



SCHOOL OF MEDICINE

Medical Scientist Training Program

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

General Student Handbook

Academic Year 2023-2024

Updated May 2023

Table of Contents

Expectations of MST Program Students		
● Expectations for PhD Training	.....	3
● Expectations for Clinical Training	.....	4
● Expectations for Professionalism	.....	4
General Information		
● Welcome	.....	5
● Student Assistance	.....	5
● Program Direction	.....	6
● Program Information	.....	6
● Program Faculty	.....	7
● New student Information	.....	8
● Financial Support	.....	9
● Student Health Insurance	.....	10
● ID Cards/Badge Access	.....	10
● Tuition Bills	.....	11
● Establishing Colorado Residency	.....	11
● Change of Address	.....	12
● Publications and Acknowledgements	.....	12
● Participation in Recruitment Functions	.....	12
● Annual National MD, PhD Student Conference	.....	12
● Vacations	.....	13
● MSTP Travel Funds	.....	13
● Alpha Omega Alpha Selection	.....	13
● Office Resources Available		
● Mental health Resources Available		
MST Program Alumni		
● Mailing List	.....	14
● Publications, Positions and Funding Support	.....	14
Leave of Absence Requests	.....	14
Dismissal and Appeal Policies	.....	15
Appendix		
● Departmental Graduate Programs	.....	17
● T32 Funded Programs	.....	18
● Executive Committee Members	.....	19
● Steering Committee Members	.....	19
● Funding Sources	.....	19
● Forms	.....	23

Expectations of MST Program Students

The key expectation of each student admitted into the CU Anschutz Medical Campus Medical Scientist Training Program is that they take full advantage of all CU Anschutz resources and couple that with personal responsibility and the highest professionalism to achieve optimal success. This Handbook details the Program Requirements. MSTP students (MSTPs) will participate in combined medical and graduate school training. There are clear and tangible academic and research milestones every MST Program student must meet. It is expected that students will obtain passing grades in all coursework, successfully complete at least two research rotations, pass the MSTP Graduate Preliminary exam and USMLE Step I and II exams, and successfully complete and defend their PhD thesis.—Students should begin thesis research and successfully pass the Comprehensive Exam within one year of entering the lab. During this first thesis year, students will organize the National M.D.-Ph.D. Student Conference. In subsequent years of thesis research, the milestones depend on the specific research project and laboratory PI and graduate program requirements; student success relies on their self-motivation, intellectual drive, hard work, professional communication, and effective coordination of their schedules and transition requirements. Graduate school is not a job – it is training for a challenging career. Throughout the years of thesis work, MSTPs are required to register for the Longitudinal Foundations of Doctoring (FOD) course in 2 terms annually (Fall and Spring). They will enroll into the Capstone return-to-clinics course in their last year of thesis training, replacing FOD in the spring term. The Thesis Advisor and Committee and MSTP leadership provide scientific and professional guidance and support, but ultimately it is the student's drive, determination, and motivation that allow them to successfully complete their dual-degree program. The Thesis Committee will consist of faculty members of the student's graduate program as well as an associated MSTP faculty member. It is the student's responsibility to utilize his/her Thesis Advisor and Committee to lead a successful graduate experience and career. Ultimately, the student determines his/her/their success!

Expectations for Ph.D. Training

The MST Program has the following expectations for a student's thesis years:

1. A student should be self-motivated. Motivation should be intrinsic and not be determined by the mentor or arbitrary deadlines.
2. A student should work the necessary hours in the lab to complete his/her/their experiments. Graduate school is not a five-day a week, 9-5 job. The effort that students put in will be reflected in their success and the timetable for their graduation.
3. A student should be intellectually engaged in their research project. The mentor often initially conceives the project. However, by the Comprehensive Exam, the student should be actively participating in experimental decisions and research directions. In subsequent years, the student should take progressively more control in the execution and direction of their research. Conversely, a student may design his or her own project and have it critiqued and approved by the advisor.
4. A student must take initiative for his/her/their career and be accountable for successes and failures in research. If things are not working in the lab, the student should coordinate with the advisor to find a solution. The Thesis Advisor and Committee exist to help students, but students must be proactive.

5. A student must adhere to their PhD Program specific handbook in regard to program policies, codes of conduct, and expectations.
6. Students should exhibit high levels of professionalism, monitor and reply to all SOM, PhD program, and MSTP messages and requests, and maintain the highest standards for academic integrity and consistent engagement.

Expectations for Clinical Training

The MST Program has the following expectations for a student's clinical training.

1. A student should master all the elements of medical student training, including taking a clinical history, performing a physical exam, writing comprehensive and focused patient notes, generating complex differential diagnoses, correctly interpreting clinical tests, communicating effectively with patients, their families, and members of the medical team, developing thoughtful and informed patient assessments and plans, and devoting the time and study for the highest achievement possible in their courses and exams.
2. A student should have working knowledge of how to participate and contribute to a clinical team in outpatient and inpatient settings and they should acquire all the advanced clinical experiences and sub-internships to prepare for a successful residency match and internship year. Physician-scientists should be able to use the literature to answer both clinical and research/translational questions.
3. A student should maintain professional behavior, communication, and interpersonal conduct at all times. Professionalism includes, but is not limited to, working as part of the team, contributing to all aspects of patient care, responding to emails in a timely fashion, knowing and meeting all deadlines, showing up on time and becoming familiar with the current and relevant clinical literature. A student must adhere to the School of Medicine's Policies and Procedures in regards to codes of conduct and expectations. See SOM Policies and Procedures [HERE](#).

Expectations for Professionalism

The Medical Scientist Training Program has the following general expectations for an MSTP student:

1. A student must respond to emails from MSTP, the SOM, the Graduate School, Graduate Programs, and mentor(s) in a timely manner (***within 4 hours if urgent and within 24 hours if not urgent***).
2. A student must notify the MSTP and SOM if they travel for any personal reason and expect to be away during class time; and notify their PhD mentor if they travel during the research period.
3. Professional behavior is expected at all times. Self-reflection to assess whether the student is behaving in the most appropriate and professional manner will be expected.

Over the past decade, many medical and graduate school curricula have dealt with issues related to student professionalism. We expect that MST Program students will maintain the highest standards of professionalism throughout their training and career. Failure to meet these expectations can lead to dismissal from MSTP (see page 15). MSTP trainees should recognize the additional responsibilities

and work they perform compared with single degree PhD or MD students and work for seamless integration into both peer groups.

What do we mean by the term “professionalism”? We expect students to demonstrate:

- *honor and integrity*: being honest and answering questions truthfully
- *excellence and scholarship*: reading papers related to clinical situations and research while doing clerkships
- *respect*: across the board - of patients, other health care professionals, instructors, other students, and members of a research team
- *leadership*: mentoring those that can benefit from your knowledge and organizing a team or group with which you work; insight
- *accountability*: strong work ethic; timeliness; responding in a timely manner to e-mails sent by administration, advisors, instructors; commitment; dedication; legal/policy compliance
- *responsibility*: motivation; self-evaluation; independence; taking the initiative to communicate regularly with faculty advisors, especially in matters related to research and progress within the graduate program
- *caring and compassion*: communication; empathy; sensitivity; tolerance; openness
- *altruism*: helping others who are busy; participation in student or school organizations

Student Assistance

MSTP leadership and administration support our students throughout their dual degree training (and beyond) and are available to meet with students at any stage of training to help navigate questions, concerns or struggles. The MST Program and the School of Medicine have tutoring services available. Any student having difficulties in their classes should contact the MST Program Office immediately. With approval from the Director or Associate Directors, the MST Program may assist with tutoring fees and may help pay for additional preparatory courses. Please seek help early, as course remediation can delay student progress through an already tight timeline.

Office Resources Available to MST Program Students

- ❖ Books, Test Prep Materials and MST Program Student Theses (Available in the MSTP office)
- ❖ Color Printer, *when necessary* (MST Program Office)
- ❖ Mail Box in MST Program Office (Campus Box C290)
- ❖ Black and White Copier
- ❖ All the materials available in your medical school and graduate program

Mental Health Resources Available to MST Program Students

- ❖ [Campus Mental Health Services](#)
- ❖ [CARE – Campus Assessment, Response & Evaluation Team](#)

General Information

Welcome to the Medical Scientist Training Program

At the University of Colorado School of Medicine and Graduate School, the MST Program targets highly motivated students interested in a career in research and academic medicine. The successful student receives both the M.D. and Ph.D. degrees at the completion of the curriculum. Upon entering the program, students take a combined medical and graduate school basic science curriculum designed to provide the scientific basis necessary both to biomedical research and medical practice. Students rotate through two to three research laboratories to obtain substantive research experience prior to the choice of a laboratory for thesis work. During the subsequent three to four years, the students enter a graduate program in one of the basic science departments fulfilling the requirements for the Ph.D., including successful defense of a dissertation and publication of at least one paper in peer reviewed journals, although requirements for completion of the PhD differ by graduate program. In the last portion of the program, the students return to the medical school curriculum to complete their clinical training.

Program Direction

The Program is overseen by a Director and two associate director positions. MSTP Admissions is supported by a Director of Admissions.

