It is the responsibility of graduate students to familiarize themselves with the current Graduate School website (http://www.grad.umn.edu/students/index.html). This website is updated regularly. Graduate School regulations, as set forth on the website, are binding and should be kept in mind.

**SELECTION OF MAJOR ADVISOR**

Graduate students are admitted based on their outstanding credentials, stated research interests, and the faculty's ability to support the students educationally and financially. Upon admission, each student is assigned a temporary faculty advisor by the Director of Graduate Studies. By March 1 of the first year, the student should select a Permanent Advisor, who must be willing to mentor and provide financial support for the student's stipend and research. Prior to March 1, the student may conduct laboratory rotations, or “shadow” a senior graduate student in a particular research group. This provides an excellent means for evaluating the mutual suitability and compatibility of the student and the potential Permanent Advisor. Arrangements for laboratory rotations should be made with faculty in the first semester. Change in the Permanent Advisor requires approval by the Graduate Program faculty.

**CURRICULUM**

The curriculum consists of required courses, required background, and other courses, and must be approved by the faculty for each student. The core curriculum may be revised from time to time and is attached to this document as Appendix I.

A. **Grading Policy**

The program offers its 81XX-level courses on an S/N basis only, and its 84XX-level courses on an A/F (with pluses and minuses) basis only. A minimum acceptable grade of B-minus is required for all courses listed on the “Graduate Degree Plan” (formerly “Degree Program Form”). Pharmaceutics modules will be taken on an S/N basis. Receiving a pass in each module is required for both the Ph.D. and M.S. degrees, and the module may be repeated once, if needed.

B. **PHM 8100 Pharmaceutics Seminar**

NOTE: ALL graduate students are required to attend ALL seminars organized by the graduate program. This includes seminars given by those students taking their final oral exams and any guest seminars.

All graduate students in Pharmaceutics, both M.S. and Ph.D. candidates, are required to attend and to participate in the departmental seminar program. The program will encompass seminars by faculty members, graduate students, and guest lecturers. Candidates for the doctoral degree should register for one credit of PHM 8100 in the semester in which they present a seminar. Candidates (both part-time and full-time) for the Ph.D. degree will register using the S/N grade basis until they have completed 3 credits of PHM 8100. After the 3-credit requirement has been met, students will continue to present one seminar per year of residency. A public seminar is also required in association with the defense of the thesis at the doctoral level. Candidates for the Master’s degree are only required to present one seminar as part of their thesis defense and may not receive credit for PHM 8100.

The faculty are responsible for organizing the seminar program and scheduling of presentations. The semester in which a given graduate student will present during the year will be announced before the start of the semester. For a given semester, each graduate student presenting in that semester must inform the faculty seminar coordinator of the seminar title two weeks prior to the beginning of the semester. Generally, students in the second and third years of residence will present in fall semester.
Students registered in the Ph.D. program will present seminars of three types:

1. **First- and Second-year Seminars**

   Two seminars will be presented on topics selected by the graduate student in consultation with their advisor. First-year students are encouraged to select a topic that is distinct from research areas that are currently being investigated by program faculty.

2. **Research Seminar**

   A research seminar, concerning the student's thesis project, will be presented in the third year of residence. This seminar should describe in depth the background, present status, and future plan for the research. The graduate student is expected to work closely with his/her research advisor in preparing this seminar.

3. **Dissertation Seminar**

   Finally, a student will formally present his/her thesis research before taking the final examination for the M.S. and Ph.D. degrees.

C. **Readings / Research Seminar**

Candidates for the doctoral degree are required to take either PHM 8110 *Readings in Pharmaceutics*, PHM 8120 *Readings in CNS Drug Delivery*, or PHM 8150 *Pharmacokinetics Research Seminar*. The course format will be decided by the instructor(s) offering the course in that semester. The S/N grading system will be used in these courses. A maximum of 2 credits can be included on the Ph.D. program, but students may register for as many as they wish. There is no credit requirement for candidates for the Master’s degree.

