



Twin Cities Campus

Experimental and Clinical Pharmacology M.S.

Experimental and Clinical Pharmacology

College of Pharmacy

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

Contact Information:

Department of Experimental and Clinical Pharmacology, University of Minnesota College of Pharmacy, 7-153 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-626-8419)

Email: dicki002@umn.edu

Website: <http://www.pharmacy.umn.edu/ecp/grad/home.html>

- Program Type: Master's
- Requirements for this program are current for Fall 2016
- Length of program in credits: 30
- This program does not require summer semesters for timely completion.
- Degree: Master of Science

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 Experimental and Clinical Pharmacology (ECP) graduate program was designed specifically for students interested in clinical research. Its goal is to advance the science of human pharmacology and therapeutics to improve the safe, effective, and economical use of drugs by patients.

Students study such topics as experimental pharmacotherapy, drug metabolism, infectious disease, pharmacometrics, and pharmacogenomics. Graduates are prepared for distinguished careers in clinical research.

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 3.00.

A U.S. bachelor's degree or a comparable foreign degree from a recognized college or university is required.

Preference is given to candidates who have had professionally-related pharmacy education, but those from other fields such as biology, chemistry, statistics, and public health will be considered.

Other requirements to be completed before admission:

GRE scores are required from non-U.S. Pharm.D. applicants. Foreign students may be required to have a phone interview. All international students who are non-English speakers are required to submit TOEFL scores. However, applicants who have completed 24 quarter credits or 16 semester credits within the past 24 months in residence as full-time students at recognized institutions of higher learning in the United States or other English-speaking countries before entering the University of Minnesota are generally exempted from this requirement.

Special Application Requirements:

Students are generally admitted to the ECP program for fall semester only. The application deadline is February 1. Applications received after February 1 will be considered on a space-available basis only.

Application to the ECP program at the University of Minnesota is done entirely online through ApplyYourself. A supplemental departmental application form is also required. Applicants should upload it directly to the ApplyYourself system.

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

- TOEFL
 - Internet Based - Total Score: 79
 - Internet Based - Writing Score: 21
 - Internet Based - Reading Score: 19
 - Paper Based - Total Score: 550



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

Key to [test abbreviations](#)(TOEFL).

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

Program Requirements

Plan A: Plan A requires 14 major credits, 6 credits outside the major, and 10 thesis credits. The final exam is oral.

Plan B: Plan B requires 24 major credits and 6 credits outside the major. The final exam is oral.

This program may be completed with a minor.

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



Twin Cities Campus

Experimental and Clinical Pharmacology Minor

Experimental and Clinical Pharmacology

College of Pharmacy

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

Contact Information:

Department of Experimental and Clinical Pharmacology, University of Minnesota College of Pharmacy, 7-153 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-626-8419)

Email: dicki002@umn.edu

Website: <http://www.pharmacy.umn.edu/ecp/grad/home.html>

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2016
- Length of program in credits (Masters): 6
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

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 Experimental and Clinical Pharmacology (ECP) graduate program was designed specifically for students interested in clinical research. Its goal is to advance the science of human pharmacology and therapeutics to improve the safe, effective, and economical use of drugs by patients.

Students study such topics as experimental pharmacotherapy, drug metabolism, infectious disease, pharmacometrics, and pharmacogenomics. Graduates are prepared for distinguished careers in clinical research.

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 3.00.

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

- TOEFL
 - Paper Based - Total Score: 550

Key to [test abbreviations](#)(TOEFL).

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

Program Requirements

Use of 4xxx courses towards program requirements is not permitted.



Twin Cities Campus

Experimental and Clinical Pharmacology Ph.D.

