

GRADUATE PROGRAM IN PHARMACEUTICAL SCIENCES  
UNIVERSITY OF KENTUCKY

GRADUATE STUDENT HANDBOOK  
FOR

*CLINICAL AND EXPERIMENTAL THERAPEUTICS,*

*DRUG DISCOVERY AND DRUG DEVELOPMENT*

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The Pharmaceutical Sciences graduate program operates within the purview of The Graduate School of the University of Kentucky. Consult the **Bulletin of the Graduate School** (<http://www.research.uky.edu/g/bulletin/bullinfo.shtml>) for guidelines and requirements that apply to all graduate students.

## *Program Description*

The Graduate Program in Pharmaceutical Sciences is a multidisciplinary program designed to prepare motivated individuals for academic, industrial, or government careers in pharmaceutical and biomedical research. It is a doctoral training program that encompasses research that spans from mechanisms of drug action, the discovery of new drugs and their targets, delivery of those drugs to their site of action to an evaluation of the therapeutic response. Within this broad scientific framework, students develop individually tailored programs of study to meet their particular research interests and career objectives.

Intense, laboratory-based research, using state-of-the-art techniques and instruments, forms the basis of a student's PhD dissertation. Each student develops the skills and judgment to make a unique, scholarly contribution to our understanding of drugs and how these compounds impact human health and disease. These breakthroughs are published in top pharmaceutical journals and presented at national and international meetings. Students receive the training that will enable them to become independent scientists who can conduct front-line research in pharmaceutical sciences in industrial, academic or governmental settings.

The overall goal of the graduate program is to provide the graduate student with a comprehensive, structured, yet flexible educational experience comprised of both coursework and independent, highly creative, research. This goal is supported by additional components, such as research rotations for first-year students and a program-wide seminar series. The intent is to provide both depth and breadth of expertise in the Pharmaceutical Sciences along with developing the creative and critical approach to research that characterizes a PhD-level scientist.

All students in the program will carry out hypothesis-driven laboratory investigations as the basis of a written dissertation. The quality of the dissertation will be judged by the student's dissertation advisory committee, in accord with the requirements and regulations set forth by the Graduate School. It is expected that the dissertation work will be recognized as high quality by also being published in national and international scientific journals and presented in forums at national and international scientific meetings.

## *A Brief History of the Program*

The Pharmaceutical Sciences Graduate Program continues the tradition of graduate education established by the University of Kentucky College of Pharmacy in 1967. The proposal for a graduate program in Pharmaceutical Sciences, with areas of concentration in Pharmaceutics and Pharmaceutical Chemistry, was approved by the Graduate Faculty on November 18, 1968 and by the Board of Trustees of the University of Kentucky on February 18, 1969. Dean Joseph Swintosky and Dr. Harry Kostenbauder were instrumental in establishing the program and guiding the program for the first 20

years. The first class of graduate students consisted of 7 students and the first candidate (Dr. William Crouthamel) graduated in 1970.

As the graduate faculty grew, so did the size and the breadth of the graduate program. In the '70s and early '80s, Drs. Digenis, Hussain, DeLuca and Diamond played key roles in expanding the areas of research to include drug delivery, medicinal chemistry and pharmacology. In the mid to late '80s, an increased emphasis on the biological aspects of pharmaceutical sciences including molecular biology and biotechnology was established under the leadership of Drs. Gillespie and Jacobson. The Clinical Pharmaceutical Science program also came into being at this time with Dr. Blouin guiding the early formation of this training track.

## ***Training Options***

There are two ways through which a student can obtain a laboratory-based PhD in the College of Pharmacy. The Traditional Pharmaceutical Science Track provides training that is based on advanced coursework in contemporary basic pharmaceutical sciences plus independent laboratory or computational research under the direction of a faculty mentor. In the Traditional Pharmaceutical Science Track the many research opportunities available are organized into two broad disciplinary areas - the Drug Discovery Area and the Drug Development Area. The Clinical and Experimental Therapeutics Track requires a prior degree in an area of professional health care, and focuses on training in translational research at the interface between basic and clinical studies.

### **Clinical and Experimental Therapeutics Track**

The completion of a Pharm.D., D.D.S., D.V.M. or other professional health degree is required for admission into this training Track.

The focus of the CET Track is translational research, and involves training in how to conduct studies that occur at the interface of basic and clinical research. Since all students admitted to the program will already have a clinical/health profession degree, the emphasis of the program will be training in the basic sciences. This breadth and balance of skills will improve the graduate's ability to successfully compete for extramural funding and job opportunities. There are required clinical components to assure competency in the foundations, principle and processes of clinical research. The keystone of the training is the conduct of an integrated, combined laboratory-based and clinical dissertation.

### **Traditional Pharmaceutical Science Track**

The goal of the Pharmaceutical Science Track is to develop scientists who possess a blend of contemporary basic science skills and an understanding of their role in the development of new drugs. Training begins with advanced coursework that is tailored to give each student a solid foundation across the breadth of pharmaceutical sciences, yet is individualized based on the student's academic background, and the research project that will be the basis for their dissertation. The many research opportunities available are organized into two broad disciplinary areas, built around the two Divisions within the Department of Pharmaceutical Sciences - the Drug Discovery Division and the Drug Development Division.

## **Drug Discovery Division**

The Drug Discovery Division includes laboratories with expertise in experimental, genomic and computational approaches to drug discovery, drug design, and drug responses. Fundamental research is also underway to understand cell signaling pathways and to develop strategies to correct signaling defects that cause disease. Other projects work to discover the cellular, molecular and genetic reasons for variations in drug effectiveness and toxicity.

## **Drug Development Division**

The Drug Development Division has multi-faceted projects for the invention of novel drug delivery systems (such as nanoparticles for drug delivery and imaging, drug delivery to the brain, transdermal drug delivery, and drug transfer into milk) and improvement of existing drug formulations.

## ***Program Requirements***

Note: Requirements differ for the two Divisions of the Traditional Track, and for the CET Track.

1. The graduate student will participate in the educational activities of the Graduate Program as a whole and of the specific Track of which s/he is a member during the entire period the student is in residence in the program.
2. Students are expected to take the recommended core **courses** of the Track in which they participate. The recommended core courses cover material that is deemed essential to the scientific discipline represented by the Division. In addition, the Dissertation Advisory committee of each student will establish a specific set of courses pertinent to the educational and career goals of the student within the discipline, the scientific goals of the dissertation work and the requirements of the Graduate Program.
3. Students are expected to attend Department and Division **seminars** as outlined below for their specific Track. The choice of the Division and Track will indicate the seminar series that each student is required to attend. Each Division and Track has separate requirements for attendance and participation.
4. A major goal for a student during the first year in the program is to identify a laboratory or project and Mentor for his/her dissertation research. This is accomplished by participation in at least 2 (3 recommended) **rotations** (see below for more details). By the end of June of the first year, *failure of the student to identify a Mentor with whom to conduct their dissertation research will result in dismissal of the student from the program.* Extensions of this deadline may be granted at the discretion of the DGS.
5. Students must take and pass a **Qualifying Examination**, consisting of 3 parts, which are detailed below. There are specific requirements for each Track.
6. Students must prepare and orally defend a **PhD dissertation**. The student's Dissertation Advisory Committee will monitor and help guide the development of the dissertation, and administer the final examination (defense).

