UNIVERSITY of WASHINGTON

SCHOOL OF PHARMACY
DEPARTMENT OF PHARMACEUTICS

PHD STUDENT HANDBOOK

September 2026

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PROGRAM TRAINING OBJECTIVES

The Pharmaceutics doctoral program trains research scholars in the fundamental aspects of drug delivery, drug disposition, and drug action. Drug disposition pertains to the facets of drug absorption, distribution, metabolism, transport and excretion; pharmacokinetics is a sub-discipline within the pharmaceutical sciences and is the study of the time course of these processes. Areas of training emphasis in the UW Pharmaceutics program include:

1) **Drug delivery** – methods for enhancing systemic drug exposure, its retention in the body and targeting it to the site of action to improve therapeutic effect
2) **Drug metabolism** – hepatic and intestinal enzyme catalyzed molecular transformations of a drug to a metabolite that often has different disposition and pharmacological properties compared to the parent molecule
3) **Drug transport** – active transfer of drug molecules across biological cell membranes in body tissues where some pharmacological or toxicological effects are elicited (e.g., brain and fetus) or drug metabolism and excretion occur (liver and kidney)
4) **Drug action** – pharmacological effects of drugs in the whole body, with a special emphasis on unique disease states or special patient populations (e.g. epilepsy, aging, pregnancy)
5) **Mathematical modeling** of drug disposition and action

Graduates of the Pharmaceutics doctoral program (PhD) will possess expertise in basic biochemical, cellular, and molecular techniques and quantitative analytical methods, as well as technical skills for the elaboration of mathematical models that describe the kinetics of drug disposition and action. Graduates will be capable of investigating the causes of inadequate exposure to a drug at the site of action and elucidating the relationship between the kinetics of drug and metabolites in various body compartments or tissues and the manifestation of pharmacologic, therapeutic, and toxic effects. Graduates will be able to probe the impact of alteration in physiological and biochemical processes on drug disposition and pharmacological response, which may occur due to ontogeny, evolving disease states, concomitant medications and natural products, or genetic variation.

Many of these studies will require expertise with *in vitro* methodologies and the conduct of pharmacokinetic and pharmacodynamic studies in animals and humans. Pharmaceutics graduate students will receive significant interdisciplinary training by interacting with clinicians, medicinal chemists, biochemists, pharmacologists, analytical chemists, toxicologists, veterinarians, physiologists, and biostatisticians. Such training is highly valued by the pharmaceutical industry, regulatory agencies, research institutions, and academia.

THE DEPARTMENT

The Department of Pharmaceutics is comprised of approximately 61 personnel, including graduate students, post-doctoral fellows, faculty members, and research staff, all currently led by the Milo Gibaldi Endowed Chair, Dr. Nina Isoherranen. Administrative space and research labs are housed within H-wing, T-wing, D-wing and F-wing of the Heath Sciences Building, on the University of Washington, Seattle campus.

The goal of our graduate programs (Doctoral and Master's) is to provide the most favorable environment possible in which students can develop their maximal potential for creative scholarship and independent research. We espouse a philosophy of inclusivity. Our overall mission in this regard is to attract, retain, and promote the success of students from all populations who seek training in the profession of pharmacy and in the pharmaceutical sciences. We subscribe to the University of Washington's mission of enhancing diversity and equity in all forms and helping students, faculty, and staff understand differences in areas such as, but not limited to, religious, racial, cultural, sexual orientation, political, economic, disability, and gender perspectives. The School of Pharmacy Strategic Plan for Diversity, Equity and Inclusion can be found in its entirety here.

STUDENT CONDUCT AND EXPECTATIONS

The Pharmaceutics faculty expect students in the doctoral graduate program to take ownership of their training. Required and recommended courses of instruction are provided. On an annual basis, students will prepare individual development plans (the IDP; please see ***Progression of Steps*** below) that integrate their coursework and research activities with relevant knowledge gained from the broader University community and from outside sources, to best prepare themselves for the career that they envision. Students should not be constrained by what others in the program have done in the past or the activities of current peers but rather customize their training plan to meet their personal and professional goals.

Students in the Pharmaceutics doctoral program are expected to follow the UW student conduct code here. Importantly, students must adhere to the highest standards of academic and professional conduct. Academic honesty and professional integrity should be foremost in their minds as they navigate through our highly demanding didactic and experiential course of training. To do otherwise is to fail themselves and the public that largely subsidizes their education.

Students will be offered instruction on biomedical research integrity and responsibility in the form of courses (Biomedical Research Integrity series; see the didactic training section) and interactive discourse on scientific rigor and reproducibility (held periodically in Journal Club) to help them achieve these expectations.

DIDACTIC TRAINING

Course work for the **doctoral program** is divided into four components: (1) prerequisites that define the level of entry into the program; (2) a required core program of graded credit courses that is analogous to the major; (3) elective courses, which can be tailored to research needs and student interests; (4) seminar, Journal Club, and other research-related courses as specified by the mentor or dissertation committee.

The PhD degree requires a minimum of 90 credits. Of the 90 required credits, at least 18 must be numerically graded (the graded credit must be from graduate courses of 500 level or above), and the additional credits (72 minimum) include seminar, Journal Club, research, and dissertation study. Students must complete a minimum of 27 credits of PCEUT 800 (Doctoral Dissertation) for the degree. Elective courses are available and encouraged but not required.

PREREQUISITES

College-level Differential Calculus or Calculus I (e.g., MATH 124 at UW; 5 credit)

CORE COURSES

Of the 90 minimum required course credits, 19 credits are derived from the following numerically graded "core" courses that are intended to give students foundational knowledge in the field of pharmaceutical sciences.

NUMERICALLY GRADED CORE COURSE TAUGHT BY PHARMACEUTICS FACULTY:

- PCEUT 502: Drug Disposition Science (2 credits)
- PCEUT 505: Concepts in Pharmaceutical Sciences I (3 credits)
- PCEUT 506: Concepts in Pharmacokinetics (3 credits)
- PCEUT 532: Clinical Pharmacokinetics (4 credits)

NUMERICALLY GRADED CORE COURSES TAUGHT BY FACULTY OUTSIDE THE PHARMACEUTICS DEPARTMENT:

- MEDCH 501: Medicinal Biochemistry (3 credits)
- BIOST 511: Medical Biometry I (4 credits)

The above core courses are considered essential for all students in the doctoral program. All courses must be taken for graded credit. In addition, the faculty recognizes that each student may have prior coursework or training in the Department and will accommodate petitions by the student to waive these requirements if the student demonstrates equivalent previous graduate-level coursework in the required areas. For any waived core course, the student needs to get an alternative graded course of equivalent credit approved as a replacement course. All PhD students must obtain a grade of 3.0 or higher in the core Pharmaceutics

courses and 2.7 or above in the other core courses, with a cumulative GPA of 3.0 or greater for all graded credit. There may be other courses that students might receive as a requirement of federally funded training grant support.

SCIENCE WRITING:

The Department requires the Scientific Writing course PCEUT 540 to facilitate the preparation of the research proposal needed for the General Exam and for preparing research publications/reports. Students who entered the doctoral program in 2025 and thereafter are required to take PCEUT 540 during winter and spring quarters of their 2nd year in the program. Students who entered the program in 2024 or earlier are highly encouraged to take the class, but it is not a requirement. The course performance evaluation will be C/NC; it is not numerically graded.

- PCEUT 540 Scientific Writing (1 cr/qtr, winter and spring Yr 02)

ELECTIVES

Elective coursework is intended to enhance the core training and should be highly individualized. Each student is encouraged to identify suitable electives in consultation with the dissertation advisor, and committee members, if needed. There is no formal requirement for elective coursework in the Pharmaceutics doctoral program. However, the student is encouraged to take electives courses offered by UW that might benefit their dissertation project and career goals.

Currently, the Department offers the following electives:

- PCEUT 501 Pharmacometrics (3 credits) – offered in autumn quarter of even years
- PCEUT 503 Drug Transport (3 credits) – offered in spring quarter of odd years
- PCEUT 534 Principles of Precision Medicine (2 credits) – offered in spring quarter of every year
- PCEUT 551 Intro to Drug Discovery (2 credits) – offered in winter quarter of every year
- PCEUT 586 Pharmaceutical Biotechnology (2-3 credits) – offered in spring quarter of every year

A longer list of selected electives offered by faculty outside of the Department can be found in ***Appendix G***. In addition, there are many other electives offered by UW faculty (see ***UW Course Descriptions*** for a complete listing) that a graduate student might find of interest to further their training and career aspirations. Any electives should be approved by the dissertation advisor.

SEMINARS AND JOURNAL CLUB

All students are required to register and participate in PCEUT 583 (Journal Club) and PCEUT 520 (Seminar). Both PCEUT 583 and PCEUT 520 are required each quarter/academic year until graduation (1 cr/quarter; 3 quarters/year until graduation). Graduate students will need to accumulate at least 15 credits for each course, unless the student is able to graduate before

the minimum number of credits is achieved. Once the 15-credit requirement for each course (520 and 583) is met, students will no longer need to register for credit for Journal Club and Seminar, but students are still encouraged to attend.

