in seminars, conferences and journal clubs?
• What opportunities have I had to develop skills related to conflict management?
• Have I had opportunities to supervise others and to serve as a mentor/teacher?
• What leadership experiences have I had that have allowed me to identify objectives, implement plans and acquire decision making skills?

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<th>Goals</th>
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<td>Leadership and Mentoring/Teaching Skills</td>
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Career Goals

• What are my short-term career goals? How will I achieve these goals within the next two to five years?
• What are my long-term career goals? How will I achieve these goals within the next 10 to 15 years?
• Am I thinking ahead about my next career stage having evaluated my strengths, weaknesses, and passions?

What are your short-term career goals?

Have these short-term career goals changed in the past year? If so, why?

What is your long term career objective?

Has this objective changed in the past year? If so, why?

Implement your plan by discussing your goals with your mentors, enlisting the assistance of your mentors in the implementation, and periodically reviewing your progress.

What specific challenges (if any) did you face this year and how did they affect your progress?

At your Annual Progress meeting, please be prepared to discuss the following:

• Are you satisfied with your progress this year and the mentoring you have received? What could be improved this coming year?
• How can the MSTP, your research mentor(s), your clinical mentor(s), and/or your thesis committee help you address any challenges and achieve your goals for the coming year?
• Are you seeking additional faculty members who might help you achieve your goals?

Submit this completed form AND a copy of your NIH biosketch (F30 format) to Yoji Shimizu by E-mail at shimi002@umn.edu no later than June 1.
Clinical Continuity for Physician Scientist 1 (INMD 7542)
Clinical Continuity for Physician Scientist 2 (INMD 7545)

Clinical Continuity Expectations and Responsibilities

The Clinical Continuity courses for MD/PhD Students occur during the 2\textsuperscript{nd} and 3\textsuperscript{rd} years of the graduate phase and are designed to provide a longitudinal clinical experience with a physician scientist clinical mentor. Each course is 9 months in duration from September to May, following the University of Minnesota academic calendar (“Classes Begin” in September to “End of Semester” in May).

Clinical Continuity 1
- 2\textsuperscript{nd} year of graduate phase
- 16 half-day clinics over 9 months
- Students function as 3\textsuperscript{rd}-year medical student on clinical rotation
- MSTP Grand Rounds presentation (see MSTP Program Handbook for details)
- Grade: 75% Clinical Performance, 20% MSTP Grand Rounds presentation, 5% MSTP Grand Rounds attendance

Clinical Continuity 2
- 3\textsuperscript{rd} year of graduate phase
- 16 half-day clinics over 9 months
- Students function as 3\textsuperscript{rd}-year medical student on clinical rotation
- NIH-Style Specific Aims page (see MSTP Program Handbook for details)
- Grade: 75% Clinical Performance, 20% Specific Aims page, 5% MSTP Grand Rounds attendance

Responsibilities of the Student:

Clinical Continuity 1 and 2: The student is responsible for attending clinic 16 half days during the academic year. The student should work with the mentor to identify clinic times that are mutually agreeable. Students should be prepared for clinic by reviewing patient charts, evaluating patients by taking history and performing a physical examination, presenting their findings to their clinical mentor, evaluating the patient with their mentor and documenting the visit. Grades are based on clinical performance. Professionalism grade will be based on showing up to mutually agreed upon clinics, being on time and prepared to participate in clinic. Patient rapport will be based on the subjective evaluation of the mentor regarding ability of the student to relate to patients appropriately in the clinical setting (examples: greets patient by name and introduces self, maintains appropriate boundaries).

The student will complete online surveys regarding the mentor at the mid-point and end of the course.

Clinical Continuity 1: Students in the 2\textsuperscript{nd} year of the graduate phase will prepare and present an MSTP Grand Rounds presentation of approximately 45 minutes in length regarding a clinical case from clinic or appropriate to a clinical topic. The case should be
presented along with a review of the literature. Presentation of the case as an unknown with a good differential diagnosis should be the basis of the presentation.

Clinical Continuity 2: Students in the 3rd year of the graduate phase will prepare a one-page single spaced NIH-style Specific Aims page regarding a clinical problem observed in clinic that requires inquiry to understand the condition and its mechanism. This page is due May 1 of the academic year the course is taken.

