

Medical Scientist Training Program



Student Handbook

2016-2017



Northwestern University Feinberg School of Medicine Medical Scientist Training Program

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Northwestern University Feinberg School of Medicine Medical Scientist Training Program

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Northwestern University Feinberg School of Medicine Medical Scientist Training Program

Part II: Advising

The MSTP aims to provide students with ample access to the advising resources needed along each and every step of the training program. The following outlines the MSTP advising system that is available in addition to Feinberg School of Medicine (FSM) and graduate program resources.

1. Program Leadership

The Program Director and Associate Directors each play a large role in guiding students throughout every stage of the program. They work as a team to ensure the success of MSTP students by providing regular direction throughout the year and by serving as advocates for MSTP students across the university. They also meet regularly with students throughout the year. Associate Director Dr. Rice is committed to making sure students reach the appropriate milestones on time throughout the graduate phase of training and works proactively to ensure students have the resources they need to do so. Associate Director Dr. Peterson maintains an open-door advising policy to identify any issues and provide guidance to students in any stage of training. He assists with major transitions (beginning graduate phase, returning to medical school and preparing for residency) and utilizes resources across campus to ensure needs are being met. Additionally, the Associate Director coordinates the annual MSTP Individual Development Plan (IDP) submission process.

2. MSTP Class Advisor

Each MSTP entering class is assigned a class advisor who helps the Directors guide students throughout their time in the program. The Class Advisor establishes long-term relationships with the students and meets annually with them to assist with rotation and thesis lab selections, review progress, discuss their IDP, and to explore any other issues of concern of the student and offer general advice. A listing of the current class advisors is below:

Class Entry Year	Class Advisor	Department
2016	Jaehyuk Choi, MD, PhD	Dermatology
2015	Elizabeth McNally, MD, PhD	Medicine - Cardiology
2014	Phyllis Zee, MD, PhD	Neurology
2013	Puneet Opal, MD, PhD	Neurology
2012	Hossein Ardehali, MD, PhD	Medicine - Cardiology
2011	Dane Chetkovich, MD, PhD	Neurology
2010	Richard Longnecker, PhD	Microbiology – Immunology
2009	Robert Holmgren, PhD	Biochemistry, Molecular Biosciences
2008	Warren Tourtellotte, MD, PhD	Pathology
2007	Alan Hauser, MD, PhD	Microbiology – Immunology

2.1. Advising Schedule and Reviews

Each class meets with their MSTP Class Advisor at least once a year, usually in late spring, and review their MSTP IDP.

3. Medical School College Mentor

All medical students are placed in a college system at Northwestern that is headed by a clinician who serves as the college mentor for ~40 students. The College Mentors meet with students on a regular basis to review their progress and portfolios of clinical competencies as well as to offer support to students throughout their medical school experience. Mentors meet monthly with the office of medical education Deans to discuss student progress during the first two years of medical school. The MSTP Director and/or Associate Director attend these meetings to stay informed about the progress of students in the pre-clinical phase and to advocate on their behalf.

4. Research Advisor

Arguably the most important advisor an MSTP student will have is the thesis advisor, with whom students meet frequently during the research phase of training. The thesis advisor has a tremendous impact on a student's future, since productivity during the research phase is a major determinant of long-term commitment to and success in research.

Additionally, each student has a Thesis Committee of four or more faculty members who also advise the student during the research phase of training and assure that the student is reaching "normal milestones." The annual report of the thesis committee is submitted to the MSTP office to monitor progress during the graduate phase. The directors meet with each student as they are putting together their thesis committee to ensure that at least one of their committee members is an advocate for the MSTP pathway and can communicate our student's unique needs and training time considerations.

4.1. Identifying an Advisor Timeline and Procedure

See Part IV, Section 3.4.

4.2. Changing an Advisor

See Part IV, Section 3.4.1

5. MSTP Director Rounds

Time to degree is a concern for all MD/PhD programs, with the PhD phase of training often introducing the most variability in this measure. We have implemented a "MSTP Director Rounds" program, with the idea that personal onsite interaction with students in the PhD phase will be beneficial to program/student relationships and have a positive effect on reducing time to degree. The rounds program entails an unannounced in-lab visit by the MSTP Associate Director twice a year. During the conversation with the student, the Associate Director gathers information about the student's general wellbeing and perception of their progress, milestones met (e.g. required course completion, qualifying exam completion, thesis proposal submission), timeline for committee meetings, publications and defense. Following the meeting with the student, the Associate Director follows up with the advisor separately to go over the student's plan and timeline and the advisor's perception of progress to ensure the student's and advisor's plans are in agreement. An assessment is made on the milestones met, timeline/plan, and the agreement between the student's and advisor's perception of progress. If a significant conflict between the student and advisor is discovered, a meeting is held with the student, advisor, and MSTP leadership to attempt to come to an agreement on a path forward. The SOAP notes are then sent to the student as a summary of the meeting and written record of the plan.

6. Clinical and Physician Scientist Training Program (PSTP) Advisors

The FSM College Mentor serves as a clinical advisor and meets with students on a regular basis during the clinical years of the program. MSTP clinical phase students are also required to meet with one or more physician-scientists in our MSTP-Specific Residency Advising Panel. Members of this panel (shown in the table below) meet individually with students to provide up to date specialty-specific advice tailored for the future academic physician-scientist, including advice on selecting PST programs and details of the residency selection process.

Faculty Member	Department	Position
Dimitri Krainc, MD	Neurology	Chair, Department of Neurology
Elizabeth McNally, MD, PhD	Medicine	Director, Center for Genetic Medicine
William Muller, MD, PhD	Pathology	Chair, Department of Pathology
Edward Schaeffer, MD, PhD	Urology	Chair, Department of Urology
Thomas Shanley, MD	Pediatrics	Chair, Department of Pediatrics

The MSTP holds joint events with the Northwestern PSTP to help expose students to physician-scientists in the next phase of training and gain perspective and advice on their career path. The Northwestern University PSTP is an integrated, multi-departmental program that mentors postdoctoral graduates (MD/PhDs or MDs with significant research experience) from residency training to faculty appointment. The PSTP is designed to enhance the general training program with the opportunity for additional research-intensive training that prepares participants for a career as both a physician-scientist and a board-certified specialist or subspecialist.

7. Student Counseling Service

The Northwestern Division of Student Affairs Counseling and Psychological Services (CAPS) program offers services designed to assist students mainly through individual and small group interventions, in overcoming obstacles and in achieving their academic and other personal developmental goals. The staff also emphasizes with students the importance of taking time to take care of their emotional and psychological health and to find balance in their lives. Housed within the Division of Student Affairs and with offices on both the Evanston and Chicago campuses, CAPS serves as the primary mental health service in aiding students in overcoming their developmental, emotional, and/or psychological hurdles. Please refer to the CAPS website for more information: www.northwestern.edu/counseling/index.html.



Northwestern University Feinberg School of Medicine Medical Scientist Training Program

Part III: Program Requirements

The key expectation of each student admitted to the Northwestern MSTP is that they take full advantage of all Northwestern resources and couple that with personal responsibility to achieve optimal success. During each individual phase of combined training there are clear and tangible academic and/or research milestones every MSTP student must meet. These are outlined in more detail for each phase of training in subsequent pages of this handbook. In addition to the phase-specific expectations, MSTP students must meet the following conditions in all stages of training. If any of the conditions specified below are not met, financial aid may be withdrawn.

1. Remaining in Good Standing

Students will remain in good standing in the program if they follow these guidelines:

1. Register as a full-time student each required term.
2. Maintain good academic standing with satisfactory academic progress toward the M.D. and Ph.D. degrees, including participation in Program courses and activities such as the annual MSTP Student-Faculty Retreat (see Part V: Satisfactory Academic Progress).
3. Keep the academic record free of incomplete grades.
4. Inform the MSTP Director of other sources of support not provided by the Program.
5. Refrain from remunerative work unless approved in writing by the MSTP Director.
6. Adhere to all regulations and policies as stipulated by The Graduate School and the Feinberg School of Medicine.
7. Complete and submit the MSTP Individual Development Plan on an annual basis.

2. Laboratory Rotations

Students conduct research rotations during the summer before the M1 year and during the summer after the M1 year. Students decide on their thesis labs after having completed an MSTP minimum requirement of two rotations or the required number of rotations specified by the students chosen graduate program. For every rotation, a rotation summary abstract that describes the research project is due two weeks after rotation completion to Dr. Peterson (j-peterson@northwestern.edu) and to the rotation advisor.

3. Required Courses and Activities

Students are required to register in The Graduate School for the MSTP 401 course during the first two years of medical school and for the MSTP 402 course every year. Students are also required to attend the Student-Faculty Retreat every year.

3.1. MSTP 401 - Topics in Molecular and Translational Medicine

MSTP 401 - Topics in Molecular and Translational Medicine (aka "MSTP Journal Club") meets most Fridays, 1-2:15 PM (M2) and 2:15-3:30 PM (M1). This 2-year course helps students become familiar with historical and

contemporary topics in molecular and translational biology, as well as develop grant-writing, peer-review and presentation skills. Students in their first 2 years of medical school are required to register in The Graduate School for this course every quarter and attend every scheduled class.

3.2. MSTP 402 - Grand Rounds

MSTP 402 - Grand Rounds typically meets monthly on Wednesday evenings from 5:30 - 6:45 PM. The goals of this course are to acquaint students with some unsolved problems in modern medical research, help provide continuous exposure to clinical medicine throughout student training, and help students give presentations. Students are required to register in The Graduate School for this course every quarter and attend all sessions of this evening course during all years of training. Students present at this conference at least once during the research and clinical phases of training.

3.3. MSTP 590 - Research

Students are required to register for MSTP 590 - Research for three units of credit during the summer quarters before and after the M1 year only to maintain proper registration

3.4. Registration

It is important to register for these courses each quarter to avoid discontinuation from The Graduate School (TGS). If this does occur, students are responsible for applying for readmission and paying the applicable reinstatement fee. The following webpage provides more information on readmission.

<http://www.tgs.northwestern.edu/academics/academic-services/readmission/index.html>

3.5. MSTP Student-Faculty Retreat

This two-day overnight retreat involves a combination of scientific and social activities that usually is held at a resort outside of Chicago. While the format varies slightly from year to year, a constant feature is that all students in the research and clinical phases of training present their work in either oral or poster presentations. The students also invite two physician-scientists as keynote speakers. Each gives a brief research talk and discusses his/her career path. Recreational activities round out the weekend.

Unexcused absences from the retreat will result in a \$500 deduction in the M4 residency interview travel award.