PCEUT 520: SEMINAR (1 CREDIT/QUARTER; 3 QUARTERS/YEAR UNTIL GRADUATION):

Beginning in the second year, students are required to make a minimum of three PCEUT 520 Seminar presentations during their graduate study as a core component of their graduate training. The first seminar presentation will occur in their second year in the program and can be on a general topic of relevance to the program and personal interest. Seminars in subsequent years should focus on the students' research and findings. The required number of seminar presentations can be less than three if the student defends before the 15 credit minimum is reached. See the PCEUT 520 course coordinator for additional guidance.

PCEUT 583: JOURNAL CLUB (1 CREDIT/QUARTER; 3 QUARTERS/YEAR UNTIL GRADUATION):

Beginning in the first year in the program, students are required to enroll in PCEUT 583 as part of their graduate training until the 15 total credit requirement is met, or they graduate before that occurs, whichever comes first. Beginning in their second year and for the remainder of their graduate training, students should expect to present or discuss one article in each quarter as a 'class lead'. Regardless of the year in the program, Pharmaceutics graduate students are expected to actively participate in all weekly discussions.

During the final examination week at the end of each quarter, first-year students are required to give a minimum ~10-minute research presentation summary of the quarterly lab rotation, as part of the Journal Club course. Students in their second year and later are expected to attend these quarterly research presentations and provide constructive feedback to their first-year peers. See the course coordinator (rotates quarterly) for additional guidance, as well as senior students in the program.

RESEARCH

PCEUT 600 & 800 (VARIABLE CREDITS):

Pharmaceutics doctoral program students are required to complete three laboratory rotations under PCEUT 600 credit as research assistants (RAship) during the autumn, winter, and spring quarters of their first year. These rotations are required before a research advisor can be declared. The first two rotations are decided by correspondence with the Department Chair and Graduate Program Coordinator during the summer before matriculation. Students will be asked to submit their first, second, and third choices. Every effort will be made to accommodate student preferences, but the first choice cannot be guaranteed.

Selection of the third rotation will be based on student interest and lab availability and should be declared no later than week 8 of the winter quarter of the first year. Students are expected

to meet with all Pharmaceutics faculty for a minimum 30 minute 1:1 meeting during the autumn and winter of their first year to discuss research opportunities and ongoing projects. A signed record tracking the meetings will be retained by the student and returned to the Graduate Program Advisor no later than January 31st of the student's first academic year.

Students should sign up for PCEUT 600 (variable credits) to receive credit for the rotational experience in each academic quarter. Each rotation advisor will complete a ***Rotation Evaluation form*** at the end of each quarter to determine if the experience has been productive, and credit is to be awarded.

Students must choose a research advisor no later than May 15 of their first academic year (see section on ***Choice of Advisor***). Students should begin research in the lab of their advisor by the start of summer quarter in their first academic year, registering for PCEUT 600 (variable credits).

After successful completion of the General Exam requirements by the end of summer quarter of their third year in the program (see ***Appendix A***), students should register for PCEUT 800 (variable credits) in every academic quarter (unless they take a leave of absence), until the defense of their dissertation, to meet the research requirements of the Department and the Graduate School. The student must pass a minimum of 27 credits of dissertation research (PCEUT 800), over a period of at least three quarters.

TRAINING SESSIONS

In addition to the requirements above, all students are required to attend and complete the following mandatory training sessions:

PRIOR TO BEGINNING LABORATORY RESEARCH

See list of required online training courses (included in students' welcome letter). Radiation Safety, Human Subjects (CITI course), and Animal Use training may also be required, if relevant to the student's lab/dissertation research.

AUTUMN/SPRING QUARTER – YEAR 2

By the end of summer quarter of their first year, all Pharmaceutics students are required to attend:

- Biomedical Research Integrity; the policy can be found here. The UW BRI course consists of a series of lectures and small group discussions. The entire course consists of 8 hours of in-person instruction and can be fulfilled during a single 8-hr session or in parts during the available annual 8-hour sessions in August and September. Typically, researchers are required to take eight hours of training every four years as a requirement for federally-funded research.

TRAINING IN RIGOR AND REPRODUCIBILITY

The Department will provide additional scientific rigor and reproducibility training (spring, odd years) through its Journal Club course (PCEUT 583). Every student will likely receive training twice during their time in the doctoral program (early when they are building an understanding of the research process and later when they can share their knowledge and experience).

TEACHING ASSISTANT (TA) TRAINING

Students who are to be supported by a TA appointment must take the following training:

- UW TA training is here

TITLE IX TRAINING

Husky Prevention & Response (Title IX) is a foundational, required online prevention and response course about sex- and gender-based violence and harassment. Throughout the course, the strategies offered are meant to create and support positive UW climates and endeavor to stop sex- and gender-based violence and harassment before they happen. The course includes tailored content for graduate students. **Entering students who have not completed Husky Prevention & Response (Title IX) student course in their first quarter will be blocked from registering for their second quarter.** The course takes 60 – 90 minutes to complete. The registration block will be lifted within approximately an hour of course completion.

Access the student course here

AUDITING A COURSE AND GRADING OPTIONS

To audit a course, students must get permission from the course coordinator and dissertation advisor. If students do not need an official record on their transcript for the course, so long as they have permission from both the course coordinator and their faculty advisor, the student can sit in the class. If the student needs to audit a course with an official record on their transcript, students need to follow the process listed below. The audit option can be changed after the registration period has begun through the end of the second week of the quarter.

Students will not receive credit for audited courses.

1) Register for the course.
2) Complete the **Registration Transaction Form** here [UoW 2127] (Section 2) to change the course to “Audit”.
3) Obtain approval from the course coordinator to audit the course and provide initials on the form indicating such.
4) Submit the completed form to the Office of the University Registrar (OUR) via email to regoff@uw.edu.

Pharmaceutics instructors will not grade the homework or exams of students who audit a course. To have their homework and exams graded, students must register for the course. If the course is a required core course, students must register for it as a numerically graded course. If the course is optional, students may register for it either as numerically graded or CR/NC. Whether students can register for a course as CR/NC is at the discretion of the course coordinator. Please visit here for more information regarding the UW Graduate School's CR/NC policy.

GRADUATION

Graduation timing is based on dissertation research progress. Students will form a dissertation supervisory committee prior to their General Exam (during the second year in the program). That committee is charged with assessing student progress at least annually starting in the spring of the second year and determining when they are ready to defend their dissertation and graduate. Failure to set up the annual committee meeting will result in the student getting an Academic Discipline letter from the Department. The average time to graduation is currently less than 5.5 years from matriculation. Additional information can be found below under Progression of Steps in Relation to the Doctoral Degree. The following website here is a useful resource for students as they prepare to graduate.

PhD COURSE REQUIREMENT SCHEDULE

YEAR 1			
AUTUMN	**WINTER**	**SPRING**	**SUMMER**
BIOST 511 (4 credits)	MEDCH 501 (3 credits)	(Elective)**	
PCEUT 502 (2 credits)	PCEUT 532 (4 credits)	PCEUT 506 (3 credits)	
PCEUT 505 (3 credits)			
PCEUT 520 (1 credit)	PCEUT 520 (1 credit)	PCEUT 520 (1 credit)	
PCEUT 583 (1 credit)	PCEUT 583 (1 credit)	PCEUT 583 (1 credit)	
PCEUT 600: Lab Rotation (2 cr)	PCEUT 600: Lab Rotation (3 cr)	PCEUT 600: Lab Rotation (3-7 cr)	PCEUT 600: Research (2 credits)

YEAR 2			
AUTUMN	**WINTER**	**SPRING**	**SUMMER**
(Elective)**	(Elective)**	(Elective)**	
PCEUT 520 (1 credit)	PCEUT 520 (1 credit)	PCEUT 520 (1 credit)	
PCEUT 583 (1 credit)	PCEUT 583 (1 credit)	PCEUT 583 (1 credit)	
	PCEUT 540 (1 credit)***	PCEUT 540 (1 credit)***	
PCEUT 600: Research (6-10 credits)	PCEUT 600: Research (6-10 credits)	PCEUT 600: Research (6-10 credits)	PCEUT 600: Research (2 credits)

** Electives are not required, but students are encouraged to take courses that will enhance their dissertation research or career. **Students must register for a minimum of 10 credits per quarter (AUT, WIN, SPR) and a minimum of 2 credits in SUM quarter to maintain their full-time student status.**

*** PCEUT 540 is required for students entering in 2025 or later. It is highly recommended, but not required, for PhD students entering prior to 2025.

YEAR 3 to Graduation			
AUTUMN	**WINTER**	**SPRING**	**SUMMER**
(Elective)**	(Elective)**	(Elective)**	
PCEUT 520 (1 credit)	PCEUT 520 (1 credit)	PCEUT 520 (1 credit)	
PCEUT 583 (1 credit)	PCEUT 583 (1 credit)	PCEUT 583 (1 credit)	
PCEUT 800: Research (8 credits)¥	PCEUT 800: Research (8 credits)	PCEUT 800: Research (8 credits)	PCEUT 800: Research (2 credits)

** Electives are not required, but students are encouraged to take courses that will enhance their dissertation research or career.

¥ Students who have passed their General Exam should register for PCEUT 800. Before passing the General Exam, students must register for PCEUT 600.

GENERAL PROGRAM REQUIREMENTS

Graduate students in Pharmaceutics are also students in the UW Graduate School and, as such, must satisfy the general requirements of both the Graduate School and the requirements of the Department in which they undertake their graduate training. A full description of the Graduate School requirements can be found here. Some of the pertinent Graduate School and Department requirements are described below, dealing with scholarship, Washington state residence, supervisory committees, research dissertation, and examinations (general and final). Most forms that a student will need during their time in the doctoral program can be found here within the SOP Sharepoint Intranet (UW NetID password required).