## Graduate Program Core Coursework

Each Track has a distinct set of courses. These courses may be offered in the Graduate Program of Pharmaceutical Sciences, or available outside of the Program. The Mentor and the Dissertation Advisory committee are empowered to select those courses that fit best into the educational and career goals of the student and the scientific goals of the dissertation. The Division Director (for first-year students) or Mentor and the Dissertation Advisory committee are empowered to petition the DGS, in writing, to waive courses of the Graduate Program Core if the student has demonstrated sufficient academic mastery of material in courses taken in other programs. The DGS will monitor the coursework of students and keep the Advisory committee members apprised as to the student's grades and completion of courses. Coursework and grades are reviewed by the Advisory committee at each yearly meeting.

The student's Dissertation Advisory Committee is responsible for coursework recommendations that are in addition to the common coursework of the program and courses recommended by the Division faculty. Full descriptions of available graduate courses are described in the Bulletin of the University of Kentucky Graduate School (<http://www.uky.edu/Registrar/bulletinCurrent/toc2.htm>).

### Coursework for Drug Discovery

**Core Courses:** (Students should complete these courses over 4-6 semesters)

Course#	Credits	Course Name
IBS <i>or</i> 601 <i>or</i> CHE 550	3	Biomolecules and Metabolism I <i>or</i> Biological Chemistry I
IBS <i>or</i> 602 <i>or</i> CHE 552	3	Biomolecules and Metabolism II <i>or</i> Biological Chemistry II
PHR 760-00x	2	Introduction to Pharmaceutical Sciences
PHR 778	1	Seminar (attendance <b>required each semester until defense</b> ; officially register only until pass Qual)

Additional courses to be taken by an individual student depend on:

- The lab and dissertation project the student selects
- The academic preparation of the student (areas that need strengthening)

**Elective courses:**

Course#	Credits	Course Name
PHR 510	5	Modern Methods in Pharmaceutical Analysis
PHR 762	3	Bioorganic Mechanisms
PHR 620	3	Biosynthesis of Natural Products
PHR 760-00x	3	Drug Targets and Action
BCH 401G	3	Fundamentals of Biochemistry
BCH 608	3	General Biochemistry II
CHE 440G	3	Physical Chemistry
CHE 538	3	Principals of Physical Chemistry II
IBS 604	3	Cell Signaling
IBS 605	3	Experimental Genetics

IBS	606	4	Integrated Biomedical Science
MA	213	4	Calculus III
PGY	502	5	Physiology
PHA	522	3	Systems Pharmacology
STA	570	4	Basic Statistical Analysis

### Coursework for Drug Development

Note: Pharmacokinetics/Pharmacodynamics and Pharmaceutics/Drug Delivery coursework differ.

**Required Prerequisites** (these courses and their prerequisites will have to be completed prior to continuing with graduate level statistics and mathematical analysis coursework)

Course#		Credits	Course Name
STA	570 <i>or</i> 580	4 or 3	Basic Statistical Analysis (4) <i>or</i> Biostatistics (3)
MA	214	3	Ordinary Differential Equations (Calculus IV)

### Pharmaceutics/Drug Delivery Coursework

**Core Courses:** (Students should complete these courses over 4-6 semesters)

Course#		Credits	Course Name
CHE	538	3	Principles of Physical Organic Chemistry
CHE	548	3	Principles of Physical Chemistry II
PHR	760-00x	2	Introduction to Pharmaceutical Sciences
PHR	612	3	Quantitative PD/PK
PHR	760-00x	3	Drug Targets and Actions
PHR	510 <i>or</i> 760-xxx	5 <i>or</i> 3	Modern Methods in Pharmaceutical Analysis <i>or</i> Techniques in Pharmaceutical Analysis
PHR	760-00x	3	Drug Delivery
CHE <i>or</i> IBS	550 <i>or</i> 601	3	Biological Chemistry I <i>or</i> Biomolecules and Metabolism I
PHR	630	3	Pharmaceutical Rate Processes
PHR	631	3	Equilibrium Phenomena in Pharmaceutical Systems
PGY <i>or</i> PGY	502 <i>or</i> 206	5 3	Physiology (graduate credit) <i>or</i> Elementary Physiology (no graduate credit)
<b>Total</b>		<b>32-34</b>	<b>(39-41 with prerequisites)</b>
PHR	778	1	Seminar (attendance <b>required each semester until defense</b> ; officially register only until pass Qual)

**Elective Courses:** (These courses may require additional prerequisites)

Course#		Credits	Course Name
PHR	545	3	Sterile Products
PHR	760-00x	3	Practical Applications of Drug Metabolism
PHR	762	3	Bioorganic Mechanisms
PHR	760	1	Solid State Chemistry Review
PHR	760	1	PPDM Literature Discussion
CHE	532	2	Spectrometric ID of Org. Compounds

CHE <i>or</i> ABT	553 <i>or</i> 495	3-4	Chemistry and Molecular Biotechnology (3) <i>or</i> Experimental Methods in Biotechnology (4)
CHE <i>or</i> IBS	552 <i>or</i> 602	3	Biological Chemistry II <i>or</i> Biomolecules and Molecular Biology II
STA	671/672	4	Regression & Correlation/Design & Analysis of Experiments
STA	673	2	Distribution-Free Statistical Inference & Analysis of Categorical Data
STA	677	3	Applied Multivariate Methods
STA	679	3	Design & Analysis of Experiments II

### PK/PD coursework

**Core Courses:** (Students should complete these courses over 4-6 semesters)

Course#		Credits	Course Name
PHR	760	2	Introduction to Pharmaceutical Sciences
PHR	612	3	Quantitative PD/PK
PHR	760	3	Practical Applications of Drug Metabolism
PHR	760	3	Drug Targets and Actions
PHR	510 <i>or</i> 760-00x	5 <i>or</i> 3	Modern Methods in Pharmaceutical Analysis <i>or</i> Techniques in Pharmaceutical Analysis
PHR	760-00x	3	Drug Delivery
IBS <i>or</i> CHE	601 <i>or</i> 550	3	Biomolecules and Metabolism <i>or</i> Biological Chemistry I
IBS <i>or</i> CHE	602 <i>or</i> 552	3	Biomolecules and Molecular Biology <i>or</i> Biological Chemistry II
PGY <i>or</i> PGY	502 <i>or</i> 206	5 3	Physiology (graduate credit) <i>or</i> Elementary Physiology (no graduate credit)
STA	671/672	4	Regression & Correlation/ Design & Analysis of Experiments
<b>Total</b>		<b>30-32</b>	<b>(37-39 with prereqs.)</b>
PHR	760	1	PPDM Literature Discussion
PHR	778	1	Seminar (attendance <b>required each semester until defense</b> ; officially register only until pass Qual)

**Elective Courses:** (These courses may require additional prerequisites)

Course#		Credits	Course Name
STA	673	2	Distribution-Free Statistical Inference & Analysis of Categorical Data
STA	677	3	Applied Multivariate Methods
STA	679	3	Design & Analysis of Experiments II
CPH	664	3	Design and Analysis of Clinical Trials
CHE	538	3	Principles of Physical Organic Chemistry
CHE	548	3	Principles of Physical Chemistry II
PHR	630	3	Pharmaceutical Rate Processes
PHR	631	3	Equilibrium Phenomena in Pharmaceutical Systems

CHE or ABT	553 or 495	2-4	Chemistry and Molecular Biotechnology (3) or Experimental Methods in Biotechnology (4)
PGY/PHA	617	2	Physiological Genomics
IBS	604	3	Cell Signaling

## Coursework for Clinical and Experimental Therapeutics

In addition to the core courses listed below, the student's Dissertation Advisory Committee may recommend additional elective courses. A student's completion of these course requirements must be assured by the student's Mentor(s), Dissertation Advisory Committee and CET Track Coordinator.