4. Graduate Program Requirements

MSTP students are expected to fulfill all of the requirements of any graduate student with respect to laboratory, graduate program and departmental obligations. Examples include: participation in journal clubs, retreats and seminars, both departmental and campus-wide (e.g., Lectures in the Life Sciences on the Chicago campus, major scientific symposia, etc.). Each program may differ in their requirements and may have specific requirements for MSTP students.

4.1. Student Seminars

MSTP students are expected to present their research findings at least annually in a formal setting, such as a departmental seminar series or a scientific conference. They should also attend local, regional, national and international scientific conferences as well as the American Physician Scientists Association (APSA) Annual Meeting at least once during the research phase. In addition, if there are special courses or other educational opportunities that would aid in scientific development, the MSTP may be able to contribute to the cost of these activities.

4.2. Responsible Conduct of Research Course (RCR)

MSTP trainees at Northwestern are required to take one of three Research Ethics Responsible Conduct of Research (RCR) courses offered by the three major life science PhD programs (DGP, IBiS, and NUIN) during the PhD phase of their training. The RCR course is a formal requirement of the PhD program curriculum and it must be satisfactorily completed by the end of the third year of PhD training (end of the second year for MSTP students). MSTP students not directly affiliated with one of the main life science PhD programs (i.e., BME, CHEM, ChBE) must complete one of the offered RCR courses prior to the end of their second year in the PhD phase of training. These courses are:

NUIN 490 Responsible Conduct in Neuroscience Research – Offered twice per year; once on the Evanston campus and once on the Chicago campus.

IBiS (Biol Sci) 423 Ethics in Biological Research – Offered once a year on the Evanston campus.

DGP 494 Colloquium on Integrity in Biomedical Research – Offered once a year on the Chicago campus.

NIH requires that all trainees of programs supported by a T32 training grant must receive RCR training no longer than every 4 years. MSTP students are required to take an RCR refresher course before returning to clerkships to remain in compliance with this rule. Students are reminded of this requirement prior to returning to clerkship and enrollment in the refresher courses is coordinated through the MSTP office.

5. Individual Development Plans (IDPs)

MSTP students are required to submit an IDP to the MSTP office each year. The IDP addresses specific challenges students faced during the year, satisfaction with their progress, plans to address their strengths and opportunities for improvement in the coming year. It is broken down into four main topics: 1) Career Goals, 2) Clinical Goals, 3) Research Goals, 4) Additional Training Goals.

Students are encouraged to discuss their IDP with multiple advisors, but they are required to formally meet and discuss their IDP with an MSTP Director as well as their PhD advisor or a physician-scientist clinical mentor, depending on their stage of training, at least once a year.

6. Fellowship Application

MSTP students are required to apply for an external fellowship. Students receive a monetary reward for a successful application resulting in a funded fellowship.

7. First Authored Paper

The MSTP requires students to publish at least one peer-reviewed first-author research article (not a review) prior to returning to the clinical phase of training. While the publication requirement may vary among the NU graduate programs, the MSTP holds this as a uniform policy for all MSTP students.

8. Return to Clerkships Requirements

MSTP students are required to attend the Return to Clerkships meeting with the Office of Medical Education Deans and complete all PhD requirements before they begin clerkships.



Northwestern University Feinberg School of Medicine Medical Scientist Training Program

Part IV: Program Overview - Milestones, Phases, and Timeline overview

1. Overview of the Course of Study

MSTP students at Northwestern complete both doctoral degrees at Northwestern, earning the MD from the Feinberg School of Medicine and the PhD degree from The Graduate School in one of five participating Northwestern colleges—the Feinberg School of Medicine, Weinberg College of Arts and Sciences, McCormick School of Engineering and Applied Sciences, and the School of Communication. MSTP students fulfill the degree requirements of whichever program they choose for the graduate phase of training.

MSTP students proceed through three interrelated phases illustrated in the table below. Most students complete the “2 + 3½ + 1½” course of study comprising the preclinical phase of training during the first two years, followed by Step I of the USMLE, Introduction to Phase II, and a summer in the hospital completing one or two clinical clerkships. The next phase of training is the research phase for three or more years to fulfill the requirements for the PhD degree. Finally, students complete the clinical phase of training comprising five quarters of hospital-based clinical clerkships and Step 2 of the USMLE.

MSTP Course of Study									
	Year 1	Year 2		Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Feinberg School of Medicine	FSM Med1 Coursework	FSM Med2 Coursework		USMLE 1			Clinical Refresher	Core Clinical Clerkships	Elective Clerkships
									Residency Interviews
									USMLE 2
MSTP	Lab Rotns	Topics in Molecular & Translational Medicine	Begin Thesis Research	Topics in Molecular & Translational Medicine	Individual Fellowship Applications				
		Lab Rotation							
	MSTP Grand Rounds								
	Visiting Scholar Seminars, Student-Faculty Retreat, Women’s Forum, Roundtable Discussions								
PhD Program					Thesis Research				
					Qualifying Exam	Thesis Prospectus		Thesis Defense	
	PhD Courses				Teaching				

2. Pre-M1/Before you Arrive

2.1. MSTP Financial Aid Package

The MSTP financial aid package includes an annual stipend (\$30,792 in 2016-2017) that will increase annually consistent with increments within the University Fellowship system; full tuition for the duration of training; and a one-time moving allowance of \$500. The MSTP covers the NU student health insurance and disability insurance costs for the duration of training, as well as health insurance for any student's children. The MSTP does not cover health insurance for spouses.

2.2. Northwestern Email Account and Net ID

Matriculating students receive a Net ID, which is a student's electronic identity at Northwestern. The most common format of a NetID is a combination of three letters (often related to the student's name) and three numbers. Net ID Assignments are sent via email. The email provides instructions for the NU Validate process and setting up a NU email account. Students must complete the NU Validate process before they will be assigned an NU email account. Once the email account is set-up, students are granted access to CAESAR (<http://www.northwestern.edu/caesar/>), the online student information portal.

2.3. Transcripts

Students should request three final official transcripts from all colleges and universities that they have attended. Each institution should send three official transcripts (one transcript per sealed envelope) directly to the MSTP Office by August 1st. The final transcripts from a student's baccalaureate-granting institution must show the name of the bachelor degree they received and the date. The transcripts are distributed for the students to both the Feinberg School of Medicine and The Graduate School. Transcripts should be submitted to the address below:

Northwestern University MSTP
Attn: Joyce Tamanio
303 East Chicago Avenue
Morton Building 1-670
Chicago, Illinois 60611

2.4. Payroll and NU E-Verify

The Program Coordinator prepares the payroll paperwork to start paying a student's stipend effective the day they begin their first pre-M1 summer research rotation. To complete the Payroll registration process, students need to fill out the documents below. Students should return these documents to the MSTP Office so that they can be submitted along with their MSTP Payroll forms.

1. Personal Data Form, which should be returned by PDF/Fax at the earliest convenience.
2. Direct Deposit Application
3. New W-4 if a student would like additional taxes taken out.

All required Payroll forms can be found at the following link:

<http://www.northwestern.edu/hr/new-employees/payroll-forms.html>

2.5. E-Verify

E-Verify is an Internet-based system operated by the Department of Homeland Security (DHS), U.S. Citizenship and Immigration Services (USCIS) that allows employers to verify the employment eligibility of their employees, regardless of citizenship. Northwestern is enrolled in the E-Verify program to comply with federal regulation so

it is extremely important that all students in the MSTP follow the instructions below to complete both Sections 1 and 2 of the E-Verify process in a timely manner.

Section #1 must be completed **on or before the day students begin their rotations**. Students begin by logging onto the website below and creating a username and password.

<https://northwestern.i9servicecenter.com/Login.aspx>

After a student has created a Username & Password they should fill in:

Start Date: Enter the date of the first day in lab.

School/Area: Feinberg School of Medicine

Depart/Center: 4581 MED-Finance/Budgt/Payroll

Click Start I-9

Section #2 must be done in person **on or before the third day in the lab** and requires students to bring their original ID(s) to verify their identity and employment eligibility. This can be done in the MSTP office or in the Payroll Office. There is a complete list of acceptable documents at the end of Section #1, but typically a **US Passport** (one document) is used and if that is not available, a **driver's license AND social security card** (both are needed) are also commonly used.

2.6. Registration for Courses

New students can register for The Graduate School (TGS) courses via the Caesar system beginning the first day of summer quarter. **Students are required to register for MSTP 590 Research for 3 credit units**. This registration is required to be completed by the end of the first week of the summer quarter regardless of whether students are beginning their rotations at a later date. Students should contact Joyce Tamano, Program Coordinator (j-tamano@northwestern.edu) with any issues related to course registration.

2.7. Proof of Health Insurance

Proof of health insurance is required for all NU students at the time of matriculation and annually thereafter. New students are required to complete the online Coverage Selection Form (CSF) to either enroll in or waive the NU/Aetna plan. Failure to complete the online Coverage Selection Form results in automatic enrollment in the NU/Aetna plan. If students are covered by their parents or spouse, they do not have to enroll in Northwestern University's student health insurance plan. In order to decline Northwestern's student health insurance plan, students are required to provide a photocopy of their current enrollment in another plan. Returning students do not need to submit a Coverage Selection Form if they wish to keep their insurance selection from the previous Academic Year. Their prior selection "rolls over" to the next Academic Year based upon their continued class registration. MSTP covers the cost of the student health plan during the medical school years and The Graduate School provides a subsidy during the PhD phase to cover this cost. The MSTP pays for disability insurance coverage costs throughout a student's time in the program. For more information regarding benefits visit www.aetnastudenthealth.com. Click on "Find Your School" and enter 812845 as the Policy Number.

2.8. U-Pass and Student Activity Fees

A CTA University Pass (U-Pass) is a discounted fare card that replaces cash/other transit cards for all CTA fares and does not require a transfer or surcharge for unlimited rides all day, every day. MSTP students receive a U-Pass for each quarter they are enrolled in graduate school and/or every academic year they are enrolled in medical school. During any quarters in which MSTP students are enrolled full-time in The Graduate School it is their responsibility to pay the TGS Activity fee

(www.tgs.northwestern.edu/documents/grad-life/Activity%20Fee%20FAQ.docx), of \$110 per quarter, the

majority of which funds the U-Pass. The remaining cost contributes to expenses for legal services from an attorney to assist with issues such as landlord, credit or debt problems and traffic violations and to support the community building grant activities like TGS Night Out for all graduate students. All medical students are also automatically enrolled in the CTA U-Pass program. Medical students pay a yearly activity fee of \$396 to cover this cost. FSM charges \$673 for the activity fee and the MSTP covers the \$277 administrative fee leaving the student responsible for \$396 to cover the cost of the U-Pass. When students arrive to Feinberg in the fall for orientation passes are distributed by Linda Daniels from the Office of Medical Education, l-daniels2@northwestern.edu. Linda will send an email with the date, time and location where students can pick-up their U-Pass.