RESIDENCE

A minimum of three academic years of resident study is required (90 credits), two of them (60 credits) being at the University of Washington. Residence is defined as 10 credits per quarter (autumn, winter, spring) or 2 credits during the summer quarter. Only courses numbered 300 and above count toward residence. Dissertation research must be conducted at the University of Washington, unless the research is of a collaborative nature requiring off-campus facilities. See link here for On-Leave Policy.

Please also see ***Appendix B*** for our Department's guidelines on on-site work policy.

CREDITS AND SCHOLARSHIP

For students in the doctoral program, a minimum of 90 credits must be completed. Of these, at least 18 numerically graded credits at the 500 level are required (UW Graduate School requirement, see here. Students must take all required core courses for numerically graded credit, except for PCEUT 599 (Grant Writing Course) which will be graded CR/NC. In addition, although the minimum passing grade in any given course is 1.7, to count towards the 18 numerically graded credit requirement, the PhD student must obtain a grade of 3.0 in Pharmaceutics core courses (i.e., those listed with the PCEUT prefix) and a grade of 2.7 or higher in non-Pharmaceutics Core courses.

The Graduate School requires that students in a PhD program maintain a minimum cumulative GPA of 3.0 in all numerically graded courses. Failure to do so may lead to academic alert and other disciplinary action if not corrected.

All doctoral students are expected to take graduate research credits (PCEUT 600 and 800).

Doctoral students should register for PCEUT 600 starting from the autumn quarter of their first year, continuing in every successive quarter until they successfully pass the General Examination no later than the end of summer quarter of their third year. After passing the General Exam, students should register for PCEUT 800, quarterly, until they defend their dissertation and graduate from the program.

For PCEUT 600 or PCEUT 800, the credits that students can register will vary from 1 to 10, depending on their course load for the quarter and the time students need to spend on their dissertation research. To maintain full-time status, students must register for a minimum of 10 credits total for all courses in autumn, winter, and spring quarters, and a minimum of 2 credits in summer quarter.

TEACHING EXPERIENCE

A teaching assistantship experience is not a required component of training for the Pharmaceutics PhD degree. However, depending on circumstances, a student may need to accept a teaching assistantship (TA) for the associated stipend and tuition funding. Participating as a TA is an invaluable learning experience and opportunity to grow a professional network. The student may thus also wish to be a TA for the learning experience and to further their preparations for a career in academia, science policy, and academic outreach.

Students are required to register for the learning session on Zoom prior to taking on a TA assignment (typically before the start of autumn quarter in the first year in which they plan to teach); see here. The UW School of Pharmacy also offers an orientation for TAs each year, which will be communicated by the Graduate Program Coordinator.

EXAMINATIONS AND PROGRESS EVALUATION

All graduate students must complete the Departmental course examinations to receive credit. The General Examination (see details below) is required by the Graduate School and the Department for advancement to PhD candidacy. A Final Examination (oral defense and submission of an approved dissertation document) is required by the Graduate School and the Department for conferral of the PhD degree.

PROGRESSION OF STEPS IN RELATION TO THE DOCTORAL DEGREE

This section is intended to offer an outline of key procedural steps, besides required didactic and research coursework, that must be taken to receive a PhD degree. Additional details are found within the accompanying appendices.

SELECTION OF DOCTORAL SUPERVISOR (ADVISOR):

The relationship between a dissertation advisor and a graduate student is a very special one and requires significant deliberation. An agreement on the selection of a supervisor must be mutual and fully informed.

Students in the doctoral program should choose their dissertation advisor at the end of spring quarter of their first academic year. Students must submit their three ranked choices to the Department Chair and Graduate Program Coordinator by May 15th of spring quarter. Although the Department Chair and Graduate Program Coordinator will attempt to accommodate every student's first choice for an advisor, it is possible that this may not

occur because of previous commitments by the faculty to other students in the program, laboratory space limitations and/or funding constraints. Once selected, the advisor's primary role is to provide guidance, supervision, and evaluation of the student's study and research progress.

If a student cannot find an acceptable advisor after spring quarter, the student will be given the opportunity of an additional fourth rotation during summer quarter, assuming that a suitable lab can be identified. The inability to identify a laboratory that will accept a student for their dissertation research by the end of the fourth (summer) quarter will lead to dismissal from the Pharmaceutics doctoral program (see ***Deficiencies in Student Progress*** section).

DEVELOPMENT OF RESEARCH SKILLS AND IDENTIFICATION OF DISSERTATION TOPIC:

By autumn quarter of the second year, students must begin their dissertation research. It is critical that they quickly acquire technical skills and specialty expertise necessary for productive dissertation research and that they formulate, with input from their advisor, a credible dissertation plan.

APPOINTMENT OF DOCTORAL SUPERVISORY COMMITTEE:

The doctoral supervisory committee should be formed during a student's second year in the program. The supervisory committee composition is prescribed by the Graduate School, see here. The student should discuss thoughtfully with their dissertation advisor to form a cohesive committee and is responsible for ensuring that the committee composition meets the UW Graduate School requirements.

A detailed description of the doctoral supervisory committee appointment for the Pharmaceutics program is as follows:

Nominations for doctoral supervisory committee appointment will be provided by the dissertation advisor (supervisory committee chair), with input from the student and others to the Graduate Program Coordinator for approval or recommended change. With approval from the Graduate Program Coordinator, the student may reach out to nominees with a request to serve on the supervisory committee. This may require one or more iterations until a full committee is constituted. The names of individuals that are acceptable to the Graduate Program Coordinator and willing to serve will be forwarded to the Graduate School for final approval by the Graduate Program Advisor.

The supervisory committee consists of a minimum of four members, at least three of whom (including one Chair and the Graduate School Representative (GSR)) must be members of the UW Graduate Faculty. A majority of the members must be members of the UW Graduate Faculty. Aside from the GSR, members of the advisory committee must be productive scholars in the student's major field and/or subfields. The supervisory

committee chair (the student's advisor) and at least one other committee member must be from the Pharmaceutics Department. Other members of the committee can come from the Pharmaceutics Department (regular or affiliate), or outside the Department or University, so long as the members meet the scholarly requirement, and so long as the graduate faculty minimum requirements are met. Unlike the GSR, these committee members can be associated with the student's research through a funding mechanism, if that information is disclosed to the student and all other members of the supervisory committee.

The proposed GSR must be a productive scholar in their own research area, and that may differ from the area of the student's dissertation project. The GSR cannot hold a faculty appointment in the Pharmaceutics Department. They cannot be related, married, or have a significant personal relationship with the chair of the supervisory committee, the student, or any other member of the Pharmaceutics Department. The GSR cannot be actively involved in the student's research or a grant that funds the student's dissertation research. In addition, the GSR cannot have published with the Chair or other members of the supervisory committee within the past 3 years. Other possible conflicts of interest will be considered on a case-by-case basis by the Graduate Program Coordinator. The student is encouraged to consider faculty outside the School of Pharmacy for a GSR appointment whenever possible.

The supervisory committee should meet at least once a year (twice per year is recommended) beginning in the second year in the program. An individual development plan (IDP) must be completed by the student at least annually in preparation for the annual reappointment process (see below), and no later than by May 15th of each academic year. At least once a year when the committee meets with the student, a doctoral supervisory evaluation form must be completed and signed by the committee and the student. This information will be used to assess academic progress in the program. The student must notify the Graduate Program Coordinator and Graduate Program Advisor of any new committee members who are added or removed during their dissertation study.

Individual Development Plan (IDP):

Each student must prepare (or update) an IDP every year (download IDP form here) and review this with their supervisory committee members. Students should provide this form to their advisor at least 2 weeks prior to the committee meeting, or May 15th deadline, to facilitate productive and thoughtful discussions.

For first year doctoral students, the IDP is due to their chosen dissertation advisor within 2 weeks of the start of their appointment and no later than the end of summer quarter after their first year in the program. In the instance where a 4th rotation is needed, the student should meet with the Graduate Program Coordinator before May 15th to review the IDP and identify a willing 4th rotation advisor.

Scheduling and Format of General Examination:

Students admitted to the doctoral program should take their General Examination during autumn or winter quarter of their third academic year (the second year for MS transfer students, see below), but no later than by summer quarter of their third academic year. By this time, they should have passed with satisfactory grades (3.0 or greater) all the required Core courses. The student is expected to have a clear understanding of their dissertation project direction.

The General Exam will consist of 2 parts (see ***Appendix A*** for further guidance): (a) submission of a written research proposal that includes specific aims that are related to, or an extension of, the student's dissertation plan and (b) oral PhD candidacy examination (see ***Appendix A***). Questions during the exam will focus primarily on both the pharmaceutical science principles presented in the core curriculum that are relevant to the presented written research plan. However, a student can receive questioning on any Core curriculum topic, emphasizing the "general" nature of the exam. The student should also expect to receive questions pertaining to the proposed and independently drafted research plan, including questions about relevant background literature, significance of the specific aims, experimental design, and technical feasibility.