<b>CET: Required Courses and Training</b>	<b>Credit Hours</b>
PHR 612 Quantitative Pharmacodynamics: Pharmacokinetics	3
PHR 764 Drug Development Regulation & Clinical Research	3
PHR 665 Ethical Issues in Clinical Research	3
IBS 601 Biomolecules and Metabolism	3
IBS 602 Biomolecules and Molecular Biology	3
PHR 760 Introduction to Pharmaceutical Sciences	2
PHR 760 Clinical Track Lab Rotations	varies
PHR 760 Topics in Pharmaceutical Sciences: choice of a Journal Club	2 – 4
PHR 778 Seminar (attendance <b>required each semester until defense</b> ; officially register only until pass Qual)	1
<b>All students must become IRB and HIPPA certified</b>	
<b>Total</b>	<b>22 or 24 cr</b>
PHR 790 Research in Pharmaceutical Sciences (prior to Qual)	
<i>Note: Qualifying exam is a "mini NIH-proposal" that contains at least specific aim that incorporates clinical research</i>	
<b>CET: Strongly Recommended Courses</b>	
STA 671 Statistics: Regression and Correlation	2
STA 672 Statistics: Design and Analysis of Experiments	2
IBS 605 Experimental Genetics	3
<b>CET: Possible electives</b>	
PHR 762 Bioorganic mechanisms	3
PHR 510 Modern Methods in Pharmaceutical Analysis	5
PHR 760 Techniques in Pharmaceutical Analysis	3
PHA 621 Advanced Pharmacodynamics	3
PGY 617 Physiological Genomics	2
PGY 590 Cellular and Molecular Physiology	4
PGY 502 Principles of Physiology	5
IBS 604 Cell Signaling	3
IBS 603 Cell Biology	3
BIO 615 Molecular biology	3
BIO 520 Bioinformatics	3

## Seminars

Department seminars are one Friday a month from 2:00-3:00 p.m. Divisional seminars are 3 times per month, Friday 2:00-3:00 p.m. for Discovery and 3:00-4:00 p.m. for Development. Each Track has independent requirements for student attendance and presentations. Each student is **required to attend seminar each semester until s/he defends the dissertation**; however, students officially register only until they pass the Qual exam and move into 2-credit status (PHR 767- Dissertation Residency credit). Attendance sheets will be available in the seminar room for students to sign in.

The Drug Discovery Track requires students to attend seminar each semester and to prepare and deliver research presentations starting with a 25 minute one in the second year, and full one-hour seminars in years 3 and 4. Fifth-year students should give a dissertation defense presentation at a separate time, but should announce the time and place publicly.

The Drug Development Track requires students to make a research presentation each year unless they are presenting their dissertation defense seminar. Attendance is required every semester for all graduate students in Drug Development. First year students give a 25 minute presentation in the Spring semester; all other students give a full one-hour presentation in years 3 and 4 and if needed, year 5.

A separate seminar series is being discussed for students in the CET Track. For the Fall 2008 and Spring 2009 semesters, however, each week CET students should attend (and sign in at) a seminar chosen with the guidance of their Mentor and, if the seminar is not within the PS Departmental seminar series, obtain permission from the DGS.

### Literature Discussion Groups (Journal Clubs)

Throughout their graduate studies, all students are encouraged to participate actively in one or more literature discussion groups (journal clubs) for their area. Literature discussion groups may include students and faculty from other Colleges at UK in addition to those Pharmaceutical Sciences. Literature Discussion Groups provide opportunities to discuss classical, ground-breaking, and front-line research as well as give students practice in presenting their research findings.

## Research Rotations

Incoming students are not assigned to a laboratory, project or Mentor. The decision for a student to pursue their dissertation research under the guidance of a particular faculty member is a joint one, between the student and Mentor, with oversight by the DGS. Because students rotate with more than one faculty member, and Mentors may accommodate several rotation students, there will inevitably be rotations that do not end up being a successful match. Finding a good match requires the student to be proactive in seeking a Mentor, and in performing the rotation project with sufficient interest and skill to encourage the Mentor to accept the student. Students will complete a **Summary of their Rotation Project** (see below at Student Evaluation) and **each Mentor with whom a student rotates will also complete an evaluation of the student's performance** in that rotation project and submit to DGS Assistant for inclusion in the student's file. The student needs to have a direct conversation with a possible Mentor about opportunities for doing a dissertation project with the Mentor. The

student will communicate this decision to the DGS as soon as it is made. *A student may be dismissed from the Program if s/he fails to identify a Mentor by the end of June of the first year.*

### **Traditional Track Rotations**

The purpose of rotations is to allow the student to gain an appreciation of the research areas and techniques used by faculty and laboratories, and to enable the student to select a project and Mentor. The rotation program and both formal and informal seminars are designed to foster this important decision. The student will spend time in the laboratory of, or working with, 2 or 3 faculty members, participating in hands-on research activities. First-year students will participate in at least two rotations and generally three. Students that find a mentor after the 2<sup>nd</sup> rotation may opt out of the rotation process at that time. The first rotation should begin on Sept. 1<sup>st</sup> and the third rotation should be completed by the end of February. Typically, the duration of each rotation will be ~6 weeks and the number of total hours on the project per rotation should be at least 60 hours, with the specifics to be negotiated between student and the rotation advisor. Students can register for a variable number of (but should be at least 2) credits of PHR 760 (section varies) to bring their total number of course hours up to 9 credits/semester. A written summary (one typed page) of what was done, learned and accomplished should be submitted to the DGS following each rotation. Faculty will also provide a written summary of the student's performance.

### **Clinical and Experimental Therapeutics Track Rotations**

The purpose of laboratory rotations is to provide opportunities for students to experience different research environments and to participate in the research programs of CET faculty members. First-year students are required to participate in three laboratory rotations beginning about Sept. 1 of the first year, to assist their selection of a major advisor for their dissertation research. To begin identifying appropriate laboratories for rotations, students are encouraged to interview at least 5 CET faculty members prior to the start of the first rotation in the fall semester. Please see the COP website for a listing of CET faculty (<http://www.mc.uky.edu/pharmacy/prospective/grad/clinexp.html>). Each rotation will last approximately 6-8 weeks, and all should be completed before the end of the second semester. Students should register for Clinical Track rotations (this will be one of the sections of PHR 760). Students can register for a variable number of (but should be at least 2) credits to bring the total number of course hours up to 9 credits. A written summary (one typed page) of what was done, learned and accomplished should be submitted to the DGS following each rotation. Faculty will also provide a written summary of the student's performance.