Responsibilities of the Mentor:

The mentor is responsible for providing a clinical venue for the student for 16 half days and setting up times to meet with the student. The mentor should be available at the mutually agreed upon times. The mentor should expect the student to function as a 3rd-year medical student. The mentor is encouraged to provide frequent feedback to the student as needed. There are two formal feedback opportunities (via online evaluation), at the mid-point of the 9-months (December) and the final grade.

Clinical Continuity 1 mentors should help the student prepare the MSTP Grand Rounds presentation and should be available to attend the MSTP Grand Rounds presentation that will take place in the late afternoon.

Clinical Continuity 2 mentors should advise the student regarding the Specific Aims page and provide feedback to the student regarding the completed Aims.

The mentor or student may contact the MSTP Associate Director, Bryce Binstadt, MD, PhD (binstadt@umn.edu), at any time should there be problems such as non-attendance or other difficulties.
Clinical Continuity for Physician Scientist 1 (INMD 7542)
Clinical Continuity for Physician Scientist 2 (INMD 7545)

Clinical Continuity Student/Mentor Contract

(Date)

Dear Student and Mentor,

We are delighted that you will be working together during the upcoming academic year in the Clinical Continuity for MD/PhD student program.

By signing this contract both student and mentor agree to the following:

1) The student and mentor will participate in 16 half days of clinic between September 2016 to May 2017.

2) The student and mentor have both read, and by signing below attest to understanding the following documents:
   Clinical Continuity Expectations
   Clinical Continuity Evaluation Forms (to be distributed & completed electronically)
   Note: the mentor evaluates the student AND the student evaluates the mentor.

3) Academic Integrity: Both student and mentor will meet for 16 half days in clinic. Attendance will not be taken, but students are expected to maintain the highest academic integrity in accordance with academic policies of the University of Minnesota Medical School. Documentation of clinic attendance dates will be maintained by the student and may be subject to random audit.

Name of Student:

Signature of Student:

Date:

Name of Mentor:

Signature of Mentor:

Date:
Clinical Foundations for the Physician Scientist (INMD 7548)

Clinical Foundations Expectations and Responsibilities

The Clinical Foundations course for MD/PhD Students occurs during the final year of the graduate phase and is designed to provide a longitudinal clinical experience with a physician scientist clinical mentor. The course is one semester in duration, following the University of Minnesota academic calendar.

Clinical Foundations
- Final year of graduate phase
- 18 half-day clinics over 1 semester
- Students function as 3rd-year medical student on clinical rotation
- Online quality improvement (QI) online courses 101-104 and project proposal
- Grade: 75% Clinical Performance, 20% Completion of online QI course and QI Project Proposal (see MSTP Program Handbook for details), 5% MSTP Grand Rounds attendance

Responsibilities of the Student:

The student is responsible for attending clinic 18 half days (or equivalent) during the semester. The student should work with the mentor to identify clinic times that are mutually agreeable. Students should be prepared for clinic by reviewing patient charts, evaluating patients by taking history and performing a physical examination, presenting their findings to their clinical mentor, evaluating the patient with their mentor and documenting the visit. Grades are based on clinical performance. Professionalism grade will be based on showing up to mutually agreed upon clinics, being on time and prepared to participate in clinic. Patient rapport will be based on the subjective evaluation of the mentor regarding ability of the student to relate to patients appropriately in the clinical setting (examples: greets patient by name and introduces self, maintains appropriate boundaries).

The student will complete online quality improvement modules 101-104 offered by the Institute for Healthcare Improvement. The student will then prepare a 1-page clinical QI Project Proposal, based on a clinical scenario they have encountered. This should be reviewed with the mentor.

The student will complete an online survey regarding the mentor at the end of the course.

Responsibilities of the Mentor:

The mentor is responsible for providing a clinical venue for the student for 18 half days and setting up times to meet with the student. The mentor should be available at the mutually agreed upon times. The mentor should expect the student to function as a 3rd-year medical student. The mentor is encouraged to provide frequent feedback to the student as needed. The mentor will provide formal feedback in the form of an end-of-course online grading form.
The mentor will help the student to identify and provide feedback regarding the QI Project Proposal.