The student supervisory committee will conduct the General Exam. Specific instructions about how to prepare for the examination can be found in ***Appendix A***. The student must submit their research proposal and IDP (if not yet sent for that academic year) to the committee at least 4 weeks before scheduling the tentative oral exam date and receive approval from the committee to schedule the oral portion of the General Exam following written proposal acceptance. If written proposal revision is required, the student must make the necessary changes that have been communicated to them by the committee and submit a revised proposal for review and acceptance no later than one week prior to the scheduled oral exam date.

Students must notify the Graduate Program Coordinator and Graduate Program Advisor of the names of their committee members no later than 4 week prior to the general oral exam date to be recorded in MyGrad (admin view) and prior to the student scheduling the General Exam in MyGrad (student view). Prior to scheduling the oral part of the General Exam, the student must confirm with each member as to their availability. Then the student must request scheduling the date in MyGrad (student view), which will then be approved by the Graduate Program Advisor. All members of the committee will be automatically notified of the date and time of the oral exam.

A hard copy committee signature form for the General Exam will be downloaded from the Graduate School website by the Graduate Program Advisor and presented to the supervisory committee at the time of the oral exam for ink signature. After that examination, a recommendation will be made, signed by the committee, and returned to the Graduate Program Advisor. The Graduate Program Advisor then submits the signed warrant and records the exam outcome through the Graduate School website.

There are three possible outcomes of the initial General Exam:

1. The candidate is encouraged to proceed with studies leading to the doctoral degree.
2. The candidate must be reexamined after a further period of study. This outcome requires resubmission of a request for General Examination to the Graduate School. The Dean of the Graduate School will approve at most two reexaminations, except under extraordinary circumstances.
3. The candidate is not recommended for further work towards the doctoral degree. The effect of this recommendation is termination of the student's enrollment in the doctoral program.

The student becomes a "candidate" for the PhD degree upon successfully passing the General Exam. If they fail the initial exam and are offered the opportunity of reexamination, the student may retake it during spring or summer quarters of the 3rd academic year, or as outlined by the dissertation committee, after completing the appropriate remediation (see ***Appendix A*** for additional details). Failure at the reexamination phase will result in dismissal from the doctoral program. However, a student who fails the General Exam requirement may be offered the opportunity of a transfer to the Master's program for a terminal Master's degree, if they can complete all requirements for the degree (see ***Master's Degree Handbook***).

Appointment of the dissertation reading committee:

The three-member doctoral dissertation reading committee is constituted from members of the student's supervisory committee. All three members must be UW Graduate faculty (see here). The student's principal advisor will serve as the chair of the reading committee. The second member must be a regular or adjunct member of the Pharmaceutics faculty. The third member of the reading committee can be any one of the other members of the supervisory committee that holds a Graduate School appointment. Nominations for reading committee appointment must receive prior approval by the Graduate Program Coordinator before they are contacted. The reading committee should be constituted approximately six months prior to the expected defense date. The Graduate Program Advisor will complete online appointments through the MyGrad Program.

Scheduling of the Final Examination (dissertation defense):

The candidate should reach out to their dissertation committee to identify potential defense dates well in advance of scheduling the defense. To schedule the Final Exam (see ***Appendix A*** below), the candidate must fulfill the requirements of the Department and the Graduate School (see here). At least three weeks before their defense, the doctoral candidate must get an approval form signed by the reading committee, stating that the candidate is ready to schedule a defense. Specifically, the reading committee must have read a complete draft of the dissertation and approve scheduling of the defense; final changes to the dissertation can occur after the defense, but must be incorporated prior to

submission of the dissertation to the Graduate School by the last day of the academic quarter (2-week extensions can be requested, for a fee). The completed dissertation should be provided to all committee members prior to the defense. All committee members will be notified automatically by email of the date and time of the Final Exam. The student will also need to coordinate in advance with the Graduate Program Advisor to reserve a room for the in-person defense of the dissertation.

There are three possible outcomes of the Final Examination:

1. The candidate passed the examination, and the PhD degree is awarded.
2. The candidate must be reexamined after a further period of study. Requires resubmission of a request for General Examination to the Graduate School.
3. The candidate is not recommended for further work towards the doctoral degree. The effect of this recommendation is termination of the student's enrollment in the doctoral program.

A successful dissertation defense must occur on or before the last day of an academic quarter to be conferred in that quarter. Otherwise, it will be conferred in the following quarter. The final dissertation document that has been approved by the supervisory reading committee should also be submitted at the same time. However, the Graduate School provides a 2-week extension (with a fee to be paid by the student) for submission of the final dissertation document. This extension does not apply to the Final Exam (oral defense); it is specifically an extension to submit the written final dissertation document.

PROGRESS EXPECTATIONS FOR PHARMACEUTICS MS TO PHD TRANSFER STUDENTS

Students who are accepted into the Pharmaceutics doctoral program after completing Department requirements for the Master's degree will be considered to have completed one year of doctoral training upon entry into the doctoral program.

Credit Transfer:

Graduate School Policies state that "With approval of the graduate program, any number of credits applied to a UW Master's degree in the same program may be counted towards doctoral degree requirements. These credits may not be applied towards the dissertation requirement." The Pharmaceutics Department has adopted this policy. However, the transfer student must complete all the didactic core course requirements of the doctoral degree with the minimum pass grade of 3.0, either as "transferred credits" from their MS training (all required courses should transfer if the minimum grade was achieved) or through completion of the courses while in the doctoral program (e.g., PCEUT 506 is not required for the MS degree).

Seminar Requirements:

The seminar attendance and presentation requirements of a student transferring from the Pharmaceutics MS program are the same as those of a student who enters the doctoral program from an outside institution (see ***Seminar and Literature Review Requirements*** above). However, seminar credits accrued while in the MS program can apply to the PhD program credit requirement.

Journal Club Requirements:

The Journal Club attendance and presentation requirements of a student transferring from the Pharmaceutics MS program to the PhD program are the same as those of a student who enters the doctoral program from an outside institution (see ***Seminar and Literature Review Requirements*** above). However, Journal Club credits accrued while in the MS program can apply to the PhD program credit requirement.

Lab Rotations:

A student who has transferred from the Department MS program to its doctoral program can choose to join the lab of their MS advisor upon entry into the doctoral program, bypassing lab rotations. If a transfer student wants to consider other Department labs for their dissertation research, either by choice or available funding, they must participate in the standard Year-01 lab rotations before final lab placement.

Research:

Although research conducted for the Master's degree cannot be part of the doctoral degree, research experience and technical skills gained in the MS program can transfer. Students transferring to the doctoral program from the Department's MS program will enroll in PCEUT 600 until a successful General Exam and PCEUT 800 thereafter until a successful defense. Research credit requirements required by the Graduate School will apply.

General Exam:

As noted above, students who were admitted to the doctoral program after completion of the MS degree from the Pharmaceutics Department (i.e., MS to PhD transfer) will be considered to have completed one year of training for the PhD program and thus should schedule a General Exam during autumn or winter quarter of their second year in the doctoral program (effectively the student's third year in the Department), but no later than summer quarter of their second year in the program.

Accordingly, PCEUT 540 should be taken in winter and spring quarters of their first year in the doctoral program, to prepare the student for the General Exam.

DEFICIENCIES IN STUDENT PROGRESS

The Department is committed to helping students succeed academically and professionally, but must maintain standards for didactic and research performance. A student's standing in

the program can be compromised by a failure to maintain good scholastic standing (GPA below 3.0 for all graded courses), failure to pass required numerically graded core courses with a minimum grade of 3.0, failure to make substantive research progress towards the degree, failure to pass the General Exam, or failure to pass the final (defense) exam.

COURSEWORK

With the Graduate School's Academic Performance and Progress as the basic framework, these Academic Discipline steps will be followed should a student encounter difficulty with required course work:

VERBAL/EMAIL COMMUNICATION:

Course instructor(s) will communicate with a student when they see early signs that the student might be struggling with a course. Instructor(s) will communicate with the identified student and explore possible ways to help the student improve their performance in the class and meet academic expectations.

ACADEMIC NOTIFICATION LETTER:

If a student receives a grade below the minimum program requirement for a core course, the student will receive a written letter from the Graduate Program Coordinator, which serves as an Academic Notification letter, to communicate with the student about the situation involved, remediation plan (remediation exam or expectations to retake that course), and the timeline for remediation. The letter will also contain a message that failing to meet the expectations stated in the Academic Notification Letter will lead to Academic Alert.

ACADEMIC ALERT LETTER:

If a student fails a second core course, the student will be put on Academic Alert, and a formal notification letter will be issued. The letter will communicate with the student about the situation involved, the remediation plan (remediation exam or expectations to retake that course), and the timeline for remediation. The letter will also contain a message that failing to meet the expectations stated in the Academic Alert letter will lead to Final Academic Alert.

FINAL ACADEMIC ALERT LETTER:

If a student fails to meet expectations stated in the Academic Alert letter, or fails a third core course, or retakes and fails the same previously failed core course a second time, or fails the general exam on the first attempt, the student will be put on Final Academic Alert. The Final Academic Alert letter will communicate with the student about the situation involved, steps to remove Final Academic Alert, and the timeline for the process. The steps to remove the Final Academic Alert could be to take an oral course remediation exam with a faculty committee (possibly, course instructor(s) and the Graduate Program Coordinator

or other faculty members). Final Academic Alert is the last stage of unsatisfactory academic progress prior to Academic Drop (i.e., dismissal) from the program.

