

The Pharmacology, Pharmaceutics and Medicinal Chemistry concentrations in the Pharmaceutical Sciences Doctoral Degree Program

Introduction

The Pharmacology, Pharmaceutics and Medicinal Chemistry concentrations are housed within the Department of Pharmacological & Pharmaceutical Sciences (PPS). Included in this section are policies and procedures specific to those concentrations. University and College of Pharmacy policies and procedures are linked as appropriate.

PPS Faculty Leadership

Dr. Ashok Kumar

Else and Phillip Hargrove Endowed Professor and Chair
5012 H2
Phone: 713-743-3376
e-mail: akumar43@uh.edu

Dr. Greg Cuny

Assistant Chair, Associate Professor of Medicinal Chemistry
7036 H2
Phone: 713-743-1274
e-mail: gdcuny@uh.edu

Dr. Gomika Udugamasooriya

Chair Graduate Education Committee, Associate Professor of Medicinal
Chemistry
7033 H2
Phone: 713-743-6357
E-mail: gomika@uh.edu

Graduate Program staff

Mrs. Melissa Nieto

Graduate Academic Advisor III (GAA III)
6010 H2
Phone: 713-743-7725
E-mail: mnieto2@central.uh.edu

Department address:

Health 2 College of Pharmacy - PPS
4849 Calhoun, Houston, TX 77204-5000

[PPS Faculty and Staff listing](#)

Concentration Descriptions

Each concentration has distinct course requirements, but other training requirements are the same (see below). Specific course descriptions are in the [Graduate Catalogue](#)

Concentration in Pharmacology:

Summary

PCOL 6370 Advanced Pharmacology I	Credit Hours: 3
PCOL 6371 Advanced Pharmacology II	Credit Hours: 3
PCOL 7370 Scientific Writing	Credit Hours: 3
PCOL 6462 Cardiovascular & Renal Pharmacology	Credit Hours: 4
PCOL 7362 Neuropharmacology/Elective	Credit Hours: 3
PCOL 7350 Cellular Pharmacology	Credit Hours: 3
PCOL 7333 Molecular Pharmacology	Credit Hours: 3
BIOL 6120 Responsible Conduct of Biological Research	Credit Hours: 1
PHCA 7308 Biostatistics and Experimental Design	Credit Hours: 3
PCOL 7180/7181 Seminar	Credit Hours: 4
PCOL7141/7142 Drug Literature Review	Credit Hours: 4
Research (6x98, 8x98, and 8x99)	Credit Hours: 41
	Grand total: 75

Schedule

YEAR 1, FALL (9 Credit Hours)

PCOL 6370 Advanced Pharmacology I	Credit Hours: 3
PCOL 7333 Molecular Pharmacology	Credit Hours: 3
BIOL 6120 Responsible Conduct of Biological Research	Credit Hours: 1
PCOL 6180 Seminar	Credit Hours: 1
PCOL 7141 Drug Literature Review	Credit Hours: 1

YEAR 1, SPRING (9 Credit Hours)

PCOL 6371 Advanced Pharmacology II	Credit Hours: 3
PCOL 7350 Cellular Pharmacology	Credit Hours: 3
PCOL 6198 Special Problems	Credit Hours: 1
PCOL 6181 Seminar	Credit Hours: 1
PCOL 7142 Drug Literature Review	Credit Hours: 1

YEAR 2, FALL (9 Credit Hours)

PCOL 6462 Cardiovascular & Renal Pharmacology	Credit Hours: 4
PHCA 7308 Biostatistics & Experimental Design	Credit Hours: 3
PCOL 7181 Seminar	Credit Hours: 1
PCOL 7141 Drug Literature Review	Credit Hours: 1

YEAR 2, SPRING (9 Credit Hours)	
PCOL 7370 Scientific Writing	Credit Hours: 3
PCOL 7362 Neuropharmacology/ Elective	Credit Hours: 3
PCOL6198 Special Problems	Credit Hours: 1
PCOL 7181 Seminar	Credit Hours: 1
PCOL 7142 Drug Literature Review	Credit Hours: 1

GRAND TOTALS: 26 didactic credit hours 4 Seminar credit hours and 4 Drug Literature Review credit hours + 41 research hours= 75 credits

Concentration in Medicinal Chemistry:

(Note: for historical reasons, most of these courses have PCOL numbers. Do not become confused)

Summary

PCOL 6345 Drug Design and Discovery	Credit Hours: 3
PHCA 6308 Biostatistics Experimental Design	Credit Hours: 3
BIOL 6120 Responsible Conduct Research	Credit Hours: 1
PCOL 7360 Current Topics in Medicinal Chemistry	Credit Hours: 3
PCOL 7333 Molecular Pharmacology	Credit Hours: 3
PCOL 7370 Scientific Writing	Credit Hours: 3
Elective 1	Credit Hours: 3
Elective 2	Credit Hours: 3
Seminar	Credit Hours: 4
PCOL7141/7142 Drug Literature Review	Credit Hours: 4
Research (6x98, 8x98, and 8x99)	Credit Hours: 45
	Grand total: 75

Schedule

YEAR 1, FALL (9 Credit Hours)	
PCOL 7333 Molecular Pharmacology	Credit Hours: 3
PHCA 6308 Biostatistics Experimental Design	Credit Hours: 3
PCOL 7180 Pharmacology Seminar	Credit Hours: 1
PCOL 7141 Drug Literature Review	Credit Hours: 1
BIOL 6120 Responsible Conduct of Biological Research	Credit Hours: 1

YEAR 1, SPRING (9 Credit Hours)	
PCOL 6345 Drug Design and Discovery	Credit Hours: 3
Elective 1	Credit Hours: 3
PCOL 7181 Pharmacology Seminar	Credit Hours: 1
PCOL 7142 Drug Literature Review	Credit Hours: 1
PCOL 6198 Special Problems	Credit Hours: 1

