

# Medical Scientist Training Program

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**Faculty:** <https://mstp.medicine.uiowa.edu/faculty>

**Website:** <https://mstp.medicine.uiowa.edu/>

The Iowa Medical Scientist Training Program (MSTP) prepares trainees for careers in academic medicine, emphasizing basic and clinical research.

## Combined Programs

### MD/PhD

The combined Doctor of Medicine/Doctor of Philosophy program normally requires seven to eight years of continuous study. It provides an effective and efficient means to integrate graduate and clinical training, combining the scientific approach with clinical medicine.

Students register for MSTP:8515 Medical Scientist Training Program Topics every semester. The course focuses on a variety of topics relevant to training as a physician-scientist.

During the first three semesters of the program, trainees take coursework in the basic sciences fundamental to the study of medicine and complete experiences that introduce mechanisms of health and disease, and principles of clinical practice; see Doctor of Medicine in the catalog. This early training provides broad exposure to the language and organizing concepts that form the foundation for a career as a physician-scientist. Trainees also begin the research component of the graduate phase of the program during this time, through summer laboratory MSTP:8511 Medical Scientist Training Program Research rotations, enrollment in MSTP:8513 Sitting in the Middle: Physician Scientist 101, research presentations by MSTP faculty and students, and a student-sponsored seminar series. Trainees participate in Conversations in Research, in which MSTP faculty members discuss their research and career interests, and they attend MSTP Grand Rounds, a forum for patient-based discussions that emphasizes how science and medicine intersect.

During the fourth and fifth semesters, trainees enroll in core clinical clerkships, in which they gain broad exposure to the spectrum of human disease and experience direct patient care before they enter the graduate phase of training.

After completing core clerkships and United States Medical Licensing Examination Step 1 and 2 examinations, trainees select a PhD thesis mentor and begin research. This happens in the spring of their third year. They also enroll in a graduate department or interdisciplinary graduate program to begin their scientific training in the fall of their fourth year.

The focus of the graduate years of study is engagement in academic and research experiences that promote the trainees' development into independent investigators. Clinical contact is maintained during this phase of training through participation in seminar programs, MSTP Grand Rounds, and MSTP:8512 Medical Scientist Training Program Clinical

Connections, a course that provides the opportunity for mentored clinical experiences.

Upon completing the PhD dissertation, trainees return to the Carver College of Medicine's MD curriculum to complete the advanced clinical clerkship requirements for the MD/PhD combined program. During this phase, trainees bring sophistication in the scientific approach to problem-solving that they apply to human disease. They renew and develop clinical skills acquired in their early training and reinforce their understanding of the scientific basis of disease through continued participation in MSTP Grand Rounds. Upon completion of the clinical curriculum, trainees are awarded the MD and PhD degrees.

Most graduates of the program elect to enter residency programs in clinical medicine and embark on careers as medical school faculty members in clinical disciplines with opportunities for basic and applied research. Other graduates accept academic appointments in basic science departments and spend a major part of their professional activity in biomedical research and teaching.

## Admission

Applicants must meet the requirements for admission to the MD program in the Carver College of Medicine; see Admission in the Doctor of Medicine section of the catalog. They also must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations on the Graduate College website.

Applicants should have completed the requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, they must demonstrate aptitude for and commitment to scientific research through productive research experience during their undergraduate years or after. Admission normally is made for entry to the first year of the program, but applicants already enrolled in the Carver College of Medicine may request admission with advanced standing.

## Application

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should select MD/PhD Program-Type on their AMCAS application and instruct AMCAS to forward their credentials to the Carver College of Medicine (IA131). Applications should be submitted as early as possible to allow careful review by the admissions committees of the Medical Scientist Training Program (MSTP) and the Carver College of Medicine.

All candidates must take the Medical College Admission Test (MCAT), according to Carver College of Medicine requirements. The Graduate Record Exam (GRE) General Test is not required for admission.

Application to the Graduate College is not required before acceptance to the MSTP. Trainees admitted to the program receive assistance with Graduate College enrollment.

## Financial Support

Trainees receive a stipend and full tuition support from a National Institutes of Health Medical Scientist Training Program training grant to the University of Iowa, supplemented by other institutional and individual awards.

Students in the graduate phase of training receive support from their graduate departments or interdisciplinary programs and their research advisors. The program office also helps selected trainees apply for competitive national awards for outstanding academic and research achievement.

## Courses

### Medical Scientist Training Program Courses

**MSTP:7270 Medical Scientist Training Program Principles of Scholarly Integrity** 1 s.h.

Training in responsible conduct of research; student/mentor responsibilities; authorship and reviewing; plagiarism and falsification/fabrication of data; intellectual property; fiscal, institutional, societal conflicts of interest; treatment of human and animal subjects; data handling. Requirements: Medical Scientist Training Program enrollment.

**MSTP:8511 Medical Scientist Training Program Research** arr.

Research experience. Requirements: Medical Scientist Training Program enrollment.

**MSTP:8512 Medical Scientist Training Program Clinical Connections** arr.

Experience with physician-scientist preceptor in medical interviewing, physical examination, patient presentation through direct patient interaction. Requirements: Medical Scientist Training Program graduate phase enrollment.

**MSTP:8513 Sitting in the Middle: Physician Scientist 101** 1 s.h.

Physician scientists have a unique role in the processes of medical research and patient care. Students study a variety of topics crucial to becoming an effective physician scientist, including critical interpretation of medical literature, time management, imposter syndrome, data presentation, and interactions with patients.

**MSTP:8514 Grant Writing Basics: A Focus on Predoctoral Applications** 1 s.h.

Introduction to practical and conceptual aspects of grant-writing process, with the goal of completing an NIH F30-like grant; encourages critical thinking about significance, innovation, and experimental design; relate critical information and study design in concise and clear language; practical concepts of grant writing such as specific aims, experimental design, and the grant review process; trainees will present their research ideas, establishing opportunities to give and receive scientific criticism. Requirements: Medical Scientist Training Program enrollment.

**MSTP:8515 Medical Scientist Training Program Topics** 1 s.h.

Workshops and speakers; focus on a variety of topics including wellness, research presentations, professional development, and on-going faculty research partnerships. Requirements: Medical Scientist Training Program enrollment.