SELECTION OF AN ADVISOR

It is essential that the student select a dissertation research advisor to maintain on-track progress towards the doctoral degree. Lab rotations during autumn, winter, and spring quarters of the first year are intended to facilitate the selection process. In the unusual case where a lab match cannot be made at the end of spring quarter, a fourth rotation during the summer quarter may be offered. Failure to select a dissertation research advisor and laboratory by the end of the fourth quarter in the program (generally summer quarter of Year 1), when dissertation research labs are available and space has been offered, will result in dismissal from the doctoral program. Should this occur, the Graduate Program Coordinator and Department Chair will work the student to determine if completing requirements of a MS degree is realistic and desired. Transfer to a different PhD program on campus is another possibility that a student can pursue, but that may require a new admission application to the potential department/program.

A lab rotation request outside of the Pharmaceutics department is only approved if the faculty member for that rotation is an adjunct faculty with the Pharmaceutics department.

GENERAL AND FINAL EXAMS

Failure to pass the General Exam (the first or multiple tries) or Final Exam (the first or second try) will result in steps taken that can lead to termination of a student's enrollment in the doctoral program. If a student fails the general exam, they are placed on Final Academic Alert. The student will be provided a timeline for oral reexamination or written exam document revision to remove the Final Academic Alert. Failure to meet the outlined expectations will result in the student being recommended for Academic Drop.

RESEARCH PROGRESS

The Doctor of Philosophy degree is inherently a research-based degree. Hence, standing in the Pharmaceutics doctoral program will be evaluated based on student progress towards completion of their dissertation research specific aims. That research progress will be evaluated at least annually by their supervisory committee. An updated IDP will be communicated to the supervisory committee prior to each meeting with the student, as an aid to their evaluation of research progress. During the supervisory meeting, the student will make an oral presentation outlining research progress, answer technical and general questions posed by the committee members related to that research effort and receive any specific or general advice that the committee has to offer on how to maintain or enhance progress. Deficiencies, if any, in student progress towards the degree that are identified by the committee will be communicated in a supervisory committee review report. The report will include a clear description of the expected level of performance, a

timeline for the student to resolve the deficiency, and the consequence of failing to meet expectations. The same steps described above for deficient coursework (e.g., initial communication, academic notification, academic alert, and final academic alert) will be followed when the Department responds to deficient research performance.

APPENDICES

APPENDIX A- PREPARATION FOR THE GENERAL AND FINAL EXAMINATIONS

1. GENERAL EXAMINATION

The General Exam should be scheduled during autumn or winter quarter of the third academic year in the doctoral program (second year for MS transfer students), but no later than the end of summer quarter of the third academic year (second year for MS transfer students). The General Exam consists of two parts – a written dissertation proposal and an oral examination. At least 4 members of the supervisory committee must be present at the General Exam (including the supervisory committee chair, the GSR, and 2 other committee members).

INSTRUCTIONS AND EXPECTATIONS FOR THE WRITTEN PROPOSAL

The purpose of the written proposal is to train the student in independent scientific investigation and writing, providing a framework by which the student can then be orally examined for their ability to conceptualize and lead a project and their knowledge of core pharmaceutics principles relevant to their dissertation project. Given the nature of this general exam, the use of generative AI tools for text generation is strictly prohibited, but AI tools can be used to assist with grammar. The student is asked to explicitly detail how AI tools, if any, were utilized in the document drafting and will be held responsible for all data, references, and statements included in the document.

The Specific Aims of the written proposal should fall within the general area of the planned dissertation project (e.g., targeted drug delivery). The student can either formulate a proposal that is a distinct extension from their previously conceptualized dissertation aims, or it can be an expansion of their dissertation project. The written proposal should be an independently drafted written product that is designed and conceptualized by the student, with limited input from the dissertation advisor (or other generative text tools). This written document serves as an opportunity for the student to extensively contribute to the drafting of a research proposal. The student is encouraged to discuss opportunities to extend this written document into a fellowship proposal (i.e. NIH F31 or foundation award) in the future, if applicable.

PCEUT 540 will be provided in winter and spring quarters of the second year, or first year for MS transfer students, to facilitate greater understanding of scientific written and oral communication, including writing a scientific document (i.e. research proposal, manuscript, or thesis). Specific requirements for the written proposal are described below. It should be submitted to the dissertation supervisory committee at least 4 weeks before scheduling the oral exam. The student is encouraged to seek input from committee members on potential topics and obtain feedback on high-level concepts or approaches, as needed. The written proposal must be accepted as demonstrating sufficient scientific rigor and depth by the supervisory committee (may require revision) before the oral exam can be scheduled.

The written proposal should be in a format like an NIH R21 or similar grant application. It should consist of a short abstract (30 lines in length in total), a single Specific Aims page, and no more than a 4-6 page Research Plan (not including bibliography – use NIH formatting style; a total of no more than 5-7 pages for the written portion). The document should use the following style guide: 11-point font (Arial), with 0.5-inch page margins and 1.0-line spacing. Additional details for each section follow:

ABSTRACT (30 lines):

The abstract should be a maximum of 30 lines of text. The abstract should briefly describe the background, specific hypotheses and aims, preliminary results (if any), and methods used, the experimental research plan, and anticipated/expected translational impact.

SPECIFIC AIMS (1 page):

The specific aims should be 1 page in length, providing a brief background and clearly stated, detailed research hypotheses for the proposed research. The specific aims should be numbered and state the objectives of the experimental research conducted by the student. A brief description of how each specific aim will be addressed should be included.

RESEARCH STRATEGY (4-6 pages, single spaced)

Research Strategy should be divided into sections and clearly labeled. An example is outlined below to guide structure, but the student is encouraged to discuss with their advisor:

A. SIGNIFICANCE:

This part of the proposal should be no more than 1-2 pages and provide an in-depth assessment of the critical background and significance for the proposed research project, research hypotheses, and the basic strategy for addressing the hypotheses. It is important to capture both the broad perspective of the field as well as the detailed evidence available to support the significance and novelty of the research hypotheses and experimental approach. The use of tables and figures to summarize data from the literature, including the student's lab, is strongly encouraged.

B. PRELIMINARY DATA:

This section should be no more than 1-2 pages and can include results from the student's own preliminary studies that are relevant to the written proposal aims and approach. It can include results from experiments that demonstrate feasibility and experience with key experimental techniques. Experimental methods should be described briefly to provide the necessary information required to understand the results. It is recommended that data be presented in graphical and tabulated formats. This section of the proposal may be subject to discussion and examination by the supervisory committee to assess approach pertaining to the design and conduct of these experiments. Figures should be legible when printed on standard 8.5 x 11" paper.

C. APPROACH:

This section should be no more than 2-3 pages and describe an experimental plan, organized around the specific aims and stated experimental hypothesis. It should include sufficient detail for the committee to assess feasibility and the likelihood that the proposed approach, if completed, would generate results that adequately and rigorously test the research hypothesis(es). It should include a statistical analysis plan with power calculations, describe how rigor and reproducibility will be ensured, and anticipate any potential problems that could be encountered, as well as alternative approaches should the original research approach fail. It is important that experiments proposed under each specific aim be described in sufficient detail to allow the committee to assess feasibility and likelihood of success of the proposal.

D. REFERENCES:

References should be included at the end of the proposal and can be written in the NIH-required style. References list should include authors, title of the manuscript or reference, journal of publication, volume, page numbers, and year of publication. Use of a reference manager (e.g. Endnote, Zotero) is strongly recommended. There is no limit to the reference page limit, and the student should include all relevant sources that were used to support the proposed written document.

Sample applications with formatting requirements are available from the National Institutes of Health here.

The written proposal will be evaluated as follows:

- Student is permitted to schedule the general oral exam – proposal is acceptable
- Student is permitted to revise the written document – proposal is not acceptable. Feedback may be provided on specific suggested changes. A revised document must be returned to the committee no later than one week prior to the general exam date.

GRADUATE SCHOOL REQUIREMENTS

Prior to the General Examination:

- At least 18 credits of coursework at the 500 level and above must be completed prior to scheduling the General Examination.
- At least 18 numerically graded credits of 400- and 500-level coursework, excluding 499, must be completed prior to scheduling the General Examination.

- At least 60 credits must be completed before taking the General Exam. Some of these credits may be taken the same quarter of the exam. For MS transfer students, PCEUT 700 credits accrued while in the MS program can be applied to this requirement.

- All members of the supervisory committee must approve that the student's background of study and preparation is sufficient to schedule the General Examination.

INSTRUCTIONS AND EXPECTATIONS FOR THE GENERAL EXAMINATION

The oral part of the General Exam will last 2-3 hours. There is no requirement for a formal presentation from the student (i.e., no slides) during the exam.

The student should not prepare any slides or presentation materials for the oral portion of the general exam. However, as preliminary data may become available between the 4 week period from sending the written document to the committee and the actual oral exam, the student is allowed to share additional preliminary data with the committee prior to the exam. Specifically, the student is allowed to send a 1-page (single spaced, 11-point font) PDF document with additional preliminary or supplemental data that may further support the proposal discussion. This 1-page supplemental materials page must be shared with all committee members no less than 48 hours prior to the oral general exam. No other materials can be conveyed prior to the oral exam.