Experimental and Clinical Pharmacology

College of Pharmacy

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

Contact Information:

Department of Experimental and Clinical Pharmacology, University of Minnesota College of Pharmacy, 7-153 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-626-8419)

Email: dicki002@umn.edu

Website: <http://www.pharmacy.umn.edu/ecp/grad/home.html>

- Program Type: Doctorate
- Requirements for this program are current for Fall 2016
- Length of program in credits: 72
- This program does not require 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 Experimental and Clinical Pharmacology (ECP) graduate program was designed specifically for students interested in clinical research. Its goal is to advance the science of human pharmacology and therapeutics to improve the safe, effective, and economical use of drugs by patients.

Students study such topics as experimental pharmacotherapy, drug metabolism, infectious disease, pharmacometrics, and pharmacogenomics. Graduates are prepared for distinguished careers in clinical research.

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 3.00.

A U.S. bachelor's degree or a comparable foreign degree from a recognized college or university is required.

Preference is given to candidates who have had a professionally-related pharmacy education, but those from other fields such as biology, chemistry, statistics, and public health will be considered.

Other requirements to be completed before admission:

All international students who are non-English speakers are required to submit TOEFL scores. However, applicants who have completed 24 quarter credits or 16 semester credits within the past 24 months in residence as full-time students at recognized institutions of higher learning in the United States or other English-speaking countries before entering the University of Minnesota are generally exempted from this requirement. ETS will download your TOEFL score directly into ApplyYourself. Non U.S.-Pharm.D. applicants are required to submit GRE scores. Foreign students may be required to have a phone interview.

Special Application Requirements:

Application to the ECP program at the University of Minnesota is done entirely online through ApplyYourself. A supplemental departmental application form is also required. Applicants should upload it to the ApplyYourself system.

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

- TOEFL
 - Internet Based - Total Score: 79
 - Internet Based - Writing Score: 21
 - Internet Based - Reading Score: 19
 - Paper Based - Total Score: 550

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



Key to [test abbreviations](#)(TOEFL).

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

Program Requirements

36 credits are required in the major.

12 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.

At least 2 semesters must be completed before filing a Degree Program Form.

Students must pass one written preliminary examination and one preliminary oral examination before writing the dissertation.

The final oral examination for the Ph.D. is a defense of the thesis.



Twin Cities Campus

Medicinal Chemistry M.S.

Graduate Studies in Medicinal Chemistry

College of Pharmacy

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

Contact Information:

Department of Medicinal Chemistry, 8-101 Weaver-Densford Hall, 308 Harvard Street SE, Minneapolis, MN 55455 (612-624-9919; fax: 612-626-3114)

Email: medchem@umn.edu

Website: <http://www.pharmacy.umn.edu/medchem/home.html>

- Program Type: Master's
- Requirements for this program are current for Fall 2016
- Length of program in credits: 30
- This program does not require summer semesters for timely completion.
- Degree: Master of Science

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.

Note: Students are not admitted directly to the MS program. See the Medicinal Chemistry PhD or contact the director of graduate studies for more information.

The medicinal chemistry program emphasizes the application of chemical principles to research on the action of drugs on biological systems. Courses offered by the program focus on general principles of medicinal chemistry, drug design and synthesis, chemical aspects of drug metabolism, chemical mechanisms of drug toxicity and carcinogenicity, computer-assisted drug design and receptor modeling, and combinatorial chemistry.

Students must complete a core curriculum of advanced courses in organic and medicinal chemistry, as well as credits in a minor or related field.

Program Delivery

This program is available:

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

Prerequisites for Admission

Special Application Requirements:

Note: Students are not admitted directly to the M.S. program. See the Medicinal Chemistry Ph.D.

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

Program Requirements

Plan A: Plan A requires 14 major credits, 6 credits outside the major, and 10 thesis credits. The final exam is oral.

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 3.0 is required for students to remain in good standing.

At least 2 semesters must be completed before filing a Degree Program Form.

Students complete a 14-credit core curriculum of advanced courses in organic chemistry and medicinal chemistry. In addition, students take 6 credits of coursework, chosen in consultation with the advisor, which supports the course of study.