The program's current leadership consists of:

Program Director: **Cara Wilson, MD**

Associate Program Director: **Joe Hurt, M.D., Ph.D.**

Associate Program Director: **TBD**

Admissions Committee: **Thomas (Tem) Morrison, Ph.D.**

Faculty Credentials: **Matthew Taylor, MD, Ph.D. and Kristi Anseth, Ph.D.**

Program Contact Information

Medical Scientist Training Program (MSTP)
University of Colorado Anschutz Medical Campus
13001 E. 17th Place, Room W5119
Fitzsimons Building, Mail Stop C290
Aurora, CO 80045
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T (303)724-4600

Dr. Cara Wilson, Director
Cara.Wilson@cuanschutz.edu

Chris Sienza, Program Manager
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Dr. K. Joseph Hurt, Associate Director
k.joseph.hurt@cuanschutz.edu

Katherine Doyle, Program Coordinator
katherine.doyle@cuanschutz.edu

Program Faculty

For a complete list of all current MST Program training faculty, please visit our [Faculty Website Page](#).

MST Program Faculty: Thesis Advisors

The primary mission of the Program thesis faculty is to provide MSTP students with a broad understanding of the basic sciences and rigorous training directed at the interface of scientific research and medicine. It is a major goal of the graduate faculty that MST Program students receive a thorough grounding in basic research. The most important element in this portion of their training is the choice of a thesis advisor. Training faculty members are recruited from the CU Anschutz faculty, CU Boulder faculty, and National Jewish Hospital faculty and must meet the following rigorous criteria:

- Program faculty must be engaged in an independent, active, and funded research
- Program faculty must have a record of training graduate students and postdoctoral fellows for research in basic biomedical science (or for new faculty members, an interest in training)
- Program faculty should maintain a laboratory environment suitable for training graduate students and with adequate physical space for the student.
- ***Program faculty must have a primary or joint appointment in a basic science department and must be a member of the Graduate faculty. Program faculty must also have an appointment in the MST Program.***
- Program faculty should show enthusiasm for training dual degree MST Program students
- Program faculty must agree to undergo regular Mentor Training

MSTP Appointment Process

Faculty must have both a degree-granting PhD program and an MST Program Appointment to be a rotation or thesis advisor for any MSTP student. This appointment ensures that faculty meet the program's expectations with regards to lab environment, funding for students, mentorship experience, and appreciation for the physician scientist career path. The MSTP maintains a database of faculty with current MSTP appointments [here](#). Junior faculty may apply to join MSTP faculty in mentored status and would require co-mentorship by a senior investigator to host a student in their lab.

Students are welcome to recruit new faculty for consideration of an MSTP appointment. This is an important mechanism by which new faculty are brought into the program. Faculty who are interested in pursuing an MSTP Faculty Appointment must contact the MSTP Program Administration for further instruction. Faculty must have a **permanent primary appointment** with an MSTP-associated PhD program as a prerequisite for consideration of an MSTP Appointment.

Faculty who are interested in an MSTP appointment will be asked to submit an application packet which may include:

- Cover letter stating interest in training dual-degree students and why their research is topical
- Complete updated Curriculum Vitae (CV)
- Updated NIH Biographical Sketch
- Training record of students and fellows

- Current grant support - internal and external.
- Letter from Department Chair: this letter should include a statement of support/recommendation for taking MD-PhD dual degree students into the faculty member's lab as well as a stated commitment to financial support for these students should the faculty member lose funding at any time during their training while in the lab

The faculty application packet will be reviewed by a dedicated faculty credentials committee comprised of current MSTP faculty who have been appointed by the MST Program Director. If the committee supports an appointment, the application will then be submitted to the MSTP Executive Committee for final approval. **This process can take more than 1-2 months and students should plan accordingly if they are interested in pursuing a lab rotation or thesis project with a previously unaffiliated faculty member.** Faculty may host a student for a lab rotation without an MSTP Appointment provided that the arrangement is approved by the MSTP Program Director in advance. The faculty member will be expected to submit an appointment application packet during this lab rotation or else will be ineligible to accept any MSTP student into their lab for a thesis project.

New Student Information

The successful applicant to the MST Program enters the University of Colorado with dual status as a medical and a graduate student. The School of Medicine (SOM) Admissions Office handles all the necessary paperwork for admittance to the School of Medicine and plans an orientation week before the MSI (Plains) fall semester. **This SOM Orientation is REQUIRED.** Throughout the summer, students will receive several communications regarding Student Orientation Week. Please notify the School of Medicine of any postal or email address change to avoid a delay in receiving this important information.

The MSTP Office handles all the necessary paperwork for admittance to the Graduate School (GS) and plans a MSTP-specific orientation prior to the SOM orientation and the start of the fall semester. Eligibility for admission to the Graduate School cannot be approved without the submission of the following:

- Official Transcript(s) from each College/University attended, including international institutions. Transcripts are not shared between the SOM and Graduate School unless requested. All transcripts must be received directly from the university and should not be handled by the student at any time.
- Final Transcript(s) from degree-granting institution documenting receipt of the undergraduate degree
- Tuition Classification for Colorado Residency. You will submit a form for both the SOM and GS

New-Student Orientation

Shortly prior to the start of the fall semester, an orientation is scheduled to bring the new MST Program students together with key faculty and MST Program personnel. Representatives from the Medical and Graduate Schools are present to outline requirements and answer any questions. Students receive an orientation packet containing specific programmatic information and other forms.

Email Communications

All communication relating to MSTP, Graduate School, School of Medicine, Faculty, and Staff must be with a “cuanschutz.edu” email address; personal accounts such as gmail or yahoo should not be used. Students on the Boulder campus during their thesis years may use the “colorado.edu” as a secondary email address, but emails coming from Anschutz Medical Campus should be set to forward from their “cuanschutz.edu” email first.

A student must respond to emails from MSTP, the SOM, the Graduate School, Graduate Programs, and mentor(s) in a timely manner – within 4 hours if urgent and within 24 hours if not urgent. If a student does not respond in a timely manner, they may miss important deadlines and opportunities. This is a matter of routine professionalism and respect for the time and efforts of the program administration and MSTP, SOM, and Grad School leadership.

New Student Paperwork: Payroll

Before students can receive a stipend, they must fill out the appropriate paperwork with the MST Program. The Program Administrator will submit onboarding requests for each incoming matriculant to the campus Human Resources office. A representative from the human resource office will contact each matriculant with further instructions on any forms or documentation that is required to complete onboarding into the CU Employee systems. Incoming students must respond to all outreach from the human resources department in a timely manner and provide all documentation and forms that are required by the requested deadline(s). Failure to do so may delay the distribution of a student’s initial stipend payments until all issues have been addressed.

The student’s stipend will be paid monthly on the last working day of the month (or as deemed by the State of Colorado). T32 Trainees are exempt from taxes on paychecks; however they may still be required to pay taxes at the end of the year.

The MSTP Office does not give out tax advice. Students should consult with a tax professional and the IRS website.

Financial Support

Accepted students receive full funding, including a stipend (currently \$37,000/year, as of January 2023), tuition, health and dental insurance, and fees for the entire period of study*. The MST Program provides financial support during the students’ medical school program years, whereas the PI/thesis mentor and/or graduate program provides support during the students’ thesis years. Continued support is contingent upon satisfactory academic, research, and professional performance by the student.

Deficient performance in any one of these areas can be grounds for dismissal from the MST Program or graduate program in which they are completing their PhD work, and result in termination of financial support (i.e., payment of tuition, fees, and stipend) provided by the MST Program or by the PI/mentor.

When a student enters a thesis lab, the thesis mentor assumes complete responsibility for the student’s stipend, tuition, fees, and associated research costs. Both the MST and Graduate Program strongly encourages students to apply for fellowship support during the research years (e.g., F30 or F31, other local and national training grants). Please refer to the Appendix for agencies that support M.D./Ph.D. students. The student returns to MST Program support after successfully defending a thesis and returning to medical school, unless other funds have been obtained.

***Students who transfer to The University of Colorado Boulder or National Jewish Health for their Ph.D. should check with their Ph.D. Program for details regarding financial support.**

These programs may vary slightly in their financial support and supporting medical insurance compared to what is provided on the Anschutz Medical Campus. Check with the MSTP Office for details of transferring to Boulder.

Qualification for financial aid may be affected for students assigned to the MSTP NIH T32, an F30 or F31 slots.

Student Health Insurance

All students are required to be covered by health and dental insurance. Students will be automatically signed up for the University Student Health Insurance Program when registered for a minimum of 3 credit hours unless they have alternate health insurance in place and specifically waive the University plan. If a student plans on waiving University insurance, they must fill out a waiver form through the [Office of Student Health Promotion](#), and follow the office's deadlines before the fall and spring semesters. When in medical school years, students must notify the MST Program Office if he/she plans to waive the student insurance. For more information on the plan and what it covers, contact Student Health Services at (303) 724-7674 or by email at: studentinsurance@cu.edu.

As previously mentioned, coverage of medical insurance differs at CU-Boulder.