### ***Qualifying Exam***

The student will be permitted to take the qualifying examination after s/he has completed the courses required in the relevant Track. The Advisory Committee should be formed and officially appointed no later than the point at which 18 credits hours of graduate work have been accumulated. Qualifying exams can be taken no earlier than one academic year after the official formation of the Advisory Committee. Exceptions can be made for students transferring into the program. Permission to schedule a qualifying exam should be requested by the student at their annual Advisory Committee meeting. The student should prepare a list of courses and grades received for all of their graduate work. The DGS will ensure that the relevant Graduate Program Core courses are completed.

## **STUDENTS ARE EXPECTED TO TAKE THEIR QUALIFYING EXAM DURING THEIR 5<sup>TH</sup> SEMESTER**

The examination will consist of three components:

- a set of written questions created by the student's Advisory Committee
- preparation of a mini-NIH/NSF format research proposal
- an oral examination.

### **Written Questions**

The written examination will be composed of questions designed to evaluate the student's understanding and competence of the specialty area within pharmaceutical sciences in which the student anticipates conducting his/her dissertation research. The time frame for the written exam is decided during a meeting of the Advisory Committee or by email/phone communication between (and initiated by) the student and committee members.

The graduate student should notify the Student Affairs Coordinator of the week the committee has designated for the written exam. The Student Affairs Coordinator will contact the committee by email to confirm the dates for the written exam and to request that questions (along with stipulations, such as open book vs. closed, time limits) be emailed to the Student Affairs Coordinator by the Friday prior to the start of the exam week. The Student Affairs Coordinator will contact the student as questions are received to relay the stipulations (ex. Dr. Smith sent closed book questions with a 4 hour time limit). The student will notify the Student Affairs Coordinator of the days/times the student prefers to take each part of the exam. The student affairs coordinator will reserve rooms for closed book questions. The graduate student will return his/her answers to the Student Affairs Coordinator. A copy will be retained for the student file and the original delivered to the committee member who provided that question for grading. Committee members grade questions as pass-fail at the PhD level and notify the major professor of the results. The Major Professor relays results to student and confirms approval to take the oral exam. The committee members bring the graded written portions to the oral exam and can bring up points for clarification.

### **NIH/NSF-style proposal**

The student will prepare a research proposal prior to beginning the written questions portion of the examination. The student and his/her Major Professor will determine the topic for the research proposal. *For CET students, one of the Aims should address a clinical hypothesis.* The research proposal must develop one or more hypotheses that involve unique ideas that the student presents and tests in the proposal and that the student is able to defend in the oral examination. The student **must not plagiarize** the mentor's grant applications or publications. The format of the proposal will be an abbreviated NIH/NSF grant (see below). The students should distribute copies of the proposal to each Advisory Committee member before taking the written questions, and no later than two weeks in advance of the oral examination. Advisory Committee members will review the proposal for evidence that the student has learned the scientific method including identification of the aims of the research, generation of the hypotheses to be tested and proper testing of the hypotheses. The Advisory Committee's review of the proposal will focus on the student's mastering of the scientific method, not the specific research to be conducted.

### **Oral Examination**

The oral examination will evaluate the student's familiarity with literature in the specialty area in which the student anticipates conducting his/her dissertation research, skill in the recognition of meaningful questions for investigation, ability to design experimental protocols and ability to communicate effectively. Committee members may also ask questions related to the written questions

portion. The student will defend the mini-NIH/NSF format research proposal. Committee members are encouraged to meet at the beginning of the exam to identify the issues and questions to be pursued in the oral examination.

### **Format of Written Dissertation Project Proposal Format ("mini-NIH/NSF")**

A modified, ~10 page-long format of an NIH or NSF proposal it to be followed for the dissertation project proposal. The proposals must be typed, single-spaced, following NIH/NSF guidelines for type size limitations, margins, etc. The students should distribute copies of the proposal to each Advisory Committee member **before** taking the written questions, and no later than **two weeks** in advance of the oral examination.

#### *Specific Aims (do not exceed 1 page)*

State the broad objectives of the proposal and specific accomplishments that the proposed research will produce. State any hypotheses to be tested. Note: *For CET students, one of the Aims should address a clinical hypothesis.*

#### *Background and Significance (do not exceed 2 pages)*

Briefly sketch the literature and experimental background of the proposal; critically evaluate existing knowledge and identify gaps that the proposal is intended to fill. State concisely the importance of the proposed research to the field of study-- why is it needed, what will be gained by its completion.

#### *Preliminary Results*

This section is NOT a requirement for the qualifying exam, but if data or results are available, they should be included. Present any initial results that demonstrate the student's ability to carry out and select appropriate techniques to accomplish the proposed research.

#### *Experimental Design and Methods*

Outline the experimental design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed and interpreted. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims.

*(Note: The combination of Preliminary Results and Experimental Design should not exceed 6 pages)*

#### *Literature Cited (no page limit)*

List the most relevant literature cited in the proposal.

### **Steps and Forms for the Qualifying Examination**

#### **1. Intent of Examination**

- a. To answer the question "Is the student ready to begin PhD-level work?"
- b. NOT to judge the project.

#### **2. Qualifying Examination- Requirements**

- a. Required by the Graduate School
- b. Student must have completed 36 hours in PhD program or completed a master's degree from an accredited U.S. institution and 18 hours in the PhD program.
- c. Must have a grade assigned to all completed courses—*have Student Affairs Coordinator submit Grade Change form to alter previous "S" grades.*

#### **3. Steps to get the Process started**

- a. Have Advisory Committee approval for student to sit for examination- *have an Advisory Committee meeting.*
- b. Settle on dates for Written Questions to be given to student (See Part 4.b.) This should be in the month preceding the possible oral exam date. *Notify Student Affairs Coordinator.*
- c. Settle on date for Oral Portion of Examination.
  - i. For the semester in which the Qualifying exam is planned, the student should register for PHR767- Dissertation Residency credit, for 2 credits. The qualifying examination can be taken at any time during the semester.
  - ii. However, the **REQUEST-TO-SCHEDULE-QUALIFYING-EXAM** must be submitted and approved within the first 6 weeks of the semester.
- d. Student must login to their personal page on the Doctoral Degree Candidate Forms website [http://www.research.uky.edu/cfdocs/gs/DoctoralCommittee/Selection\\_Screen.cfm](http://www.research.uky.edu/cfdocs/gs/DoctoralCommittee/Selection_Screen.cfm). The student should complete the **QUALIFYING EXAMINATION REQUEST FORM** online and submit to the DGS for approval two weeks prior to your oral qualifying examination date.
- e. Grad School will return to Student Affairs Coordinator an AUTHORIZATION-TO-TAKE-EXAM card – *s/he will give it to your Mentor on the day of the oral exam.*
- f. **MUST** have all members present for whole examination