Required Courses



[MEDC 8001](#) - General Principles of Medicinal Chemistry (3.0 cr)
[MEDC 8002](#) - General Principles of Medicinal Chemistry (3.0 cr)
[MEDC 8050](#) - Physical and Mechanistic Organic Chemistry (2.0 cr)
[MEDC 8100](#) - Medicinal Chemistry Seminar (1.0 cr)
[MEDC 8435](#) - BioAssay & Data Analysis (1.0 cr)
[CHEM 8321](#) - Organic Synthesis (4.0 cr)

Additional Courses

Take at least 1 course from the following list. Choose remaining coursework to meet the 6-credit minimum in consultation with the advisor.

[MEDC 5185](#) - Principles of Biomolecular Simulation (3.0 cr)
[MEDC 5494](#) - Advanced Methods in Quantitative Drug Analysis (2.0 cr)
[MEDC 8500](#) - Design of Chemotherapeutic Agents (2.0 cr)
[MEDC 8753](#) - MOLECULAR TARGETS OF DRUG DISCOVERY (3.0 cr)
[MEDC 8420](#) - Natural Products Chemistry (3.0 cr)
[MEDC 8471](#) - High Throughput Drug Discovery (3.0 cr)
[MEDC 8413](#) - Chemistry of Nucleic Acids (3.0 cr)
[MEDC 8700](#) - Advanced Concepts in Drug Design (2.0 cr)

Thesis Credits

Take at least 10 masters thesis credits.

[MEDC 8777](#) - Thesis Credits: Master's (1.0 - 18.0 cr)



Twin Cities Campus

Medicinal Chemistry Minor

Graduate Studies in Medicinal Chemistry

College of Pharmacy

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

Contact Information:

Department of Medicinal Chemistry, 8-101 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-624-9919; fax: 612-624-0139)

Email: medchem@umn.edu

Website: <http://www.pharmacy.umn.edu/medchem/home.html>

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2016
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

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 program in medicinal chemistry emphasizes the application of chemical principles to research on the action of drugs on biological systems. Courses offered by the program focus on general principles of medicinal chemistry, drug design and synthesis, chemical aspects of drug metabolism, chemical mechanisms of drug toxicity and carcinogenicity, computer-assisted drug design and receptor modeling, and combinatorial chemistry.

Program Delivery

This program is available:

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

Prerequisites for Admission

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

Program Requirements

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

A minimum of 12 credits in a focused area (which may include biochem or chem credits taken as required for the major program) is required for the doctoral minor, including introductory courses (MEDC 8001 and 8002), advanced medicinal chemistry courses, and other courses in the medicinal chemistry core curriculum.



Twin Cities Campus

Medicinal Chemistry Ph.D.

Graduate Studies in Medicinal Chemistry

College of Pharmacy

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

Contact Information:

Department of Medicinal Chemistry, 8-101 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-624-9919; fax: 612-624-0139)

Email: medchem@umn.edu

Website: <http://www.pharmacy.umn.edu/medchem/home.html>

- Program Type: Doctorate
- Requirements for this program are current for Fall 2016
- 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 program in medicinal chemistry emphasizes the application of chemical principles to research on the action of drugs on biological systems. Courses offered by the program focus on general principles of medicinal chemistry, drug design and synthesis, chemical aspects of drug metabolism, chemical mechanisms of drug toxicity and carcinogenicity, computer-assisted drug design and receptor modeling, and combinatorial chemistry.

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 3.00.

Other requirements to be completed before admission:

Applicants should have a B.S. or M.S. degree in an appropriate related science field such as pharmacy, chemistry, or biology. Students majoring in other degree programs that encompass chemical, biochemical, or biological fields of study are also encouraged to apply. All applicants should have completed undergraduate chemistry through elementary organic chemistry. Undergraduate coursework in biochemistry and physical chemistry is also a prerequisite, but under certain circumstances such coursework may be taken during the first year. Students may apply for admission to the Ph.D. program only, and usually are admitted fall semester only.