2.9. Taxes

Because of possible financial implications, the MSTP Office does not offer any specific tax advice. Please refer to the following webpage published by the NU Office of Human Resources for more information. <http://www.northwestern.edu/hr/payroll/tax/>

Additionally, the following IRS webpage may be helpful:

<http://www.irs.gov/Individuals/Students>

2.10. Pre-M1 Summer Laboratory Rotations

Students explore the range of research opportunities first by reviewing faculty research descriptions and then through conversations with the Directors and Class Advisor. Each entering student will have met with 10 or more faculty members during the interview and second visit. The initial summer rotation is often arranged with a faculty member met during the Second Look weekend. Final decisions about research rotations are made by each student jointly with the Directors and Class Advisor.

For every rotation, a rotation summary abstract that describes the research project is due two weeks after rotation completion to Dr. Peterson (j-peterson@northwestern.edu) and to the rotation advisor. In addition, students and rotation advisors complete an MSTP Student Research Evaluation Survey. The Associate Director will provide more details about the survey following the rotation.

2.11. MSTP Student-Faculty Retreat

Pre-M1 students, although not required, are all strongly encouraged to attend the Student-Faculty Retreat. This two-day overnight retreat involves a combination of scientific and social activities that is usually held at a resort outside of Chicago. While the format varies slightly from year to year, a constant feature is that all students in the research and clinical phases of training present their work in either oral or poster presentations. The students also invite two physician-scientists as speakers—an established keynote speaker and a Northwestern MSTP alumnus. Each gives a brief research talk and discusses his/her career path. Group discussions of various topics in clinical medicine and research and recreational activities round out the weekend. The MSTP retreat has a rich scientific program but there is more than adequate time for students and faculty to socialize and this is the first good opportunity for entering students to spend time together and also get to know their more senior colleagues.

3. Medical School: Phase 1, M1-M2 (1st and 2nd years of study)

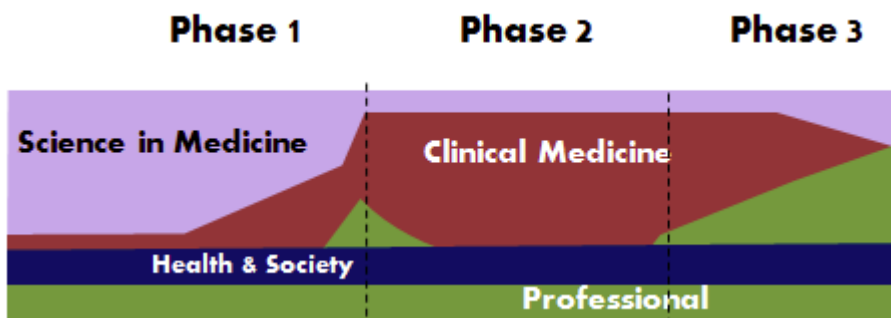
It is important to develop the study habits that allow mastery of the material and solid performance on the exams, while still allowing plenty of free time for personal development. MSTP Students are expected to perform well in medical school courses. Any failing grades may be addressed by the Directors who will work with students to determine the cause and provide support to ensure future success.

3.1. Feinberg School of Medicine Curriculum, Outline

The Feinberg School of Medicine (FSM) MD curriculum is described here:

<http://www.feinberg.northwestern.edu/education/curriculum/index.html>

The basic outline of the curriculum is shown below. Phase 1 lasts two years and Phases 2 and 3 are a year in length each.



3.2. MSTP Courses

In addition to first and second year medical school coursework, M1 and M2 students are responsible for registering for and participating in the following MSTP Courses each quarter:

3.2.1. MSTP 401 - Topics in Molecular and Translational Medicine

MSTP 401 - Topics in Molecular and Translational Medicine (aka “MSTP Journal Club”) meets most Fridays, 1-2:15 PM (M2) and 2:15-3:30 PM (M1). This 2-year course helps students become familiar with historical and contemporary topics in molecular and translational biology, as well as develop grant-writing, peer-review and presentation skills. For the M1 section of the course, a student pairs with a faculty preceptor whose research interests them. The student and preceptor jointly decided on the article to present. The M1 section provides an opportunity for students to interact with faculty and set up potential summer lab rotations.

For the M2 section of the course, students develop and write a complete NRSA predoctoral fellowship application. Class sessions are devoted to understanding all aspects of the NRSA application process, writing the different portions of the proposal (with an emphasis on the research proposal), and developing an understanding of the timeline for submitting the proposal. Faculty and student reviewers are selected for evaluating the proposals and follow NIH guidelines using the F (F30/F31/F32/F33) review critique template with enhanced review criteria. Students get these reviews back to help further develop their proposals. In addition, students present their research proposals to their colleagues, the M1 and research-phase students (invited), and faculty advisors of students presenting in that given session. The presentations are 15 minutes long and conducted similar to a PhD qualifying exam, with audience members interrupting with questions. In addition, the M2 section of the course provides the opportunity for students to begin working with their chosen PhD advisors on formulating their future thesis work so that they are well prepared to begin their research the following summer/fall and many are able to submit their proposal to the NIH as soon as they join the lab.

3.2.2. MSTP 402 - Grand Rounds

MSTP 402 - Grand Rounds typically meets monthly on Wednesday evenings from 5:30 - 6:45 PM. This conference, instituted in 1995, integrates clinical medicine with research and provides continuing clinical education to research phase students. Students in all years of training are required to attend this two-part conference (including Clinical Phase students), and ten Grand Rounds are held each year. The goals of this course are to acquaint students with some unsolved problems in modern medical research, help provide continuous exposure to clinical medicine throughout student training, and help students give presentations. Students are required to register in The Graduate School for this course every quarter and attend all sessions of this evening course during all years of training. Students present at this conference at least once during the research and again during the clinical phase of training. Physician-scientist and clinical faculty members often serve as preceptors and often add insightful commentary after the student presentations are completed. A Clinical Phase student, a Research Phase student, and the course director together choose a suitable clinical case from among those the Clinical Phase student has managed on the wards. They develop a brief handout containing key clinical data but not quite enough to reveal the diagnosis. This is distributed to the Grand Rounds Groups, teams of 7-8 students vertically aligned from M1 through G4, which meet in the days before Grand Rounds to discuss the case and come up with the top three diagnoses and next best diagnostic test, which they send to the director. At the conference, the Clinical Phase student presents the case in a “progressive disclosure” manner, and asks for input from his/her colleagues and even interviewing candidates at each step in the diagnostic process. The clinical case is presented as an unknown: “An eight year old boy presents with shortness of breath.” The students in the audience then collectively provide the differential diagnosis and suggest appropriate tests and exams to be performed, and the presenting student gives the results of these tests. Materials such as x-rays, CT scans, EKGs, gross and microscopic pathology and video recordings (e.g., of a patient with a seizure disorder) are used in the case presentation. After the final diagnosis is made, the presenting student discusses the disease pathophysiology as well as current therapy. In the second half of the conference, the Research Phase student gives a short lecture on recent breakthroughs in an area related to the disease in question. At the end of the year, members of the winning Grand Rounds team are presented with prizes.

3.2.3. MSTP 590 - Research

Students are required to register for this course for three units of credit to maintain proper registration during the summer quarters before and after the M1 year only.

3.3. Laboratory Rotations

Students conduct research rotations (4 week minimum length) during the summers before and after the M1. By the end of the second summer, after completing a minimum of two rotations, all students decide on a thesis lab. Advising on this important process begins with acceptance of an offer of admission. Students explore the range of research opportunities first by reviewing faculty research descriptions and then through conversations with the Directors and Class Advisor. Entering students review publication and funding records (Northwestern Scholars website) and the Director and Class Advisor provide additional information (e.g., student training record) related to the training potential of each faculty member. The MSTP leadership plays an advisory role in helping students select rotations.

Although the pre-M1 summer rotation is often arranged with a faculty member met during admissions season, the two rotations following the M1 year are only arranged after the student has met face-to-face with at least ten faculty members, usually during the spring of the M1 year. Each student is required to meet and discuss their choice of rotations with the Director/Associate director prior to confirming their rotations.

For every rotation, a rotation summary abstract that describes the research project is due two weeks after rotation completion to Dr. Peterson (j-peterson@northwestern.edu) and to the rotation advisor. In addition,

students and rotation advisors complete an MSTP Student Research Evaluation Survey. While most students choose thesis advisors by the end of the summer between the first and second years and in some cases, even engage in research during the M1 and M2 years, occasionally a third rotation occurs in or after the M2 year.

3.4. Choosing an Advisor

Following the completion of lab rotations, MSTP students are required to discuss their options of a thesis advisor with the Directors and come to a ***final decision by the end of the fall quarter of their M2 year***. Once the decision is made, students should inform their prospective advisor of their decision and confirm the advisor is willing and able to let the student join their lab. The Associate Director sends a confirmation letter and a Financial Support Agreement Form to the newly chosen advisor. The form defines the stipend and tuition responsibility of the advisor to the student once the student enters the graduate phase of training. The advisor and chairman of their department are required to sign the form before a student begins in the lab.

Students are encouraged to get into the lab as much as possible once a thesis lab has been chosen. A number of NU MSTP students have been able to publish one or more papers by the end of the M2 year by doing research part-time (12-15 hours/week) throughout the M1 and M2 years. Students should use their own judgment about when to begin part-time research.

3.4.1. Changing an Advisor

If a situation arises in which a change in advisor becomes necessary, students should notify the Associate Director immediately and the Directors will work with students on a case-by-case basis to advise them on the best way forward to continue on in the program. If a student is unable to find an alternative advisor, the student may fail to make satisfactory academic progress towards their PhD and will be subject to consequences of doing so, see <http://www.tgs.northwestern.edu/academics/academic-services/satisfactory/> and Part V of this handbook.

3.5. Choosing a Graduate Program

Every advisor is associated with one or more of the following participating umbrella or departmental PhD programs: The Driskill Graduate Program in Life Sciences (DGP), the Interdisciplinary Biological Sciences Program (IBiS), the Northwestern University Interdepartmental Neuroscience PhD Program (NUIN), Biomedical Engineering Program (BME), Applied Physics Graduate program, Department of Chemistry (CHEM), Department of Chemical & Biological Engineering (ChBE), or Department of Materials Science and Engineering (MSE). The student chooses a thesis advisor first, and if the advisor is affiliated with only one program, the student will join that particular program. If the chosen advisor is affiliated with more than one program, the student will then choose a PhD program based on preferred course offerings, number of course requirements (refer to graduate courses in section 4.1.1) and other training opportunities. After consulting with their thesis advisor, students are required to decide on one of the multiple programs the advisor is associated with and should notify the MSTP Associate Director and the Director of the chosen graduate program as soon as this is decided.