Immunization, Badging, and Certification Requirements

The MSTP expects all students to adhere to the immunization requirements of the School of Medicine Office of Student Life at all points of their enrollment. MSTP Students will continue to engage in clinical spaces during their thesis years through the MSTP7655 – Foundations of Doctoring course. It is therefore the student's responsibility to maintain their immunizations, basic life support (BLS), and badging requirements to ensure continued access to required clinical spaces. The Office of Student life will contact incoming program matriculants to outline the required initial vaccinations for the MD program. Immunization Records will need to be manually uploaded following the direction of the OSL. Students should coordinate with this office if they have questions or concerns:

<https://medschool.cuanschutz.edu/education/contact-us>

ID Cards/Badge Access

Students will receive a University ID Card as part of the Medical School orientation. Students will need this card for library privileges, parking lot access, and academic/medical school/hospital building access after-hours and weekends.

If you require a renewed Anschutz Campus badge during your thesis years contact the MSTP Office; contact the SOM/OSL for badging (som.badging@cuanschutz.edu) during medical school years.

During Foundations of Doctoring in the thesis years, students must let the MSTP Office and the OSL know if they need badging for their selected clinical site(s). This should be done with as much advance notice as possible. Off-cycle badging can take multiple weeks to process. VA Badging in particular can take several months.

Tuition Bills

The MST Program Administration will pay tuition, fees, and insurance at the beginning of each semester for students in their medical school years. That tuition bill will reflect charges for the core

courses for which students are pre-registered. The MSTP office will process tuition remission after the conclusion of the graduate term add/drop deadline each term. If a student has been approved for financial aid they will receive this only when tuition has been fully remitted for each term, at which point a positive balance will generate on their account and be distributed to them using their normal paycheck delivery method. Students who are expecting financial aid should plan on distribution 2-3 weeks from the add/drop deadline of each term. Check with the PhD Program Administrator regarding tuition bills during thesis years.

Students intending to drive to the Anschutz Medical Campus must contact the Parking Office at (303) 724-1584 or their website [HERE](#) to find out where parking is available. The Parking Office is located on the first floor in the Fitzsimons Building (aka: Building 500), across from the Office of Student Life. There is a monthly fee for parking during normal working hours (M - F, 8AM - 6PM). However, there is a Free Permit Parking for students, faculty, and staff after hours and weekends only. There is no charge to park in the gated permit parking lots Monday-Friday, 6:00pm to 6:00am or all day on Saturday and Sunday. Access in or out of the lot will be denied outside of this timeframe. Those still in the lot after 6:00am will be required to pay the hourly parking rate upon exit. A one-time \$10.00 activation fee is applied. To sign up for the after-hours and weekend parking please visit the Parking Office in the Fitzsimons Building. MSTP, and your Anschutz PhD Programs pay for an RTD bus pass while registered as a full-time student. The Parking Office also offers keys for the locked bike storage area.

Establishing Colorado Residency

All out-of-state students are required to petition for In-State Tuition Classification. It takes one year to establish Colorado residency. This process is outlined on the Office of the Registrar's website [HERE](#). Students need to read this information carefully so that they understand the process. **The MST Program will pay out-of-state tuition during the first year of program enrollment only.** Each student must begin to establish residency immediately upon their arrival in Colorado. There are four ways you can begin to establish Colorado Residency using the domicile criteria outlined on the registrar website above.

Refer to the above website for petition submission deadlines. Students should plan to petition for the Fall Term of their second program year. **Any student failing to meet the residency deadline will be personally responsible for the difference between in-state and out-of-state tuition rates.**

Questions about residency should be directed to the Registrar's Office.

Office of the Registrar

University of Colorado | Anschutz Medical Campus

Campus Box A-054, Education II North

13120 E. 19th Avenue, Room 3205

Aurora, CO 80045

Email: Registrar@cuanschutz.edu

303-724-8000

Change of Address

Students are responsible for ensuring that they maintain a current mailing address at all points of enrollment in the MSTP. Your address can be updated through the campus portal at:

<https://passport.ucdenver.edu/login.php>

Publications and Acknowledgments

All student publications, including abstracts, journal articles and theses, should acknowledge the MST Program along with other university acknowledgments. Students supported on the MST Program training grant should acknowledge the grant number in all publications (1T32GM149361).

The MST Program Office has copies of all student theses. Students need to provide one bound copy of the final version of their thesis to the MST Program at the same time they turn it in to their Graduate Program. The MST Program will reimburse (students with itemized receipts) for the Program's copy.

Participation in Recruitment Functions

It is in the Program's best interest to attract and retain the best prospective students from each application cycle. To do this MSTP requests the enthusiastic support of our current students. Students may be asked to spend some time with applicants and assist the Program Administrator and Leadership with various duties associated with recruitment. Students' efforts are critical to creating and maintaining a vital, collegial, resilient, and academically outstanding MST Program. Recruitment efforts are directed by the MST Program leadership and admissions committee with student support and assistance from the program membership and MSTP-Student Council.

Annual M.D./Ph.D. National Student Conference

CU Anschutz MST Program students organize the Annual National MD/PhD Student Conference during their first laboratory year (GS1). A student that transferred into the CU MSTP from either another MD/PhD or MST Program, or through the CU MD-only program, will consult with MSTP leadership to decide the optimal year to participate in organizing this conference. The MST Program covers registration and meeting costs for CU Anschutz MST Program students three times per student over their time in training. This includes two times between pre-matriculation and the start of program year 3, and again when the student participates as a part of the planning committee. **Once CU Anschutz students register for the Conference, they are required to attend, as expenses cannot be refunded.** If an emergency occurs, it is important to notify the Administrator and Director or Associate Directors as soon as possible.

We strongly encourage all incoming CU Anschutz MST Program students to attend the conference. In addition to their first year, MST Program students must attend a minimum of two conferences between the summer after MSI and completion of their PhD. CU Anschutz MST Program students in their thesis or fourth year of medical school are welcome to attend but are required to present either an oral and/or poster presentation and may need to obtain support from non-MSTP sources. Thesis lab mentors are encouraged to support the attendance of students during their thesis years.

Annual MSTP Spring Retreat

CU Anschutz MST Program students volunteer to organize the annual Spring Retreat, held each spring semester on campus. MSTP students are required to attend unless granted prior approval from the Director to be excused. Students in their thesis years will be required to present, at minimum, a poster of their research but are highly encouraged to sign up for an oral presentation.

Students serving on the committee will invite a MSTP alumnus to serve as the Keynote Speaker. The committee will be encouraged to invite additional guest speakers to lead breakout sessions or as a second keynote.

Vacations

MSTP students in their medical school years must discuss their vacation plans with the MSTP Director(s) and Administrator prior to taking time off outside of approved medical school vacation and holidays. An optimal time for a first-year student to take vacation is one-week before or after the summer laboratory rotation. Students are encouraged to take vacation time in-between Step I and II dedicated study periods occurring in the third program year (winter break). There is also a spring break of one week that occurs during the spring term of program year three. Students in thesis years must discuss vacation plans with their rotation/laboratory mentor and must also let the MST Program know of their plans.

Note that MSTP students participate in course work that is on both the MD and the Graduate School academic calendars while enrolled in medical school years 1-3. These calendars do not always feature the same break periods and students should not assume they will be free of course requirements based solely on one calendar or the other. ***It is the student's responsibility to check the appropriate calendars in advance based on their student status, to coordinate with the MSTP Administration, and to make appropriate plans.***

MSTP Travel Funds

There are a limited funds available to MSTP students to travel to conferences. If you seek travel assistance from MSTP, you will be asked to first seek out and secure funds from other resources (e.g. SOM, Graduate School, PI). MSTP will consider matching the funds from other resources, up to \$500.

To be considered for MSTP Travel Funds, you must email the MSTP Program Administrator with detailed information regarding the conference – when, where, will you be presenting (required to give a talk and/or poster), and the cost breakdown of the conference (registration fees, lodging, etc.), and the other funding resources you have pursued. Requests will be decided case-by-case and pending available funding.

Alpha Omega Alpha (AOA)

AOA at CUSOM is based on a committee selection process with students in AOA involved in making the selection of future members. Student selection uses academic performance as well as other factors, including personal attributes and extracurricular activities. Prior to consideration for selection for AOA, eligible students must sign a release, giving the student selection group permission to see their academic file, including grades. AOA is selected after completion of the Foothills, using assessment information from the Plains and grades in the required longitudinal integrated clerkships in the Foothills. Appointment to Alpha Omega Alpha (AOA), the medical honor society, is indicated in the MSPE when the information is available.

The application and selection process for induction into the Alpha Omega Alpha (AOA) Honor Society at the University of Colorado School of Medicine were reviewed and amended in 2021 to create a more objective application and selection process. The AOA Reform Committee worked with the Office of Diversity and Inclusion and collaborated with students and faculty on this initiative. The new guidelines for eligibility and selection to AOA are as follows:

1. Those who are in the first and second quartile of the graduating class who have received honors in at least 50% of honors-eligible weeks during the core clinical year will be eligible to apply for AOA.
2. In order to ensure that all applicants have the same amount of time in which to demonstrate excellence, AOA selection will now occur at a single time point during the final year of medical school, rather than having separate Junior and Senior AOA selection processes.
3. The application will consist of a standardized CV and essay that are evaluated in a blinded manner.
4. Each application will be evaluated based on academic performance, leadership, scholarship, and volunteer work/community service during medical school. These categories will be individually scored and then combined for a composite score.
 - a. Note: USMLE exams are not considered as part of academic performance
5. The essay will be used to further understand how the applicant's work and experience aligns with the stated mission of AOA.
6. In accordance with guidelines from the national AOA office, a maximum of 20% of the graduating class can be inducted into AOA.