D. **Other Relevant Courses**

   [http://www.grad.umn.edu/students/registration/specialcategories/index.html](http://www.grad.umn.edu/students/registration/specialcategories/index.html)

   - PHM 8295: “Research Problems”
   - PHM 8333: FTE: Master’s, 1 cr
   - PHM 8444: FTE: Doctoral, 1 cr
   - PHM 8666: For doctoral pre-thesis credits before completing the Ph.D. preliminary oral examination. (S/N only)
   - PHM 8777: Thesis credits: Master’s
   - PHM 8888: Thesis credits: Doctoral
   - GRAD 0999: Non-graded, zero-credit mechanism to fulfill the Graduate School’s registration requirement for maintaining active status.

E. **Transfer of Credit from Outside the University**

   [http://www.policy.umn.edu/Policies/Education/Education/GRADCREDITDEGREE.html](http://www.policy.umn.edu/Policies/Education/Education/GRADCREDITDEGREE.html)

   Graduate students who wish to transfer credits from outside the university for inclusion in their Graduate Degree Plan must submit appropriate course information for evaluation. Such information should include, where possible, the description, notes and syllabus, textbooks, and transcripts. The program faculty will determine if the courses satisfy the requirements of the student’s Graduate Degree Plan. The number of credits that may be transferred is limited by Graduate School Policy.

**PROGRAM EXAMINATIONS / REQUIREMENTS FOR DOCTORAL CANDIDATES**

   [http://www.policy.umn.edu/Policies/Education/Education/DOCTORALPERFORMANCE.html](http://www.policy.umn.edu/Policies/Education/Education/DOCTORALPERFORMANCE.html)
   [http://www.grad.umn.edu/students/forms/doctrinal/index.html](http://www.grad.umn.edu/students/forms/doctrinal/index.html)

A. **Preliminary Written Exam Requirement**

   All doctoral students must pass the Preliminary Written Examination. This examination covers all work completed in the major field and may include any work fundamental to this field. The examination will require knowledge in the areas of physical pharmacy, pharmacokinetics and pharmacodynamics, cell and molecular biology, and drug delivery/biopharmaceutics. The examination will also address higher order thinking/problem-solving skills and will
require the ability to analyze and interpret data, process information, plan experiments, and critically examine scientific literature.

The examination will comprise a research proposal. The topic for the proposal must be approved by the student's advisor, who may choose to have the proposal based on the student's thesis research or based on an independent line of research developed by the student. The internal members of the student's thesis committee will evaluate the proposal and will provide a written recommendation to the graduate program faculty with an overall assessment of (a) pass, (b) pass with reservations, or (c) fail. In the event that a student receives an assessment of "fail", the student will be excluded from candidacy for the doctoral degree.

B. Thesis Synopsis

All Ph.D. degree candidates must complete a thesis synopsis before taking the Preliminary Oral Exam. This synopsis must be submitted to each member of the Ph.D. supervisory committee at least one week prior to the Preliminary Oral Exam. Minimally, it must entail a concise statement of the specific aims or objectives of the proposed thesis research. The format and length of the synopsis will be decided by the student's advisor in consultation with the student.

C. Preliminary Oral Exam

The Preliminary Oral Examination covers the major field, the minor field or supporting program, and any work fundamental thereto including possible plans for thesis research. Immediately before the Preliminary Oral Examination, the committee chair stipulates the objectives of the examination and, in consultation with other members of the examining committee, determines how the examination is to be conducted.

Students are expected to complete their Preliminary Oral Examination by the end of their third year of registration.

D. Final Oral Examination

See the Graduate School website at http://www.grad.umn.edu/students/forms/doctoral/index.html.

PROGRAM EXAMINATIONS/REQUIREMENTS FOR MASTERS CANDIDATES

Thesis defense

Master's students must present a public seminar based on their thesis research followed by a defense. In addition to the contents of the thesis, the final defense may cover all work completed in the major field and may include any work fundamental to this field.

