

**PROCEDURES GOVERNING THE PHARMACEUTICAL SCIENCES GRADUATE PROGRAM  
COLLEGE OF PHARMACY  
UNIVERSITY OF NEBRASKA MEDICAL CENTER**

**I. Description of Program**

The Pharmaceutical Sciences Graduate Program (PSGP) of the College of Pharmacy is intended for students who wish to pursue a course of study leading to the Master of Science or Doctor of Philosophy degree in Pharmaceutical Sciences. The PSGP operates under the auspices of the Graduate College of the University of Nebraska through the University of Nebraska Medical Center (UNMC) Dean for Graduate Studies.

**II. Pharmaceutical Sciences Graduate Program Faculty**

Members of the PSGP faculty shall include all faculty who hold a full-time, special, courtesy, adjunct, or research track appointment in the College of Pharmacy Department of Pharmaceutical Sciences. All other faculty shall be approved for participation in the PSGP by a two-thirds vote of the PSGP faculty.

**III. Pharmaceutical Sciences Graduate Program Committee**

- A. The Graduate Committee of the PSGP shall be called the PSGP Committee and consists of five (5) voting members, the Associate Dean for Research and Graduate Studies from the College of Pharmacy (Ex Officio) and a non-voting PSGP graduate student representative with the following composition: five (5) elected members, three (3) of whom shall be full-time, state-funded faculty of the Department of Pharmaceutical Sciences; one (1) whom shall be full-time, state-funded faculty of the Department of Pharmacy Practice and Science; one (1) may be any other full-time PSGP faculty member; the Chair of the Graduate Curriculum Committee (Ex Officio); the Associate Dean for Research and Graduate Studies from the College of Pharmacy (Ex Officio) who shall be a permanent member; and a PSGP graduate student representative who shall be the American Association of Pharmaceutical Scientists (AAPS) Student Chapter President. Each elected Committee member shall serve a term of three (3) years. Elected members may serve no more than two (2) consecutive terms.

Election of PSGP Committee members shall be by a vote of the PSGP Faculty. The PSGP chair will call for nominations, the nominee will require approval from their Chair (to allow for departmental workload balance). The approved nominees will be presented to the PSGP faculty by ballot and votes will be collated by COP administration with cc to the Pharmaceutical Sciences Chair and Pharmacy Practice and Sciences Chair.

The PSGP Committee shall elect biennially a Committee Chairperson from among its elected members and forward its recommendation to the Dean for Graduate Studies for appointment. All voting members of the committee shall cast one vote. In the event of a tie in the initial round, the two tied candidates will participate in a run-off vote

For the purposes of reviewing new PSGP graduate faculty applications a six-member sub-committee is required per graduate handbook protocols. The five-members of the PSGP committee in addition to the Chair of the Graduate Program Curriculum Committee shall comprise this sub-committee.

- B. The specific duties of the PSGP Committee include the following

1. Review and recommend all adjunct and courtesy faculty nominations to the PSGP faculty.
2. Develop plans for the growth of the PSGP especially the following:
  - a. Curriculum development

- b. Graduate student recruitment
  - c. Develop short-courses and organize symposia and workshops
  - d. Promote participation of PSGP students in scientific meetings and symposia
  - e. Encourage PSGP students to apply for external fellowships.
  - f. Develop contacts with academic and industrial representatives
3. Review applications for graduate student admission to the PSGP, and submit recommendations regarding admission to the UNMC Dean for Graduate Studies and Research;
  4. Appoint Advisory Committees for students pursuing the Master of Science (M.S.) degree;
  5. Make recommendations to the UNMC Dean for Graduate Studies for Supervisory Committee appointments for PSGP students pursuing the Doctor of Philosophy (Ph.D.) degree;
  6. Review progress of students in the PSGP for compliance with the guidelines of the UNMC Graduate College and PSGP requirements. This includes timely formation of the student's advisory/supervisory committee, submission of a Program of Study, submission of a proposal for the Comprehensive Examination, annual review, and the thesis/dissertation defense;
  7. Evaluate courses and the curriculum in the PSGP at least once every three years;
  8. Evaluate all PSGP course proposals prior to submission to the UNMC Graduate Council;
  9. Recommend recipients of select graduate student fellowships to the Dean for Graduate Studies;
  10. Select students for teaching assistantships. Preference for funding will be given to students admitted with the Ph.D. degree objective.