Special Application Requirements:

Scores from the General (Aptitude) Test of the GRE, three letters of recommendation from college-level faculty, a complete set of official transcripts, and a statement of immediate and long range career objectives are required. All application materials should be submitted by the admissions deadline listed on the departmental website in order to be considered for fellowship, teaching, and research assistantships awarded in the next academic year.

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

- TOEFL
 - Internet Based - Total Score: 79
 - Internet Based - Writing Score: 21
 - Internet Based - Reading Score: 19
 - Paper Based - Total Score: 550
- IELTS
 - Total Score: 6.5
- MELAB
 - Final score: 80

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

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



catalog website.

Program Requirements

24 credits are required in 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.

At least 3 semesters must be completed before filing a Degree Program Form.

Students must also participate in the department seminar program, successfully complete a comprehensive exam requirement that serves as the preliminary written exam, and prepare and defend an original research proposal which serves as the preliminary oral exam.

All students must complete a core curriculum of advanced courses in organic chemistry and biochemistry (totaling 12 credits); and medicinal chemistry (12 cr).



Twin Cities Campus

Pharmaceutics M.S.

Graduate Studies in Pharmaceutics

College of Pharmacy

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

Contact Information:

Department of Pharmaceutics
Room 9-177 Weaver-Densford Hall
308 Harvard Street SE
Minneapolis, MN 55455
USA
Phone: 612-624-5151
Fax: 612-626-2125
Email: pceuts@umn.edu
Website: <http://www.pharmacy.umn.edu/pharmaceutics>

- Program Type: Master's
- Requirements for this program are current for Fall 2016
- Length of program in credits: 30
- This program requires summer semesters for timely completion.
- Degree: Master of Science

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.

Note: Entry to the MS program is available on a very restricted basis. Please contact the director of graduate studies to obtain details about admission.

The Pharmaceutics program offers emphases in physical pharmacy, biopharmaceutics, and pharmacokinetics.

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

Plan A: Plan A requires 14 major credits, 6 credits outside the major, and 10 thesis credits. The final exam is oral.

This program may not 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.

Required Courses

Pharmaceutics Modules

Register for 2 credits of PHM 8295 in the fall and spring for a total of 4 credits.

[PHM 8295](#) - Research Problems in Pharmaceutics (1.0 - 12.0 cr)

Pharmaceutics Graduate Courses: 84xx

Choose 1 of the following courses:

[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 (3.0 cr)

or [PHM 8481](#) - Advanced Neuropharmaceutics (4.0 cr)

Required Background

Complete this requirement by taking one of the following courses. If PHAR 6726 or 6762 is chosen, or if the faculty accepts previous experience in lieu of background courses, additional elective coursework may be required to meet minimum credit requirements.

[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)

Electives

Take at least 3 elective credits, in consultation with the advisor, to meet minimum credit requirements. Electives can be from inside or outside the major.

Outside Courses

Take at least 6 credits outside the major, in consultation with the advisor.

Thesis Credits

A total of 10 thesis credits is required.

[PHM 8777](#) - Thesis Credits: Master's (1.0 - 18.0 cr)



Twin Cities Campus

Pharmaceutics Minor

Graduate Studies in Pharmaceutics

College of Pharmacy

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

Contact Information:

Department of Pharmaceutics
Room 9-177 Weaver-Densford Hall
308 Harvard Street SE
Minneapolis, MN 55455
USA
Phone: 612-624-5151
Fax: 612-626-2125
Email: pceuts@umn.edu
Website: <http://www.pharmacy.umn.edu/pharmaceutics>

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2016
- Length of program in credits (Masters): 6
- Length of program in credits (Doctorate): 12
- This program requires summer semesters for timely completion.

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.

