



Twin Cities Campus

Pharmaceutics Ph.D.

Graduate Studies in Pharmaceutics

College of Pharmacy

Link to a [list of faculty](#) for this program.

Contact Information:

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- Program Type: Doctorate
- Requirements for this program are current for Fall 2019
- Length of program in credits: 48
- This program requires summer semesters for timely completion.
- Degree: Doctor of Philosophy

Along with the program-specific requirements listed below, please read the [General Information](#) section of the catalog website for requirements that apply to all major fields.

The pharmaceutics program offers emphases in physical pharmacy, biopharmaceutics, and pharmacokinetics. Minor fields of particular value include biochemistry, biomedical engineering, biometry, chemistry, chemical engineering, mechanical engineering, molecular biology, pharmacology, and statistics.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

The preferred undergraduate GPA for admittance to the program is 3.20.

Other requirements to be completed before admission:

Undergraduate (and graduate, if applicable) scholastic records, recent GRE scores (with a preferred minimum 80% quantitative reasoning score and 3.5 analytical writing score), a statement of career goals and research interests, and three letters of recommendation.

International applicants must submit results from the TOEFL (with a preferred minimum 100 total score and 23 speaking score, and a required minimum 21 writing score and 19 reading score) or IELTS (with a required minimum 6.5 total score, 6.5 reading score, and 6.5 writing score). Prefer "First Class" or the equivalent on transcripts from foreign institutions.

All of the above are collectively used to determine each candidate's admissibility. Fall admission is preferred and the deadline to apply is November 30.

Applicants must submit their test score(s) from the following:

- GRE

International applicants must submit score(s) from one of the following tests:

- TOEFL
- IELTS

The preferred English language test is Test of English as Foreign Language

Key to [test abbreviations](#) (GRE, TOEFL, IELTS).

For an online application or for more information about graduate education admissions, see the [General Information](#) section of the



catalog website.

Program Requirements

16 credits are required in the major.

8 credits are required outside the major.

24 thesis credits are required.

This program may be completed with a minor.

Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

A minimum GPA of 3.00 is required for students to remain in good standing.

Successful completion of program examinations and timely progress towards the degree are also required for students to remain in good standing.

Required Courses

Pharmaceutics Modules

PHM 8210 - Pharmacokinetics Module (1.0 cr)

PHM 8220 - Physical Pharmacy Module I (1.0 cr)

PHM 8230 - Physical Pharmacy Module II (1.0 cr)

PHM 8240 - Biopharmaceutics Module (1.0 cr)

Pharmaceutics Seminar

Register for 1 credit each semester in which presenting a seminar and up to 3 credits.

PHM 8100 - Seminar: Pharmaceutics (1.0 cr)

Pharmaceutics Graduate Courses: 81xx

Take two courses for a total of 2 credits from the following list:

PHM 8110 - Readings in Pharmaceutics (1.0 cr)

or PHM 8120 - Readings in Central Nervous System (CNS) Drug Delivery (1.0 cr)

or PHM 8150 - Pharmacokinetics Research Seminar (1.0 cr)

Pharmaceutics Graduate Courses: 84xx

Choose two courses from the following list for at least 7 credits:

PHM 8421 - Advanced Pharmacokinetics (4.0 cr)

or PHM 8431 - Controlled Drug and Gene Delivery: Materials, Mechanisms, and Models (4.0 cr)

or PHM 8441 - Solubility and Solid-State Properties of Drugs (4.0 cr)

or PHM 8481 - Advanced Neuropharmaceutics (4.0 cr)

Required Background

Equivalent coursework or previous experience, with approval of the program faculty, may be substituted for some or all of the following courses:

Pharmacy Background

PHCL 5110 - Introduction to Pharmacology (3.0 cr)

or PHAR 6726 - Principles of Pharmacology (2.3 cr)

or PHAR 6762 - Medicinal Chemistry and Neuropharmacology (2.8 cr)

Math Background

MATH 4512 - Differential Equations with Applications (3.0 cr)

Statistics Background

PUBH 6450 - Biostatistics I (4.0 cr)

or STAT 5021 - Statistical Analysis (4.0 cr)

or Take exactly 2 course(s) from the following:

•STAT 5101 - Theory of Statistics I (4.0 cr)

•STAT 5102 - Theory of Statistics II (4.0 cr)

or Take exactly 3 course(s) from the following:

•STAT 5302 - Applied Regression Analysis (4.0 cr)

•STAT 5303 - Designing Experiments (4.0 cr)

•STAT 5401 - Applied Multivariate Methods (3.0 cr)

Outside Coursework Requirement

Take at least 8 credits of coursework outside the major, which can include non-PHAR- and non-PHM-designated courses taken to satisfy the background requirement. All courses must be selected in consultation with the advisor.

Thesis Credits



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Take at least 24 doctoral thesis credits.

[PHM 8888](#) - Thesis Credit: Doctoral (1.0 - 24.0 cr)