3.5.1. Driskill Graduate Program (DGP) and Interdisciplinary Biological Sciences Program (IBiS)

These programs are based primarily in Chicago (DGP) and Evanston (IBiS) and include faculty working in all life science areas, from fundamental mechanisms of biological macromolecular structure and function, molecular biology and genetics, cell and developmental biology, biochemistry, physiology, biotechnology, nanotechnology, engineering, and bioinformatics. Many faculty members study these fundamental processes as they pertain to a variety of human diseases, including cancer, heart disease, neurologic disease, reproductive disease and infectious disease.

Web site:

DGP: <http://www.biology.northwestern.edu/jgp>

IBIS: <http://www.ibis.northwestern.edu>

3.5.2. Northwestern University Interdepartmental Neuroscience PhD Program (NUIN)

The NUIN Program is a university-wide program devoted to normal and abnormal function of the nervous system at all the levels described for IBiS and IGP.

Web site:

<http://nuin.northwestern.edu>

3.5.3. Biomedical Engineering (BME)

This university-wide program is devoted to the exciting and fast-moving field of biomedical engineering with its ever-changing boundaries. General areas of concentration include Neural Engineering and Rehabilitation, Cardiopulmonary and Vascular Engineering, Materials, Cells, and Tissues and Imaging and Biophotonics.

Web site:

<http://www.bme.northwestern.edu>

3.5.4. Department-Based PhD Programs

The participating department-based PhD programs are:

Applied Physics

Web site:

<http://www.appliedphysics.northwestern.edu>

Chemistry

Web site:

<http://www.chemistry.northwestern.edu>

Chemical and Biological Engineering

Web site:

<http://www.chbe.northwestern.edu>

Materials Science and Engineering

Web site:

<http://www.matsci.northwestern.edu>

3.6. USMLE Step 1

After the conclusion of M2 classes, all MSTP students are required to complete the USMLE Part I at the end of April before beginning summer clerkship. It is recommended that students schedule the exam in the third week of April to allow for a break the following week.

3.7. Summer Clerkships

The completion of at least one clinical clerkship during the summer before beginning full-time graduate study is strongly recommended. There are a number of reasons for doing clinical clerkships before beginning graduate study:

- to solidify clinical skills acquired during M1-M2 years
- to experience patient care from beginning (admission H & P) to end (discharge)
- to learn key M3 survival skills (how to do everything and where to find everything in the hospital)

- to gain experience for continuing clinical experience (Education-Centered Medical Home (ECMH), community clinics, morning report, inpatient work, etc.)
- to gain experience making clinical presentations
- to develop relationships with attending physicians with whom students can maintain clinical connections during the research phase
- to reduce the anxiety of returning from graduate studies
- to reduce time to complete clinical requirements upon return from graduate school, offering the possibility of returning as late as June while still allowing enough time to graduate the following May.

The required five-day course, [Introduction to Phase 2](#) is given at the end of April/beginning of May. More details regarding this course is available from the Office of Medical Education

3.8. Requirements for Academic Progress

All MSTP students must meet all Feinberg School of Medicine requirements and remain in good academic standing as defined by FSM to remain in good standing in the MSTP. Any failure to meet these requirements or remain in good academic standing will result in failure to make Satisfactory Academic Progress (See Part V: Satisfactory Academic Progress).

3.9. Summer Financial Support and Vacation Policy

The MSTP pays students' FSM or TGS tuition, stipend, health and disability insurance all summer, including one week of vacation. Depending on the length of a student's summer clerkship, the MSTP continues to pay students' stipend into the fall quarter for up to three months. Afterward, students' advisors are fully responsible for their stipend in addition to TGS tuition and health insurance. The MSTP continues to pay students' disability insurance throughout their time in graduate school. The MSTP office communicates with students' advisors and academic departments on their behalf to make the financial transition seamless.

4. The Graduate School and the Research phase

The goal of the research phase is to seek out and take advantage of every opportunity to develop into an exemplary scientist with strengths in experimental and non-experimental research skills. Students are expected to work with their advisors and independently to develop the non-experimental research skills of manuscript review, grant and manuscript preparation, and generation of research presentations for a variety of audiences with varying time limits.

Recent MSTP graduates have published an average of 3 first-author (range = 1-8) and 5 middle-author (range = 1-18) papers in three to four years of training. Keys to achieving these goals are:

- Careful choice of the research projects, typically including a low-risk project leading to solid publications in the specialty area and a higher risk project that may potentially be published in a more general journal if successful.
- Early and constant focus on publication-oriented experimentation.
- Hard work on the part of the student, including work on evenings and weekends.

Finally, regarding time to degree, the goal of the research phase is not to finish as quickly as possible. Rather, it is to accomplish a body of published work that serves as the commodity of science which reflects research accomplishment. Although we expect that this can be accomplished in 3-4 years, it may take longer if the three points given above are not followed.

4.1. Graduate School: G1 (3rd year of study)

The first year of the graduate phase includes both research and fulfilling graduate course work requirements.

4.1.1. Graduate Courses

Students are responsible for meeting the program course requirements as well as the Graduate School residency requirement. MSTP students must complete the TGS residency requirement of eight quarters of coursework at the full tuition level. This can be a combination of courses and 590 research registrations.

Significant course credit is given to MSTP students so that the course requirements are minimal. MSTP students in DGP, IBiS, and NUIN receive six units of credit for coursework completed in the first two years of medical school and must complete at least three graded courses in TGS (versus the nine that are required for all other PhD students). Although students must take at least three courses in DGP, IBiS, or NUIN, they are encouraged to take more. ***Requirements in the chemistry and engineering programs are greater.***

The course schedule is made available in CEASAR shortly before the beginning of each quarter. Students should choose their graduate courses in consultation with their thesis advisor and the graduate program's Director or curriculum track advisor so that they will develop ample background knowledge to conduct research as well as pass the qualifying exam. Coursework in areas not directly related to the thesis research is also encouraged.

4.1.1.1. MSTP 402 - Grand Rounds

MSTP students in the graduate phase must continue to register in this course every fall, winter, spring, and summer quarter and attend all sessions of this evening course during all years of training. Graduate students present at this conference at least once during the research phase of training.

4.1.1.2. Responsible Conduct of Research

MSTP trainees at NU are required to take one of three Research Ethics Responsible Conduct of Research

(RCR) courses offered by the three major life science PhD programs (DGP, IBiS, and NUIN) during the PhD phase of their training. The RCR course is a formal requirement of the PhD program curriculum, and it must be satisfactorily completed by the end of the second year of PhD training for MSTP students. MSTP students not directly affiliated with one of the main life science PhD programs (i.e., BME, CHEM, ChBE) must complete one of the offered RCR courses prior to the end of their second year in the PhD phase of training. These courses are:

NUIN 490 Responsible Conduct in Neuroscience Research – Offered twice per year; once on the Evanston campus and once on the Chicago campus.

IBiS (Biol Sci) 423 Ethics in Biological Research – Offered once a year on the Evanston campus.

DGP 494 Colloquium on Integrity in Biomedical Research – Offered once a year on the Chicago campus.

NIH requires that all trainees of programs supported by a T32 training grant must receive RCR training no longer than every 4 years. MSTP students are required to take an RCR refresher course before returning to clerkships to remain in compliance with this rule. Students are reminded of this requirement prior to returning to clerkship and enrollment in an RCR refresher courses is coordinated through the MSTP office.

4.1.2. Qualifying Examination/advancing to doctoral candidacy

All graduate programs require students to pass a qualifying exam to advance to doctoral candidacy. The MSTP requires that all MSTP students in DGP, IBiS, and NUIN take their qualifying exam by the end of the summer after the first year in graduate school. This is due to MSTP requirements and the milestone deadlines set by TGS (see: <http://www.tgs.northwestern.edu/academics/academic-services/satisfactory/>). MSTP students begin their career in TGS when they begin their M1 year. TGS gives students 3 years to advance to candidacy, which equates to the end of the summer quarter of G1 year for MSTP students. For students in DGP and IBiS, the qualifying exams are usually scheduled for the spring and summer and are therefore conducive to the milestone timeline. The NUIN qualifying exams are typically scheduled for late summer and early fall, resulting in MSTP students advancing to candidacy very close to the 3-year milestone deadline. If possible, NUIN MSTP students should coordinate with the MSTP and NUIN Associate Directors to ensure that they successfully complete the exam and all paper work is filled for advancing to candidacy prior to the beginning of the fall quarter of the G2 year. If this milestone deadline is breached, students will be placed on TGS probation. If a student is at risk of missing the milestone deadline, they should be prepared to submit a petition for extension of the deadline.

<http://www.tgs.northwestern.edu/documents/academic-services/Petition.pdf>

Because the Departmental and engineering programs (Chem, BME, ChBE, and MSE) require completion of 6-9 graduate courses, MSTP students in these programs typically complete their qualifying exams during the G2 year in graduate school. This results in MSTP students missing the TGS milestone deadline. Students in these programs should coordinate with the MSTP Associate Director and the Director of Graduate Studies of their program to ensure they are not placed on probation for failing to submit the proper deadline extension paper work.

4.1.3. Thesis Committee and Thesis Proposal

Following successful advancement to doctoral candidacy, MSTP students should form their thesis committee and present a thesis prospectus according to the requirements described by their graduate program. The TGS milestone deadline for thesis prospectus presentation for MSTP students is the end of the summer quarter of their G2 year. A student will be placed on TGS probation if they fail to meet this deadline and should inform the

MSTP Associate Director immediately if they are at risk of doing so and ensure they are not placed on probation for failing to submit the proper deadline extension paper work.

MSTP students must convene with their thesis committees at least semiannually and must submit a written summary of the meeting to the MSTP Office. If twice a year thesis committee meetings are not feasible, students are required to convene their committees annually and then meet individually with all committee members 6 months after the last committee meeting.

4.1.4. Individual Development Plans

MSTP students are required to submit an Individual Development Plans (IDPs) to the MSTP office each year. The IDP addresses specific challenges students faced during the year, satisfaction with their progress, plans to address their strengths and opportunities for improvement in the coming year. It is broken down into four main topics:

Career Goals: What are your short- and long-term career goals? Have you identified a career path? Are there MSTP alumni or MD/PhD mentors that might be able to help you identify a career path or learn more about the different physician scientist career paths? What skills and competencies do you need to develop to meet these goals and how do you plan to do so? What is your timeline to achieve the different milestones in your career path (e.g. PhD, MD, residency, fellowship, independent researcher)?