PROGRAM REQUIREMENTS, STANDARDS, AND CRITERIA & PROCESS FOR CONTINUATION IN, AND TERMINATION FROM, THE GRADUATE PROGRAM

A. Program Requirements and Standards for the Doctoral Degree

1. Program Requirements

Program requirements for the completion of a doctoral degree in Pharmaceutics are listed below. The student's performance and timeliness in completing these requirements shall collectively constitute the standard by which the student's progress in the program shall be judged.

   a. Coursework
   b. Preliminary Written Exam (PWE)
   c. Preliminary thesis research
d. Degree Plan (DP)  
e. Thesis Synopsis (TS)  
f. Preliminary Oral Exam (POE)  
g. Thesis Research  
h. Thesis Proposal (TP)  
i. Preparation and Completion of Thesis (PCT)  
j. Thesis Defense (D)

2. Standards

The quality in completing these requirements shall be judged by course directors, faculty advisor, program committees, and/or the program faculty. The timeliness of completion shall be judged with reference to the chart given below:

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coursework</td>
<td>Thesis Credits</td>
<td>PWE</td>
<td>DP</td>
<td>TS</td>
</tr>
</tbody>
</table>

B. Program Requirements and Standards for the Masters Degree

1. Program Requirements

Program requirements for the completion of a Masters degree in Pharmaceutics are listed below. The student's performance and timeliness in completing these requirements shall collectively constitute the standard by which the student's progress in the program shall be judged.

a. Coursework  
b. Thesis research  
c. Degree Plan (DP)  
d. Preparation and Completion of Thesis (PCT)  
e. Thesis Defense (D)

2. Standards

The quality in completing these requirements shall be judged by course directors, faculty advisor, program committees, and/or the program faculty. The timeliness of completion shall be judged with reference to the chart given below:

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coursework</td>
<td>Thesis Credits</td>
<td>DP</td>
</tr>
</tbody>
</table>

D

C. Annual Review of Progress

Each student shall receive an annual written review of progress. The student shall submit an Annual Report to the Permanent Advisor and the DGS. The student will then arrange a meeting with the advisor to discuss the report. No more than 30 days after the student has submitted an Annual Report, the advisor must provide the student with a written review of the annual report and indicate whether the student is making adequate progress. The annual report and the faculty review will be kept on file by the DGS.
D. Criteria and Process for Termination from the Program

Criteria for judging the performance in meeting individual requirements are given on the Graduate School website (http://www.policy.umn.edu/Policies/Education/Education/DOCTORALPERFORMANCE.html) and this Handbook. Failure to meet satisfactory performance standards with regard to quality or timeliness outlined in these cited documents can result in disciplinary action including termination from the program. Decisions shall be rendered by the program faculty based on written documentation of the performance, oral discussions, and/or transcripts. Students shall be afforded every reasonable opportunity to present arguments supporting a favorable disposition of their status in the graduate program. This can include written statements and oral presentations to all or individual faculty.

E. Channels for Arbitration, Appeals, and Grievances

Students have access to arbitration or grievance proceedings through a number of channels. The actual process depends on whether the alleged activity pertains to academic, employment, or discriminatory activity. Additional information may be obtained from the DGS or the Graduate School website (http://www.sos.umn.edu).

F. Part-Time Students

Students who are full-time employees outside the University and who are generally taking fewer than 5 credits per semester (part-time enrollment) must complete their program of coursework within a 6-year window. The 6-year period must fall within the first 7 years after entry into Graduate School.

POLICY CONCERNING THESIS RESEARCH

Thesis research leading to the M.S. and Ph.D. degrees in Pharmaceutics must meet, and be governed by, the following criteria and conditions. This policy applies equally to research conducted both within and outside the laboratories of the College of Pharmacy.

A. All data generated by the research shall be freely publishable in the scientific literature without deletion or other censorship.

B. The laboratories (during normal working hours), equipment, instrumentation, data books, and other relevant areas and/or items shall be accessible to the faculty member(s) supervising the research.

C. Final decisions concerning editorial aspects of scientific publications arising from the work shall rest solely with the authors of the publications. Comments and suggestions will be sought from the scientific staff of any private sponsoring or collaborating institution, corporation, or agency.

