

TRANSLATIONAL PHARMACEUTICAL SCIENCE, MS

mstps@case.edu

Degree: Master of Science (MS)

Field of Study: Translational Pharmaceutical Science

Program Overview

This program will prepare students for careers in the pharmaceutical industry. Our full-time students can complete the 30 credit hour master's degree in two years or less and have the opportunity to tailor their training to their specific career aspirations. The core courses provide foundational knowledge about the translation of pharmaceuticals from "bench to bedside" including pharmaceutical science principles, drug development and discovery, clinical trials, and professional skills. Additionally, students select an experiential learning opportunity that can be an industry internship or laboratory research. To ensure our students receive extensive interdisciplinary training mimicking the pharmaceutical industry, students select from a variety of electives offered in the areas of biomedical research, business management, intellectual property, patent law, bioengineering, biostatistics and bioinformatics. To round out our program, students participate in scientific seminars, research ethics workshops, and career development activities. In lieu of a thesis, students develop a final presentation related to their experiential learning opportunity.

Though many students may choose to pursue diverse elective training opportunities, this program offers students the opportunity to specialize in a particular discipline through concentration selection. The three concentrations offered in this program are Pharmaceutical Science Research, Pharmaceutical Business and Law, and Biostatistics and Bioinformatics. Students that opt to join a concentration will focus their electives and/or experiential learning opportunity in that discipline. Please keep in mind that concentration selection is not required for this program.

Graduate Policies

For graduate policies and procedures, please review the School of Graduate Studies section of the General Bulletin.

Program Requirements

The Master of Science program in Translational Pharmaceutical Science will prepare students for a multitude of occupations in the pharmaceutical industry and adjacent settings (i.e., academic research laboratory) by providing a highly integrative curriculum. The Department of Pharmacology will serve as the home for the proposed MS program, but the program will be a joint effort between the School of Medicine, School of Law, Case School of Engineering, and Weatherhead School of Management. The MS in Translational Pharmaceutical Science will be a two-year program and fall under the Plan B or non-thesis option. Students enrolled in this program will be required to complete a minimum of 30 credit hours of coursework with at least 18 credit hours of coursework at the 400-level or higher and at least 12 credit hours of graded coursework. A cumulative grade point average of at least a 3.0

will be required for award of the degree. The curriculum is built upon four foundational pillars that are universal themes across all occupational opportunities in the pharmaceutical industry requiring a MS degree, including pharmaceutical science principles, drug development and discovery, translational applications and clinical trials, and professional and interpersonal skills. The core curriculum aims to ensure students are proficient in these competencies, which will account for 12 credit hours of graded coursework. Each student will be assigned a faculty advisor to help design their unique plan of study beyond these core courses based on career aspirations. Advisors will help students select their planned program of study and concentration, if applicable, which will guide students to elective courses that best match their career goals. Rounding out this program, students will be required to participate in a pharmaceutical science seminar series, attend and present at a scientific retreat, and participate in professional skill and career development workshops. Electives will satisfy 12 to 15 credit hours of coursework, the majority of which will be graded. Students will be required to complete a minimum of 3 credits of either a research experience, internship, or combination, which will serve as the culminating experience for this MS degree.

Code	Title	Credit Hours
Required Courses:		
MGRD 425	Leadership and Professional Development Skills for Biomedical Sciences	0
PHRM 409	Principles of Pharmacology	3
PHRM 511	Frontiers in Pharmacology	0 - 1
PHRM 528	Contemporary Approaches to Drug Discovery	3
PHRM 602	Translational Pharmaceutical Science: Culminating Research Experience	3 - 6
or PHRM 603	Translational Pharmaceutical Science: Culminating Internship Experience	
PQHS 450	Clinical Trials and Intervention Studies	3
Electives		12-15
Total Credit Hours		30

Concentrations

Three concentrations will be offered but will not be required.

Pharmacology and Drug Discovery Concentration

Code	Title	Credit Hours
Electives:		
CRSP 440	Translational & Patient-Oriented Research Theory	3
EBME 416	Biomaterials for Drug Delivery	3
EBME 426	Nanomedicine	3
EBME 440	Translational Research for Biomedical Engineers	3
PHRM 466	Cell Signaling	3
PHRM 525	Topics in Cell and Molecular Pharmacology	0 - 18
PHRM 527	Pathways to Personalized Medicine	3

Pharmaceutical Business and Law Concentration

Code	Title	Credit Hours
Electives:		
EPOM 400	Leadership and Interpersonal Skills	3
HSMC 404	Managing People and Organizations	3
HSMC 420	Health Finance	3
HSMC 421	Health Economics and Strategy	3
HSMC 425	Dialogues in Healthcare Management	3
IIME 425		3
MBAP 411	Identifying Design Opportunities	3

Biostatistics and Bioinformatics Concentration

Code	Title	Credit Hours
Electives:		
PQHS 431	Statistical Methods I	3
PQHS 432	Statistical Methods II	3
PQHS 515	Secondary Analysis of Large Health Care Databases	3
SYBB 402	Introduction to Scientific Computing	1
SYBB 411	Technologies in Bioinformatics	3
SYBB 412	Survey of Bioinformatics: Programming for Bioinformatics	3
SYBB 421	Fundamentals of Clinical Information Systems	3