YEAR 2, FALL (9 Credit Hours)	
PCOL 7360 Current Topics in Medicinal Chemistry	Credit Hours: 3
Elective 2	Credit Hours: 3
PCOL 7180 Pharmacology Seminar	Credit Hours: 1
PCOL 7141 Drug Literature Review	Credit Hours: 1
PCOL 6198 -Special Problems	Credit Hours: 1

YEAR 2, SPRING (9 Credit Hours)	
PCOL 7370 Scientific Writing	Credit Hours: 3
PCOL 7181 Pharmacology Seminar	Credit Hours: 1
PCOL 7142 Drug Literature Review	Credit Hours: 1
PCOL 6498 Special Problems	Credit Hours: 4

GRAND TOTALS: 22 didactic credit hours + 4 Seminar credit hours and 4 Drug Literature Review credit hours + 45 research credit hours = 75 credit hours

Concentration in Pharmaceutics:

Summary:

PCEU 6341 Advanced Pharmacokinetics	Credit Hours: 3
PCEU 6198 Special Problems Adv PK	Credit Hours: 1
PHCA 6308 Biostatistics Experimental Design	Credit Hours: 3
PCEU 6345 Advanced Pharmaceutics I	Credit Hours: 3
BIOL 6120 Responsible Conduct of Biological Research	Credit Hours: 1
PCEU 6342 Advanced Pharmaceutics II	Credit Hours: 3
PCEU 7355 Regulatory Affairs	Credit Hours: 3
PCOL 7370 Scientific Writing	Credit Hours: 3
PCEU 7340 Advanced Drug Delivery	Credit Hours: 3
PCEU 7180/7181 Seminar	Credit Hours: 4
PCEU 7140/7141 Drug Literature Review	Credit Hours: 4
Research (6x98, 8x98, and 8x99)	Credit Hours: 44
	Grand Total 75

Schedule 1, students entering in even numbered years

YEAR 1, FALL (9 Credit Hours)	
PCEU 6341 Advanced Pharmacokinetics	Credit Hours: 3
PCEU 6198 Special Problems Adv PK	Credit Hours: 1
PCEU 6345 Adv. Pharmaceutics II (even years)	Credit Hours: 3
PCEU 7180 Seminar	Credit Hours: 1
PCEU 7141 Drug Literature Review	Credit Hours: 1

YEAR 1, SPRING (9 Credit Hours)	
PCEU 7340 Advanced Drug Delivery	Credit Hours: 3
PCEU 7180 Seminar	Credit Hours: 1
PCEU 7142 Drug Literature Review	Credit Hours: 1
PCEU 6198 Special Problems	Credit Hours: 4

YEAR 2, FALL (9 Credit Hours)	
PCEU 6342 Advanced Pharmaceutics I (odd years)	Credit Hours: 3
PHCA 6308 Biostatistics and Experimental Design	Credit Hours: 3
BIOL6120 Responsible Conduct of Biological Research	Credit Hours: 1
PCEU 7141 Drug Literature Review	Credit Hours: 1
PCEU 7180 Seminar	Credit Hours: 1

YEAR 2, SPRING (9 Credit Hours)	
PCOL 7370 Scientific Writing	Credit Hours: 3
PCEU 7355 Regulatory Affairs * (even years)	Credit Hours: 3
<i>*Can be petitioned to take another 3-credit hour course upon approval</i>	
PCEU 7142 Drug Literature Review	Credit Hours: 1
PCEU 7180 Seminar	Credit Hours: 1
PCEU 6198 Special Problems	Credit Hours: 1

GRAND TOTALS: 23 didactic Drug Literature Review + 4 Seminar credit hours and 4 Drug Literature Review credit hours + 44 research credit hours = 75 credit hours

Schedule 2, students entering in odd numbered years

YEAR 1, FALL (9 Credit Hours)	
PCEU 6341 Advanced Pharmacokinetics	Credit Hours: 3
PCEU 6198 Special Problems Adv PK	Credit Hours: 1
PCEU 6345 Advanced Pharmaceutics I (odd years)	Credit Hours: 3
PCEU 7180 Seminar	Credit Hours: 1
PCEU 7141 Drug Literature Review	Credit Hours: 1

YEAR 1, SPRING (9 Credit Hours)	
PCEU 7355 Regulatory Affairs *	Credit Hours: 3
<i>*Can be petitioned to take another 3-credit course upon approval</i>	
PCEU 7180 Seminar	Credit Hours: 1
PCEU 7142 Drug Literature Review	Credit Hours: 1
PCEU 6198 Special Problems	Credit Hours: 4

YEAR 2, FALL (9 Credit Hours)	
PCEU 6342 Advanced Pharmaceutics II (even years)	Credit Hours: 3
BIOL6120 Responsible Conduct of Biological Research	Credit Hours: 1
PCEU 7141 Drug Literature Review	Credit Hours: 1
PCEU 7180 Seminar	Credit Hours: 1
PCEU 6198 Special Problems	Credit Hours: 3

YEAR 2, SPRING (9 Credit Hours)	
PCOL 7370 Scientific Writing	Credit Hours: 3
PCEU 7340 Advanced Drug Delivery (odd year)	Credit Hours: 3
PCEU 6180 Seminar	Credit Hours: 1
PCEU 6142 Drug Literature Review	Credit Hours: 1
PCEU 6198 Special Problems	Credit Hours: 1

GRAND TOTALS: 23 didactic Drug Literature Review + 4 Seminar credit hours and 4 Drug Literature Review credit hours + 44 research credit hours = 75 credit hours

General Course Descriptions (all concentrations)

Didactics: Refers to classroom meetings in groups with a lecturer or facilitator, and includes lecture, presentations, exercises and exams. Letter graded, A,B,C,D,F

Elective Courses: These may be taken from within the College of Pharmacy, other colleges at UH, or at [Gulf Coast Consortia](#) institutions in the Houston area. Elective courses must be chosen in consultation with the Faculty Advisor and the dissertation committee, and must provide meaningful knowledge relating to the topic of his/her dissertation.