MST Program Alumni

Mailing List

University of Colorado MST Program graduates are required to provide a forwarding address, both email and postal, for future correspondence. Alumni will be added to a University of Colorado MSTP distribution list and will continue to receive newsletters and important announcements. Alumni will also be contacted periodically, especially during grant renewals, for current positions and recent publications.

Publications, Positions and Funding Support

NIH requires the MST Program to track publications, positions, and funding of current and past students, requiring graduates of the CU MST Program to report recent publications and career progress. The University of Colorado MSTP website will soon have a PubMed link to all alumni publications. Funding records will also be requested in order to assess overall success as an investigator in academic medicine. **To aid in tracking, we require MSTPs to create a uniform ORCID identifier number and report this number to our office.** Please email the MSTP Office with your ORCID number.

Leave of Absence Requests

Leave of Absence requests that occur during the first three years or the last year of medical school or during the period between completion of USMLE Step 2 and committing to a PhD-degree-granting graduate program will require that the MSTP student meet with MSTP and SOM leadership to discuss this option. The student will be required to write a letter stating the reason for the request, a plan of

action during the LOA, and a plan for return to MSTP and/or the SOM. A copy of this letter should be submitted to the SOM Associate Dean of Students and to the Associate Dean of Research Education. The SOM Promotions Committee will review such requests and make final decisions.

Students who need to leave a graduate program for a period of time (up to one (1) year) should consult their program directors for guidance on a Leave of Absence (LOA). Personal LOAs are reviewed and approved entirely through the program. Medical LOAs are managed through the CU Anschutz Student Outreach and Support Office in collaboration with the program. An approved LOA pauses the student's academic record and automatically extends the time limit for completing a degree by the equivalent amount of time that the student spends on leave. Requests for LOA that exceed one (1) year may be approved with sufficient justification to the Dean of the Graduate School.

Students who do not return from their approved LOA will be considered to have withdrawn from their program and will either be required to formally re-apply for admission, or, at the discretion of the program, may be re-admitted through an expedited process.

When students take a Leave of Absence, per University Policy, all financial support, including medical insurance coverage, will be suspended until the student returns to active MSTP, Graduate and/or SOM status. Some arrangements can be made for the student should insurance be necessary for them while on leave. This is determined on a case-by-case situation.

You can find information on the University's policies and procedures on Leave of Absences [HERE](#)

Dismissal and Appeals

As noted in the "Expectations" section of this Student Handbook, there are clear professionalism behaviors and tangible academic and research milestones that every MST Program student must meet in order to remain in good standing as an MSTP student. The MST Program, Directors, and administrators, including SOM leadership will support students through any and all difficulties at any point during both their medical and graduate school years.

Dismissal of a student from MSTP occurs very rarely. Grounds for dismissal from MSTP include but are not limited to: poor academic performance; subpar performance in the laboratory rotations; professionalism issues; inability to join a thesis lab after three or at most four rotations due to professionalism issues or poor performance; failing the Preliminary Exam; failing the Comprehensive Exam; poor progress in their PhD Thesis work; or dismissal from their Graduate Program and Graduate School.

Students who the program feels are eligible for dismissal will be asked to meet with the Program Director, Associate Directors, and/or SOM Leadership at any point in the program to review their behavior, training progress, and commitment to the program. The student will be given a warning until the program feels the student has remedied their situation.

The MSTP Leadership will schedule regular meetings with the student, as they feel necessary, to continue to review the student's progress. The student can also schedule meetings with any of the Directors at any time during this period.

Dismissing a student from MSTP is done only after very careful review of the student's behavior, professionalism, academic and research training progress, and commitment to a career as a physician-scientist. This review will be conducted by the MSTP Executive Committee, which includes MSTP, SOM, and Graduate School leadership faculty. If the decision to dismiss is reached by the

majority of the MSTP Executive Committee, the student will be notified immediately following review. Finally, upon dismissal from MSTP, the student will no longer receive the financial support (tuition, fees, insurance, or stipend) provided by MSTP.

Dismissal from MSTP does not necessarily mean dismissal from Medical School, but such a result can occur. If dismissal from MSTP occurs, the student will need to submit a formal request in writing to the SOM Associate Dean of Students and the SOM Promotions Committee to continue in medical school. The request to continue as a medical student must be approved by either the SOM Associate Dean of Students and/or the SOM Promotions Committee. See SOM Policies and Procedures [HERE](#).

Below are some of the grounds for which a MSTP student could be dismissed from the MST Program:

- A. Failure to pass the preliminary exam in the spring of year 3. See page 15
- B. Subpar performance in the laboratory rotations or the inability to match into a thesis lab due to professionalism issues, poor performance or due to lack of consensus between PI and student that a thesis project could be successfully completed.
- C. Failure to pass the Comprehensive Examination. The student's Graduate Program can dismiss the student from that Program at that point. Dismissal from the Graduate Program results in dismissal from Graduate School and dismissal from MSTP.
- D. Poor progress in their PhD thesis work
- E. Professional issues or poor academic performance while in medical school and/or graduate school.
- F. Dismissal from medical school results in dismissal from MSTP
- G. Other unusual or extreme departures from program requirements, ethical/integrity standards, and professionalism lapses.

Below is the outline of the procedure for Appeal of MSTP Dismissal decisions during distinct periods of the MD/PhD training plan:

- A. **During Medical School years, pre-Thesis Years** – If dismissal from MSTP occurs within the first three years of medical school, appeals must be submitted in writing to the SOM Associate Dean of Students, the SOM Promotions Committee, and the MSTP Director, stipulating the basis for the appeal.
- B. **During Graduate School/Thesis Years** – If dismissal from MSTP occurs at any point after the MSTP student has committed to a graduate program and/or is on a Leave of Absence from the SOM, appeals regarding the dismissal from their graduate program (and thus from the Graduate School) must be submitted in writing to the to the Dean of the Graduate School and the Associate Dean of Research Education stipulating the basis for the appeal; with copies to the Graduate Program Director, the MSTP Director, and the SOM Associate Dean of Students,
- C. **During Medical School Years, post-PhD** – If dismissal from MSTP occurs during the last years of medical school, appeals regarding the dismissal from MSTP at this point in the training must be submitted in writing to the to the Associate Dean of Students, the SOM Promotions Committee and the MSTP Director, stipulating the basis for the appeal.

MSTP Program Curriculum Overview

MSTP Students enter the program as dual admittees to both the CUSOM MD program and the CU Graduate School. They will primarily participate in medical school curriculum during the first three program years. There are additional MSTP-specific course requirements during this time which are outlined below.

Students will complete a transition out of medical school and into their chosen thesis program during the spring and summer terms of Program Year 3. This process includes successful completion of the USMLE Step I and Step II exams, completion of two post-LIC laboratory rotations, and selection of both a graduate program and thesis lab.

MSTP students will continue to have clinical experiences throughout their time in thesis lab (via the MSTP7655 Foundations of Doctoring Course) in order to maintain their clinical skills and to make the transition back to medical school as smooth and successful as possible.

Trek/Hybrid Curriculum students will return to Medical School in the Spring term ahead of the academic year prior to their intended MD graduation year in order to afford the student as much time for competitive fourth year medical school curriculum as possible. When a residency specialty has been selected, MSTP students can expect to receive additional support from the MSTP Administrative Leadership in the form of a letter of support for their residency applications.

Course Enrollment and Curriculum Requirements

MSTP students must follow the established enrollment requirements at all times of their program when enrolled in either the MD or Thesis PhD Program. It is the MSTP student's responsibility to ensure that they understand their curricular, credit, and overall enrollment requirements in each program. They should contact appropriate administrative personnel in their appropriate school or program if they have questions or concerns about their curriculum.

MSTP students will be automatically enrolled into their core curriculum each term while enrolled in the MD program. There may be course lotteries, matches, and other enrollment actions that the student is responsible for at various points within the MD program. Students should refer to the applicable MD handbooks and policies [located here](#) for more information. ***Students are ultimately personally responsible for monitoring MD and PhD program emails, notices, and requirements and ensuring that they are meeting the criteria for completing each degree.***

MSTP students are responsible for registering for their own classes while enrolled in their thesis PhD program unless otherwise specified by their specific program's administration and handbook. Failure to correctly enroll in required courses and credit amounts each term may result in delays in graduation or an inability to meet program graduation requirements.

The CU MSTP Program has unique curriculum requirements for all MSTP students. This curriculum

helps to integrate clinical and research training at various points throughout the program in order to create an integrated experience appropriate for comprehensive Physician Scientist training. The chart on **page 29** outlines what MSTP-specific curriculum is required at all points in the MSTP program. MSTP student enrollment expectations for MSTP-specific courses mirror expectations for the program in which the courses occur. MSTP-specific courses that occur during the MD program enrollment will be automatically enrolled for MSTP Students (except for the optional MSTP7652 – Reading with a Professor Elective). MSTP-specific courses that occur during the student’s PhD thesis enrollment are the student’s responsibility to enroll in as required.