Clinical Goals: What are your short- and long-term clinical goals? These may include strengthening competencies, developing better study habits, time management, clinical skills, and teamwork, engaging in a clinical continuity experience during the research phase, preparing for return to clinics, exploring specialties of interest, etc.

Research Goals: What are your short- and long-term research goals and what will be required to achieve those goals? This section may include exploring lab rotation faculty, setting up lab rotations, staying connected with chosen PhD advisor, experimental plans, writing grants, collaborations, publishing papers, attending conferences, giving oral presentations, timeline for thesis defense, clinical research, etc.

Additional Training Goals: What are your additional training goals and needs, and what are your plans for achieving those goals? This section may include teaching, writing and communications skills, leadership and management skills for example.

Students are encouraged to discuss their IDP with multiple advisors, but they are required to formally meet and discuss their IDP with an MSTP Director as well as their PhD advisor or a physician-scientist clinical mentor, depending on their stage of training, at least once a year.

4.1.5. Fellowship Applications

MSTP students are required to apply for an external fellowship. The aim of the mock NRSA developed during MSTP 401 is to serve as an initial draft of an NRSA that will be submitted during the research phase. Students receive a monetary reward for a successful application resulting in a funded fellowship.

4.1.6. Teaching Assistantship

MSTP students are required to fulfill the TA requirement of their chosen graduate program. Students consult with their Thesis Advisor and the graduate program Director or Faculty Advisor to determine the best course of action to fulfill this requirement.

4.1.7. Clinical Activities

There are several opportunities for MSTP students to engage in part-time clinical activities during research training as part of their continuing clinical education. These activities are coordinated through the Office of Medical Education. The Education-Centered Medical Home (ECMH):

(<http://www.feinberg.northwestern.edu/education/curriculum/learning-strategies/index.html>) is one such program, which offers an excellent opportunity to gain a clinical continuity experience during the research phase and is strongly encouraged for MSTP students.

4.2. Graduate School: G2 (4th year of study)

The second year of the graduate phase focuses mainly on dissertation research and for some students, finishing graduate course work requirements. Advancement to doctoral candidacy usually occurs following the completion of graduate course work requirements and successful completion of the qualifying exam.

4.2.1. Student Seminars

MSTP students are expected to present their research findings at least annually in a formal setting, such as a departmental seminar series or a scientific conference. They should also attend local, regional, national and international scientific conferences as well as the American Physician Scientists Association (APSA) Annual Meeting at least once during the research phase. In addition, if there are special courses or other educational opportunities that would aid in scientific development, the MSTP may be able to contribute to the cost of these activities (see Part VI: Program and Administrative Matters, Section:1.10).

4.3. Graduate School: Advanced Graduate Year(s), G3+ (5th & possibly 6th years of study)

The third year and beyond of the graduate phase focuses on dissertation research. Students are required to publish at least one peer-reviewed first-author research article (not a review) and complete all PhD degree requirements prior to returning to the clinical phase of training.

4.3.1. Progress Requirements

MSTP students are required to make satisfactory progress toward the completion of their PhD. Thesis committee meetings and the annual MSTP IDP are used to monitor the progress of students. Any failure to meet the standards of satisfactory progress toward degree completion set by the graduate program the student has joined resulting in dismissal from the laboratory or graduate program will be subject to review by the MSTP leadership and dismissal from the MSTP will be considered (see Part V: Satisfactory Academic Progress).

TGS policy on adequate academic progress and dismissal (exclusion) can be found at:

<http://www.tgs.northwestern.edu/academics/academic-services/satisfactory/>

4.3.2. Requirements for Returning to Medical School

The design of the MSTP and all of the funding mechanisms that support it (T32, institutional support) is to facilitate training as a physician-scientist in the shortest amount of time possible. This profoundly benefits students, allowing them to move forward in their careers while still young. This also makes Medical Scientist Training Programs stronger, by producing effective trainees at earlier points in their lives and by preserving funding, thereby allowing more and better-supported trainees. FSM and TGS recognize the special needs of MSTP students to graduate as quickly as possible and have made accommodations to requirements to expedite graduation. For FSM, this is a 16-week reduction in requirements to graduate. MSTP students must complete 40 weeks of “M3” clerkships (Medicine, Surgery, Primary Care, Psychiatry, Pediatrics, OB/Gyn, and Neurology), 14 weeks of “M4” clerkships (Emergency Medicine, ICU, PM&R, Sub internship), and 4 weeks of elective. This can be completed in 14.5 contiguous calendar months.

4.3.2.1. Prerequisites for Return

1. Each G3 and above student jointly meets with their advisor, the Director, and Associate Director the Fall prior to their return to discuss return to clerkship timing and how it will affect their graduation date.
2. Students must attend the annual Return to Clerkships meeting. This meeting addresses the logistics of returning to the clinic and the forms required for returning. It also provides an opportunity for students to ask questions of the MSTP and Augusta Webster, MD, Office of Medical Education (AWOME) leadership regarding the transition.
3. Following the Return to Clerkships meeting, students schedule a meeting for individual counseling with MSTP director to discuss ideas about choice of specialty, which informs the return timeline, and the process of scheduling clerkships. Those students planning on pursuing a non-traditional residency (surgical subspecialty) may need to schedule a joint meeting with the MSTP director and the AWOME Deans for counseling.
4. MSTP students must complete all requirements for their PhD degree, including the thesis defense, final revisions of the thesis, and publication of at least one peer-reviewed first-author research article (not a review) prior to starting clerkships.

4.3.2.2. Return Options

Non-MSTP MD students at FSM complete clinical rotations in 24.5 calendar months (start in May, graduate May). This includes 18.5 months of required clerkship time (elective and core) with additional time available for AOSC research projects and electives. MSTP students are only required to complete 14.5 months of clerkships to graduate. **For budget and programmatic reasons, the MSTP cannot provide stipend support for flextime in the clinical phase greater than 4 months.** The 18.5 months of support includes any time spent in clerkships before entering the graduate phase plus the time spent in clerkships following completion of the PhD. If students elect to return to the clinical phase at a time that results in greater than 18.5 months in the clinical phase, the MSTP Directors assists students in finding an appropriate post-doctoral experience following the completion of clinical requirements.

For some students the minimal required 14.5 months of clerkship time is appropriate, but for others, more time in the clinical phase is warranted. All rising students individually meet with the director to discuss return timing. Based on a student's individual needs, students choose the appropriate clerkship timing that best represents their remaining required clerkships and how it will impact their graduation date.

There are 2 potential windows for finishing required clerkships:

1. Finishing required clerkships from December 1 through May 1 results in a May graduation.
2. Finishing required clerkships from May 1 through December 1 results in a December graduation. Students have the opportunity to participate in a research post-doctoral experience beginning the month following completion of their clinical work and ending as late as June of the following year before starting Residency.

All students (including those graduating in December) participate in a two-week capstone experience at the end of April to prepare them for their internship.

4.3.2.3. *Additional Points*

1. All information regarding the completion of a student's thesis, private defense date and public thesis seminar along with the title of thesis is required to be submitted to the MSTP Office before a student can advance to the clinical phase of training. This ensures the transfer of financial responsibility for tuition and stipend is made in an expeditious manner. The student is required to send an email to their departmental business administrator indicating their anticipated date of return and copy the MSTP Program Coordinator so that they may coordinate on the transition on the student's behalf.
2. Faculty in the Department of Medicine provide an extensive clinical retraining program for returning students, involving a mixture of assessments and mentored patient workups and presentations. Regardless of whether a student remains clinically engaged during the research phase, all students must undergo assessment before returning to clinic. Students attend a review of the physical examination followed by a "pre-test" assessment of the student's clinical skills. This evaluation includes a complete head-to-toe examination with a standardized patient. The course instructors then design an individualized refresher course consisting of review sessions in the Clinical Education Center and sessions with a clinical attending physician who works with two returning students at a time to practice three skills: (i) performing a complete history and physical examination on a hospitalized patient, (ii) presenting the workup to the attending physician, and (iii) preparing a written assessment and plan. Students receive constructive feedback at each step of the retraining process. The final assessment involves two focused visits in an exercise similar to the 2nd year medical student clinical skills assessment with standardized patients. The AWOME coordinates this process beginning in February and assists in the logistics of properly registering students for access to the hospitals, patients and listservs.
3. MSTP students participate in the Phase II clerkship lottery with the Feinberg rising M3 class. The MSTP coordinates with the FSM registrar to ensure returning students have a proper scheduling window available in the lottery that aligns with their anticipated return date. There is some flexibility in arranging a personalized clerkship schedule post-lottery through the FSM registrar, however this is dependent on available space. It is important for students to explore their clinical interests through part-time exposure to different specialties. There are a variety of ways of accomplishing this in each specialty. Depending on a student's specialty interest, it is to their advantage to complete a clerkship or two before attempting the clerkship of greatest interest. Likewise, it is important that students complete the core clerkship in their specialty interest at Northwestern Memorial Hospital so that they can interact with the best and well-known faculty members who will write letters of recommendation on their behalf.
4. In preparation for a student's return to clerkships, senior MSTP students have found it useful to read a review of INTERNAL MEDICINE (e.g., "baby Harrison's," "baby Cecil" or Degowin and Degowin). This single specialty draws most from the M2 year. All other specialties are "new" to everyone.
5. The MSTP helps support all students in the clinical phase as long as the student is engaged in clinical activity (including NU or away electives taken for credit) during the clinical phase and research during the post-doctoral experience. The MSTP does not provide financial support for extended vacations.
6. Stipend support in the clinical phase depends on students making good progress toward the MD degree. Failing or incomplete grades may result in suspension of stipend support.
7. Students are required to send an email message to the MSTP Program Coordinator listing the title, date, time and room number for their thesis seminar so that the MSTP may announce the thesis seminar to the other MSTP students.

5. Medical school: Phases 2-3, M3-M4 (6th – 8th years of study)

The primary goal of clinical training is to acquire the basic skills of medicine in preparation for residency training, which is where the substantive clinical learning occurs. However, students should remember that the goal of an MSTP student is to train as a physician-scientist. Many students continue research on a part-time basis during the clinical years, typically revising manuscripts or doing an experiment or two in response to reviewer criticisms. There is also plenty of time to write clinical case reports and clinical review articles. Each student will develop a personalized schedule of clerkships and other activities to achieve their own objectives for this important phase of training.

5.1. MSTP-Specific Requirements

Participation in MSTP Grand Rounds and activities (Retreat, Conferences, Roundtable Discussions and other events) are still required. Advanced notice provided to students' clinical teams will help them arrange schedules appropriately to allow for participation in MSTP obligations.