C. The PSGP Committee shall discharge its official actions by a majority vote.

#### **IV. Policies Governing the Admission and Progress of Studies**

The PSGP Committee shall be responsible for the admission and academic progress of students admitted to the program. In addition to meeting the following requirements, PSGP students and research advisors must also conform to the general requirements and procedures of the Graduate College of the University of Nebraska.

##### **A. Application for Admission**

1. Applications for admission to the PSGP must be submitted online. In addition to the general requirements governing admission to the Graduate College that are detailed in the Graduate Studies Bulletin website (<http://www.unmc.edu/gradstudies/>), the following requirements must also be satisfied:
  - a. To be admitted to the PSGP, applicants must hold the minimum of a baccalaureate degree or its equivalent from an accredited college or university. Applicants should have achieved a minimum cumulative grade-point average (GPA) of 3.0 on a 4.0 scale or equivalent qualification. Under special circumstances, students with a cumulative GPA below 3.0 may be considered for admission to the PSGP and admitted with PROVISIONAL status. The provisional status will be removed by earning a grade of not less than B in all courses in the first two semesters following admission.
  - b. A report of Graduate Record Examination (GRE) scores is optional for of all applicants

seeking admission to the PSGP. GRE scores may be submitted by the student or requested by the PSGP committee.

c. The Test of English as a Foreign Language (TOEFL) examination for English proficiency is required of all students from a country where English is not the native language. Applicants must meet the minimum score requirements established by UNMC.

2. A completed application must include the following:
  - a. Application form;
  - b. One official transcript from each university or college attended;
  - c. Three letters of recommendation;
  - d. Official record of GRE and TOEFL (if applicable) scores.

## **B. Review of Applications for Admission**

Applications for admission indicating an intent to pursue studies leading to the Master of Science or Doctor of Philosophy degree with an emphasis in Pharmaceutical Sciences will be forwarded by the UNMC Dean for Graduate Studies to the PSGP Committee for review. Each application will be reviewed by the PSGP Committee. Evaluation of the applications will be based in part upon prior academic performance, GRE score, letters of recommendation, prior research experience, if applicable, and English proficiency. After the application has been reviewed, the PSGP Committee will forward its recommendations to the UNMC Dean for Graduate Studies for appropriate action.

## **C. Programs of Study**

### 1. Master of Science Degree

- a. Prior to the appointment of an Advisory Committee, the PSGP Committee shall appoint an interim advisor to counsel the student on course requirements, program requirements, development of a preliminary Program of Study, and other matters pertaining to graduate study.
- b. Prior to selecting a Research Advisor, each student shall meet with at least six PSGP faculty members to determine the research area that would be most appropriate for his/her research interest(s). The student shall select a Research Advisor who must be a College of Pharmacy PSGP member, by 2 months from the date of matriculation into the PSGP. The Research Advisor shall act as Chair of the Advisory Committee. With the permission of the PSGP committee, a student may join a PSGP faculty outside the College of Pharmacy.
- c. The Individual Development Plan (IDP) must be submitted by 3 months after matriculation. Ideally, this will be accomplished with the help of the student's research advisor. However, the interim advisor will act in his/her role as temporary mentor to complete the IDP, if needed.
- d. After consultation with the student, the Research Advisor shall forward to the PSGP Committee a list of proposed members for the Advisory Committee. The Advisory Committee shall be composed of a minimum of three graduate faculty members including the research advisor/chair. The majority of the advisory committee members must be from outside the advisor's research group.
- e. The advisory committee of students must be formed by 3 months from their matriculation into the program and approved by PSGP and the UNMC Dean for Graduate Studies.
- f. The advisory committee should have its 1<sup>st</sup> meeting with the student, outline, and approve a program of study by 4 months from their matriculation into PSGP, but ideally before registration of courses of the second semester of the MS program.
- g. The PSGP Committee will appoint the Advisory Committee and inform the UNMC Dean for Graduate

Studies thereof.