The student should be prepared to deliver a 5-minute oral summary ("elevator pitch") of their proposal to the committee without data slides. The oral exam will cover pharmaceutical science principles presented in the Core curriculum that are relevant to the proposed written research plan. However, a student may also receive questioning on any Core curriculum topic as well as on concepts or interpretation of study outcomes or design as outlined in their general dissertation research project, emphasizing the "general" nature of the oral exam. In addition, a student should expect to receive questions pertaining to the written research proposal itself (see above – Instructions and Expectations for the Written Proposal), including questions about experimental significance, study design, interpretation, alternative directions, and technical feasibility. Although the advisor is the chair of the supervisory committee, they do not play an active role during the examination and will only provide clarification or comment if asked by other members of the committee.

The Department encourages the committee to conduct the examination in a critical way that will ensure that the student is ready to be a PhD candidate and begin their dissertation research in earnest. If there is positive agreement, the committee will recommend an exam pass. However, if the committee feels that the student performance is below average, in any way, the committee can vote to fail the student with one of two recommendations. They could allow a reexamination after corrective action has been taken, which may consist of one or more of the following:

1. student remediates deficiencies in core or research knowledge areas via self-study.
2. student takes specific electives.
3. student meets with committee members more frequently than required.

Re-examination should occur no later than the summer quarter of the third academic year.

The committee may also recommend termination from the doctoral program, with the possibility of a terminal Master's degree.

SPECIAL ROLE OF THE GSR

The GSR represents the broad interests of the Graduate School. The GSR is a voting member of the committee and must attest to the validity of the examination, must indicate approval of the process by which the examination was conducted, must ensure that the student is treated in an unbiased manner, and must represent the Graduate School in ensuring university-wide standards of scholarly performance. Refer to the Graduate School Policy 4.2.2.4 here for details about the role of GSR.

In preparation for the General and Final Examination, students should see that the GSR receives all necessary materials (i.e., copies of the dissertation proposal, the dissertation, etc.) in a timely manner. Changes in the GSR appointment are made only under extenuating circumstances (i.e., GSR is on sabbatical during the academic quarter).

2. FINAL EXAMINATION AND SUBMISSION OF THE DISSERTATION

GENERAL

Preparation for the Final Exam should begin 6-9 months prior to an anticipated defense date. It begins with a consensus of the student advisory committee that the research that has been or will be completed is of sufficient scope and quality to constitute a defensible dissertation. A detailed timeline for completion of remaining experiments should be presented and approved by the committee. At that time, the student should confirm the availability of their reading committee, create a timeline for writing the dissertation, and identify a suitable timeline for scheduling a defense.

Reading Committee

The reading committee, consisting of at least three voting members of the supervisory committee, should be formed shortly after a successful General Examination. One member of the reading committee must be the chair of the supervisory committee. See additional details on the composition of the committee in section-6 of Progression of Steps in Relation to the Doctoral Degree. The reading committee is appointed to read and approve the dissertation. When the reading committee has read an entire draft of the dissertation and the voting

members of the doctoral supervisory committee agree that the candidate is prepared, the student can schedule the Final Examination.

Final Examination

The Final Examination consists of a defense of the dissertation. At least 4 members of the supervisory committee must be present at the Final Exam (including the supervisory committee chair, the GSR, and 2 other committee members). By Department policy, the exam begins with a public oral presentation that lasts approximately 1 hour, with 45-min devoted to research topics selected from the written dissertation and 15-min for questions from the general audience. The department will advertise this presentation via email and poster to the public. A student could petition the Graduate Program Coordinator if they prefer a more limited audience. The Graduate Program Committee will assess and vote to determine the outcome of this petition.

The exam continues with a closed session of the supervisory committee, where further questioning of the candidate will occur. Questions will generally pertain to content in the dissertation chapters but can include forward-thinking questions about generalizability of the findings and potential impact on the field.

If a majority of the voting members of the supervisory committee agree that the evaluation is positive, the doctoral supervisory committee recommends to the Dean of the Graduate School that the degree be awarded. If members of the doctoral supervisory committee do not agree with the majority recommendation concerning the examination, a minority recommendation should also be forwarded to the Dean.

Submission of Dissertation to Graduate School

The dissertation must conform to the Graduate School requirements, as shown here. It will typically consist of a background/introduction chapter, three or more research chapters (often tied to the original specific dissertation aims and in essence published papers if the research has been published) and a summary chapter, as well as references, table of contents, figures/tables, appendices, and other stand-alone information required by the Graduate School. Of the research chapters, the Department requires that prior to scheduling the defense, the student should have had accepted (or submitted, reviewed, and conditionally accepted) at least one first author peer-reviewed manuscript derived from original dissertation research (i.e., a chapter). In addition, the Department recommends that, before scheduling the defense, as many as possible of the additional research chapters be published, in press, or submitted for publication.

When other investigators have contributed to the dissertation research chapters, this should be appropriately acknowledged in the chapter. If a chapter is a joint first author published paper, the paper cannot be included “as is” in the dissertation. Instead, the student will need to re-write in their own words the portions of the said paper that were not written by them. The student should clearly delineate within the chapter their research contribution and that of

others, including the other first author. If some of these requirements cannot be met, the student must seek a written and signed waiver (explaining in detail the specific contributions and rationale) from their supervisory committee prior to scheduling the defense. Such a waiver is not guaranteed.

The student must be registered for a minimum of 2 credits for PCEUT 800 during the academic quarter in which the completed dissertation is to be submitted. The dissertation must be submitted in accordance with the UW Graduate School deadlines (see here). Once the committee members are added to the student MyGrad profile, they will be able to approve the dissertation online.

It is the responsibility of the student (and their reading committee) to ensure that the Electronic Thesis/Dissertation (ETD) that is submitted as part of the requirements to earn a graduate degree is accessible and compliant with WCAG 2.1 Level AA, see here. The ETD is uploaded to UW Libraries as a PDF (Portable Document Format) as part of the graduation process. The UW Office of Accessible Technology provides resources here to help ensure that documents meet accessibility standards. The student should use accessibility tools here early as they work on a thesis or dissertation. Any general questions about the ETD process should be directed to Graduate Enrollment Management Services (GEMS). Technical assistance can be accessed at the “help” resources on UW’s Accessible Technology website here.

APPENDIX B- DEPARTMENT POLICY ON TIME OFF AND ON-SITE WORK

Students are expected to perform their research and/or instructional duties according to the contractual agreements here governing their appointment as Academic Student Employees (ASEs), and the academic requirements to maintain satisfactory performance and progress towards their degree. (Please see details in the ***General Program Requirements*** section).

For students holding ASE appointments, workload expectations are governed by the applicable union contract here:

ASEs with a 50% FTE appointment are not required to work more than:

- 220 hours per quarter, or
- An average of 20 hours per week,
- Not to exceed 30 hours in any given week without the ASE's consent.

More details of workload expectations are outlined in the annual reappointment letter, as either an RAship or TAship. To be eligible for an ASE appointment (RA or TA) in addition to their graduate studies, a student must be registered as a full-time student. Full-time status requires 10 credits enrollment for graduate students. University policy here defines academic credit as follows: 1 credit ≈ 3 hours of total student effort per week over a 10-week quarter.

Actual workloads may vary depending on research stage, coursework, teaching, and individual progress. Students should work closely with their advisor and supervisory committee to ensure that workload expectations remain consistent with both educational goals and contractual workload protections. Academic progress toward the degree is measured by meeting required program milestones.

TIME OFF RELATED POLICIES FOR ACADEMIC STUDENT EMPLOYEES (ASEs)

Students should refer to the UW Student Employment website here for time off and leave policies. At the Department level, it is important that student employees inform and coordinate with their supervisors/PIs ahead of time when requesting time off, whenever it is possible, to mitigate impacts on research-related activities and academic progress timelines. Students must fill out the Request for Short-Term Leave or Overtime form, get the signature from their supervisors/PIs, and send the signed form to the Graduate Program Advisor for documentation. Students are advised to familiarize themselves with the current union contract policies for time-off and leave benefits.

TIME OFF POLICIES FOR ACADEMIC STUDENT EMPLOYEES:

Visit here

SALARIED ACADEMIC STUDENT EMPLOYEE TIME OFF FAQs:

Visit here

ON-SITE ACADEMIC- AND WORK-RELATED POLICIES

In general, students are expected to work on-site for fulfillment of their RA/TA duties and completion of required and elective courses and dissertation research. In some circumstances RA/TA positions may be eligible for hybrid or remote work. If eligible, the ASE needs to request hybrid work schedule formally using the School of Pharmacy telework agreement form. The agreement must be reviewed and agreed to by responsible faculty member before the initiation of the hybrid schedule. For academic research activities, the responsible faculty member is the student's primary graduate (PhD or MS) advisor; and for instructional duties, the course director/instructor. Suspension of this policy may occur, as happened during the COVID-19 pandemic.

The agreement should be documented and reviewed (i.e., to be extended, modified or terminated) at least on a quarterly basis, and any impact (potential or real) it may have on the student's academic performance and progression should be noted in the student's Individual Development Plan.

It is the policy and practice of the UW to create inclusive and accessible learning environments consistent with federal and state law. If the student has already established accommodations with Disability Resources for Students (DRS), then a discussion between the student and the responsible faculty member should occur to determine how they will be implemented as it relates to research and/or instructional duties. Moreover, please navigate here to understand the process of workplace accommodation at UW for an ASE.