5.2. Feinberg School of Medicine Requirements

FSM and TGS recognize the special needs of MSTP students to graduate as quickly as possible and have made accommodations to requirements to expedite graduation. For FSM, this is a 16-week reduction in requirements to graduate. MSTP students must complete 40 weeks of "M3" clerkships (Medicine, Surgery, Primary Care, Psychiatry, Pediatrics, OB/Gyn, and Neurology), 14 weeks of "M4" clerkships (Emergency Medicine, ICU, PM&R, Sub internship), and 4 weeks of elective. This can be completed in 14.5 contiguous calendar months.

5.3. USMLE Step 2

The MSTP requires that all students complete the USMLE Part 2 by December of the M4 year in order to continue receiving financial support.

5.4. Choice of Specialty

At the beginning of the M4 year, students meet with the MSTP Director and discuss choice of specialty and the residency application process. At the meeting the director will review the student's Medical Student Performance Evaluation (MSPE) and provide feedback on it prior to submission to the AWOME.

5.5. Preparing for the Residency Match

During the fourth year, there are multiple class sessions provided by the AWOME to discuss the application process. There is a great deal of information posted on the AWOME website (<http://www.feinberg.northwestern.edu/AWOME/current-students/residency/index.html>) to guide students. This website will provide the most up to date information on registering for Match Services, letters of recommendation, the MSPE and medical school transcripts and photographs.

5.6. Mock Residency Interview Sessions

All M4 students are invited to participate in mock residency interview sessions designed by the MSTP with Northwestern physicians and physician-scientists who regularly interview for Northwestern residency programs. This allows students to practice their interview skills and receive feedback on their interview impression to prepare for interviews at institutions across the country.

5.7. Residency Interviews

Residency programs will contact students to interview soon after the MSPE letter is released in September. Students should reserve at least one month for interviewing; December and January for the general match, November and December for early-match specialties; most programs don't interview between Christmas and New Year's.

5.8. Graduation Week

During graduation week, the Director, Associate Directors and Program Administration organize the Senior Lunch at a local restaurant for the graduating students to discuss their views on the entire training process. Also during the week, the seniors organize and lead a panel discussion, the Passing of the Wisdom, during which they reflect on their training and give advice to their junior colleagues. An MSTP Graduate Reception is also held to honor the graduates. All students and faculty are invited, as are the graduates' families. A brief program permits the MSTP Director and Thesis Advisors to comment on the graduates' accomplishments and toast their futures, and allows the graduates to acknowledge those who have helped them to achieve their goals. This provides a nice finishing touch to the rigorous seven-/eight-year training process. Finally, FSM commencement is held at Navy Pier, constituting the final participation of graduates in the MSTP course of training.



Northwestern University Feinberg School of Medicine Medical Scientist Training Program

Part V: Satisfactory Academic Progress

All MSTP students are recipients of a substantial scholarship that is exclusively based on merit. Each student receives a stipend, tuition credit and benefits totaling over \$320,000 during the medical school phase of their education. The MSTP scholarship is a tangible recognition of the trust placed in the potential of MSTP students. MSTP leadership is charged with ensuring that scholarship recipients live up to their potential and promise. It is the philosophy of the program that MSTP students should engage all of their educational opportunities with their full attention and commitment as a responsibility of their position and profession. Continuation in the MSTP and receipt of the scholarship while in the Feinberg School of Medicine are dependent upon participation in MSTP events and satisfactory academic progress toward the MD and PhD degrees.

1. Feinberg School of Medicine Satisfactory Academic Progress

All MSTP students in the medical school phases of the program must meet all Feinberg School of Medicine (FSM) requirements as described in the FSM student Handbook and Policies found on the following webpage: <http://www.feinberg.northwestern.edu/education/current-students/index.html>, and make satisfactory academic progress toward the MD. Any failure to meet these requirements or to make satisfactory academic progress may result in formal action by the MSTP (see below).

1.1. MSTP Specific Requirements for FSM Phase 1 Satisfactory Academic Progress

Students in FSM take a series of written tests on didactic material during the first two years in order to assess competency in key areas intended to prepare them for clinical medicine. These tests are ultimately “pass-fail”, but students are assigned a Z-score based upon performance relative to the class. Students are also evaluated subjectively in other curricular activities in Phase 1.

During Phase 1 of the FSM curriculum, a Z-score of -1.75 to -2.25 indicates a marginal understanding of the material. This scoring range typically earns a marginal pass grade and reflects performance below the 5th percentile of the class. A Z-score less than -2.25 is typically considered a failing score and reflects performance below the 2nd percentile. While only a failing score requires the test to be remediated, both outcomes are worrisome indicators that the student may not be acquiring the knowledge necessary for advancing in the curriculum. The Senior Associate Dean for Medical Education may refer students who demonstrate “a pattern of examination failures” in the Phase 1 curriculum to the Student Promotions Committee (SPC). Failure to successfully remediate a Block (Foundations Block, Cardiovascular-Respiratory-Renal Block, etc.), will require the student to come before the SPC. Generally, an SPC referral for sustained poor academic performance results in the student being required to repeat the academic year. The Augusta Webster, MD, Office of Medical Education (AWOME) Deans may also require a student to repeat an academic year due to poor performance. In this case, a student may request a referral to the SPC, however these referrals again generally result in the student being required to repeat the year. The SPC may also recommend exclusion (dismissal) from the FSM or allow the student to progress to the next phase of the curriculum depending on the student’s circumstances. Students have the right to appeal SPC decisions to the Student Appeals Committee (see the FSM student handbook).

MSTP Satisfactory Academic Progress during Phase 1 of the curriculum is defined as not being required by the Deans or the SPC to repeat an academic year (Phase 1a or Phase 1b) due to poor academic performance.

1.1.1. MSTP FSM Phase 1 Poor Performance

MSTP students performing in the bottom 5% of the class (or marginally passing or failing assessments) during Phase 1 of the curriculum are considered by the MSTP to be exhibiting poor performance.

1.1.2. MSTP FSM Phase 1 Poor Performance Intervention

There are many reasons for poor performance, and each student will be evaluated on a case-by-case basis. The program will do its part to encourage improvement by following up and advising students who are not performing at a “passing” level. The goal of all intervention is to help MSTP students who are performing poorly to get back on track.

Students exhibiting poor performance on a single test must meet with the MSTP Associate Director to discuss potential reasons for poor performance. This meeting should generate a study and remediation plan and consider whether extra-curricular activities (in the MSTP and FSM) should be curtailed. The student should also meet with their college mentor, who may have additional advice. In some cases, meeting with the Associate Dean of Student Programs and Career Development will be suggested or required to address issues that are not helped through changing study habits. Through the AWOME, FSM has several programs for educational assistance that have benefitted FSM students in the past.

Students with a Z-score placing them in the bottom 5-16% of the class (typically Z-scores between -1.0 to -1.75) are also encouraged to meet with the Associate Director to discuss study habits that may improve performance.

Students performing in the bottom 5% of the class (or who earn a marginal pass or fail) on a second test will be required to meet with both the MSTP Associate Director and Director to re-evaluate potential reasons for poor performance. Consultation with the Associate Dean of Student Programs and Career Development will be required to explore educational support possibilities, such as meeting with a tutor regularly. Regular meetings with the Associate Director may be required to discuss the student’s progress and whether or not performance-improving strategies are helping. Extra-curricular activities will be reviewed and may be limited to encourage focus on studying and gaining a “passing” understanding of the required material. The student in such a situation will be counseled that future poor performance may result in formal action by the MSTP (see below).

1.1.3. MSTP FSM Phase 1 Academic Warning

If a student performs in the bottom 5% of the class (or earns a marginal pass or fail) on three “over all” assessments (e.g. Foundations Part 1 Exam Overall, Foundations Part 2 Exam Overall, Pulmonary Exam Overall) in an academic year during FSM Phase 1a or 1b, they will be given a formal Academic Warning letter stating the student’s poor performance may result in having to repeat the academic year and the potential MSTP consequences (see below). These students will meet jointly with the MSTP Directors to discuss their performance and mutually determine the reasons for poor performance and identify any possible new strategies on how to improve performance. Regular meetings with the Associate Director will be required to discuss student’s progress and whether or not performance-improving strategies are proving effective. These meetings will help ensure that the MSTP and student are coordinating their efforts to explore all available options to help the student improve their performance.

1.1.4. Leave of Absence During Phase 1

A student whose academic performance is deemed by the Senior Associate Dean of Medical Education as satisfactory may elect to take a leave of absence from FSM and return to the MSTP following the leave without consequence. If a leave of absence is taken after a student’s poor academic performance results in the AWOME Deans or SPC requiring the student to repeat the academic year, the student will be placed on MSTP probation when they return to FSM (see below).

MSTP students on Leave of Absence will not receive MSTP stipend support.

1.1.5. MSTP FSM Phase 1 Probation

If a student is required to repeat an academic year because of poor academic performance, they will have failed to make satisfactory academic progress and will be placed on MSTP probation. The student will be notified by a formal letter of their probationary status with regard to the MSTP. The letter will describe the following terms of probation:

MSTP students on FSM Phase 1 Probation will not receive tuition scholarship or stipend from the MSTP.

If the student maintains good academic standing, defined as not marginally passing or failing 3 overall assessments (e.g. Foundations Part 1 Exam Overall, Foundations Part 2 Exam Overall, Pulmonary Exam Overall), for the repeated academic year, the probation will end at the completion of the repeated year, the student will return to good standing in the MSTP, and tuition scholarship and stipend will be reinstated.

If a student takes a leave of absence from FSM during probation, the student will continue their probation status when they return to FSM.

If a student marginally passes or fails 3 overall assessments during the probationary period or is excluded (dismissed) from FSM, the student will be excluded (dismissed) from the MSTP.

If an MSTP student who has already been on FSM Phase 1 Probation is required to repeat an academic year for a second time for poor academic performance, the student will be excluded (dismissed) from the MSTP.

1.2. MSTP Specific Requirements for Satisfactory Academic Progress on USMLE Exams

A passing grade based upon national standards is required on Step 1 for advancing to Phase 2 of the FSM curriculum and is required on STEP 2 CS and CK exams to graduate from the FSM.

MSTP Satisfactory Academic Progress regarding USMLE Exams is defined as passing each USMLE Step exam in no more than three attempts.

1.2.1. MSTP FSM Poor Performance on USMLE Exams

Failing the USMLE Step 1 or 2 is considered poor performance.

1.2.2. MSTP FSM Poor Performance on USMLE Exams Intervention

If a student fails a USMLE exam for the first time, the student will meet with the Associate Director and Director to establish a study plan and determine what study aids will be required to prepare the student to retake the exam and pass.