Students can see overviews for all MSTP-specific courses on the registrar’s course catalog website, [located here](#). Syllabi for each MSTP-specific course are maintained in the MSTP Administrative files and are available upon request.

MSTP Graduate Course Credit for MD Phase I Courses (Plains Year)

The MSTP program has partnered with the CUSOM MD program to allow MSTP students to take two first year medical school courses for graduate credit. This credit helps MSTP students to accelerate their PhD program studies and shorten their overall time to degree. The courses available are confirmed with the MD program annually and are selected based on their content’s applicability to typical first year graduate school curricular requirements.

First year MSTP students will receive correspondence from the program administration early in the Fall Term of their first year (typically during MD First Course) which will confirm the available courses to select for graduate credit. If more than two courses are available the student will be able to select which two courses they prefer to take for graduate credit. Graduate credit courses are grades on a letter grade scale, as opposed to the pass/fail grading scale used for standard MD courses, so students should choose the two courses they are most confident in based on their personal educational history. MSTP administration will provide directions for the selection and submission of chosen courses as well as a deadline for submitting these selections. MD courses for graduate credit must be selected and submitted to MSTP and MD administration prior to the start of any applicable courses in the MD curriculum. The following courses were available for graduate credit in the previous academic year (AY 2022-23) but are subject to change:

Hematologic and Lymphatics - 5 credits, IDPT 5017, Fall Semester

Nervous Systems - 8 credits, IDPT 5022, Spring Semester

Endocrine and Metabolism Systems - 7 credits, IDPT 5025, Summer Semester

Should a MSTP student not achieve a passing score in the medical school course they chose to take for Graduate School credit, yet pass the course by SOM standards, the letter grade will be reflected as a failing grade on their graduate transcript. The student will most likely need to take an additional course(s) in their thesis year PhD program to earn the credit towards their Comprehensive exam.

Should a MSTP student fail the SOM course the student will repeat the SOM course under remediation. This can cause an MSTP student to go “off-cycle” and need to spend additional time in the first phase of the MD curriculum. The failing grade, and subsequent passing grade, will be reflected on the student’s graduate school transcript. See below for an overview of the grade conversion rubric. This rubric is used to convert the standard pass/fail grade from Medical School courses into an equivalent letter grade for applicable graduate courses.

	Medical Science (30pts)	Clinical Science (30pts)	Health and Society (30pts)	Professionalism (10pts)
Full points	>5% above EOC published passing score	Meeting expectations	Meeting expectations	Meeting expectations
Half points	0-5% above EOC published passing score	Some concerns or incomplete assignments	Some concerns or incomplete assignments	Up to 2 minor professionalism lapses
Zero points	EOC below published passing score even after 2 nd attempt	Not meeting expectations	Not meeting expectations	More than 2 professionalism lapses or egregious concerns

Grade	Points
A	90-100
B+	80-90
B	75-80
Fail	<75

- Specific numeric cut-offs for the End of Course exam will be reviewed after each course by the Office of Assessment, Evaluation, and Outcomes and may be adjusted in favor of the student based on cohort performance of the exam
- Points given to each student for each component will be determined by the Plains Grading Committee after each course and does not have to be limited to 0,15, 30 points for the main pillars or 0, 5, 10 for professionalism.
- The need to remediate within a pillar (whether in part or whole) would preclude a student from receiving full points within that pillar.

Laboratory Research Rotations:

The choice of a research advisor is perhaps the most important decision of the student’s first three years in the program. The quality of the projects underway in the laboratory, the influence of postdoctoral fellows and other students in the lab, the level of the advisor’s involvement, and the character of the advisor’s relationship with the student will all help shape the rotation experience.

The MST Program requires students to complete at least two research rotations prior to the

conclusion of their Program Year 3 (PY3) Spring Term. Students begin their first required summer rotation (~6 weeks) after completion of the first-year curriculum. Students complete a second and third laboratory rotation (8 weeks each) during the spring term of PY3. If the choice of thesis laboratory has not been made, there is an option for a fourth pre-matriculation rotation with the Directors' permission for six weeks in June and July prior to the student's official start date in the program.

Research rotations are an important part of the academic program during the first phase of MST Program training. The principal purpose of these rotations is to aid students in selecting a thesis advisor and to provide exposure to a variety of research problems and laboratory techniques. While rotating, students should participate in all lab activities to get an idea of what it would be like to be a member of that particular lab. These activities include lab meetings, journal clubs, and seminars (departmental and other relevant seminars).

Exposure to the training faculty's research during the interview process, Molecules to Medicine (MSTP7805) course, and the weekly MST Program Seminars (MSTP7645) gives our students a good foundation from which to choose a laboratory mentor during the first three years in the program. Attending Program-specific retreats is also encouraged when they do not pose serious conflicts with other commitments. Each student will also meet with the MSTP Program Director and/or Associate Directors in personal counseling sessions to discuss their research interests and suggestions for appropriate laboratory selection.

Students are encouraged to discuss potential projects with the various faculty whom they are considering for a rotation, and to visit their laboratories and attend their laboratory meetings.

Students should have their lab rotations choice secured and reported to the MSTP Office by May 1st of their first year for rotation 1, and no later than December 1st of their third year for rotations 2 and 3.

A Rotation/Thesis Lab Selection Form must be completed by each student prior to the start of the laboratory rotation. This enables the MST Program Office to keep track of the student during the rotation months and assists the Program Director and Program Administration in keeping an accurate record of each student's progress.

Completion of at least two research rotations is required before entering a thesis lab. It is anticipated that most students will complete three laboratory rotations prior to choosing a lab, and these should be scheduled in advance, with some exceptions. If the student has completed the first summer rotation (or a pre-matriculation rotation) and feels confident that the first lab is a good fit for their thesis work, then he/she can petition MSTP leadership to complete one additional rotation (for total of two) before transitioning to PhD. If the MSTP Student has not matched into a thesis lab after the third rotation, due either to loss of financial support by a pending PI or due to the student feeling that neither the prior rotations would be a good match for him/her, then a fourth rotation is allowed ONLY with approval by MSTP Leadership.

Students are allowed to rotate with and enter thesis laboratories of MST Program training faculty only – all current training faculty can be found on the website [HERE](#). Students are

encouraged to recruit new faculty into the MST Program if those faculty meet the base guidelines established for MSTP Faculty Appointment. See **page 7** for more information on the Faculty Appointment Process. Students can begin their first required summer rotation after completion of their MSI SOM final exams, but must begin no later than one week after final exams. At the end of the rotation, students present their results in a post-rotation lightning talk session.

MSTP Transition from MD program to Thesis Program: Timeline and Expectations (Trek Curriculum)

The transition from the Trek MD program to the student's selected thesis program occurs during the Spring term of the third year of medical school (MSTP Program year 3). MSTP students will be placed on leave from the MD program during this term, enabling them to complete MSTP-specific curriculum to aid in their successful transition.

Overall, each MSTP student will be expected to meet the following requirements during the spring term of year three in order to successfully complete their transition into their selected thesis program:

- Enroll and successfully attend/participate in the MSTP7645 – MSTP Seminar course (1.5 credits)
- Enroll in the MSTP7651- MSTP Lab Rotation course for (1.5 credits)
- Study, sit, and pass the USMLE Step 2 exam
- Complete two research lab rotations *unless a single spring rotation has been pre-approved by MSTP leadership
- Participate in the MSTP Grant-Writing Course and pass the Preliminary Exam, an extension of MSTP Seminar specific to Program Year 3 students
- Identify a Thesis Mentor and obtain a signed thesis mentor agreement letter to be filed in their program file.
- Join a PhD program and complete a signed program transfer form to be submitted to the Graduate School Office.
- Schedule a time and meet with the Program Director and/or Program Administrator of the selected PhD program to discuss program expectations.

Each of the requirements outlined above should be completed within the Spring graduate term. Students should be transitioned into both their Thesis lab and their chosen PhD program no later than the start of the Summer graduate term of their third program year unless they have been given permission to complete a fourth rotation.

Students will have already completed Step I in the Fall term (MSTP year 3) as a part of the standard MD Trek curriculum. MSTP students will start the Spring term (MSTP year 3) with four weeks of study time to prepare and sit for the USMLE Step 2 exam. After passing the Step 2 exam they will then begin completion of two lab rotations. The standard length for these rotations is 8 weeks. Rotation

length may be shortened to accommodate additional test prep time *only* upon receipt of a formal request on behalf of a student from the Office of Student Life. All MSTP students will receive a standard spring break period of one week between their first and second research rotation in the term. Students will be expected to attend MSTP seminar for the duration of this term, including while in protected study time.

Each MSTP student receives strong programmatic support for the evaluation and eventual selection of a suitable thesis mentor and PhD program for their personal goals and research interests. MSTP students will meet with the MSTP Program Director and/or the MSTP Associate Program Director for Thesis Education twice during the third year of their program; once in the Fall Term and once in the Spring Term. Additional meetings are always available upon request. Once a thesis mentor is selected the student should plan to initiate the process for successful transfer completion no later than two weeks prior to the start of the Summer Term of program year 3. This process includes, as outlined above: Securing a signed thesis mentor agreement letter (and a co-mentor agreement letter, if applicable); completing a signed program transfer form; meeting with the Program Director and/or Program Administrator of their chosen PhD program. Note that the MSTP program is supportive of co-mentorship agreements; however, there may be additional documentation that is required. Students should contact the MSTP Administration to discuss co-mentorship arrangements as soon as it is determined that this type of arrangement is desired.