- h. The Advisory Committee has the following principal responsibilities:
  - i. Assist the student in developing a Program of Study.
  - ii. Advise the student regarding research direction and thesis preparation.
  - iii. Administer the Comprehensive Examination.
  - iv. Serve as the Examining Committee for the Final Oral Examination, i.e. thesis defense.
- i. The Advisory Committee shall meet at least once every 6 months to review the student's progress in coursework and research. A copy of the minutes of all advisory meetings shall be given to the student's Advisory Committee members, Chair of the PSGP Committee, and the UNMC Dean for Graduate Studies (Sequidor).
- j. MS students may not receive a stipend from the lab in which they perform thesis research. MS students are allowed to seek part-time employment at or outside UNMC as long as said employment does not contribute to the thesis research. Time dedicated to part-time employment must be communicated to the advisor.

## 2. Doctor of Philosophy Degree

- a. Prior to the appointment of a Supervisory Committee, the PSGP Committee shall appoint an interim advisor to counsel the student on course requirements, program requirements, development of a preliminary program of study, and other matters pertaining to graduate study.
- b. Prior to selecting a Research Advisor, each student shall meet with at least six PSGP faculty members to determine the research area that would be most appropriate for his/her research interest(s). Additionally, students must complete a minimum of three laboratory rotations with research groups of PSGP faculty with a primary appointment in the College of Pharmacy. Each rotation must be for a minimum of two months and a maximum of 3 months, unless exempted by the PSGP Committee prior to selecting a Research Advisor. In addition to the three rotations within the College of Pharmacy, students may choose, with approval of the PSGP committee, to complete additional laboratory rotations in research groups of PSGP faculty with a primary appointment outside the College of Pharmacy. Choosing a lab outside of the COP requires PSGP Committee approval. While rotations are intended for students entering PSGP as a TA, in exceptional circumstances, a student entering as an RA may be considered for rotation with the supervisor's and PSGP committee's permission.
- c. The Individual Development Plan (IDP) must be submitted by 12 months after matriculation. Ideally, this will be accomplished with the help of the student's research advisor. However, the interim advisor will act in his/her role as temporary mentor to complete the IDP, if needed.
- d. The student shall select a Research Advisor who shall be a PSGP faculty member, by 9 months from the date of admission into PSGP. Students recruited by the College through national and international scholarship programs are required to select research advisors from PSGP faculty with a primary appointment in the College of Pharmacy. The Research Advisor, after consultation with the student, shall forward to the PSGP Committee a list of proposed members for the Supervisory Committee. The Supervisory Committee shall be composed of at least four graduate faculty members including the Research Advisor. The majority of the supervisory committee members must be from outside the advisor's research group.

If a student chooses a faculty advisor with a primary appointment outside the College of Pharmacy, that faculty member will be required to reimburse the department for stipend costs associated with time spent

in the faculty member's laboratory during the first year stipend period.

- e. The Supervisory Committee of students should be formed within one year from their admission into the program. No more than one voting member can be from the same independent PI's research group (i.e. PI, Research Assistant, Associate or Full Professor). Research faculty may be added as a non-voting member of the student committee for faculty development purposes (in the case of a conflict of interest) upon agreement of all parties.  
The PSGP committee will approve all student committees and decide on definition of conflict of interest.
- f. The Supervisory Committee must have its 1<sup>st</sup> meeting with the student, outline, and approve a program of study by 13 months from the start of classes in the first year in the PSGP. It is encouraged, however, that students form a committee as early as possible.
- g. In the case of students who are admitted to the Program and supported by faculty in the form of a research assistantship, the respective faculty will serve as that student's Research Advisor and will guide the student in developing his/her Program of Study. Laboratory rotations for those students will be at the discretion of the student's Research Advisor.
- h. The PSGP Committee will review the proposed membership of the Supervisory Committee and may recommend the appointment of additional members, if deemed advisable. The PSGP Committee will forward its recommendation to the UNMC Dean for Graduate Studies for approval and appointment.
- i. The Supervisory Committee has the following principal responsibilities:
  - i. Assist the student in developing a Program of Study;
  - ii. Approve the topical area for dissertation research;
  - iii. Recommend language and research training and techniques;
  - iv. Advise the student regarding research direction and dissertation preparation;
  - v. Administer the Comprehensive Examination;
  - vi. Serve as the Examining Committee for the Final Oral Examination, i.e. dissertation defense.
- j. The Supervisory Committee must meet at least once every 6 months to review the student's progress in coursework and research. A copy of the minutes of all Supervisory Committee meetings shall be given to the student's Supervisory Committee members, Chair of the PSGP Committee, and to the UNMC Dean for Graduate Studies (Sequidor).
- k. Failure to meet deadlines related to formation of a Supervisory Committee, IDP, 1<sup>st</sup> and subsequent meetings will result in a registration hold per UNMC Graduate Studies Guidelines

### 3. Course Requirements

All students are required to register for the PHSC 960 Current Topics in The Pharmaceutical Sciences (Journal Club) for six semesters, and PHSC 970 Seminar in Pharmaceutical Sciences every Fall and Spring semesters.