1.2.3. MSTP FSM Poor Performance on USMLE Exams Academic Warning and Dismissal

Students will receive a formal Academic Warning letter if they fail the USMLE twice, which will explain that if the student fails the exam for a third time, they will be excluded (dismissed) from the MSTP.

Students who fail a USMLE Step exam three times will be excluded (dismissed) from the MSTP.

1.3. MSTP Specific Requirements for FSM Phase 2 and 3 Satisfactory Academic Progress

MSTP students are supported with tuition scholarship and stipend in Phase 2 and 3 for a total of 20.5 months. During this time students are graded in their clinical clerkships using “shelf” boards and other criteria.

MSTP Satisfactory Academic Progress during FSM Phase 2 and 3 is defined as finishing Phase 2 and 3 of the FSM curriculum in no more than 20.5 months.

1.3.1. MSTP FSM Phase 2 and 3 Poor Performance

Receiving a failing grade (“Pass pending remediation”) in a clinical clerkship is considered poor performance.

1.3.2. MSTP FSM Phase 2 and 3 Poor Performance Intervention

If a student receives a failing grade (“Pass pending remediation”) in a single clinical clerkship for the first time, the student will meet with the Associate Director and Director to determine a study plan and confirm a remediation plan to repeat the clerkship.

1.3.3. MSTP FSM Phase 2 and 3 Academic Warning

Students will receive a formal Academic Warning letter if they fail (“Pass pending remediation”) a single clinical clerkship, or are at risk for not finishing Phase 2 and 3 within the 20.5 month time limit due to not having completed the required clerkships to graduate. The letter will explain that if more than 20.5 months of clinical clerkships are required to complete Phase 2 and 3 of the FSM curriculum a student will lose their tuition scholarship and stipend support for the additional time required to graduate.

Students who require more than a total of 20.5 months to complete Phase 2 and 3 of the FSM curriculum, will not continue to receive MSTP tuition scholarship or stipend for the additional time required to graduate from FSM.

2. The Graduate School Satisfactory Academic Progress

All MSTP students in the research phase of the program must make satisfactory academic progress as described by The Graduate School (TGS).

(<http://www.tgs.northwestern.edu/academics/academic-services/satisfactory/>)

Failure to do so may result in formal action by the MSTP (See below).

2.1. Graduate Program Satisfactory Academic Progress

All MSTP students in the research phase of the program must make satisfactory academic progress towards the PhD degree as described in their Graduate Program’s handbook or website:

DGP: <http://www.biology.northwestern.edu/igp/current-students/student-handbook/>

IBiS: <http://www.ibis.northwestern.edu/forms/Program%20Guide.pdf>

NUIN: <http://nuin.northwestern.edu/program-and-curriculum/steps-to-the-phd/>

BME: <http://www.bme.northwestern.edu/graduate/phd/index.html>

CHEM: <http://www.chemistry.northwestern.edu/documents/graduate/chemistry-phd-handbook-2013.pdf>

ChBE: http://www.chbe.northwestern.edu/docs/2014_PhD_Handbook.pdf

MSE: <http://matsci.northwestern.edu/graduate/current/phd-student-handbook.html>

These criteria may be in addition to those described by TGS.

2.2. MSTP Specific Requirement for Graduate Phase Satisfactory Academic Progress

TGS describes specific criteria for Satisfactory Academic Progress and exclusion (dismissal) from TGS. While other graduate programs may or may not be as explicit as TGS with their specific criteria, TGS will have the final say in the process of exclusion (dismissal) from both the graduate program and TGS.

MSTP Satisfactory Academic Progress during the Graduate Phase is defined as continuing to make progress toward a PhD, unless on a leave of absence, and not being excluded (dismissed) from a graduate program and/or TGS.

2.3. Graduate Phase Poor Performance Intervention

A student in danger of failing to make satisfactory academic progress while in the graduate phase of training should notify the MSTP Associate Director immediately. The Associate Director will work with the student and advocate on the student's behalf to properly remediate the situation.

Any student that fails to continue making progress toward a PhD, unless on a leave of absence, or is excluded (dismissed) from a graduate program and/or TGS will be excluded (dismissed) from the MSTP.

3. Exclusion (Dismissal) from the MSTP

Students will be formally excluded (dismissed) from the MSTP (forfeiting further stipend and tuition scholarship from the MSTP) in any of the following circumstances:

- If a student on MSTP FSM Phase 1 Probation marginally passes or fails 3 overall assessments during a repeated academic year
- If a student has already been on MSTP FSM Phase 1 Probation and is required to repeat a second academic year due to poor academic performance
- If excluded (dismissed) by FSM
- If excluded (dismissed) from a graduate program and/or TGS
- If a student fails a USMLE exam three times

3.1. Notification of Exclusion (Dismissal) from the MSTP

Students will be notified in writing that they are excluded from the MSTP within five business days of the determination, and the notification will include an effective date of exclusion and a clear statement of the reason(s) for exclusion. The MSTP will also notify TGS and FSM of this decision and include a copy of the exclusion letter.

3.2. Exclusion (Dismissal) from the MSTP and Continuation in FSM or TGS

Students that are excluded from the MSTP are not automatically precluded from continuing on in FSM or TGS unless a student is specifically excluded by those schools.

4. Appealing an MSTP Probation or Exclusion (Dismissal) Decision

Probation and exclusion (dismissal) from the MSTP will require the consensus of all Directors. A student has the right to appeal an MSTP decision that results in probationary status or exclusion to the Feinberg School of Medicine Vice Dean for Education.

4.1. MSTP Appeals Process

A written request for appeal must be made to the Feinberg School of Medicine Vice Dean for Education within two weeks of the date of the MSTP decision and must indicate the basis for the appeal. The Vice Dean for Education may disallow the appeal if these conditions are not met.

The Vice Dean for Education will arrange for an ad hoc MSTP Appeals Committee to review the student's written appeal, meet with the student, and recommend action to the Feinberg School of Medicine Dean. The MSTP Appeals Committee will review earlier actions and recommendations of the MSTP to ensure that

deliberations were conducted fairly and equitably, conclusions reached were justified, and any actions imposed were appropriate.

4.2. MSTP Appeals Committee

The MSTP Appeals Committee will consist of three members of the FSM faculty familiar with the MSTP and an MSTP student council representative. The appealing student has the right to appear before the MSTP Appeals Committee to present his or her case and may be accompanied by a support person who is a member of the Northwestern community (e.g., close friend or faculty adviser), but not a practicing attorney. This person may be present for support at the hearing but cannot directly address the appeals committee.

Following its review, the MSTP Appeals Committee will recommend either that the Dean sustain the original decision of the MSTP or modify the MSTP's decision.

The Dean may accept, reject, or modify the recommendation of the MSTP Appeals Committee. In considering the recommendation of the MSTP Appeals Committee, the Dean also may wish to examine related documents and meet with the student and/or others. The Dean then will notify the student of the appeal decision directly.



Northwestern University Feinberg School of Medicine Medical Scientist Training Program

Part VI: Program Benefits and Administrative Matters

1. Financial Information

1.1. Managing Your Student Account

Although tuition and health insurance costs are covered by the MSTP and/or graduate department, it is still very important that students take responsibility for their own student accounts. There are some charges that students are responsible for and failure to pay them may result in late fees and account holds imposed by the Office of Student Accounts (http://www.northwestern.edu/sfs/contact_us/index.html). Some of the charges that students are responsible for include the following:

- Student Activity Fee (covers the cost of the CTA U-Pass)
- Optional Dental Insurance Fee
- Health Requirements Late Fee
- Wildcard Replacement Fee
- Parking Permit Fee
- NU Library Late Fee

Student accounts can be accessed using the CAESAR (<http://www.northwestern.edu/caesar/>) system. CAESAR can also be used to make online payments, change billing addresses, allow guest access to bills and financial information, apply for student loans and request refunds. The following link provides guides to chart pathways to common tasks in CAESAR. http://www.northwestern.edu/sfs/online_services/caesar_howto.html.

1.2. Stipend

The MSTP financial aid package includes an annual stipend (\$30,792 in 2016-2017) that increases annually consistent with increments within the University Fellowship system. MSTP students are paid on a monthly basis and receive pay on the last business day of the month via direct deposit set up through Northwestern's Payroll Office. New MSTP students also receive a one-time moving allowance of \$500 included in the September paycheck of the M1 year.

1.3. Funding during M1-M2 year

Student funding during the M1 and M2 years is managed by the MSTP Office and includes the monthly stipend payment, full tuition scholarship and health and disability insurance premium payments. During the M1 and M2 years students are either funded through the MSTP NIH T32 NRSA training grant or through the Feinberg School of Medicine (FSM) institutional funding.

1.4. Graduate School: Tuition and Stipend

During the graduate phase, tuition payments are the responsibility of the thesis advisor. These payments are typically managed by the academic department's business administrator on behalf of the advisor. Again, it is important for students to monitor their own accounts and to be familiar with their departmental business administrator in order to resolve any issues that may arise during this time. The MSTP office will also continue to monitor student accounts and send reminders about any missed payments, but this is ultimately the responsibility of the student. MSTP students continue to be supported by an annual stipend throughout the graduate phase at the standard MSTP rate. Depending on the student's post M2 year summer activities, the MSTP will continue to pay students' stipend into the fall quarter of their G1 year (up to three months). After that time, the stipend is the responsibility of the student's advisor and is again managed by the appropriate

departmental business administrator.

1.4.1. Other Funding Sources During Research Training

There are training grants and other opportunities for which students will be eligible. When students apply to any fellowships, whether internal or external, the MSTP Director will write a strong letter of support when appropriate. If students are appointed to any other training grant or individual fellowship they should notify the MSTP Program Coordinator. Stipend and tuition will continue to be supplemented when necessary by the student's thesis advisor.

1.4.2. Teaching Assistantships

MSTP students are required to fulfill the teaching assistant (TA) requirement of their chosen graduate program and should consult with their Thesis Advisor and the graduate program Director or Faculty Advisor to determine how to do this. Most programs require students to serve as TA's for at least one quarter as this is an important aspect of graduate training.

1.4.3. Paid Employment During Research Training

MSTP students must not engage in any remunerative work without written prior approval by both the MSTP and the thesis advisor.

1.5. Funding During M3-M4 Year

Student funding during the M3 and M4 years is administered by the MSTP Office. The office will work with students' graduate departments to ensure a seamless transition. In the case that a student has a fellowship that includes support during the clinical years, that fellowship will continue to be administered by the graduate department who will work with the MSTP to ensure that all funds are taken advantage of appropriately.

A travel allowance of \$3000 will be provided during the M4 year to help cover travel during residency interviews. The MSTP Program Coordinator will coordinate with students to ensure the award is provided in a timely manner.