Seminar (PCOL/PCEU 7180/7181): This is not a lecture course, and attendance at weekly departmental seminars is mandatory for all students enrolled in the PPS concentrations. This is considered a professional development course directed at engaging students outside the classroom. The department brings in professionals within the field to deliver a research seminar and to interact directly with our students. The students are 'strongly encouraged' to enroll in 1 credit hour for this seminar course every long semester during their entire program. Graded S/U

In some cases, and especially later in the student's program, adding this one credit course may cause the student to register for greater than 9 credit hours, incurring a tuition cost. In this case, students can eliminate this course from their registration, ***though seminar attendance would still be required.*** In any case, students will be required to have a minimum of 4 credit hours of Seminar courses during their entire program (equivalent to enrollment in at least 4 long semesters).

Drug Literature Review (PCOL/PCEU 7141/7142): This course is designed to teach students how to do a critical review of the Pharmacological/Pharmaceutical/Medicinal Chemistry literature, including analysis and appraisal of selected publications in a group setting. Students give presentations, and these are evaluated by both students and the instructor. Graded S/U

In some cases, and especially later in the student's program, adding this one credit course may cause the student to register for greater than 9 credit hours, incurring a tuition cost. In this case, students can eliminate this course from their registration, ***though attendance would still be required.*** In any case, students will be required to have a minimum of 4 credit hours of Seminar courses during their entire program (equivalent to enrollment in at least 4 long semesters).

Research Hours

Special problems (PCOL/PCEU 6X98)

These are research credits that the student must take BEFORE they are formally considered doctoral students (before the student has satisfactorily passed the qualifying exams). You are receiving academic credit for laboratory research. A maximum of 20 credit hours of special problems research (6X98) can apply towards the minimum research hours required (the rest must be Doctoral Research/Dissertation). Graded S/U

Although not counting towards the degree, 6x98 hours in excess of 20 credit hours may be taken to meet the full-time enrollment requirements for employment, immigration and continuous enrollment. Full time enrollment is 9 credit hours, in the spring and fall (long semesters). Enrollment is usually not required in the summer except under certain circumstances [link].

Doctoral Research/Dssertation (PCOL/PCEU 8X98 or 8X99)

These are research credits students take when they are formally considered doctoral candidates (upon successful completion of the written qualifying exam and proposal). PCOL/PCEU 8X98 (Doctoral Research) are credits taken after the qualifying exam has been passed and *before* the anticipated last semester of the program. PCOL/PCEU 8X99 (Doctoral Dissertation) are credits taken only in the last semester of the program leading to graduation. A minimum of 18 credit hours of Doctoral Research and/or Doctoral Dissertation must be taken to complete the degree. These courses are graded IP (in progress) until the last semester, which is letter graded A,B,C,D,F

Student departmental seminar

PPS concentrations require a departmental student seminar during their last year study. The purpose is for the student to practice his/her oral and presentation skills, as well as receive valuable feedback on the research and dissertation. The student will prepare a seminar based on his/her dissertation research results obtained thus far, and delivered in an open forum to the departmental faculty and student body. This student seminar must be given one semester before the semester the student plans to graduate (i.e. the penultimate semester). The scheduling of the seminar must be done as soon as possible, bearing in mind that available dates may be limited. (See rubric to be used by peers and faculty for student seminar feedback in Appendices). Graded S/U

Admissions

The total number of students admitted to each concentration varies from year to year and meeting the minimum admissions requirements is not a guarantee of acceptance into a program.

All applications for admission to the Ph.D. concentrations in PPS are evaluated by the PPS Graduate Education Committee (GEC), which is composed of five faculty members from the PPS department (two Pharmacology faculty, two Pharmaceutics faculty and one Medicinal Chemistry faculty), the Chair of the Graduate Education Committee (GEC) appointed by the department Chair and the Assistant Departmental Chair, who is an at large-member (non-voting).

Admissions criteria: Students with a B.S (or M.S.) degree in Biochemistry, Biology, Chemistry, Pharmacy or related sciences are encouraged to apply. Applications are evaluated holistically. The minimum requirements include:

GPA: 3.0 (University requirement), required in science and math courses, preferably ranking in the top 20% of B.S. graduating class. In special cases, we can petition to waive this requirement.

Graduate Record Examination: GRE scores should be competitive. While all sections are important, scores in the quantitative section might carry more weight. This requirement is waived temporarily for fall 2022.

Letters of recommendation: Must be prepared on official University/Corporate letterhead and properly signed by the recommender. Three are required from individuals who are familiar with

the applicant's previous academic performance, potential for success in graduate school and a career in biomedical science.

International students: Please visit [here](#) for university English requirements.

Leveling courses: Prerequisites for admission into the **Pharmacology** concentration include completion of courses in human Physiology (or, Anatomy and Physiology) and Biochemistry (minimum of 3 credit hours each). Students who have not completed these courses as undergraduates must complete 3 credit hours in both of these areas before entering or during the first year of enrollment in the program. If leveling courses are required for admission, they must be completed prior to the student taking graduate level courses with a minimum grade of 'B'. Leveling courses cannot be counted towards graduate level credit.

The department's GEC will begin evaluating completed applications in January and will continue after the application submission deadline. Initial evaluations and preliminary selection will be completed by end of January. Pre-selected applicants will be invited for interviews either in person or remotely. Interviews will be performed by at least 2 departmental faculty within the concentration to which the applicant is seeking admission. We will attempt to complete final admissions by end of February or earlier for admissions in the following fall. Offer letters describing the financial support awarded will be then communicated to the selected applicants. All students that submitted completed applications will be informed of the committee's decision by email. For the most up to date information regarding admission process, please visit the department's program website.

Financial Support. Please visit [here](#)

Transfer Credits. These may be accepted according to the guidelines described in Ph.D. Handbook, section 15.

Academic and Research Advising

Interim advisors

New students will be advised by the Graduate Academic Advisor (GAA) and the Assistant Chair, PPS Department. Assignments will commence on the first day of orientation. These interim advisors serve the student as a source of information, guidance, moral support and assessment at the beginning of the program and until a permanent faculty advisor is selected.