Program Delivery

This program is available:

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

Prerequisites for Admission

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

Program Requirements

Use of 4xxx courses towards program requirements is not permitted.

Program Sub-plans

Students are required to complete one of the following sub-plans.
Students may not complete the program with more than one sub-plan.

Doctoral

The doctoral minor requires a minimum of 12 credits in PHM 8xxx or PHAR 6xxx courses, approved by the pharmaceutics director of graduate studies.

Masters

The master's minor requires a minimum of 6 credits in PHM 8xxx or PHAR 6xxx courses, approved by the pharmaceutics director of graduate studies.



Twin Cities Campus

Pharmaceutics Ph.D.

Graduate Studies in Pharmaceutics

College of Pharmacy

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

Contact Information:

Department of Pharmaceutics
Room 9-177 Weaver-Densford Hall
308 Harvard Street SE
Minneapolis, MN 55455
USA
Phone: 612-624-5151
Fax: 612-626-2125
Email: pceuts@umn.edu
Website: <http://www.pharmacy.umn.edu/pharmaceutics>

- Program Type: Doctorate
- Requirements for this program are current for Fall 2016
- Length of program in credits: 48 to 53
- 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 to 21 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

Register for 2 credits in fall and 2 credits in spring for a total of 4 credits.

[PHM 8295](#) - Research Problems in Pharmaceutics (1.0 - 12.0 cr)

Pharmaceutics Seminar

Register for 1 credit each semester in which presenting a seminar, for a total of 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 (3.0 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:

[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 4512](#) - Differential Equations with Applications (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

Take at least 24 doctoral thesis credits.

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



Twin Cities Campus

Social and Administrative Pharmacy M.S.

Pharmaceutical Care and Health

College of Pharmacy

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

Contact Information:

7-155 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-624-2973; fax: 612-625-9931)

Email: cremi001@umn.edu

Website: <http://www.pharmacy.umn.edu/pchs/saph/home.html>

- Program Type: Master's
- Requirements for this program are current for Fall 2016
- Length of program in credits: 30 to 32
- This program does not require summer semesters for timely completion.
- Degree: Master of Science

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.

Study within the Social and Administrative Pharmacy Program is tailored carefully to the specific needs and objectives of the student. It is a flexible, interdisciplinary program which utilizes all resources of the University's many outstanding departments in an effort to provide the student with knowledge and experience in areas she/he feels are applicable to the resolution of pharmacy-oriented problems.

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 3.00.

Other requirements to be completed before admission:

Although the majority of students in the program are pharmacists, a pharmacy education is not required. A bachelor's degree or its foreign equivalent from a recognized college of pharmacy and a strong scholastic record are desirable. Individuals from other fields such as economics, engineering, computer science, medicine, psychology, sociology, or public health may be admitted if their undergraduate coursework satisfies the prerequisites for graduate coursework.

Special Application Requirements:

Applicants must complete a supplementary application form in addition to the University application. The supplementary form along with three letters of recommendation should be uploaded to the University Apply Yourself application. GRE scores are required and a performance level of 580 (158 for November 1, 2011-June 30, 2012) is preferred on the TOEFL for all international applicants whose native language is not English.

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

- TOEFL
 - Internet Based - Total Score: 79
 - Internet Based - Writing Score: 21
 - Internet Based - Reading Score: 19
 - Paper Based - Total Score: 550
- IELTS
 - Total Score: 6.5
- MELAB
 - Final score: 80

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

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



Program Requirements

Plan A: Plan A requires 16 major credits, 6 credits outside the major, and 10 thesis credits. The final exam is oral.

Plan B: Plan B requires 16 major credits and 6 credits outside the major. The final exam is oral. A capstone project is required.

Capstone Project: The balance of coursework taken to meet the 30-credit minimum (8 credits in addition to the 16 major field credits and 6 minor or related field credits) is determined by agreement between the student and adviser.

Plan B also requires two papers of publishable quality; one paper must include a research component with an analysis of data.