1.6. Insurance

Proof of health insurance is required for all NU students at the time of matriculation and annually thereafter. New students are required to complete the online Coverage Selection Form (CSF) to either enroll in or waive the NU/Aetna plan. Failure to complete the online Coverage Selection Form will result in automatic enrollment in the NU/Aetna plan. If students are covered by their parents or spouse, they do not have to enroll in Northwestern University's student health insurance plan. In order to decline Northwestern's student health insurance plan, they have to provide a photocopy of their current enrollment in another plan. Returning students do not need to submit a Coverage Selection Form if they wish to keep their insurance selection from the previous Academic Year. Their prior selection "rolls over" to the next Academic Year based upon their continued class registration. MSTP covers the cost of the student health plan during the medical school years and The Graduate School provides a subsidy during the PhD phase to cover this cost. The MSTP pays for disability insurance coverage costs throughout a student's time in the program. For more information regarding benefits visit www.aetnastudenthealth.com. Click on "Find Your School" and enter 812845 as the Policy Number

1.7. University Fellowship & Scholarship Regulations

All students receiving financial support administered by the University must be registered full-time. MSTP students are supported year-round and thus must be registered full time either throughout the year through FSM registration or all four quarters (including summer) of The Graduate School (TGS) academic year. This is consistent with the TGS policy regarding recipients of university assistance and more information can be found on their website:

<http://www.tgs.northwestern.edu/financial-aid/fello-schola-grants/regulations-guidelines/index.html>.

1.8. Taxes

Because of possible financial implications, the MSTP cannot offer any specific tax advice. Please refer to the webpage (<http://www.northwestern.edu/hr/payroll/tax/>) published by the NU Office of Human Resources for more information. Additionally, the following IRS webpage (<http://www.irs.gov/Individuals/Students>) may be helpful.

1.9. Emergency Loans

In the case of a financial emergency, MSTP students are eligible to receive a short-term emergency loan from the Office of Financial Aid. The emergency loan program is intended to assist students with an unexpected, short-term financial emergency. The emergency typically is not related to students' financial aid awards nor the direct costs associated with attending Northwestern University. For more information about this program please visit the Financial Aid website:

http://chicagofinancialaid.northwestern.edu/financial_planning/short_term_loans.html.

1.10. Travel to Conferences and Career Development Courses

The MSTP is supportive of student's professional development endeavors and provides funds supporting students traveling to conferences and/or seminars to make presentations on behalf of the University. The MSTP may provide a grant of up to \$500 once per academic year per student for this purpose. These funds are intended to supplement other university funding and students should simultaneously apply for a TGS travel grant (<http://www.tgs.northwestern.edu/financial-aid/fello-schola-grants/university-fello/travel/>). The MSTP travel grant application may be obtained by emailing the program coordinator.

The MSTP also offers a one-time Heller Travel Award of up to \$2500 to help support attendance of special courses or other educational opportunities that would aid in scientific development. A letter describing the nature of the activity to be attended and its relevance to a student's thesis project or career development is required and will be reviewed by the directorship for approval. The MSTP will split the cost 50/50 (providing up to \$2500) with the student's advisor for the travel.

2. Campus Services

2.1. Student Health

The University maintains a health service for students on the Evanston campus at Searle Hall, 633 Emerson Street and for students on the Chicago campus at the Northwestern Medical Faculty Foundation, 675 N. St. Clair St., Suite 18-200. All full-time students are eligible to use the outpatient services. Both the Evanston (<http://www.nuhs.northwestern.edu/evanston/default.aspx>) and Chicago (<http://www-chicago.nuhs.northwestern.edu/>) offices have comprehensive websites that describe services, hours, and enable students to schedule appointments online.

2.2. CAPS

Northwestern University's Counseling and Psychological Services (CAPS) provides counseling to individuals and groups as well as workshops and outreach programs. CAPS has a team of highly qualified and experienced mental health professionals who are dedicated to helping students work through developmental needs, emotional difficulties, adjustments, and crises. CAPS can also be helpful if students have a friend in need. CAPS also holds workshops covering topics such as stress management, mindfulness and drop-in meditation sessions. More information on CAPS can be found by visiting their website (<http://www.northwestern.edu/counseling>) or by calling 847-491-2151.

2.3. Office of Diversity

The Office of Diversity (<http://www.feinberg.northwestern.edu/diversity/about/index.html>) works with Feinberg students, residents, staff, and faculty to further their mission to achieve a campus environment of belonging and inclusion for all. Through mentoring programs, community partnership, recruitment initiatives and inter-campus cooperation and collaboration, they strive to help facilitate success in every domain. The MSTP considers community a strength of the program and encourages students to learn more about the Office of Diversity's programs and initiatives.

2.4. The Graduate School Lawyer paid in Activity Fee

A part of the TGS student activity fee goes towards providing an attorney to assist students with legal issues such as landlord, traffic, credit, or debt problems and to support the community building grant activities. For more information about Legal Services please visit their website:

<http://www.tgs.northwestern.edu/graduate-life/legal-services/>.

2.5. Conflict Resolution

Please visit the following webpage published by The Graduate School as a resource on how to manage various types of conflict that may arise. This page lists the various resources available on campus as well as a chain of communication for students dealing with different types of conflicts.

<http://www.tgs.northwestern.edu/graduate-life/dealing-with-conflict/index.html>

2.6. Gym Access

All full-time students have access to special gym privileges on both the Evanston and Chicago campuses. On the Evanston campus memberships are managed by the Department of Athletics and Recreation (<http://www.fitrec.northwestern.edu/>) and includes complimentary access to the Henry Crown Sports Pavilion/Norris Aquatics Center, Patten Gymnasium, and Blomquist Recreation Center by presenting a valid WildCARD. Northwestern students and employees based on the Chicago campus are eligible for discounted membership to The River East Club and the Chicago Park District's Lake Shore Park Field House. Learn about amenities, eligibility and membership (http://www.northwestern.edu/userservices/fitness/chicago_campus.html).

2.7. U-Pass

The U-Pass (<http://www.tgs.northwestern.edu/graduate-life/u-pass/>) is a discounted fare card that is good for travel on all Chicago Transit Authority (CTA) and Pace busses and elevated train/subway routes (does not include Metra trains). Students in both FSM and TGS receive U-Passes, which is covered by the Student Activity Fee that is paid annually by medical school students and quarterly by graduate phase students.

3. Other MSTP Activities

3.1. MSTP Coffee Talk with the Directors

Students have an opportunity to engage in group discussion with the MSTP Director, Associate Directors and Associate Director at monthly MSTP Coffee Talk Discussions. A variety of issues are discussed, including course of training, financial support, residency applications, and curricular issues.

3.2. MSTP Women's Forum

Each year the women in the MSTP Women's Forum invite women physician-scientists to discuss the particular challenges they will face balancing family life and career. The Women's Forum introduces students to many role models and their strategies for their career success. Occasionally, professional couples discuss how to balance two careers in the Family Forum.

3.3. MSTP Visiting Scholar Series

MSTP students host world-class physician-scientists to visit Northwestern to give a formal research seminar to the community and to meet informally with MSTP students over lunch or dinner. At the event, the scholar describes his/her career course, including the reasoning behind career decisions and advice on how MSTP students might approach them. Although there are many research seminars on the three campuses, the MSTP Visiting Scholar Conference brings all the students together in a social setting and allows them to learn first-hand the varied paths to successful careers in academic medicine.

3.4. MSTP Clinical Exploration Program

There are many opportunities for students to participate in patient care during the research phase. The most common include: (i) joining an Education-Centered Medical Home (ECMH) either during the preclinical years and continuing on during the graduate phase or at some point during the graduate phase. The ECMH is a four-year, longitudinal, ambulatory experience based in existing primary care clinics where multi-level student teams (4 from each class) work collaboratively to care for “high-risk” patient panels. Learn more here:

<http://www.feinberg.northwestern.edu/education/curriculum/learning-strategies/index.html>. (ii) working at one of the Chicagoland clinics to maintain their clinical skills, some of which are run by Northwestern students and attending physicians (Chinatown Clinic, Community Health Clinic, Chicago Youth Programs Clinic, Devon Clinic, and New Life Volunteering Society Clinic), (iii) attending morning report in a variety of specialties, (iv) half-day clinics, typically in the specialty area of interest with a physician-scientist (these relationships often begin in the pre-research clinics). Students should begin to define their clinical interests as early as possible so that they may schedule their core M3 clerkships in a logical order. Students are also encouraged to get to know the chairs and faculty of the departments of interest who provide advice on research residency choices and write letters of recommendation.

3.5. Outreach and Service Opportunities

There are many outreach and service opportunities available for MSTP students. Science in Society is a Northwestern University outreach initiative connecting science to the community. For a full list of their initiatives please visit their website. The Department of Family and Community Medicine’s Chicago Community Engagement Program (CCEP: <http://www.familymedicine.northwestern.edu/CCEP/>) also facilitates a wide range of activities and opportunities for involvement.

3.6. PRomoting Inner-city youth in Science and Medicine - PRISM

PRISM is a mentorship program conceived and launched by MSTP students and funded by the MSTP. The program pairs MSTP students from Northwestern University with Chicago area high school students at the Robert R. McCormick Boys and Girls Club in the Uptown neighborhood of Chicago. Meeting twice a month throughout the academic calendar, PRISM aims to increase the scientific and medical knowledge of underprivileged high school students while also providing them with the exposure to careers in science and medicine. In order to meet these objectives, PRISM quarterly modules integrate didactic learning with laboratory experimentation, medical and scientific field trips, and career information sessions each quarter. For more information on how to get involved with the PRISM program explore the website: <http://www.feinberg.northwestern.edu/sites/mstp/about-us/prism/index.html>.

3.7. Diverse Perspectives of Physician-Scientists (DPPS)

In the Spring of 2015 the MSTP Student Council hosted the inaugural speaker for a new program lecture series titled “Diverse Perspectives of Physician- Scientists”. The goal of this lecture series is to expose current trainees to physician-scientists who either identify as an underrepresented minority in medicine and/or treat/research populations where health disparities exist. A second speaker has since participated and the program will continue to support this biannually.

3.8. National MD-PhD Conferences

Northwestern MSTP students participate in the Annual National MD-PhD Student Conference, held in Colorado and hosted by the University of Colorado MD-PhD students, as well as the American Physician Scientist Association (APSA) National Conference held in conjunction with the joint meeting of the American Society for Clinical Investigation and the American Association of Physicians. These conferences provide a forum for interaction with MSTP students from throughout the country. Northwestern students have won awards for best oral presentation and best poster and have also received diversity travel awards to participate in these motivating meetings.