#### 4. Format of Examination

- a. Three parts: Written Questions, Written Proposal, and Oral Examination
- b. Written question(s) submitted by each committee member to Student Affairs Coordinator
  - i. Committee members define rules (open vs closed, time limits, etc)
  - ii. Committee members grade questions pass-fail at PhD level and notify Mentor of results
  - iii. Mentor relays results to student and confirms approval to take oral exam
  - iv. Committee members bring graded written portions to oral exam and can bring up points for clarification
- c. Written Proposal
  - i. NIH style research proposal. See format rules above and *check with your Mentor and advisory committee for any unique format and page limits that they wish to impose.*
  - ii. Goal- To assess if the candidate can identify a worthy research problem, formulate a hypothesis and design experiments to test that hypothesis
  - iii. You can use your current research project, but must show independence from your Mentor
  - iv. Provide written proposal to committee members **two weeks prior to oral examination**
- d. Oral portion
  - i. Clarification of points from written questions
  - ii. Oral presentation of research proposal
  - iii. Can include data you have gathered
- e. Must pass all 3 portions to advance to candidacy

#### 5. Results/Consequences

- a. If you are planning to take the exam for the Fall semester, register for **2 credit hours of PHR 767**. If you are not planning to take any other courses that semester, these 2 credits will constitute full-time enrollment, and will cost only the tuition for 2 credits (currently ~\$800). If you wish to take additional course work that semester (such as a course that is offered only every other year) speak with your Mentor and the DGS before you register for that course, as this will cause your tuition costs to be greater.
- b. If you pass, you thereafter continue to enroll in PHR767 every fall and spring semester, for 2 credits, until you have completed and defended your dissertation. The Department or your

- mentor will pay the tuition for credits up to a total time in the program of 10 semesters. After that time, you must find a way (you or your mentor) to pay this tuition.
- c. If the qualifying exam is failed, you can retake it after 4 months (one time).
    - i. You must immediately drop PHR767 and add PHR 790 (Research) to make a total of 9 credits.
    - ii. Full tuition for all 9 credits will then be charged to your mentor or the department for that semester (currently ~\$4000)
    - iii. Your committee will determine if you must re-take the entire questions/proposal/oral, or just individual parts.
  - d. Department support for your tuition covers a maximum of 6 semesters at the full 9 credit rate. **Students are expected to take their Qual during their 5th semester.**
  - e. Do not put off the Qual until your 6th semester, for if you fail, then you or your mentor will have to pay the full tuition.
  - f. See Tuition Policy Statement for exceptions to these policies.

## ***The Final Examination (Dissertation and Defense)***

*This program operates within the purview of The Graduate School of the University of Kentucky. The **Bulletin of the Graduate School** (<http://www.research.uky.edu/gs/bulletin/bullinfo.shtml>) should be consulted for guidelines and requirements applicable to all graduate students.*

### **The Doctor of Philosophy Degree**

The PhD degree is intended to represent the demonstration of independent and comprehensive scholarship in a specific field. Both the student's mastery of subject matter and the capacity to do research must manifest such scholarship. The degree of Doctor of Philosophy is conferred upon a candidate who, after completing graduate work devoted to study of a special field of knowledge, (1) passes comprehensive examinations in the chosen field and the dissertation subject, (2) presents a satisfactory dissertation, and (3) shows evidence of scholarly attainment.

### **PhD Dissertation**

The most important experience in the education of a graduate student is the completion of a PhD dissertation. Each student must present a dissertation that represents the culmination of a major research project. The dissertation must be a well-reasoned, original contribution to knowledge in the field of study and should provide evidence of high scholarly achievement. The Major Professor is the primary source of guidance in the planning and preparation of the dissertation. However, other members of the Advisory Committee may be involved in the process as well. All core members of the Advisory Committee must have the opportunity to read a near-final draft of the dissertation prior to signing the Dissertation Approval Form. It is the responsibility of the Advisory Committee to make suggestions for revisions before the Final Examination. A majority of the Advisory Committee core members must indicate that the form and substance of the dissertation are adequate to justify the scheduling of the Final Examination. The Final Examination on the dissertation may not be scheduled without the signatures of a majority of the Advisory Committee's members on the Approval Form.

The style and form of the dissertation must be in conformity with the instructions prepared by the Graduate School. For specific instructions regarding the format of the dissertation, the student should consult the Instructions for the Preparation of Theses and Dissertations from the Graduate School Office (<http://www.research.uky.edu/gs/thesdissprep.html>).

### **Residence Requirements**

Students first enrolled in a doctoral program in the fall 2005 semester and beyond will be required to enroll in a 2 credit hour course (PHR 767 Dissertation Residency Credit) after successfully completing the qualifying examination. Students must remain continuously enrolled in this course every fall and spring semester, **and pay the associated tuition for 2 credits (see Tuition Policy in this document)**, until they have completed and defended the dissertation. This will constitute full-time enrollment. Students will be required to complete a minimum of two semesters of 767 before they can graduate.

### **Time Limit for Doctoral Degrees**

All degree requirements for the doctorate must be completed within five years following the semester or summer session in which the candidate successfully completes the qualifying examination, but extensions up to an additional 5 years may be requested for a total of 10 years. All requests

should be initiated by the Director of Graduate Studies and be accompanied by a letter of support from the student's Mentor. An extension of up to one year may be approved by the Dean of the Graduate School. Requests for extensions longer than one year must be considered by Graduate Council and *if* approved, will require a **retake of the Qualifying examination**. Failure to pass the re-examination will result in the termination of degree candidacy; a second re-examination is not permitted.

### **The Final Examination**

The Final Examination includes a defense of the written dissertation and may be as comprehensive as the Advisory Committee desires. An expanded, 5-member Advisory Committee chaired by the Mentor of the student's Dissertation Advisory Committee conducts this exam. The Graduate Dean and President of the University are ex officio members of all final examination committees. The examination is a public event, and its time, date and place are published and announced in advance. Any member of the University community may attend.

At least **eight weeks** prior to the Final Examination, the graduate student should complete the form "Notification of Intent to Schedule a Final Doctoral Examination" (<http://www.research.uky.edu/gs/NotificationFinalDocExam.pdf>) and submit it to the DGS for signature. The Student Affairs Coordinator will retain a copy for the student file and submit the original to the Graduate School. At this time, the Graduate Dean appoints an Outside Examiner as an official member of the Advisory Committee. The Graduate School must be informed of the specific time and date of the examination at least two weeks prior to the actual examination. The graduate student should complete the "Request for Final Doctoral Examination" (<http://www.research.uky.edu/gs/RequestFinalDocExam.pdf>) form and submit it to the DGS for signature. The graduate student should also have completed the "Dissertation Approval Form" (<http://www.research.uky.edu/gs/DissertationApproval.pdf>) signed by a majority of the advisory committee including the major professor and turned it in to the DGS to be submitted with the Request for Final Doctoral Examination Form. The Student Affairs Coordinator will retain a copy of both forms for the student file and submit the originals to the Graduate School. In consideration of the submission deadline of 2 weeks prior to the exam date, the graduate student should consult with the advisory committee regarding the amount of time each committee member requires to read the dissertation before signing the Dissertation Approval Form and whether the member will be in town and available to sign the form. All members of the Committee except the outside examiner have an opportunity to suggest revisions prior to signing the Dissertation Approval Form. Thus, most revisions should have been completed by the time of the Final Examination (oral defense). The draft of the dissertation submitted must be complete and in full compliance with the format and requirements of the Graduate School. It is deemed a draft because the Advisory committee may require additional changes before it gives its approval.