The mentor or student may contact the MSTP Associate Director, Bryce Binsteadt, MD, PhD (binsteadt@umn.edu), at any time should there be problems such as non-attendance or other difficulties.
Clinical Foundations for the Physician Scientist (INMD 7548)

Clinical Foundations Student/Mentor Contract

(Date)

Dear Student and Mentor,

We are delighted that you will be working together during the upcoming semester in the Clinical Foundations for MD/PhD student program.

By signing this contract both student and mentor agree to the following:

2) The student and mentor will participate in 18 half days of clinic in the upcoming semester.

2) The student and mentor have both read, and by signing below attest to understanding the following documents:
   Clinical Foundations Expectations
   Clinical Foundations Evaluation Forms (to be distributed & completed electronically)
   Note: the mentor evaluates the student AND the student evaluates the mentor.

3) Academic Integrity: Both student and mentor will meet for 18 half days in clinic. Attendance will not be taken, but students are expected to maintain the highest academic integrity in accordance with academic policies of the University of Minnesota Medical School. Documentation of clinic attendance dates will be maintained by the student and may be subject to random audit.

Name of Student:

Signature of Student:

Date:

Name of Mentor:

Signature of Mentor:

Date:
MSTP Clinical Continuity and Clinical Foundations Evaluation Forms

The following will be sent to the mentor as an ONLINE SURVEY at the end of each course and mid-way through the 9-month Clinical Continuity Courses.

Thank you for mentoring an MD/PhD Student in the Clinical Continuity or Clinical Foundations course. We appreciate your participation in training the next generation of physician scientists.

Please take 5-10 minutes to complete this evaluation. Please also provide the student direct feedback in person, covering the areas below.

Student Name: ___________________
Clinical Mentor Name: ___________________

Check the appropriate box below. Assessments should be based upon what is expected of a medical student during their 3rd year of medical school.

<table>
<thead>
<tr>
<th>Dimension of Performance</th>
<th>Fail (significant concern regarding performance)</th>
<th>Pass (skills are developing and continue to show improvement)</th>
<th>High Pass (typical for a mid-to late 3rd year medical student)</th>
<th>Honors (typical of a late 4th year medical student, early resident)</th>
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<tbody>
<tr>
<td>Quality of History Taking</td>
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<td>Quality of PE Skills</td>
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<td>Quality of oral presentation</td>
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<td>Quality of clinic documentation in the EMR</td>
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<td>Professionalism</td>
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<tr>
<td>Student actively solicits and benefits from feedback</td>
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Please verify that the student completed the expected additional academic activity:
- Clinical Continuity 1: MSTP Grand Rounds □
- Clinical Continuity 2: NIH-style Specific Aims □
- Clinical Foundations: Quality Improvement Project Proposal □

Comments: Please write a narrative of the student performance. Provide feedback for areas that require further development:

The following will be sent to the student as an ONLINE SURVEY at the end of each course and mid-way through the 9-month Clinical Continuity Courses.
The MSTP leadership is interested in the quality of clinical mentoring that MSTP students receive during Clinical Continuity and Clinical Foundations courses. The leadership team will use this information to assist future students in selecting clinical mentors. The information you provide will be kept confidential (i.e., the mentor will not see your responses.)

Please take 5-10 minutes to respond to this survey.

Student Name: ___________________
Clinical Mentor Name: ______________

1 = strongly disagree
2 = disagree
3 = neither agree nor disagree
4 = agree
5 = strongly agree

1. My clinical mentor set clear expectations for me.
2. My clinical mentor communicated his/her clinic schedule clearly to me.
3. My clinical mentor provided useful “real-time” feedback regarding my performance in clinic.
4. My clinical mentor provided useful feedback regarding my written documentation (notes).
5. My clinical mentor provided useful guidance and feedback regarding my MSTP Grand Rounds (Clinical Continuity 1), Specific Aims (Clinical Continuity 2), or Quality Improvement project proposal (Clinical Foundations).
6. My clinical mentor provided useful end-of-course feedback to me in person.

Comments: Please provide any additional comments regarding your clinical mentor, particularly constructive suggestions for areas of improvement.