MSTP Graduate Preliminary Examination

Program Year 3 students will complete the MSTP Preliminary exam course as an extension of MSTP Seminar during the Spring Term. This must be successfully completed prior to the student's transition into a chosen thesis lab and graduate program. Note: For students not completing a third research rotation, thesis work may begin concurrent with the Prelim exam in the Spring Semester. For the MST Program, the Preliminary Examination is a grant writing exercise whereby third year students learn grantwriting techniques and develop an NRSA-style written research proposal. Grant topics will be chosen by students based on their interest areas and in consultation with course director. The proposals are developed during the course through iterative exercises and feedback, and are ultimately peer-reviewed in a mock study section in late spring. A Preliminary Examination that is considered to be failing work can be grounds for dismissal from MSTP, or at the discretion of the Program, the student may be allowed to re-take the entire examination or a portion thereof. The grade results of the MST Program Preliminary examination will be reported to the Graduate School Office.

The key points that will be evaluated include:

- development of a precise, clearly articulated hypothesis addressing a biological mechanism
- concise aims that directly test the hypothesis
- review of relevant background and presentation of clear rationale
- rigorous, creative research plan with appropriate controls
- interpretation of expected data and statistical analysis
- impact of results for the field

The Research Years

Trek students should plan to enter their doctoral thesis laboratory no later than the beginning of the summer semester at the end of their third year in the program. If a student has not identified a suitable thesis advisor by the end of the third rotation, a fourth rotation may be allowed with prior approval by the Director. All MSTP students *must enter the laboratory for thesis work by the fall semester*. Students who have not identified and been accepted into a thesis lab after 4 rotations should discuss with MSTP leadership and may be considered for dismissal from the program.

Students planning to pursue graduate training at CU Boulder must complete any and all necessary paperwork to transfer to the CU Boulder Graduate Program of choice well in advance of their planned transfer term. **Students who are planning a spring lab rotation at a Boulder lab in year 3 should initiate the campus transfer process in the prior Fall term.** Students can contact the MSTP administration for assistance with this process.

After the student formally chooses a laboratory for graduate work, he/she joins the relevant basic science PhD Program as a graduate student. Upon entering the chosen PhD Graduate Program, any additional coursework necessary to complete specific requirements is taken according to the specific program's timeline, policies, and processes. **MSTP students must have thesis committee meetings every 6 months**, regardless of PhD program, and each committee should have a faculty member representing MSTP on their thesis committees. Students should discuss MSTP faculty representation with the Director or Associate Program Director.

Yearly presentations of research at MSTP Seminar followed by one-on-one meetings with the Director or Associate Directors to review progress and preview plans for return to clinic are required of each student. In addition, other MST Program activities are scheduled each year that allow contact among thesis-year students and other students and MST Program Director, Associate Directors, and Administrators. Moreover, thesis-year students are encouraged and expected to contact the MST Program Director and/or Associate Directors whenever there are issues that they would like to discuss or about which they seek advice.

Interdepartmental Transfer

Once the choice of a thesis advisor has been made, the student begins the process of formally transferring into the appropriate degree-granting Graduate Program. This process generally includes the following steps:

1. **If** a student is planning co-mentorship they should start the process by alerting MSTP Administration of which mentors they wish to establish.
 - a. Co-mentorship arrangements require a clear designation of who the **primary mentor** is (usually provides financial support and lab space) and who the co-mentor is.

- b. The MSTP Administration has a template letter that we will be sent to the student's selected co-mentors.
 - i. This letter asks the mentors to outline the co-mentorship arrangement for MSTP review. The template outlines typical arrangements but co-mentors are free to review, edit, and update as needed before returning to the MSTP Office.
2. If a student is not pursuing a co-mentorship arrangement, or once the co-mentorship agreement letter has been submitted and approved, the student's selected PI(s) will next be sent a mentorship agreement letter.
 - a. This letter outlines the MST Program's expectations for all MSTP thesis mentors and includes language such as guarantee of financial support, understanding of MST Programming that the MSTP program expect mentors to support/accommodate, and other expectations.
 - b. Mentor(s) will sign this agreement via docusign and return to the MSTP office for filing.
3. Once the mentorship agreement letter has been signed and returned the last step will be for the student to complete a program transfer form to enter their selected new program.

With the help of the MST Program Administrator, the student must submit a Request for Transfer to Degree-Granting Program form, complete with all required signatures, to the Graduate School Office. The MST Program Administrator will forward a copy of student's transcripts, MST Program application and biosketch to update the student's file in their newly chosen Graduate Program.

Once the interdepartmental transfer has been approved, the student is now counted as a member of the elected Graduate Program. The Graduate School Program Administrator is the contact for any and all questions regarding registration, tuition, fees, health insurance, etc. A valuable resource are the program-specific Student Handbooks. Additional information specific to a student's degree-granting program can be obtained from the student's Graduate Program Administrator, Graduate Training Advisor, or on the specific Graduate Program website. The Handbooks outline general information pertaining to the Graduate School at the University of Colorado.

Boulder Program Transfers

With the help of the MST Program Administrator, the student must sign and submit a Withdraw from CU Anschutz Campus to the Graduate School and Registrar Offices. The MST Program Administrator will forward a copy of student's transcripts, MST Program application and biosketch to update the student's file in their newly chosen Graduate Program.

The Graduate School Program Administrator is the contact for any and all questions regarding registration, tuition, fees, health insurance, etc. Additional information specific to a student's degree-granting program can be obtained from the student's Graduate Program Administrator, Graduate Training Advisor, or on the specific Graduate Program website.

Longitudinal Foundations of Doctoring (FOD) Thesis Year Course

Between the third and fourth years of medical school, while doing their Ph.D. thesis research, MST Program students are required to enroll in the MSTP - Foundations of Doctoring Course (MSTP7655) to continue their clinical training. Goals of this course are to maintain and further the clinical skills learned during the MD Plains and Foothills (or LICs) by providing opportunities to engage in clinical/translational scholarly activities, experience potential career choices, and minimize the anxiety often encountered upon re-entry into the clinics after an extended absence. Grading will be based on attendance and performance. Initiative, ownership, and personal responsibility are used to measure students' progress. Registering for this course, MST Program students acquire the usual liability protection provided to all medical students. **Students in their graduate school phase of training are not permitted to engage in clinical activities except during registered clinical courses such as MSTP Foundations.** Medicolegal protection only covers the students during their registered activities for clinical credits. **Only one clinical preceptor per semester is allowed.**

Students registered for FOD are encouraged to seek the advice of the directors when choosing preceptors and receive advice and final approval from the Director and/or Clinical Associate Director for their choice of preceptor.

CU Anschutz MSTP students are required to enroll in the Thesis Years-FOD Course (MSTP 7655) for two (2) of the three (3) semesters per year (fall and spring). MSTP students are encouraged to attend four full-days (recommended once a month) or eight half-days (recommended twice a month) per semester, for a total of 32 hours per semester. Students should not plan to complete any more than the required 32 hours of precepting without express approval from their lab mentor since thesis progress is the primary concern at this stage in training.

To register for FOD, Boulder students must submit an **Intercampus Enrollment Form**; do not go through the student portal to register. Contact the MSTP Office Program Administrator for the form and instructions.

Thesis Committee Meetings

CU Anschutz MST Program students must have a MSTP representative on their thesis committee. This representative can be a member of the MSTP leadership team, an MSTP admissions committee member, a Graduate Program Director, or an MSTP faculty member with experience training MSTP students. Students must schedule two thesis committee meetings per year. While some Programs require only one annual Thesis Committee meeting, the MST Program requires biannual meetings. A Thesis Advisory Committee meeting summary must be completed by the chair of the committee after each committee meeting and submitted to the MSTP Office for the student's records and for review by the Directors.

Thesis

A thesis based upon original investigation and showing mature scholarship and critical judgment as well as familiarity with tools and methods of research is written on a subject approved by student's

major Program. To be acceptable, the dissertation constitutes a worthwhile contribution to knowledge in a student's specific field. The student must submit finalized draft copies of the thesis to the final exam committee at least two weeks prior to the final examination date. Please note that many Graduate Programs now require that students have an accepted first-author manuscript prior to defense of the thesis. Also, the final draft of the thesis may require approval by the mentor and the chair of the Thesis Committee before allowing a date for the formal defense to be scheduled. Notification of the date of the seminar will be posted in Departmental and Program offices. It is the student's responsibility to ensure that their coursework, lab progress, and publications meet criteria for PhD degree completion.

All dissertations must comply with the specifications of the Graduate School. Please note: copyright approval must be obtained from publishers for any figures, tables and/or text included in the thesis that have been already published.

Dissertations must follow Graduate School formatting requirements, which can be downloaded from the Graduate School's website.