The Final Examination must take place no later than eight days prior to the last day of classes of the semester in which the student expects to graduate.

After the Final Examination is passed, the final version of the dissertation is prepared, incorporating the changes required by the Advisory Committee. Final copies are signed by the Mentor and the Director of Graduate Studies, and are submitted to The Graduate School. The dissertation in its final form must be received in The Graduate School office within 60 days of the Final Examination. If this deadline is not met, the candidate must obtain an official waiver from the Graduate School or must undergo a second examination.

## **Forms and Schedule of Important Deadlines for Final Examination**

### *Graduate School Application for Degree Card*

<http://www.research.uky.edu/gs/DegreeCard.pdf>

To be eligible for a degree, students must file an application in the Graduate School within 30 days after the start of the semester (or 15 days into the second Summer Session), in which they expect to complete their work. This is accomplished by submission of two “Application for Degree” Cards, signed by the DGS.

### *Notification of Intent Form*

<http://www.research.uky.edu/gs/NotificationFinalDocExam.pdf>

The DGS must present to the Graduate School a “Notification of Intent to Schedule a Final Doctoral Examination” form in order to initiate the doctoral final examination process. The “Notification of Intent” form must be submitted to the Graduate School at least eight weeks before the exam is to be scheduled. Upon submission of the form, the Dean of the Graduate School appoints an Outside Examiner. Note that the minimum eight week lead time is required to secure a suitable outside examiner and to perform the necessary audit of the student’s academic record (a student will not be allowed to sit for the Final Examination until any remaining “I” or “S” grades in credit-bearing courses have been assigned letter grades).

### *Dissertation Approval Form and Request for Final Doctoral Examination Forms*

<http://www.research.uky.edu/gs/DissertationApproval.pdf>

<http://www.research.uky.edu/gs/RequestFinalDocExam.pdf>

Following the appointment of the Outside Examiner, the final examination date may be set. The “Final Exam Recommendation” form and a signed “Dissertation Approval Sheet” must be brought to The Graduate School at least two weeks before the scheduled date for the Final Exam. The Graduate School will send announcements of the examination to each committee member and to the student. Doctoral Final Examinations may only be scheduled when classes are in session (fall and spring semesters, four- and eight-week summer sessions). Examination deadlines and their relation to degree conferral can be found in the University Calendar.

<http://www.uky.edu/Registrar/AcademicCalendar.htm>

### *Last date for candidates to sit for a final exam*

The final examination must take place no later than eight days prior to the last day of classes of the semester in which the student expects to graduate. Final examinations are public events and must take place while the University is officially in session. They may not be scheduled during the periods between semesters or between the end of the second summer session and the beginning of the fall semester.

### *Last date for candidates for a degree to submit the final thesis/dissertation to the Graduate School*

The dissertation in its final form must be received in the Graduate School within 60 days of the final examination. Please refer to the University Calendar for the deadlines in relation to degree conferral. <http://www.uky.edu/Registrar/AcademicCalendar.htm>

## ***Student Evaluation/Progress***

### **Progress to Degree**

Each year a Notice of Appointment form is completed and signed by each student. This form notes that a student's continuation is "Contingent upon continued availability of funding, satisfactory performance and professional completion of assigned duties." This includes grades in coursework, as well as attendance at seminars, and performance in rotations and research. Also, as noted on p. 11 of this Handbook ("Rotations"), there is a requirement that a "student may be dismissed from the Program if s/he fails to identify a Mentor by the end of June of the first year." Thus, to remain in good standing and continue in the program, a student must have a mentor and a dissertation project, and show continual effort toward completion of the dissertation and PhD degree. The process that will be followed should dismissal be sought is described on p. 40 of the Graduate School Bulletin, and is found at: <http://www.research.uky.edu/gsbulletin/current/bull08Spring.pdf> .

### **Academic Honesty/ Penalties**

Academic honesty is the cornerstone upon which scientific research and scholarship are based. Experimental discoveries and new scientific insights are built upon a foundation formed by the work and thoughts of others. Thus, utilizing such thoughts in a paper or manuscript, without giving credit to the originator of the idea or result, is dishonest. Such dishonesty is termed *plagiarism*, and is considered an extremely serious offense by the graduate program, the University of Kentucky, and the academic community throughout the world. The penalties for plagiarism are grave, and can range from a zero for an assignment, to an E (failure) in a course, and, in grievous instances, suspension, dismissal or expulsion from the graduate program and university. The official university list of definitions (Senate Rule 6.3.1), and penalties (Senate Rule 6.4.3(3)) is available at: <http://www.uky.edu/USC/New/SenateRulesMain.htm>

In addition, scientific journals demand a high standard of honesty and fair credit for previous publications in manuscripts that are submitted for review. The journals published by the American Association of Pharmaceutical Scientists have developed an Ethics Policy that covers plagiarism, improper manipulation of images, data fabrication or falsification, and other serious breaches of scientific conduct. This information is available at: <http://www.aapsj.org/about/AAPS-ethicspolicy-2007.pdf> . The American Chemical Society and its associated journals also have ethical guidelines that can be found at: <http://pubs.acs.org/userimages/ContentEditor/1218054468605/ethics.pdf> .

Students should familiarize themselves with what constitutes plagiarism, especially in writing manuscripts for the primary literature and their dissertations. Practices that are accepted in other cultures may be considered serious offenses in the United States. The University Academic Ombud Office has additional resources at: <http://www.uky.edu/Ombud/policies.php> and a link to an excellent paper, "Plagiarism: What is it?" at <http://www.uky.edu/Ombud/Plagiarism.pdf> .

The "cure" for plagiarism is general and simple- writers must include an immediate citation in the text, to indicate where the information originated, or, if phrases are used verbatim, quotation marks in addition to a citation. To quote Dr. Leggas, "...err on the side of caution – i.e., Don't hesitate to give credit where credit is due – nobody will blame you for knowing and referencing the literature!"

## **Rotation Summary**

The student will submit to the DGS and each rotation Mentor a 1-page summary of each rotation. This submission will include: the overall objectives of the research conducted, the student's participation in that research and a summary of the results and their interpretation. The rotation mentor will submit to the DGS an independent evaluation of the student's performance during the rotation, identifying the student's strengths and weaknesses.

## **First-Year Student Progress Report**

The goal of this evaluation process is to provide feedback to the student as to his/her overall strengths and weaknesses. A recommendation for Teaching Assistant eligibility or other Department/College support in the upcoming semester/year will also be provided. The students' coursework performance, seminar attendance and participation, as well as their fulfillment of their Teaching Assistant responsibilities will be assessed. Once a student has selected a Mentor and an Advisory Committee, the committee will conduct the evaluation process.

## **Curriculum Vitae**

Each student should prepare a Curriculum Vitae (CV) that is updated annually and submitted to the Graduate Program Office, and attach it to the Report of Graduate Student PhD Advisory Committee Meeting form. The CV will include: the student's academic performance (courses and grades); research rotations conducted; scientific presentations and publications; awards; and applications submitted and funded.