Role of the GAA: The GAA is responsible for confirming course enrollment every semester, processing petitions for changes or adjustments to the degree plan, coordinating degree plan, assisting with academic plans, managing student records and facilitating dialogue among students, staff and faculty. Additional responsibilities of the GAA in this regard include meeting regularly with the student (at least twice per semester) to discuss course work and identify problem areas where the student might need extra assistance, ensuring that the student has met with each faculty member to discuss research interests so the student can make an informed decision about research rotation (if necessary, and not an RA); discussing the student's various TA responsibilities and how this impacts the student's coursework.

Role of the Assistant Chair of PPS: Responsibilities of the Assistant Department Chair are to assist in the orientation of the student to the department, College and University, providing encouragement to the student, and generally ease the student's transition into the graduate program at UH. Additionally, the Assistant Department Chair will be evaluating the student at the end of each semester, including discussion of areas for improvement. Once the student selects a permanent advisor, by the end of the first year, the permanent faculty advisor will directly oversee student progress. However, continuation of the GAA advisorship on an informal basis is still strongly encouraged. If necessary, a faculty advisor or student may request changes in the assignment. This request must be made in writing to the GEC during the first year only and under very limited circumstances.

Permanent Faculty Advisor

Following the completion of the first year and research rotations (if necessary), the student will select a permanent advisor. This must be a mutually agreeable decision between the student and the advisor, both of whom must sign the Appointment of Major Advisor Form, establishing a contract between them. The permanent advisor is then responsible for monitoring all aspects of the student's academic and research progress.

Role of the faculty advisor – The Faculty Advisor is responsible for the overall learning that occurs while graduate students are actively engaged in their studies and research. He/she should meet with the student at least once at the beginning of each semester to determine their plan for the academic semester, and as often as necessary to follow up on the student's project and research advancement. The faculty advisor should be a mentor and role model in the discipline for the students.

After selection of the permanent faculty advisor, if the student is unable to work satisfactorily with the advisor, the student may attempt to find another advisor and laboratory as long as the student is not on academic probation. However, RA and/or TA positions do not belong to the student and do not necessarily move with him/her. Finding another advisor implies finding an open RA or TA position in another faculty laboratory as well as the approval of the GEC and Department Chair. Thus, in all instances, the GEC will review the written evaluations of the student by the advisor in rotation reports, reports of the student's committee meetings and attempt to assist the student in either resolving the problem and/or identifying another faculty advisor position if possible. However, in instances where this is not possible or where there is documentation of repeated notifications to the student to correct deficiencies in performance without evidence of appropriate action by the student to correct these deficiencies, it may result in the student's dismissal from the graduate program.

Monitoring of Graduate Student Progress

The academic and research progress of each student is monitored initially by the Interim Advisors and subsequently by the faculty advisor and the dissertation committee. During the first year, rotation reports (by students and faculty) are critical in evaluating a student. Thereafter, each graduate student must meet with their advisor and their dissertation committee at least once a year (PPS advises to meet twice a year, preferably during September and March) following the establishment of that committee. This is especially important after the doctoral candidacy has been obtained. A summary of the committee's deliberations and recommendation following those meetings should be prepared by the student's advisor and presented to the student and to each of the committee members. A copy of this report should be also submitted to the Assistant/Associate Dean for the Graduate Program and placed in the student's file. At a minimum, the progress report should include the student's (1) previous accomplishments, (2) current progress, (3) future plans and (4) predicted completion date. This progress report should be discussed with their faculty advisor. The faculty advisor and/or

committee members are also obligated to include a narrative, as part of the student's written progress report, describing any important issues that may affect the student's ability to complete their dissertation. These reports will be available only to the student, Chair of the department, Assistant/Associate Dean for Graduate Programs and the Graduate Education Committee. A form is available from the [UH COP web site](#).

Laboratory Rotations

Laboratory rotations are for new students joining the program as follows:

- There will be **two mandatory rotations**. A third rotation is optional.
- Each rotation will be a minimum 8 weeks. The first rotation must start within the first two weeks of the fall semester. The second rotation can be started immediately after the first rotation or later at the beginning of the spring semester.
- Graduate students (both TAs/RAs) will have **two mandatory rotations** through research labs in order to (1) become acquainted with potential dissertation advisors; (2) learn techniques and practice of research; (3) be critically evaluated by laboratory heads. Students must rotate through 2 different labs with an additional, optional rotation allowed if the student has not secured a dissertation advisor (maximum three rotations).
- The student has an option to complete the second rotation in the same PI's lab as the first rotation. However, the student needs to submit a petition to the GEC outlining the rationale and providing confirmation from the PI of the lab. The GEC must grant permission.

Within 1 week of completing each rotation, the student is required to provide a brief written report of the research performed to that faculty member and to the GEC Chair. Similarly, the faculty member will submit a report to the GEC Chair assessing the student's motivation, research potential, abilities and the faculty's willingness to serve as the student's dissertation advisor. The GEC will review the student and faculty reports and may provide feedback and consultation to the student, as necessary. [Required forms are posted here](#).

After rotations (and no later than the end of the first summer), the student must have selected a dissertation advisor by mutual agreement between the student and the mentor, and with the approval of the departmental Chair. An agreement form must be completed and signed by the student and the dissertation advisor verifying the relationship. If the student does not secure a dissertation advisor by the end of the first summer, he/she will lose financial support from the department and may be dismissed from the program. The appointment form is [here](#).

Note: If major advisor does not have a doctorate earned with a dissertation (e.g. Pharm.D.), a co-advisor with an earned doctorate must be appointed. Alternatively, a petition can be filed to the GEC to evaluate the credentials of the major advisor and decide in a case by case basis.

Dissertation Committee

Within six months of the selection of a research advisor, the student and advisor should assemble the doctoral dissertation committee. This committee will help guide the academic and research aspect of the student program.

The committee shall consist of a minimum of five members:

- The faculty advisor (as chair)
- Two other members from the PPS department
- At least two members external to the Department and/or the University of Houston [the composition and credentials of the committee are detailed in the [Appointment of Dissertation Committee form](#).