Please refer to your Graduate School Program Handbook for detailed information on thesis hours, defense, time limit, and transfer of credit. Remember that thesis preparation and defense usually take longer than anticipated. Keep a sense of urgency to finish it well in advance of deadlines. A bound, approved copy of the PhD dissertation MUST be submitted to the MSTP office. MSTP will reimburse the student for this copy.

Student Grants and Individual Funding

There are several NIH pre-doctoral grant/award opportunities specifically targeting M.D./Ph.D. students. CU Anschutz MST Program students who are eligible for these awards are strongly encouraged to submit an application. Specifically, areas supported include Neurosciences Drug Addiction, Mental Health, Cardiology, Pulmonary, Renal, Endocrinology, Gastroenterology, Hematology, and Environmental Health and Toxicology. In addition, training awards for Underrepresented Minority (URM) students are available. Predoctoral training awards are also available from the DOD and a number of foundations. Please refer to the Appendix for a list of fellowships available (this list is also included in the letter to the PI/mentor when the MSTP student joins his/her laboratory).

MSTP Transition from PhD Program Completion back to the MD Program: Timeline and Expectations for Legacy Students

Note that this policy pertains **specifically** to students who are returning from the Legacy MD curriculum as this is the only type of curriculum return occurring at this time. **Return policies for Trek**

curriculum students are in development and will replace this policy in future versions of the handbook.

The MST Program allows returning legacy curriculum students the opportunity for flexible re-entry period to medical school between May and September of their return year. This allows the student to plan a personalized return that fits the needs of their unique thesis project. **MSTP students will be asked to begin planning for a successful transition back to Medical School beginning in August of the year prior to the year in which they intend to defend their thesis.** This timeline is necessary due to the Medical School Longitudinal Integrated Clerkships (LIC) lottery, which occurs during the fall term annually. The LIC (Core Clerkships) for Legacy MSTPs is from the first of September through the first of July and is one month shorter than the usual LIC curriculum. This facilitates Step 2 completion and time for advanced clinical electives and acting internships in the summer and fall. **Legacy MSTPs will move from LIC to 4th year and will apply for residency in the fall; they have an intense and shortened timeline for preparing for residency applications which requires proactive planning and scheduling during their LIC year.** Students who do not meet minimum requirements and assessment per the LIC review committee may be required to complete the entire LIC through August. Students who are required to complete the entire LIC should consult with their LIC directors and MSTP leadership to determine the best plan for residency applications. The timeline for residency applications/ERAS submission is set nationally and there is no ability to alter it; therefore Legacy/LIC student must work very hard and be extremely diligent to prepare for their shortened time to apply for residency after LIC.

Students will be expected to complete the following steps for successful transition back to medical school (dates in parentheses are approximate and subject to change):

- Submit, by email to the MSTP Administration, a written notice of intent to return to medical school (August of year prior to planned year of thesis defense).
- Complete and return a signed return to Medical School planning form, to be completed in coordination with student's thesis committee and mentor (November).
- Complete and return a signed copy of the flexible re-entry curriculum form which outlines the curriculum that they plan to complete during the flexible re-entry period (March).
- Participate in the MSTP7755 – MSTP Capstone Course (1 week in January through March, dependent upon SOM clinical availability).
- Complete a successful thesis defense (No later than August 15th).
- Participate in the Trailhead return-to-clinics curriculum, if desired. This is a flexible mix of inpatient clinical experience and electives prior to starting LIC.
- Return and participate in the MD Pre-LIC Basecamp (Early September). Students who do not return by Sept 1 will be required to wait one year before returning to the next cycle of LIC.

Students must return to medical school in time for the Pre-LIC Basecamp; late entries into the clinical year of the MD curriculum are not allowed. The MSTP Administration will support students through the entirety of this process. There will be required information sessions in August/September with all students who have submitted a written intent to return to the MD program in the following year. The MSTP Program Director, MSTP Associate Program Director – Thesis Studies, and MSTP

Associate Program Director for Clinical Education will be available to students for 1:1 advisory meetings upon request. In addition, administration will make students aware of any pertinent informational sessions related to LICs which are hosted by the School of Medicine. Students are encouraged to consider attending these whenever able.

Students should ask their PhD Program Administrator to notify the MSTP Administration upon successful completion of their thesis defense. The MSTP Program Manager will facilitate the program transfer back to medical school based on the first day of medical school curriculum as outlined in the student's approved flexible re-entry form.

MD Phase IV Curriculum and Residency Application

MSTP Students will have an opportunity to explore their own interests post-LIC training. Students will be able to develop and select an individualized learning plan with assistance of advisors in the Office of Student Life and with specialty advisors. Their learning plan will include things such as Advanced Clinical electives, Acting Internships, away rotations, other electives tailored to the student's interests, individualized Integrated Science courses, and continued preceptorship experiences. Legacy/LIC students will take the Trek Basecamp for Acting Internships courses in an asynchronous format during spring of their LIC.

Students will also be registered for Transition to Residency Courses to prepare for their residency applications and interviews.

MST Program students must be registered for senior medical school courses/electives of their choice throughout the entire MSIV academic year. The medical school holds a phase IV electives lottery in January of each academic year. Legacy MSTP students should expect to participate in this lottery during their LIC clinical training year. Students who have expressed an intent to return to medical school in current Academic Year will be put in contact with the appropriate parties in the School of Medicine to coordinate applicable advising and participation in this lottery. Communication and planning around this process will typically occur in the late Fall ahead of each January Lottery.

MSTP Course Enrollment Requirements

The chart below offers an overview of what MSTP-specific curriculum students should expect to be registered in for each term of their MST Program. This chart is for illustrative purposes only and is subject to change. Always follow the direction of the MSTP Administration for your individual class.

	Fall Term	Spring Term	Summer Term
MS1	MSTP7645 - MSTP Seminar (1.5) MSTP7805 - Molecules to Medicine (1)	MSTP7645 - MSTP Seminar (1.5) MSTP7805 - Molecules to Medicine (1) MSTP7652 - Reading with a Professor (1)*	
MS2			
MS3		MSTP7645 - MSTP Seminar (1.5) MSTP7651 - Lab Rotation (1.5)	Transition to Thesis Program
GS1	MSTP7655 - Foundations of Doctoring (1)**	MSTP7655 - Foundations of Doctoring (1)**	MSTP7655 - Foundations of Doctoring (1)**
GS2	MSTP7655 - Foundations of Doctoring (1)**	MSTP7655 - Foundations of Doctoring (1)**	MSTP7655 - Foundations of Doctoring (1)**
GS3	MSTP7655 - Foundations of Doctoring (1)**	MSTP7655 - Foundations of Doctoring (1)**	MSTP7655 - Foundations of Doctoring (1)**
GS4	MSTP7655 - Foundations of Doctoring (1)**	MSTP7755 - MSTP Capstone (1)	Flexible Re-Entry Period MSTP8033 - MSTP Trailhead***
MS4			
Credits per course indicated in (), all courses are graduate program courses unless indicated otherwise			
*Optional Course			
**MSTP7655 is taken 2/3 terms per academic year during non-graduating years, then once in the Fall Term of Thesis Graduating Year			
***MSTP8033 is an MD Program Course			

Appendix

Departmental Graduate Programs

Listed below are the graduate programs affiliated with the MST Program. Key contact information has been provided. Please reference the program websites for specific information regarding pre-requisites, program-specific seminars and activities, faculty members and their research interests, thesis information, etc. **A link to the program webpages can be found [HERE](#).**

ANSCHUTZ MEDICAL CAMPUS (13)

Bioengineering

Program Chair: Dr. Robin Shandas
Program Director: Dr. Jeff Jacot
Program Administrator: Natalie Kersten

Cancer Biology

Program Director: Dr. Rebecca Schweppe
Program Administrator: Aubrey Thorburn

Cell Biology, Stem Cells and Development

Program Director: Dr. Jeff Moore
Program Administrator: Katherine Doyle (interim PA)

Computational Bioscience

Program Director: Dr. Katerina Kechris
Program Administrator: Shanelle Felder (interim PA)

Epidemiology

Program Directors: Drs. Tessa Crume & John Hokanson
Program Administrator: Cassandra Thao

Human Medical Genetics and Genomics

Program Director: Dr. Tamim Shaikh
Program Administrator: Sabrena Heilman

CU BOULDER CAMPUS (4)

Chemical & Biological Engineering

Program Director: Dr. Kristi Anseth
Graduate Advisor/MSTP Liaison: Dr. Kristi Anseth
Program Administrator: Dominique de Vangel

Biomedical Engineering

Program Director: Dr. Mark Borden
Program Administrator: Jacq Thomas

Immunology

Program Director: Drs. Ross Kedl & Beth Tamburini
Program Administrator: Danielle Romanello

Integrated Physiology

Program Director: Dr. Mary Weiser-Evans
Program Administrator: Jared Vasquez

Microbiology

Program Director: Dr. Breck Duerkop
Program Administrator: Danielle Romanello

Molecular Biology

Program Director: Dr. Rytis Prekeris
Program Administrator: Sabrena Heilman

Neuroscience

Program Director: Drs. Abby Person & Nathan Schoppa
Program Administrator: Jared Vasquez