## **Report of Advisory Committee Meeting**

A student must have a meeting with his/her Advisory Committee **no less than once per year** (i.e., there should be no more than a 12-month span between committee meetings) during the entire period the student is in the program. The student should draft full, detailed minutes of each committee meeting to be proofed by their faculty mentor, and signed off by the student and mentor. The student should deliver a copy to the Student Affairs Coordinator (who will place a copy in their file). The student's mentor should supply a copy to all Advisory Committee Members as needed. The minutes should include an evaluation of student progress. The progress record should take into account the student's performance in coursework, as a Teaching Assistant, level of participation in the Department Seminars and an evaluation of research productivity. An **electronic version of this form is available at** (<http://www.mc.uky.edu/pharmacy/current/grad/ta.html>). All decisions of the Advisory Committee are by majority vote of its Graduate Faculty members. Advisory Committee decisions must be reported promptly to the DGS and the Dean of the Graduate School.

## Report of Graduate Student Advisory Committee Meeting

Student's Name \_\_\_\_\_ Date \_\_\_\_\_

Committee Members Present:

Committee Members Absent:

This document is intended to provide part of the continuing summary of the student's progress. Notable successes are to be recognized. Acceptable progress should be mentioned, and will provide documentation of a student's development, up to the current time, should future shortfalls occur.

If needed, identified problems should be mentioned directly, in broad terms, with expectations of the committee and mentor for remedy of difficulties, with the possible consequence(s) listed if problems persist.

1. Course Work:

2. Performance as a Teaching Assistant

3. Participation in Division Seminars:

4. Research Progress—Experimental Productivity:

Qualifying Exam Anticipated/Scheduled/Completed: \_\_\_\_\_(Date)

***WITHIN 1 WEEK OF THE MEETING: These minutes are to be prepared by Mentor; discussed with student; both sign; the original copy sent to Director of Graduate Studies for inclusion in a student's permanent files.*** Additional copies should be kept by student, mentor, and if desired, by Advisory committee members.

***Signature of Major Advisor*** \_\_\_\_\_

***Signature of Graduate Student*** \_\_\_\_\_

## Report of CET Graduate Student Advisory Committee Meeting

Student's Name \_\_\_\_\_ Date \_\_\_\_\_

Committee Members Present:

Committee Members Absent:

*This document is intended to provide part of the continuing summary of the student's progress. Notable successes are to be recognized. Acceptable progress should be mentioned, and will provide documentation of a student's development, up to the current time, should future shortfalls occur.*

*If needed, identified problems should be mentioned directly, in broad terms, with expectations of the committee and mentor for remedy of difficulties, with the possible consequence(s) listed if problems persist.*

### 1. Course Work:

### 2. Performance as a Teaching Assistant:

### 3. Participation in the Graduate Program and Seminars:

### 4. Research Progress—Experimental Productivity:

### 5. Research Progress—Publications:

### 6. Clinical Aspects of Training:

Qualifying Exam Anticipated/Scheduled/Completed: \_\_\_\_\_(Date)

***WITHIN 1 WEEK OF THE MEETING: These minutes are to be prepared by mentor; discussed with student; both sign; the original copy sent to Director of Graduate Studies for inclusion in a student's permanent files.*** Additional copies should be kept by student, mentor, and if desired, by Advisory committee members.

Signature of Major Advisor \_\_\_\_\_

Signature of Graduate Student \_\_\_\_\_

## *Advising*

### **Director of Graduate Studies (DGS)**

The DGS serves as adviser to incoming graduate students until the Advisory Committee is appointed. The Division Directors, the Student Affairs Coordinator, and the Associate Dean for Research and Graduate Education can also assist the DGS in advising students. The student is to inform the DGS in writing, in person, or by email of the selection of the faculty Mentor and on the choice of Division.

### **Major Professor/Mentor**

The Major Professor plays a crucial role in the individualized program of graduate studies. Students are encouraged to explore the breadth of research opportunities in the Pharmaceutical Sciences Program prior to making the important decision of Major Professor selection. To facilitate the selection of a mentor, all students must participate in at least 2 (3 recommended) rotations during their first two semesters (see Rotations above). An exception to these mandatory rotations may be granted for those students entering the Program committed to a Major Professor as a Research Assistant.

### **Dissertation Advisory Committee**

A student's Dissertation Advisory Committee should normally be formed and should meet not later than the start of the third semester in the program. The Dissertation Major Professor and the student propose the composition of the Advisory Committee; however, the DGS must approve the Advisory Committee members. The Graduate School officially appoints the Advisory Committee. The Advisory Committee must be appointed at least one year prior to the Qualifying Examination.

The Major Professor and the Advisory Committee guide each student's program throughout her/his graduate career. Their purpose is to give continuity of direction and counsel and to provide intellectual stimulation from the earliest days of residency through the completion of the doctorate. The Advisory Committee has a core of four members. This core consists of the Major Professor as Mentor and two other members from the graduate faculty of the Pharmaceutical Sciences Program. An additional member must be from outside the academic program. **The Mentor and two other committee members must be Full Members of the Pharmaceutical Sciences Graduate Faculty** (<https://www.research.uky.edu/cfdocs/gs/dgsgradfac/>). If the Mentor is currently an Associate Member, then a co-Mentor who is a Full Member must be appointed. At the time of the dissertation defense, the Graduate School will appoint an outside examiner as a fifth member. For details, see the section on Final Examination (Dissertation Defense), or consult the Graduate Bulletin, (<http://www.research.uky.edu/gsbulletin/bullinfo.shtml>).

**For students in the Clinical and Experimental Therapeutics Track**, in addition to the rules above, the Mentor must be a primary member of the CET graduate faculty (<http://www.mc.uky.edu/pharmacy/prospective/grad/clinexp.html>). Graduate faculty in the PPS and PS departments are eligible for this appointment, provided they are committed to the goals, and can meet the requirements and expectations for clinical training of the Track. The procedure for requesting CET Faculty Membership is available from the Director for Graduate Studies or CET Track Coordinator.

The core of the Advisory Committee must be kept at its full complement throughout the graduate career of the individual student. In the event of a vacancy on the Committee (occasioned by resigna-

tion, faculty leave, or inability to serve), an appropriate replacement must be made prior to the making of any committee decision.

## ***Financial Aid (Assistantships)***

Students are expected to fulfill the responsibilities of their teaching assistantship, research assistantship, or fellowship to the best of their abilities. Students are also expected to meet the responsibilities of all coursework as outlined in individual course syllabi. Students are responsible for making progress toward graduation at all times.

### **POLICY ON PAYMENT OF TUITION for PhD students in the Drug Discovery, Drug Development, and Clinical and Experimental Therapeutics Tracks Policy implemented Fall semester 2007**

#### GENERAL STATEMENT OF POLICY

There is a general expectation that a graduate student's tuition will be paid by funds awarded to the faculty mentor, or by the department. It is also expected that tuition reimbursement will be requested as part of graduate student support in applications for grants and contracts.