This program may be completed with a minor.

Use of 4xxx courses towards program requirements is not permitted.

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

At least 2 semesters must be completed before filing a Degree Program Form.



Twin Cities Campus

Social and Administrative Pharmacy Minor

Pharmaceutical Care and Health

College of Pharmacy

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

Contact Information:

7-155 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-624-2973; fax: 612-625-9931)

Email: cremi001@umn.edu

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2016
- Length of program in credits (Masters): 6
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

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.

Students in the Social and Administrative Pharmacy Program are prepared for research and related activities investigating relationships between biological and physical factors in social settings that involve the drug use process. The flexible interdisciplinary program uses the resources of the many health and social science departments at the University, and may include courses and offerings from public health, geriatrics, management, sociology, psychology, and public affairs.

The program focuses on the discovery and dissemination of new knowledge to foster appropriate use of drugs to improve patient outcomes at the individual and societal level. Students are educated and mentored to become professional scientists. Those who complete the program will understand the process of conducting high quality research and problem solving through the application of disciplinary and interdisciplinary knowledge, theory, and research methodology.

Social and administrative pharmacy (SAPH) is the application of behavior-oriented interdisciplinary theories to pharmacy problem solving and pharmacy system development. This includes the study of the social, psychosocial, political, legal, public policy, historic, and economic factors that impinge upon the use, non-use, and abuse of drugs.

Program Delivery

This program is available:

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

Prerequisites for Admission

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

Program Requirements

Use of 4xxx courses towards program requirements is not permitted.



Twin Cities Campus

Social and Administrative Pharmacy Ph.D.

Pharmaceutical Care and Health

College of Pharmacy

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

Contact Information:

7-155 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455 (612-624-2973; fax:612-625-9931)

Email: cremi001@umn.edu

Website: <http://www.pharmacy.umn.edu/pchs/saph/home.html>

- Program Type: Doctorate
- Requirements for this program are current for Fall 2016
- Length of program in credits: 71
- This program does not require 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.

Social and administrative pharmacy (SAPH) is the application of behavior-oriented interdisciplinary theories to pharmacy problem solving and pharmacy system development. This includes the study of the social, psycho-social, political, legal, public policy, historic, and economic factors that impinge upon the use, non-use, and abuse of drugs.

Students in the Social and Administrative Pharmacy Program are prepared for research and related activities of investigating relationships between biological and physical factors in social settings that involve the drug use process. This flexible interdisciplinary program uses the resources of the many health and social science departments at the University, and may include courses and offerings from public health, geriatrics, management, sociology, psychology, and public affairs.

The program focuses on the discovery and dissemination of new knowledge to foster appropriate use of drugs to improve patient outcomes at the individual and societal level. Students are educated and mentored to become professional scientists. Those who complete the program will understand the process of conducting high-quality research and problem solving through the application of disciplinary and interdisciplinary knowledge, theory, and research methodology.

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 3.00.

Special Application Requirements:

Applicants must complete a supplementary application form in addition to the University application. The supplementary form along with three letters of recommendation should be uploaded to the University Apply Yourself application. GRE scores are required and a performance level of 580 (158 for November 1, 2011-June 30, 2012) is preferred on the TOEFL for all international applicants whose native language is not English.

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

- TOEFL
 - Internet Based - Total Score: 79
 - Internet Based - Writing Score: 21
 - Internet Based - Reading Score: 19
 - Paper Based - Total Score: 550
- IELTS
 - Total Score: 6.5
- MELAB
 - Final score: 80

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



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

Program Requirements

35 credits are required in the major.

12 credits are required outside the major.

24 thesis credits are required.

This program may be completed with a minor.

Use of 4xx courses towards program requirements is not permitted.

Two preliminary written exams are required: one concentrates on research design, methodological issues, and statistical analysis; the other on material specific to social and administrative pharmacy. Students must also pass a preliminary oral exam.