All PhD students are encouraged to conduct internships with private industries. The Department strongly encourages the student to discuss any internships and external professional development opportunities with their primary advisor and with the supervisory committee as part of IDP review process, or earlier as opportunities arise. If the student successfully obtains an internship, the student should carefully evaluate (together with the faculty advisor and Graduate Program Advisor) the potential impact that the internship will have on the academic student employee status (i.e., the RA/TAship) and any potential impact on graduation timelines, course credits, and academic progress towards the doctoral degree. The student is responsible for understanding the full impact of an internship on their salary, benefits, academic student standing, residency, and taxation requirements before accepting the internship. The student should understand that accepting and conducting internships might lead to termination of the RA/TA appointment and loss of associated UW benefits.

International students still need to maintain full-time student status during the summer quarter, therefore they must complete the Curricular Practical Training request with UW ISS

and they must sign up for a minimum 10 credits for the autumn quarter (PCEUT 520, PCEUT 583, PCEUT 600 or PCEUT 800).

Although PhD students might not have academic responsibilities during the quarter breaks (winter break in December, spring break in March, etc.), a PhD student who is also an ASE must still fulfill their RA/TA duties. For example, a 1st year PhD student who completed their 1st rotation for autumn quarter (ASE autumn appointment end date is December 15th) must report to their 2nd rotation for winter quarter on December 16th even though the PCEUT 600 course for the 2nd rotation will not start until January. Students should complete the department's Request for Short-Term Leave or Overtime form with their faculty advisors (1st year PhD students should complete the request with the Graduate Program Coordinator and their rotation advisors) before taking vacation. As detailed above, leave plans should be coordinated in advance with the faculty advisor.

APPENDIX C- SCHOLARSHIPS AND AWARDS

Graduate students in the doctoral program are eligible for multiple scholarship and travel awards offered by the Pharmaceutics Department, the School of Pharmacy, the UW Graduate School and Health Science administration, NIH, and various private Foundations. All are merit-based and require an application and review process. Receiving an award is recognition of exceptional merit. As such, it should be received with pride and can be cited in a curriculum vitae or resume.

DEPARTMENT AWARDS

The Department of Pharmaceutics offers awards to its graduate students that are intended to recognize outstanding scholarly activity during the time that they are enrolled in our programs. The list of available awards, timelines, and eligibility criteria are detailed at this link here.

SCHOOL AWARDS

Click here for more information.

NIH T32 Pharmacological Sciences Training Program: Click here for more information.

UW HEALTH SCIENCE AWARDS

Magnuson Scholarship: Click here for more information.

ITHS TL1 Translational Research Training Fellowship: Click here for more information.

Other awards (i.e., training grants) may be available and should be identified in consultation with the dissertation advisor.

UNIVERSITY AWARDS

Much of the descriptions presented below are abstracted from the associated websites:

UW ARCS Fellowship: Click here for more information; this is only available to students applying to the PhD program.

Graduate Student Conference Presentation Award: Click here for more information. The application is submitted by the Graduate Program Advisor or Coordinator on behalf of the student through MyGrad (admin view). Students must contact the Graduate Program Advisor to initiate the application process. Students must initiate this request process prior to conference presentation. Awards are not provided retroactively, and eligibility criteria apply.

Graduate and Professional Student Senate Travel Grants: Click here for more information.

Graduate School List of Fellowships: Click here for more information.

EXTRAMURAL AWARDS

Graduate students in the Pharmaceutics Department may apply for scholarships and awards that are offered by foundations and other organizations outside of the UW (i.e., extramural) system. The possibilities are numerous and should be searched online and in consultation with the dissertation advisor. A few that are directed specifically to graduate studies in a School of Pharmacy or STEM disciplines are listed below. Note that some organizations have specific eligibility criteria. Below is a non-exhaustive list of common pre-doctoral fellowship options to Pharmaceutics Department graduate students; additional opportunities may be identified in consultation with the dissertation advisor or Graduate Program Coordinator:

NIH Predoctoral Individual NRSA F31 Fellowship: Click here for more information.

AFPE Fellowship: Click here for more information.

PhRMA Foundation Fellowship: Click here for more information.

American Doctoral Fellowship: Click here for more information.

Hertz Foundation Fellowship (first year students only): Click here for more information.

APPENDIX D- STUDENT GRIEVANCE PROCEDURES

UW SCHOOL OF PHARMACY GRADUATE STUDENT ACADEMIC GRIEVANCE PROCESS

The academic grievance procedure for graduate students is intended to ensure uniform and fair application of program, department, unit, or university-level academic policy and adhere to the principles outlined in Executive Order 58 for undergraduate and professional students. This grievance procedure for graduate students is developed in alignment with EO 58 and is adapted for implementation within the UW School of Pharmacy.

Graduate students who believe they have been subjected to unfair treatment in the administration of academic policies may seek resolution of their complaints as described below. *Note that the following areas have their own procedures and policies and are excluded from this process:*

- Students contesting individual grades or academic evaluations should refer to the Change of Grade Procedure contained in the Scholastic Regulations, Chapter 110, Section 2.

- Students who believe they have been discriminated against on the basis of race, religion, color, creed, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran or veteran should refer to the Resolution of Complaints Against University Employees Procedure contained in University of Washington Administrative Policy Statement 46.3.

- Student disciplinary proceedings for misconduct, including plagiarism and cheating, fall under the provisions of the Student Conduct Code contained in the Student Policies Chapter 209 and Chapter 478-120 WAC.

- Procedures related to the Civil Office Compliance Office
  https://www.washington.edu/civilrights/making-a-report/make-a-report/
  It is worth noting that UW employees are obligated to report claims of discrimination, harassment, and retaliation to the Civil Rights Compliance Office.

- Procedures and issues related to Academic Student Employment
  https://hr.uw.edu/labor/academic-and-student-unions/uaw-ase/ase-contract

- **Stage 1: Informal Conciliation**

The student should first attempt to resolve a grievance with the faculty or staff member(s) most directly concerned. If discussion with the faculty or staff member(s) concerned does not resolve the grievance, the student should contact the Department Chair or Supervisor respectively within 10 days of the discussion with the faculty or staff member. If this discussion does not result in

resolution of the grievance, the student needs to request the Associate Dean for Research and Graduate Education or the UW Ombud to conciliate and identify if a particular policy (or policies) has been potentially unfairly applied. If the grievance is not resolved in the conciliation stage, and once a particular policy (or policies) has been identified as potentially unfairly applied, the grievance procedure may move to the next stage.

Note 1: The student initiating the grievance process needs to be in graduate student status during the incident (i.e. registered or on leave)

Note 2: If a student believes that consulting with the Department Chair or Dean (or Associate) presents a conflict of interest, or if the grievance involves either individual, the student may seek guidance from the Graduate Program Coordinator/Director, the Associate Dean for Graduate Education or the University's Ombuds office.

- **Stage 2: Initiation of Formal Complaint**

If ten working days passed after Stage 1 and the issue is not reconciled, the student can submit a written complaint to the Dean (or Associate Dean of Research and Graduated Education) identifying the specific program, school, or university academic policy that was violated or unevenly applied to initiate a Formal Compliant.
The Dean shall activate a School of Pharmacy Academic Grievance Committee. The Dean shall appoint an administrator or other senior faculty member to serve as Chairperson, as well as two ad hoc faculty members and two students to serve on this Committee. The Dean shall consult with representative members of the student body for nominations of student members. No person who has an obvious conflict of interest shall be appointed. Appointments of student members shall be from graduate program other than that of the complainant.

A written formal grievance letter will then be referred to the Chairperson of the School of Pharmacy Academic Grievance Committee who shall within five working days (hereafter, time limitations are stated in working days) of its receipt, notify the student and the faculty or staff concerned of the membership of the Committee. The student and the faculty or staff member concerned shall then have the right to exercise one peremptory challenge of Committee membership. If a challenge is made, the Dean shall designate another faculty or student member to replace the member challenged. All members of the Committee shall have the right to vote upon any matter that may come before it. No faculty member of the Committee shall be from the department of any of the parties to the grievance.

- **Hearing Procedures**

When a student has filed a formal complaint, the Chairperson of the Academic Grievance Committee shall distribute a copy of the complaint to each faculty or academic staff person directly involved. The Chairperson shall establish a time and place for a hearing to be held within

five working days from the date of final determination of the Committee membership, unless for good reason stated in writing to the complainant and other concerned parties, the Chairperson schedules the hearing for a later specified date (i.e summer quarter). The Chairperson shall announce the time and place of the hearing to the student, the member(s) of the faculty and staff involved, the Dean, the chairperson of the department and all other prospective witnesses. A list of the people notified will be given to the student and the other individuals directly involved.

Hearings will be conducted in closed session except when, and to the extent, mutually agreed upon and documented in writing by the student and faculty or staff involved. All parties may present evidence and testimony necessary either to establish or refute the alleged grievance. Only evidence presented at the hearing will be considered in determining the validity of the complaint. Hearings may be continued until all evidence has been presented (not to exceed 5 working days). An adequate summary of the proceedings shall be kept and include, as a minimum requirement, audio recording of the proceedings, provided by the school. The Dean shall retain such summary until the student graduates to ensure adequate review, if requested. Upon graduation the summary shall be destroyed.

Within five working days after the hearing adjourns, the panel shall present to the Dean its report (in person or virtually), including findings, conclusions, and recommendations for action. The Committee shall reach its findings and recommendations by a majority vote of all the members. Dissenting opinions, if desired, may be presented with the majority report. The Dean (or Associate Dean of Research if in conflict), within five working days after receipt of the Committee report, shall issue his decision as to the action to be taken on the grievance. The Dean's decision shall include an evaluation of the validity of the grievance and a statement of the action to be taken. Copies of the decision shall be transmitted to the student, the faculty and staff member(s) involved, their chairperson, and the Grievance Committee.