The student and major advisor will complete the form, signed by all member and forwarded to the GAA, who will collect the signatures from the chair of the GEC and take any other necessary steps.

A hold on the student's enrollment will be placed if the selection of the dissertation committee is not done by the end of the third long semester. However, at the discretion of the major advisor, designation of the external members of the committee may be delayed until one year after the selection of the major advisor. For example, if progress towards identification of the dissertation project is not sufficient, it may be difficult to identify appropriate external committee members. In this event the GEC should be notified of this decision by memo, which will be placed in the student's file. This memo should provide a target date when it is anticipated that the external committee members can be designated. A similar procedure must be followed if other circumstances delay this milestone, always providing notification to the GEC.

Requirements for Doctoral Candidacy

Before full admittance into doctoral degree candidacy, the student must pass all the didactic courses necessary for the program and be in good standing regarding other required graduate credit hours. Afterwards, the student must progress through a two-step qualifying examination (QE) process that should be completed in its entirety no later than the end of the student's sixth long semester in the graduate program.

The student must:

- (1) Take a written examination that addresses the student's knowledge in the area of his/her program and dissertation research; and
- (2) Prepare a proposal defining his/her dissertation project, and conduct an oral defense of it.

These exams are described in detail below.

The student may not register for Doctoral Research credit hours until after the semester the student completes the written exam and oral defense requirement for doctoral candidacy. Until this is done, the student will receive credit for research activities by registering for Special Problems (PCOL 6X98 or PCEU 6X98) hours. Failure to pass both Qualifying Exams by the end of the student's sixth long semester may result in dismissal from the program due to a lack of progress towards the completion of the degree.

Written Qualifying Examination

This will include integrative questions based upon the concepts acquired in the core courses of the student's discipline, with an emphasis on their applicability to the student's project. The questions are to be written so that the student can demonstrate the ability to synthesize concepts learned from several courses and apply them to new problems. Each member of the student's committee contributes to the written examination and should assign the student readings or describe certain areas for intense study beforehand to prepare the student for the forthcoming exam.

Each question will be graded by at least two different faculty members (not necessarily committee members, rather the most appropriate faculty member within the Department). Graders return the questions to the student's advisor within 10 days. The student must demonstrate competency by receiving a grade of at least 75% for entire test, but no less than 70% of the mean of two graders for any individual question.

If the student fails to pass the exam on the first try, she/he will be allowed to take a second exam (no later than the end of the next semester). If it is only a single question that the student fails to achieve a grade of at least 70%, the student may be allowed to retest a single question; it is up to the dissertation committee to determine how the single question will be re-tested. If the student fails on the second try, she/he will not be allowed to progress into Doctoral candidacy, but will be allowed to work for a contingency Master's degree instead. When successfully completed, the student will submit the form [Completion of Written Qualifier](#) form, signed by the advisor and all of the committee members.

Dissertation Proposal and Defense

Students are required to prepare and orally defend a research proposal by the end of the student's sixth long semester. The dissertation proposal should be prepared in the format of an NIH individual predoctoral fellowship (F31) grant proposal. The published instructions for Research Plan must be followed in this process with the exception that the entire proposal outside of the form pages should be typed double-spaced to facilitate reading and correction. It is expected that students will compose this document as a part of the Scientific Writing class taken in spring of their 3rd year, and in close collaboration with their chosen faculty advisor. The student must submit a reasonably well-polished and proofed copy of the Dissertation Proposal to the advisor and Doctoral Dissertation Committee at least 14 days prior to scheduling the proposal defense. If the advisor and committee members agree that the proposal is sufficiently complete and ready, then the student may schedule the proposal defense.

The Doctoral Proposal Defense will take place in a private meeting between the student and the Doctoral Dissertation Committee. The defense will begin with a brief (approx. 30 min) presentation by the student, which summarizes preliminary data and the research proposed as the dissertation project. The committee will examine the student following this presentation. This assessment will focus on the research project proposed by the student but will not be restricted to the project. The committee may also examine the student on information relevant to the research project such as the literature in the area of the research project and information from prior course work. During the oral examinations, students will be asked to defend their proposals as well as to demonstrate a broad-based understanding of their field. At the conclusion of the defense the committee will make their recommendation, from among the following:

Acceptance of the proposal without modification. In this case the student will proceed with the study as outlined in the proposal. The proposal is then submitted within three days after the

defense to the Graduate Education Committee by the advisor for placement in the student's file along with the [Proposal Approval Form](#) by Dissertation Committee form signed by all of the committee members.

Acceptance of the proposal with modification. In this case the dissertation committee will make specific recommendations for modification of the proposal that must be incorporated into a revised draft of the proposal. The revised draft of the proposal along with the Approval of Proposal by Dissertation Committee form signed by all of the committee members is submitted to the Graduate Education Committee for placement in the student's file. This should be accomplished within two weeks of the defense.

Rejection of the Proposal. Rejection may result from a judgment of the committee that the proposal is inadequately developed and needs more work. In this case the student will be instructed to re-submit the proposal to the dissertation committee. Rejection of the proposal may also result from an inability of the student to adequately defend the proposal. In this case, the committee's determination would be that the student is not knowledgeable enough about the proposed area of study. The students would be instructed as to what areas required improvement and another defense would be scheduled no later than six months after the initial defense.

The student's faculty advisor prepares a memorandum summarizing the proposal defense and the committee recommendations and a copy is provided to the student and each committee member. In addition, a copy is placed in the student's file. A student has two opportunities to successfully defend a Dissertation Proposal. Passage with modification constitutes one attempt. If a student fails to successfully defend their proposal on the second attempt, the student will automatically be placed in a contingency M.S. program and the dissertation committee will recommend the appropriate course of the research project in order to complete the M.S. thesis work. If the student has already received an M.S. degree from the Department, the student will be dismissed from the Ph.D. program.