M.S. Course Requirements: Each M.S. student must complete 3 or 4 core courses as defined by the PSGP Curriculum (<http://www.unmc.edu/pharmacy/programs/psgp/curriculum.html>). The required core courses include PHSC 845 Quantitative Pharmaceutical Analysis, PHSC 885 Physical Pharmacy, PHSC 910 Pharmacokinetics and Biopharmaceutics and IPBS 801 Fundamentals of Biomolecules. IPBS 801 may be waived if the student received a B or better in an undergraduate or graduate biochemistry course prior to admission into the PSGP program. One elective course is required and will be determined with the assistance of the student's advisory committee. The student's advisory committee shall guide him/her in their course requirements. Each M.S. student is expected to complete his/her core course requirement within 18 months after matriculation into the PSGP.

Ph.D. Course Requirements: The PSGP curriculum for Ph.D. students consists of four separate tracks from which students can choose. These curriculum tracks are the following: 1) Drug Delivery and

Biopharmaceutics; 2) Biophysics; 3) Medicinal Chemistry; and 4) Clinical Pharmaceutical Sciences. All students in the PSGP must take PHSC 845 – Quantitative Pharmaceutical Analysis and IPBS 801 Fundamentals of Biomolecules. Additional track-specific curriculum requirements are outlined below. The need for any additional courses beyond those outlined in the curriculum will be determined by the student's supervisory committee. The student's supervisory committee shall guide him/her in their course requirements. Each Ph.D. student is expected to complete his/her course requirement within two years after admission into the PSGP.

Drug Delivery and Biopharmaceutics Track:

Required: Pick 2 of 4

PHSC 885 – Physical Pharmacy  
PHSC 852 – Pharm. Chem.  
PHSC 910 – PK & Biopharm.  
BIOS 806 – Biostatistics  
2-Electives

Medicinal Chemistry Track:

CHEM 8246 – Adv. Org. Chem. – Mech.\*  
CHEM 8236 – Adv. Org. Chem. - Synthesis\*  
PHSC 830 – Advanced Medicinal Chemistry  
PHSC 903 – Spectroscopic Methods & Analysis  
1-Elective

\*UNO Course. If cannot be taken before end of  
3<sup>rd</sup> year may be substituted.

Biophysics Track:

Required: Pick 2 of 3

PHSC 885 – Physical Pharmacy  
PHSC 848 – Nano & Bioimaging  
PHSC 921 – Biophysical Chemistry  
2-Electives

Clinical Pharmaceutical Sciences Track:

PHSC 920 – Applied PK in Transl. Res.  
PHSC 905 – Applied Pharmacogenomics  
BIOS 806 – Biostatistics I  
BIOS 808 – Biostatistics II  
1-Elective

4. Seminars

All PSGP Ph.D. students are required to give two 30-minute seminars involving their graduate research of admission to the PSGP. A research seminar at any COP research event will count towards this requirement. One seminar requirement may be waived by the PSGP Chair when a student provides evidence of giving an oral presentation at a national or international conference. Attendance is mandatory for all departmental, college, CDDN, and defense seminars. Up to four unexcused absences per semester are allowed.

All PSGP M.S. students are required to present a public defense seminar involving their graduate research of admission to the PSGP. This will fulfil the requirement to give one 30-minute seminar.

5. Examination Requirements

a. Master of Science Degree

For students pursuing the Master of Science degree in the PSGP, a written Comprehensive Examination covering material in the approved Program of Study is required. An optional, supplemental oral examination may be held by the Advisory Committee. The Advisory Committee will define the format of the Comprehensive Examination, solicit questions from appropriate instructors, and administer the Comprehensive Examination. The Advisory Committee will inform the student in writing of the format and scope of the Examination and provide the names of the examiners. This information will also be distributed to the PSGP Committee. Within seven days following completion of the Examination, the results of the Comprehensive Examination will be provided to the student, the Advisory Committee, the PSGP Committee, and the UNMC Dean for Graduate Studies.