D. Only those persons directly supervising the scientific aspects of the research and/or performing the associated laboratory work shall be authors of publications resulting from the research.

E. Employment-related work by the student, following successful completion of the preliminary examinations, and during the period of thesis research, shall not exceed 20 hours per week.

F. Any research of a proprietary nature related to the thesis research, and conducted in conjunction with it, shall be the subject of a formal written contractual agreement, and time spent on this proprietary research shall be counted toward the 20 hours of employment related research.

G. Upon completion of requirement for the degree, the original copies of the laboratory notebooks and other data are required to be left with the Major Advisor.

UNIVERSITY FUNDS AND THE PURCHASE OF SUPPLIES, EQUIPMENT, AND ANIMALS

All orders for supplies, equipment, or animals must be first cleared with the student's major advisor who will then designate the correct budget and authorize the purchase either orally or in writing. All requisitions asking for departmental funds must be signed by the department head or designated alternate.
SECURITY

It is the responsibility of the graduate student not only to take proper care of the laboratory equipment and instrumentation but also to assist in protecting these items from accidental damage and theft. In particular, graduate students working evenings or weekends should be careful to see before they leave that:

A. All gas, water and electrical equipment (except continuously operating) are shut off. If overnight equipment is to be in operation, the College office should be notified so that the janitorial personnel are aware of the danger.

B. Office and laboratory doors are closed and locked. Failure to observe these precautions may necessitate cancellation of the privilege of use of the department's facilities outside of regular hours.

VACATION

Graduate students who are receiving stipends should make vacation arrangements with their respective research directors. No provision for vacations is inherent in the various grants, but institutional policy allows some time off, with the details in the hands of the research director.

ATTENDANCE OF THE COMMENCEMENT CEREMONY

Commencement for College of Pharmacy graduate students is held each spring, usually in May. Participation is not required. You are eligible for commencement, even if you have not completed all the degree requirements, and may attend the ceremony if you are certain that you will defend your thesis (final oral examination) before the next scheduled commencement ceremony.

The College of Pharmacy Associate Dean for Research and Graduate Programs will announce the date for commencement and solicit names of participants from each program. If you plan to attend, you must inform your advisor and the Director of Graduate Studies.

REQUIREMENTS FOR GRADUATION

In addition to those requirements for graduation imposed by the Graduate School, the Pharmaceutics graduate program requires the following:

A. All books or other materials checked out must be returned to the appropriate library.

B. All University keys and swipe cards must be returned.

C. All unused supplies and all equipment must be checked in or returned, after consultation with the major advisor, to the appropriate storage area.

D. The research bench and study desk must be cleared, cleaned and ready for use by other personnel.

E. The official Exit Form (available from the departmental secretary) indicating that these items have been addressed must be completed and signed by the appropriate parties.

Satisfactory completion of these requirements must be demonstrated to the Director of Graduate Studies.
Appendix I
Curriculum for Ph.D.

The following requirements are intended as a base of fundamental coursework and are not to be interpreted as satisfying the major. Additional courses should be selected in consultation with the major advisor and must be approved by the Graduate School. The Graduate School Catalog is accessible at www.catalogs.umn.edu/grad/index.html. The total program of coursework will consist of major, other coursework and/or minor. A minimum 24 credits is required by the Graduate School (in addition to 24 Thesis Credits).

**MAJOR - required courses**

- Pharmaceuticals Modules (Register for PHM 8295 Research Problems, 2 cr in fall and 2 cr in spring semesters)
  - Pharmacokinetics (1 cr)
  - Statistics and mathematics (1 cr)
  - Physical chemistry (1 cr)
  - Biopharmaceutics (drug delivery/molecular biology/biophysics) (1 cr)

- PHM 8100: Pharmaceutics Seminar (3 cr.)