Both qualifying exams must be successfully completed by the end of the student's 6th long semester. University policy states regarding failure to complete the qualifying examination: "A department may terminate enrollment at any time if the rate of progress is not satisfactory". Failure to successfully complete both qualifying exams by the end of the 6th semester will result in the student's dismissal from the program.

(Note: See rubrics to be used by faculty for student written proposal and student proposal presentation in Appendices).

Completing the Doctoral Degree

Doctoral Research and Dissertation Credit Hour Requirements.

Each graduate student in the doctoral program in Pharmacology or Pharmaceutics is required to Complete at least 18 hours of either Doctoral Research (PCOL 8X98) or Doctoral Dissertation (PCOL 8X99). Students may not register for these courses until they have been granted Doctoral Candidacy status by successfully passing the written qualifying examination and defending the dissertation proposal. For this reason, it is very important that the dissertation committee be formed, the project identified, and the proposal be prepared and defended in a timely fashion.

Seminar Requirement

A candidate in the Ph.D. program is required to present a 50-minute research seminar based on his/her dissertation research during the fourth year, as a requirement for a Ph.D. in a PPS concentration. This seminar must be presented at least one semester before the student's planned graduation semester (i.e. by the penultimate semester). The student's committee members (at least the local members) are encouraged to attend the seminars. Each student research seminar should be critiqued by survey of the audience, using an instrument developed by the GEC and attached at the end of this handbook (appendices).

The process is governed by College and University policies (section 16, Ph.D. Handbook)

Dissertation Defense. See section 16 of the Ph.D. Handbook.

Two weeks before the defense, the student arranges with the GAA for an announcement to be sent out. At the defense, the student gives a seminar for the first 45-60 minutes, then retires to a private meeting with the dissertation committee. The committee then completes UH signature forms.

PPS Concentration Milestones

In order to have satisfactory academic progress, there are requirements besides the graded courses that need to be completed on time. These are described above, and a convenient timeline provided below. Failure to accomplish these milestones will be signaled by warnings from the Assistant Dean for Graduate Programs, and your enrollment might be placed on hold. This will not be lifted until the student presents a plan to rectify the situation. Continued problems may result in temporary employment suspension with loss of stipend, and/or loss of GTF, and possible dismissal from the program.

Below are milestones that need to be completed during your studies:

MILESTONE/DEADLINE

Choosing a faculty advisor	By the end of year 1
Appointing a committee	By the end of 3 rd long semester
Committee meeting; Year 2	By the end of 4 th long semester
Written qualifying exam	By the end of 6 th long semester
Proposal defense	By the end of 6 th long semester
Committee meeting; Year 3	By the end of 6 th long semester
Student Seminar	Penultimate semester
Committee meeting to approve dissertation writing	Penultimate semester
Committee meeting; Year 4	By the end of 8 th long semester
Applying to graduate	Early the semester of graduation
Submit dissertation to advisor & committee	At least 14 days prior to scheduling defense
Dissertation Defense announcement	At least 7 days prior to defense date
Dissertation defense	Semester of expected graduation (14 days before end of semester)
Dissertation upload to Vireo	Before end of semester
Graduation ceremony	

Professional Travel. See section 10 of the Ph.D. Handbook.

Vacation and Leave: See section 9 of the Ph.D Handbook. Points of emphasis:

1. Students work year-around on their degrees; there is no such thing as taking a summer off, unless it is for an internship.

2. Vacation is best taken between the fall and spring semesters, when UH is closed. Additional days at other times may be taken, but only within the limitations described in section 9 of the Ph.D. Handbook.

3. In case you need vacation outside of UH closing, **do not make travels bookings until you have received required permissions.**

4. These limitations apply to RAs, TAs and scholarship students. TAs in particular are limited by the days required for TA duties.

APPENDICES

Rubric – Student written Proposal

Rubric - Student Proposal Oral defense

Rubric - Student Seminar Presentation

Rubric – Student written Dissertation

Rubric – Student oral dissertation defense

Rubric – Written proposal

Instructions

Completed forms are to be treated as confidential and are to be turned to the PI, who will turn them to the Assistant/Associate Dean for graduate studies (not to the student) at the conclusion of the defense. A summary copy of the written comments and overall evaluation from the committee members will be provided to the student, the major advisor and the student's committee members by that same office.

Student Name: _____

Committee Member: _____

Degree Program: _____

Major Advisor: _____

Date of exam: _____ Proposal Title: _____

Written proposal	Do not meet expectations	Meet expectations	Exceed Expectations	Comments
Quality of the science proposed	<ul style="list-style-type: none"> ○ Argument are incorrect, incoherent, or flawed ○ Objectives poorly defined ○ Not understanding of associate literature in topic ○ Poor understanding of theoretical concepts ○ Limited originality ○ Limited creativity and insight 	<ul style="list-style-type: none"> ○ Argument are coherent, and clear ○ Objectives are clear ○ Understanding of associate literature in topic ○ Understanding of theoretical concepts ○ Demonstrate originality ○ Demonstrate creativity and insight 	<ul style="list-style-type: none"> ○ Arguments are superior ○ Objectives well defined ○ Well knowledge of associate literature in topic ○ Mastery of theoretical concepts ○ Exceptional originality ○ Exceptional creativity and insight 	
Quality of the writing	<ul style="list-style-type: none"> ○ Writing is weak ○ Numerous grammatical and spelling errors ○ Organization is poor ○ Document is poor 	<ul style="list-style-type: none"> ○ Writing is adequate ○ Few grammatical and spelling errors ○ Organization is logical ○ Document is adequate 	<ul style="list-style-type: none"> ○ Writing is publication quality ○ No grammatical and spelling errors ○ Organization is excellent ○ Document is excellent 	
Overall assessment	<ul style="list-style-type: none"> ○ Does not meet expectations 	<ul style="list-style-type: none"> ○ Meets expectations 	<ul style="list-style-type: none"> ○ Exceed expectations 	

Other comments:

EVALUATING THE WRITTEN PROPOSAL (Science)