A Final Oral Examination with primary emphasis on a defense of the thesis research project is also required. On approval by the UNMC Dean for Graduate Studies and Research, the Advisory Committee will serve as the Examining Committee for the Final Oral Examination. Graduate studies requires at least two weeks advance notice of an intent to hold the final thesis defense.

No student will be permitted to take the Comprehensive Examination or Final Oral Examination more than twice. Following failure of either of these examinations for the second time, the student shall be dismissed from the PSGP.

b. Doctor of Philosophy Degree

Comprehensive Examination: A Comprehensive Examination is required for all students pursuing the Doctor of Philosophy degree. The purpose of the Examination is to determine the extent of the student's knowledge and ability to apply that knowledge. Students must take the Comprehensive Examination within three years after joining the program.

The examination shall include a written original research proposal in the format of a NIH R21 application. The topic cannot be research that the student has already completed or is currently pursuing for their research project, nor a topic taken from one of the mentor's grant applications. The topic does not have to be related to the student's (or mentor's) research project. The research proposal must include vertebrate animal and human subject sections (if such research is proposed). A member of the students advisory committee who is not the student's primary mentor will serve as chair of the comprehensive exam committee.

The student will be required to present the specific aims of the proposed topic to his/her Supervisory Committee for their approval prior to writing a full proposal. The full proposal should be submitted to the Committee within two months from the date of approval of the specific aims and should be defended within four weeks after submitting the proposal. The comprehensive examination includes



a 25-minute presentation, which is open for all faculty and students to attend. The Examination may also include questions from the student's Program of Study. If the majority of the Committee members decide the student did not defend the proposal to their satisfaction, he/she will be given an opportunity to defend the proposal again. This should be done within three months after the initial defense. If the student does not successfully pass the Comprehensive Examination, he/she will be terminated from the PSGP. In special circumstances, the student may be considered for the award of a Master of Science Degree.

The results of the Comprehensive Examination will be provided to the student, the Supervisory Committee, the PSGP Committee, and the UNMC Dean for Graduate Studies and Research. On successful completion of the Comprehensive Examination, the student is eligible to apply for Admission to Candidacy.

The Comprehensive Exam must be attempted before the end of their third year of study. The exam must be completed no less than seven months prior to the dissertation defense. All core and track coursework must be completed prior to taking the Comprehensive Examination. Each student must provide the PSGP Chair with evidence that they are on track to complete the Comprehensive Examination no later than 18 months after matriculation. The Comprehensive Examination must be attempted by the end of the third year. Failure to meet this "deadline will be considered to have failed the initial attempt" as dictated by Graduate Studies (<http://catalog.unmc.edu/graduate-studies/requirements-degrees/>).

Final Oral Examination: A Final Oral Examination or dissertation defense is also required. The Final Oral Examination is a public examination administered by the Supervisory Committee after the student has been admitted to candidacy, all coursework has been completed, and the dissertation has been submitted for approval. Before completion of the degree, there must be evidence that the dissertation material has been submitted for publication in a peer review journal.

No student will be permitted to take the Final Oral Examination more than twice. Following failure of the Examination for the second time, the student shall be dismissed from the PSGP.

### **Procedures for Resolution of Graduate Student Grievances**

All student disciplinary actions and grievances shall be handled according to the procedures developed by the UNMC Graduate Council.

## **V. Pharmaceutical Sciences Graduate Program Faculty Meetings**

- A. An annual meeting of the PSGP faculty shall be held immediately following the completion of the Second Semester.
- B. Additional meetings of the PSGP faculty may be held upon the call of the Chairperson of the PSGP Committee or upon the written request of three (3) members of the PSGP faculty.

## **VI. Amendment of the Procedures for Governing the Pharmaceutical Sciences Graduate Program**

These procedures may be amended by a two-thirds vote of the PSGP faculty, provided that written notice of the amendment with an accompanying statement of the purpose and effect has been distributed to each member of the PSGP faculty at least seven (7) days prior to the vote. The vote may be by written ballot or at a meeting of the PSGP faculty.

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