- A total of 2 cr. from the following: PHM 8110: Readings in Pharmaceutics, or-
  PHM 8120: Readings in CNS Drug Delivery, or-
  PHM 8150: Pharmacokinetic Research Seminar

- Two Pharmaceuticals Graduate Courses: PHM 84XX

**MAJOR - required background and available course that satisfies requirement.**

- Pharmacology: a comprehensive survey course (PHCL 5110, 3 cr.)
- Differential Equations with Applications (MATH 4512, 3 cr.)

**MINOR AND OTHER COURSE WORK OUTSIDE MAJOR**

- The program in Pharmaceutics requires a minimum of 8 credits of courses outside the major, which are selected in consultation with the major advisor. Courses taken to satisfy the required background can also be used to satisfy the 8-credit requirement provided they do not have a PHAR or PHM designator. For those seeking a minor in another program, please see http://www.catalogs.umn.edu/grad/index.html for definitions.

§ 4XXX must be taught by faculty with an appointment in the Graduate School in order to contribute to the required credit count on the Graduate Degree Plan, and no more than 9 credits of 4XXX may be listed on the Graduate Degree Plan.
Appendix I

Curriculum for M.S.

The following requirements are intended as a base of fundamental coursework and are not to be interpreted as satisfying the major. Additional courses should be selected in consultation with the major advisor and must be approved by the Graduate School. The Graduate School Catalog is accessible at [www.catalogs.umn.edu/grad/index.html](http://www.catalogs.umn.edu/grad/index.html). The total program of coursework will consist of major, other coursework and/or minor. A minimum 20 credits is required by the Graduate School (in addition to 10 Thesis Credits).

<table>
<thead>
<tr>
<th>MAJOR - required courses</th>
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<tbody>
<tr>
<td>• Pharmaceutics Modules (Register for PHM 8295 Research Problems, 2 cr in fall and 2 cr in spring semesters)</td>
</tr>
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</tr>
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</tr>
<tr>
<td>o Physical chemistry (1 cr)</td>
</tr>
<tr>
<td>o Biopharmaceutics (drug delivery/molecular biology/biophysics) (1 cr)</td>
</tr>
<tr>
<td>• One Pharmaceutics Graduate Courses: PHM 84XX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MAJOR - required background and available courses that satisfies requirement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Pharmacology: a comprehensive survey course (PHCL 5110, 3 cr.)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MINOR AND OTHER COURSE WORK OUTSIDE MAJOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The program in Pharmaceutics requires a minimum of 6 credits of courses outside the major, which are selected in consultation with the major advisor.</td>
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</tbody>
</table>

§ 4XXX must be taught by faculty with an appointment in the Graduate School in order to contribute to the required credit count on the Graduate Degree Plan, and no more than 9 credits of 4XXX may be listed on the Graduate Degree Plan.
APPENDIX II

Application for Pharmaceutics Scholarships

Common to all applications:

DEADLINE: FEBRUARY 15

Submit the following items in PDF format:
1. Cover letter: (a) scholarship(s) for which you are applying, and (b) why you believe you are qualified for the fellowships (1 page)
2. Letter of recommendation from permanent advisor
3. Summary of research work planned or in progress (1 page)
4. Curriculum Vitae (CV)
5. Transcript of grades (unofficial is fine)
6. Progress report (1 page text, 1 page of figures/data) if continuation of the fellowship is being sought.
7. Students may apply for a single, one year renewal using this application process.

David J.W. Grant & Marilyn J. Grant Fellowship in Physical Pharmacy
- Research focused in physical pharmacy
- Two semesters of full-time graduate coursework completed in the Ph.D. program (minimum of 20 credits)

Rory P. Remmel and Cheryl L. Zimmerman Fellowship in Drug Metabolism and Pharmacokinetics
- For second-year students that have chosen a thesis advisor whose research encompasses drug metabolism or pharmacokinetics.
- Alternates annually between Med. Chem. and Pharmaceutics

Edward G. Rippie Fellowship in Pharmaceutics
- Consistent and outstanding academic record

Ronald J. Sawchuk Fellowship in Pharmacokinetics
- Research focused in pharmacokinetics
- Two semesters of full-time graduate coursework completed in the Ph.D. program