Written proposal (Research/science)	Y/N	Comments
<u>ABSTRACT</u>		
Provides overview of study	Y/N	
Presents only needed details	Y/N	
<u>SPECIFIC AIMS</u>		
Presents what is relevant and known	Y/N	
Moves to what is not known and ideas	Y/N	
Presents a clear research question	Y/N	
Presents preliminary experiments	Y/N	
Gives overview of experimental approach	Y/N	
Proposes adequate methods	Y/N	
Indicates parameters of study (time, dosage, species, gender, n, etc)	Y/N	
Proposes statistical approaches to evaluate outcomes, if necessary	Y/N	
Gives prediction of outcomes	Y/N	
Proposes additional approaches	Y/N	
Present relevance of answers obtained	Y/N	
<u>OTHER FEATURES</u>		
Adheres to the limits in pages and words established by the program	Y/N	
Correct use of references	Y/N	
Correct use and presentation of figure/table and legends	Y/N	

Other comments:

Rubric – Oral Proposal Defense

Instructions

Completed forms are to be treated as confidential and are to be turned to the PI, who will turn them to the Assistant/Associate Dean for graduate studies (not to the student) at the conclusion of the defense. A summary copy of the written comments and overall evaluation from the committee members will be provided to the student, the major advisor and the student's committee members by that same office.

Student Name: _____

Committee Member: _____

Degree Program: _____

Major Advisor: _____

Date of exam: _____ Proposal Title: _____

Oral proposal defense	Do not meet expectations	Meet expectations	Exceed Expectations	Comments
Quality of the presentation	<ul style="list-style-type: none"> ○ Poorly organized ○ Poor presentation ○ Poor communication skills ○ Slides difficult to read 	<ul style="list-style-type: none"> ○ Clearly organized ○ Clear presentation ○ Good communication skills ○ Slides clear to read 	<ul style="list-style-type: none"> ○ Very well organized ○ Professional presentation ○ Excellent communication skills ○ Outstanding slides 	
Breadth of knowledge	<ul style="list-style-type: none"> ○ Critical weakness in depth of knowledge ○ Lack of critical thinking skills ○ Presentation narrow in scope ○ Unacceptable topic presentation 	<ul style="list-style-type: none"> ○ Some depth of knowledge ○ Above average critical thinking skills ○ Able to draw from knowledge into several disciplines ○ Acceptable topic presentation 	<ul style="list-style-type: none"> ○ Exceptional depth of knowledge ○ Well develop thinking skills ○ Able to interconnect and extend knowledge to multiple disciplines ○ Superior topic presentation 	
Quality of response to questions	<ul style="list-style-type: none"> ○ Incomplete/require prompting ○ Arguments poorly presented ○ Lack of knowledge in subject area ○ Do not meet level expected for program 	<ul style="list-style-type: none"> ○ Responses complete ○ Arguments well presented ○ Adequate knowledge in subject area ○ Meet level expected for program 	<ul style="list-style-type: none"> ○ Eloquent responses ○ Arguments skillfully presented ○ Superior knowledge in subject area ○ Exceed level expected for program 	
Overall assessment	<ul style="list-style-type: none"> ○ Does not meet expectations 	<ul style="list-style-type: none"> ○ Meets expectations 	<ul style="list-style-type: none"> ○ Exceed expectations 	

Other comments:

Appendix III

Rubric – Student Seminar

Instructions.- Completed forms (by students and faculty) are to be turned to the PI, who will turn them to the Assistant/Associate Dean for graduate studies (not to the student) at the conclusion of the seminar. A summary copy of the written comments and overall evaluation from the peers and audience will be provided to the student and the major advisor by that same office.

Student Presenter Name: _____

Student/evaluator: _____

Degree Program: _____

Major Advisor: _____

Date of exam: _____ Proposal Title: _____

		Excellent (4)	Very good (3)	Fair (2)	Poor (1)
Delivery of presentation	<i>Speaking skills</i>	Correct and clear voice.	Voice is clear, little fluctuation.	Voice fluctuates from low to clear.	Mumbles / voice too low, difficult to hear
	<i>Audience interaction</i>	Audience can hear well at all times Refers/points to slides to follow presentation	Audience can hear well most of the time Refers/points to slides to follow presentation	Difficult to hear at times Reads some and refers to slides to make points	Reads slides word for word
	<i>Eye contact</i>	Eye contact all the time / engaged with audience No mannerisms	Eye contact majority of the time A little nervous	Occasional eye contact Nervous, some distracting mannerisms	No or just occasional eye contact Uncomfortable speaker
Presentation Visuals	<i>Slides and Graphics</i>	Very pleasing visuals and layout. Uses graphics that very well explain and reinforce presentation	Adequate visuals and layout. Uses graphics that explain and reinforce presentation	Cluttered visuals. Some graphics failed to explain and reinforce the presentation.	Confusing layout and too many graphics. Graphics do not explain or reinforce the presentation
	<i>Organization presentation</i>	Very easy to follow, information presented as an interesting story, very logical	Easy to follow, information presented in logical sequence	Most information presented in sequence Some irrelevant information	Hard to follow; jumping information Lacks clear transition
	<i>Pace and length</i>	Well pace Appropriate (40-45 min)	Most of seminar well- paced Adequate (35-40 min)	Short (30 min) or too long (>50 min). Rushed/dragging in parts	Too short (<30 min) Rushed/dragging all the time