- **Stage 3: Appeal to Dean of the Graduate School**

Within 15 working days of the conclusion of the school or college-level grievance procedure, a graduate student may file an appeal with the Dean of The Graduate School alleging a lack of procedural uniformity in the unit's application of their grievance procedure. The complaint must be initiated by a written statement that indicates the exact nature of the non-uniformity including the date(s) the action(s) occurred; the deviation of the grievance procedure from the unit's documented procedure, EO 58, or from other applications of grievance procedure within the unit; and the relief requested. The statement should also include a description of the results of the unit-level procedure, as well as any background information that the student deems pertinent to the complaint.

Graduate School Associate Deans or Directors will review the appeal, consult with the unit and allow a written response, and recommend to the Graduate School Dean whether further action is warranted. Evaluation criteria will be whether the unit-level grievance procedure is clearly articulated and available to all students, as well as whether it was uniformly applied in the

student's case. The Dean of the Graduate School or their designee will notify the student and academic unit leader within 15 working days during an academic quarter of submission of the formal complaint by the student of their determination and any recommended remediation.

OTHER RESOURCES

The following University resources are also available for student support.

- Bias and Misconduct Resources (School of Pharmacy)
- Office of the Ombud: (206) 543-6028
- Civil Rights Compliance Office (includes Title IX): (206) 616-2028

APPENDIX E- YEARLY STUDENT PROGRESS CHECKLIST

1st year	Done	To Do
Fall Quarter		
Core prerequisite satisfied		
Review the handbook for required and recommended courses, policies and procedures for the PhD program		
Residence maintained through courses (10 credits per quarter)		
Take required training such as EH&S Chemical Safety, Biological Safety training, and if needed Radiation Safety, Human Subjects (CITI course strongly recommended), and/or Animal Use Regulations training		
1st Lab Rotation		
Winter Quarter		
Core prerequisite satisfied		
Refer to the handbook for required and recommended courses		
Residence maintained through courses (10 credits per quarter)		
2nd Lab Rotation		
Spring Quarter		
Core prerequisite satisfied		
Refer to the handbook for required and recommended courses		
Residence maintained through courses (10 credits per quarter)		
3rd Lab Rotation		
Submit three ranked choices of advisor to the Graduate Program Coordinator and the Department Chair by the end of the 5th week		
Review IDP with selected dissertation advisor. Submit IDP by August 31st to the Graduate Program Advisor (GPA)		
Summer Quarter		
Residence maintained through courses (2 credits per quarter)		
Gain experience in the lab of doctoral advisor/explore and decide on possible main research projects. Start collecting data.		
Complete UW TA training here if planning to TA the following academic year		
2nd year (Fall-Summer)	**Yes**	**No**
Maintain EH&S and other training, as needed		
Complete Biomedical Research Integrity training here (offered in August and September each year)		
Residence maintained through research (10 credits per quarter; 2 credits for summer)		

Continue dissertation research		
Refer to the handbook for required and recommended courses		
Appointment of doctoral supervisory committee by end of Spring quarter. This committee must be formed at least one quarter prior to taking the General Exam. Arrange supervisory committee meeting no later than May 15th (at least one earlier meeting recommended)		
Submit IDP by May 15th to the GPA		
Register for PCEUT 540 in WIN and SPR quarters to facilitate drafting of the written part of the General Exam		
3rd year (Fall-Summer)	**Yes**	**No**
Maintain EH&S and other training, as needed		
Residence maintained through research (10 credits per quarter; 2 credits for summer)		
Refer to the handbook for required and recommended courses		
Take General Exam in AUT or WIN quarter of year 3 and no later than end of SUM quarter of year 3, see here		
Arrange supervisory committee meeting by May 15th		
Submit IDP by May 15th to the GPA		
After a successful General Exam, begin registering for PCEUT 800 credits instead of PCEUT 600		
4th year (Fall-Summer)	**Yes**	**No**
Maintain EH&S and other training, as needed		
Residence maintained through research (10 credits per quarter; 2 credits for summer)		
Refer to the handbook for required and recommended courses		
Appointment of dissertation reading committee		
Arrange supervisory committee meeting by May 15th		
Submit IDP by May 15th to the GPA		
5th year (Fall-defense)	**Yes**	**No**
Maintain EH&S and other training, as needed		
Residence maintained through research (10 credits per quarter; 2 credits for summer). Registration for at least 2 credits of PCEUT 800 in the quarter in which the defense will be scheduled.		
Refer to the handbook for required and recommended courses		
Confirm appointment of the dissertation reading committee. This must be done no later than the beginning of the quarter you plan to defend your dissertation, see here		
Submit dissertation to your reading committee		
Get supervisory committee approval to schedule defense and submit approval to GPA		

Schedule your defense in MyGrad		
Revise and submit the final copy of your dissertation to Graduate School		

The above checklist can be used to facilitate tracking progress towards the PhD degree.

APPENDIX F- USEFUL LINKS

Individual Development Plan:

See here

Doctoral Supervisory Committee Meeting Form:

See here

General Exam Procedures Checklist:

See here

Approval to Schedule PhD Defense Form:

See here

Graduation Instructions:

See here

Graduation Requirements:

See here

PCEUT Travel Prior Approval Request Form:

See here

PCEUT Travel Reimbursement Request Form:

See here

UW Library Biomedical Sciences Toolkit (a useful resource of curated research support websites and information specifically for students in UW biomedical science graduate programs):

See here

APPENDIX G- SELECTED LIST OF OUTSIDE ELECTIVES SUITABLE FOR PHARMACEUTICS DOCTORAL TRAINEES

The following list of UW courses taught outside of the Pharmaceutics Department have been selected by Pharmaceutics faculty as generally suitable for elective doctoral instruction. The list is not exhaustive and a student can consider any other 500-level course taught at the University of Washington that might suit their IDP (approval by the supervisory committee is required).

Courses from Other Biological Science Programs:

BIOEN 574: Immunoengineering (3 cr); Winter

BIOEN 591: Controlled Release Systems (3 cr); Winter

BIOST 517: Applied Biostatistics I (4 cr); Autumn

BIOST 524: Design of Medical Studies (3 cr); Spring

BIOST 565: Statistical Evaluation of Biomarkers (3 cr); Winter

BIOST 509: Introduction to R for Data Analysis in the Health Sciences (2 cr); Autumn

GH 566: Biochemistry and Genetics of Pathogens and Their Hosts (4 cr); Autumn

MCB 522: Development I: The Developmental Basis of Human Disease (3 cr); Autumn, Odd years

MCB 532: Human Pathogenic Viruses (3 cr); Autumn

MEDCH 527: Advanced Drug Metabolism (2 cr); Winter

MEDCH 528: Biophysical Enzymology and Biopharmaceuticals (2 cr); Winter

MEDCH 529: Advanced Medicinal Chemistry (4 cr); Autumn

MEDCH 530: Integrated Pharmacology (1 cr); Spring

MEDCH 532: Chemical and Molecular Pharmacology I (4 cr); Autumn

MEDCH 533: Chemical and Molecular Pharmacology II (4 cr); Winter

MEDCH 537: Chemical and Molecular Pharmacology III (4 cr); Spring

MEDCH 541: Introduction to Mass Spectrometry (3 cr); Spring

PATH 550: Mechanisms of Disease (3 cr); Autumn

PCEUT 501: Advanced Pharmacokinetics I (3 cr); Autumn, Even years

PCEUT 503: Drug Transport and Delivery (3 cr); Spring, Odd years

PCEUT 506: Concepts in Pharmacokinetics (3 cr); Spring (Required for PhD Students)

PCEUT 534: Principles of Precision Medicine (2 cr); Spring

PCEUT 551: Introduction to Drug Discovery and Development (2 cr); Winter

PHARM 501: Alternative and Complementary Medicines (2 cr); Autumn and Winter

PHARM 581: Global Health Pharmacy: Medicines, Practice, and Policy (Offered: jointly with GH 543) (2 cr); Winter

PHCOL 502: Signal Transduction from the Cell Membrane to the Nucleus (2 cr); Autumn

PHCOL 503: Autonomic/Cardiovascular Pharmacology (2 cr); Winter

PHCOL 504: Neuropharmacology (2 cr); Winter

PHCOL 505: Endocrine Pharmacology (2 cr); Spring

PHCOL 506: Immunopharmacology and Chemotherapeutics (2 cr); Spring

PHG 513: Basic Concepts in Pharmacogenetics and Toxicogenomics (3 cr); Winter

Courses from the Certificate in Clinical Trials Program:

PHRMRA 524: Introduction to Clinical Trials (3 cr); Autumn

PHRMRA 525: Implementation & Conduct of Clinical Trials (3 cr); Winter

PHRMRA 526: Project Management & the Business of Clinical Trials (3 cr); Spring

Courses from the Certificate in Biomedical Regulatory Affairs Program:

PHARM 516: Introduction to Biomedical Regulatory Affairs (3 cr); Autumn

PHARM 517: Product Development & Manufacturing Systems (3 cr); Winter

PHARM 518: Product Testing, Evaluation & Post-Market Issues (3 cr); Spring