Pharmacology

Program Director: Drs. Jason Aoto & Jim Costello
Program Administrator: Shanelle Felder

Structural Biology and Biochemistry

Program Director: Dr. Catherine Musselman
Program Administrator: Aubrey Thorburn

Molecular, Cellular and Developmental Biology

Department Chair: Dr. Lee Niswander
Graduate Advisor/MSTP Liaison: Dr. Ken Krauter
Program Administrator: Sarah Morehead

Biochemistry

Department Chair: Dr. Annette Erbse
Graduate Advisor: Dr. Robert Batey
MSTP Liaison: Dr. Roy Parker
Program Administrator: TBD

List of T32 Predoctoral Programs and Funding (AMC)

Immunology – AI007405
Translational Research of Lung, Head, and Neck Cancer – CA174648
Cancer Biology – CA190216
Pharmacology – GM007635
Molecular Biology – GM008730
Integrative Physiology of Aging – AG000279

MSTP Executive Committee Members: 2023-2024

Cara Wilson, MD – Director, MSTP
TBN – Pre-clinical Associate Director, MSTP
Andy Bradford, PhD – Associate Dean for Student Affairs, Office of Research Education
Joe Hurt, MD PhD – Clinical Associate Director, MSTP
Brian Dwinnell, MD – Associate Dean, Office of Student Life
David Ecker, MD – SOM Assistant Professor, Director of Clinical Skills
Jennifer Adams, MD – Assistant Dean, Medical Education and Clinical Curriculum
Jeff Soohoo, MD – SOM Admissions Director
Angie Ribera, PhD – Associate Dean of Research Education
Matthew Taylor, MD – Director, Adult Medical Genetics Program
Thomas (Tem) Morrison, PhD – Chair of the MSTP Admissions Committee
Lee Niswander, PhD – UC Boulder Faculty Representative
Chris Sienza, MS – Program Administrator, MSTP

Additional External Funding Sources that do not exclude MD/Ph.D. Trainees

Please visit the websites for deadlines, qualifications, and funding applications.

Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral MD/PhD and Other Dual Doctoral Degree Fellows (<http://grants.nih.gov/grants/guide/pa-files/PA-11-110.html>)

Participating Organizations

National Institutes of Health (NIH), (<http://www.nih.gov>)

Agency for Healthcare Research and Quality (AHRQ), (<http://www.ahrq.gov>)

Components of Participating Organizations

National Cancer Institute (NCI), (<http://www.nci.nih.gov>)
National Center for Complementary and Alternative Medicine (NCCAM), (<http://www.nccam.nih.gov/>)
National Center for Research Resources (NCRR), (<http://www.ncrr.nih.gov>)
National Eye Institute (NEI), (<http://www.nei.nih.gov>)
National Heart, Lung, and Blood Institute (NHLBI), (<http://www.nhlbi.nih.gov>)
National Human Genome Research Institute (NHGRI), (<http://www.nhgri.nih.gov>)
National Institute on Aging (NIA), (<http://www.nia.nih.gov>)
National Institute on Alcohol Abuse and Alcoholism (NIAAA), (<http://www.niaaa.nih.gov>)
National Institute of Allergy and Infectious Diseases (NIAID), (<http://www.niaid.nih.gov>)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS),
(<http://www.niams.nih.gov>)
National Institute of Biomedical Imaging and Bioengineering (NIBIB), (<http://www.nibib.nih.gov>)
National Institute of Child Health and Human Development (NICHD), (<http://www.nichd.nih.gov>)
National Institute on Deafness and Other Communication Disorders (NIDCD),
(<http://www.nidcd.nih.gov>)
National Institute of Dental and Craniofacial Research (NIDCR), (<http://www.nidcr.nih.gov>)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), (<http://www.niddk.nih.gov>)
National Institute on Drug Abuse (NIDA), (<http://www.nida.nih.gov>)
National Institute of Environmental Health Sciences (NIEHS), (<http://www.niehs.nih.gov>)
National Institute of General Medical Sciences (NIGMS), (<http://www.nigms.nih.gov>)
National Institute of Mental Health (NIMH), (<http://www.nimh.nih.gov>)
National Institute of Neurological Disorders and Stroke (NINDS), (<http://www.ninds.nih.gov>)
National Institute of Nursing Research (NINR), (<http://www.ninr.nih.gov>)
Office of Dietary Supplements (ODS), (<http://www.ods.od.nih.gov>)

Special Note: Applicants are cautioned that not all NIH Institutes and Centers (ICs) participate in this program, and that consultation with relevant IC staff prior to submission of an application is strongly encouraged. The participating ICs have different emphases and program requirements for this program. Therefore, a prospective applicant is urged to consult the [Table of IC-Specific Information, Requirements and Staff Contacts](#) to determine whether the planned research and training falls within the mission of one of the participating NIH ICs.

Ruth L. Kirschstein NRSA Program for NIGMS MARC Predoctoral Fellowships (F31) (for minority groups underrepresented in the biomedical and behavioral sciences)
<http://www.nigms.nih.gov/Training/MARC/MARCPredoctoral.htm>

Neurosciences: Several NS-related Institutes, NIDA, NIAA, NIMH, NIDDK, NHLBI, NIEHS, and NINDS, specifically fund MD/Ph.D. Predoctoral Awards. Please refer to the website:
http://www.ninds.nih.gov/funding/areas/training_and_career_development/pre-doctoral-

[fellowship.htm#f31mdphd](#)

Environmental Health and Toxicology: NIEHS, with more information at their website:
<http://www.niehs.nih.gov/careers/research/trainingfrom/fellowships/f30/index.cfm>

NIDDK: <http://grants.nih.gov/grants/guide/pa-files/PA-11-113.html>

URM:

1) Sponsored through the NIGMS. Contact persons include Drs. Adolphus Toliver and Anthony A. Rene (tolivera@nigms.nih.gov). website:
<http://www.nigms.nih.gov/nigms.nih.gov/Templates/CommonPage.aspx?NRMODE=Published&NRNODEGUID={1C5E94A6-8017-4802-9AD6-AB9AC3E5411A}&NRORIGINALURL=%2fTraining%2fOverview.htm&NRCACHEHINT=Guest#a13>

2) Sponsored through NIDDK

Predocutorial (F31) for underrepresented minority students, for students with disabilities, and for students from disadvantaged backgrounds.
<http://www2.nidk.nih.gov/Funding/TrainingCareerDev/NRSA.htm>

Please keep in mind that there is a five-year limit for NIH pre-doctoral funding from T32 training grants or NRSA fellowships (a 6th year can be granted to MST Program student upon application to the NIH prior to the 6th year). Mentors and student should contact the MST Program office once an application has been submitted and MUST contact the office of the exact period of support on any T32 or individual NRSA award.

American Association of University Women
http://www.aauw.org/learn/fellowships_grants/american.cfm

American Diabetes Association
http://professional.diabetes.org/Diabetes_Research.aspx?typ=18&cid=64383

American Federation for Aging Research Scholarship
<http://www.afar.org/grants.html> – Applications accepted annually in December.

American Heart Association Regional Affiliates Predocutorial Fellowship
<http://www.americanheart.org> or <http://www.americanheart.org/presenter.jhtml?identifier=9713>

American Physiological Society
<http://www.the-aps.org/> or www.the-aps.org/awards/other.htm

American Society for Microbiology Robert Watkins Graduate Fellowship for minorities
<http://www.asm.org/index.php/education/asm-robert-d-watkins-graduate-research-fellowship.html>

American Society for Pharmacology and Experimental Therapeutics
http://www.aspet.org/public/awards/awards_fellowships.html

Boston University Women in Science
<http://www.bu.edu/chemistry/buwic/resources/fellowship>

Community of Science Funding Opportunities Database

<http://fundingopps2.cos.com/>

Department of Defense, CDMRP – Breast and Prostate Cancer

<http://cdmrp.army.mil/>

Fulbright Program Institute of International Education for studies abroad

<http://www.iie.org>

Hertz Foundation Graduate Fellowship

<https://www.hertzfoundation.org/the-fellowship/>

Josephine de Karman Predoctoral Fellowship

<http://www.dekarman.org/Qualifications.aspx>

L'Oreal Foundation Women in Science Predoctoral Fellowships

<http://www.lorealusa.com/en/us/>; Applications accepted annually in October.

NASA Individual Predoctoral Fellowship

<http://education.nasa.gov/edprograms/fellowgrants/index.html>

NATO Predoctoral Fellowship With Partner Nations

<http://www.nato.int/science/>

NIH Predoctoral Fellowship Awards for Students with Disabilities (F31)

<http://grants.nih.gov/grants/guide/pa-files/PA-00-068.html>

Paul and Daisy Soros Fellowship for New Americans (The deadline for submission of completed applications is November 1, 2011.)

<http://www.pdsoros.org/competition/>

Sarnoff Cardiovascular Research Foundation Fellowship

<http://www.sarnoffendowment.org/fellowship.shtml>

Proposal Central

<https://proposalcentral.altum.com/>

ProposalCENTRAL is an e-grantmaking website shared by many government, non-profit, and private grant-making organizations. Over twenty thousand applicants and reviewers interact electronically with the grant-makers that are members of ProposalCENTRAL