Content	<i>Subject knowledge</i>	Demonstrate full knowledge / answered all questions with elaboration	Knowledgeable / answered all questions well	Comfortable with information / answered most questions	Does not have a grasp on subject / difficulty answering questions
	<i>Background Lit. review</i>	Sufficient material for clear understanding and exceptionally presented	Sufficient material effectively presented and background clear to understand	Background dominated presentation, but clear to understand	Not clearly related to topic
	<i>Hypothesis Research Plan</i>	Challenging research question Well-developed research plan Original	Focused research question Minor flaws in research plan Good contribution to field	Poorly focused research question Incomplete research plan Mild contribution to field	Inadequate research question Incoherent research plan No contribution to field
	<i>Methods</i>	Sufficient detail and exceptionally presented	Sufficient to understand and effectively presented	Enough to understand but not clearly presented	Too brief or insufficient OR Too much detail
	<i>Results Analysis</i>	All figures are clear and exceptionally explained and interpreted	Most figures are clear and well explained Partial error in interpretation	Most figures are clear and reasonably explained Errors in analysis, and missed possibilities	Figures hard to read / Lacking explanation Major errors in data interpretation
	<i>Conclusions</i>	Insightful conclusions supported by evidences Recommends future direction for research	Conclusions are supported by evidence Some discussion on implications and future research	Conclusions lack some evidence support Minimal discussion of implications and future research	Conclusions are not supported by evidence No discussion regarding implications and/or future work
	<i>Significance</i>	Exceptionally well explained	Mentioned and explained	Mentioned	No mentioned / just hinted

Other comments:

Rubric – Written Dissertation

Instructions

Completed forms are to be treated as confidential and are to be turned to the PI, who will turn them to the Assistant/Associate Dean for graduate studies (not to the student) at the conclusion of the defense. A summary copy of the written comments and overall evaluation from the committee members will be provided to the student, the major advisor and the student's committee members by that same office.

Student Name: _____

Committee Member: _____

Degree Program: _____

Major Advisor: _____

Date of exam: _____ Proposal Title: _____

EVALUATING THE WRITTEN DISSERTATION (Document)

Dissertation	Do not meet expectations	Meet expectations	Exceed Expectations	Comments
Quality of the research performed	<ul style="list-style-type: none"> ○ Argument are incorrect, incoherent, or flawed ○ Objectives poorly defined ○ Limited originality ○ Limited creativity and insight 	<ul style="list-style-type: none"> ○ Argument are coherent, and clear ○ Objectives are clear ○ Demonstrate originality ○ Demonstrate creativity and insight 	<ul style="list-style-type: none"> ○ Arguments are superior ○ Mastery of theoretical concepts ○ Exceptional originality ○ Exceptional creativity and insight 	
Quality of the writing	<ul style="list-style-type: none"> ○ Writing is weak ○ Numerous grammatical and spelling errors ○ Organization is poor ○ Document is poor 	<ul style="list-style-type: none"> ○ Writing is adequate ○ Few grammatical and spelling errors ○ Organization is logical ○ Document is adequate 	<ul style="list-style-type: none"> ○ Writing is publication quality ○ No grammatical and spelling errors ○ Organization is excellent ○ Document is excellent 	
Overall assessment	<ul style="list-style-type: none"> ○ Does not meet expectations 	<ul style="list-style-type: none"> ○ Meets expectations 	<ul style="list-style-type: none"> ○ Exceed expectations 	

Other comments/recommendations:

EVALUATING THE DISSERTATION (Science)

Written proposal (Research/science)	Y/N	Comments
<u>ABSTRACT</u>		
Provides overview of study	Y/N	
Presents only needed details	Y/N	
<u>SPECIFIC AIMS and RESULTS</u>		
Presents what is relevant and known	Y/N	
Moves to what is not known and ideas	Y/N	
Presents a clear research question	Y/N	
Presents experiments	Y/N	
Gives overview of experimental approach	Y/N	
Uses adequate methods	Y/N	
Indicates parameters of study (time, dosage, species, gender, n, etc)	Y/N	
Uses statistical approaches to evaluate outcomes, if necessary	Y/N	
Explain results obtained from experiments	Y/N	
Discuss results and significance to field	Y/N	
Presents future directions	Y/N	
<u>OTHER FEATURES</u>		
Adheres to policies established by the program	Y/N	
Correct use of references	Y/N	
Correct use and presentation of figure/table legends	Y/N	

Other comments:

Rubric – Presentation Dissertation Defense

Instructions

Completed forms are to be treated as confidential and are to be turned to the PI, who will turn them to the Assistant/Associate Dean for graduate studies (not to the student) at the conclusion of the defense. A summary copy of the written comments and overall evaluation from the committee members will be provided to the student, the major advisor and the student's committee members by that same office.

Student Name: _____

Committee Member: _____

Degree Program: _____

Major Advisor: _____

Date of exam: _____

Proposal Title: _____

Oral Dissertation defense	Do not meet expectations	Meet expectations	Exceed Expectations	Comments
Quality of the presentation	<ul style="list-style-type: none"> ○ Poorly organized ○ Poor presentation ○ Poor communication skills ○ Slides difficult to read 	<ul style="list-style-type: none"> ○ Clearly organized ○ Clear presentation ○ Good communication skills ○ Slides clear to read 	<ul style="list-style-type: none"> ○ Very well organized ○ Professional presentation ○ Excellent communication skills ○ Outstanding slides 	
Breadth of knowledge	<ul style="list-style-type: none"> ○ Critical weakness in depth of knowledge ○ Lack of critical thinking skills ○ Presentation narrow in scope ○ Unacceptable topic presentation 	<ul style="list-style-type: none"> ○ Some depth of knowledge ○ Above average critical thinking skills ○ Able to draw from knowledge into several disciplines ○ Acceptable topic presentation 	<ul style="list-style-type: none"> ○ Exceptional depth of knowledge ○ Well develop thinking skills ○ Able to interconnect and extend knowledge to multiple disciplines ○ Superior topic presentation 	
Quality of response to questions	<ul style="list-style-type: none"> ○ Incomplete/require prompting ○ Arguments poorly presented ○ Lack of knowledge in subject area ○ Do not meet level expected for program 	<ul style="list-style-type: none"> ○ Responses complete ○ Arguments well presented ○ Adequate knowledge in subject area ○ Meet level expected for program 	<ul style="list-style-type: none"> ○ Eloquent responses ○ Arguments skillfully presented ○ Superior knowledge in subject area ○ Exceed level expected for program 	
Overall assessment	<ul style="list-style-type: none"> ○ Does not meet expectations 	<ul style="list-style-type: none"> ○ Meets expectations 	<ul style="list-style-type: none"> ○ Exceed expectations 	

Other comments:
