TRANSLATIONAL RESEARCH, MSTR

The Master of Science in Translational Research (MSTR) provides students with in-depth instruction in the fundamental skills, methodology and principles necessary to become a well-trained translational investigator. The program is designed to meet this objective through the provision of didactic course work, a formal mentorship program, laboratory training, a professional development core, and specific ongoing guidance with hands-on exposure to protocol and grant development. The MSTR is housed within the Institute for Translational Medicine and Therapeutics (ITMAT) which supports research at the interface of basic and clinical research focusing on developing new and safer therapeutics.

The MSTR is designed to facilitate training and research particularly from proof of concept in cellular and animal model systems across the translational divide to proof of concept and dose selection in humans. Student projects and career goals align across this continuum. Students enroll in a core set of courses and also choose an academic pathway to concentrate in a specific area of translational science.

Concentrations

- Discovery: For students who are elucidating the basic pathophysiological etiology and/or process of disease. Projects may be proof of concept in cell or animal models or human samples.

- Translational Therapeutics and Regulatory Science: For students who are testing discoveries for preclinical and/or clinical effect. Projects may be first in humans, phase 1, or assessing the safety, efficacy, quality, and performance of regulated products.
- Entrepreneurial Science: For students who aim to navigate both business and academic environments as you conduct research and consider commercialization opportunities.
- Bioinformatics/Biomedical Informatics: For students who are adopting informatics methodologies to develop and test their own hypotheses.

For more information: https://www.itmat.upenn.edu/itmat/education-and-training/master-of-science-in-translational-research/

Curriculum

Students must complete 12 course units and achieve a B- or higher in each course for the degree.

Code	Title	Course Units
Competencies		
Complete the mininimum CU from each of the following pillars:		
Research Methods		*3*
MTR 6020	Proposal Development and Study Design	
MTR 9999	Master of Science in Translational Research LAB	
Analytical Skills		*1*
MTR 5350	Introduction to Bioinformatics	
MTR 6000	Introduction to Biostatistics	
MTR 6030	Disease Measurement	
Responsible Conduct of Research		*1*
MTR 6040	Scientific & Ethical Conduct	
Scientific Writing		*1*
MTR 6010	Practical Scientific Writing	
MTR 6050	Data Manuscript Writing	
MTR 6060	Grantsmanship	
MTR 6230	Writing an NIH Grant	
Thesis		**2**
MTR 6070	Thesis I	
MTR 6080	Thesis II	
Electives		**4**
Select 4 CU guided by concentration and/or research area of interest.		
Total Course Units		**12**

Discovery

Code	Title	Course Units
Electives		
Discovery-based elective		2

Bioinformatics/Biomedical Informatics

Code	Title	Course Units
Supplemental Core		
MTR 5350	Introduction to Bioinformatics	1
or BMIN 5030	Data Science for Biomedical Informatics	
Electives		
Bioinformatics-based elective		1

Entrepreneurial Science

Code	Title	Course Units
Supplemental Core		
HCMG 8670	Health Care Entrepreneurship	0.5
MTR 6400	Seminar in Entrepreneurial Science	0.5
Electives		
Entrepreneurial Science-based elective		1

Translational Therapeutics and Regulatory Science

Code	Title	Course Units
Electives		
Translational Therapeutics-based elective		2

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2024 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.