With regard to departmental support for students in PhD programs in the College of Pharmacy, full, in-state tuition will be paid for 5 semesters. Students are expected to schedule their Qualifying examinations at the start of their 5<sup>th</sup> semester in the program and, upon successfully passing that exam, to thereafter register each semester for 2 credits of PHR767- residency for PhD. *If the student has not taken the Qualifying examinations by the beginning of the 6<sup>th</sup> semester, the portion of tuition above the 2 credit hours will be covered by the mentor or the student.* Tuition will continue to be paid for these residency credits for an additional 5 semesters only. During that time, students are expected to hold one meeting per year of their thesis committee, and to submit the minutes of those meetings to the Graduate Program office. At the end of this time (5 years) the student is expected to have completed their research project, and written and defended their PhD dissertation. *Starting with the first semester of the 6<sup>th</sup> year, no tuition support will be provided by the department.*

#### POLICY IN SPECIAL CIRCUMSTANCES

1. The provision of tuition funding applies only to students who are in good standing. A student whose GPA falls below the university requirement will be placed on probation, and the university will no longer waive out-of-state tuition. Under such circumstances, the *departments will provide tuition, but only at the in-state tuition rate.* If the student is classified as international or out-of-state, the student or the major professor (as agreed in a letter to the department) will be responsible for the remainder of the tuition.

2. This policy applies only to students who are in-residence and actively pursuing completion of their degree program. *Students who leave the university before completion of the thesis will no longer receive tuition support from departmental resources.*

3. A student who does not pass the qualifying examination, who does not successfully defend their thesis, or who through exceptional circumstances cannot meet this schedule, will need to petition the DGS and Chair in writing for an exception to this policy.

#### TEACHING EXPECTATIONS FOR STUDENTS RECEIVING TUITION SUPPORT

During their first year in the program, students who receive tuition support from departmental sources will be expected to perform assigned teaching duties. *Students receiving departmental tuition support may also be asked to perform occasional additional duties as exam proctors during their second and subsequent years.*

#### IMPLEMENTATION DATE

This policy will apply to all students currently enrolled or entering the named PhD programs, at the start of Fall semester, 2007.

Most students admitted to the Pharmaceutical Science Graduate Program receive a stipend. The source of the stipend varies and includes Teaching Assistantships, Research Assistantships and Fellowships. The level current base stipend is \$20,000. Selected intramural fellowship recipients can receive both the fellowship and a partial TA assignment. Competition for stipends is strong.

#### **Teaching Assistantships**

Incoming students frequently receive a stipend in the form of a Teaching Assistantship within the Pharmacy professional curriculum. Various types of teaching opportunities are available including lecturing, tutoring, small group discussion leader, pharmacy practice lab assistant, grading and other duties. Assignment of a specific TA is a function of the knowledge base or skill level required of the assignment and past performance of the student. The DGS, Track Coordinators, and the Associate Dean for Educational Advancement make assignments prior to the semester. Every effort is made to individualize the TA assignment to meet the academic and/or career interests of the graduate student. Many of these assignments provide the graduate student with opportunities to observe and develop their own teaching skills. Duties and responsibilities of a TA are taken very seriously. The TA is an extension of the faculty and is expected to act as a role model for our professional students. Scheduling of research activities, committee meetings, and other activities should not conflict with assigned TA duties.

#### **Research Assistantships**

Students in their second through fourth years of study generally receive a stipend in the form of a Research Assistantship funded by the Major Professor. The Major Professor largely determines responsibilities for the Research Assistant. As with the TA, satisfactory progress in their graduate program must be maintained in order to retain stipend support (assuming availability of funds by the Major Professor).

#### **Fellowships - Internal**

The following are among the Fellowships available from the Graduate School:

***Presidential Graduate Fellowships:*** Graduate programs are invited to nominate candidates for the annual Presidential Fellowships. Ten fellowships with a stipend of \$15,000 and payment of tuition are available for UK graduate students.

***Quality Achievement Fellowship Awards:*** Awards of \$3000 per year are available to be used as "add-on" funding to supplement full fellowships or assistantships. The Daniel R. Reedy Quality Achievement Fellowships are intended to enhance the competitive ability of UK programs to attract outstanding first year graduate students. The awards are potentially renewable for a second year for Master's students or for a total of three years for doctoral students. In keeping with Strategic Plan goals, Directors of Graduate Studies are encouraged to make use of these funds in their efforts to recruit highly qualified students from Kentucky colleges and universities to UK graduate programs.

***Dissertation Year Fellowships:*** In order to enhance the research dimension of graduate education, the President's Office has provided funding to support 15 Dissertation Year Fellowships. The fellowships carry a stipend of \$16,000 and full payment of tuition; additionally, recipients of these awards may apply for grants of up to \$1000 for research expenses related to the dissertation.

### **Fellowships - External**

Pharmaceutical Sciences students are strongly encouraged to apply for extramural fellowships. Faculty will assist the students in preparation of these applications. Among the many fellowships available, our students have been particularly successful with applications for the following:

*American Foundation for Pharmaceutical Education (www.afpe.org)*

*Pharmaceutical Research Manufacturers Association (www.phrmafoundation.org)*

*National Institutes of Health (www.nih.gov)*

*National Science Foundation (www.nsf.gov)*

### **Travel Awards**

Peter G. Glavinovs Jr. PhD Fall Travel Award (2 chosen)– travel allowance of \$500 (*Awarded by the College of Pharmacy*)

S. Elizabeth Helton Spring Travel Award (2 chosen) – travel allowance of \$500 (*Awarded by the College of Pharmacy*)

Dissertation Enhancement Award – travel allowance of up to \$3,000 per academic year (*Awarded by the Graduate School*)

Commonwealth Research Award – travel allowance of between \$500-\$1,000 per academic year (*Awarded by the Graduate School*)

## ***Program Administration***

### **Graduate Faculty**

The graduate program faculty consists of members who hold primary appointments in either the Department of Pharmaceutical Sciences or the Department of Pharmacy Practice and Science in the College of Pharmacy and of other faculty members who hold primary appointments in various departments of the College of Medicine and the Department of Chemistry.

The policies and programmatic content of the Pharmaceutical Sciences program are the purview of the graduate faculty members of the program. Any significant change to the program requires a majority vote of those faculty members.

### **Director of Graduate Studies (DGS)**

Major responsibilities include: coordinating applicant recruitment and admissions; advising 1<sup>st</sup>-year students; administering policies and procedures of the Graduate School and the Pharmaceutical Sciences program, and acting as liaison between the Graduate School and Pharmaceutical Sciences students and faculty.

**Advising First Year Students.** Each Division Director and the DGS assistant are to assist the DGS in advising entering (first year) students in selecting appropriate initial coursework, prior to the selection of a major professor. Each Division Director will also assist the DGS to help the first year students identify laboratory rotations that will enable the student to select a dissertation project and major professor. After the student has chosen a major professor, advisement responsibilities are transferred to the selected major professor and the student's individual dissertation advisement committee.

## ***Registration for Courses***

Incoming graduate students schedule classes during the week preceding the first of the semester. Pre-registration for returning graduate students usually takes place about six weeks prior to the end of the semester, i.e., scheduling for the Spring semester takes place early in November during the Fall semester. The following steps should be taken:

1. Obtain a Schedule of Classes. This is available on the WEB only.  
<http://www.uky.edu/Registrar/RegistrationWindow.htm>.
2. Consult with your advisory committee or Division Director (for first-year students) to obtain guidance in courses to take.
3. See the Student Affairs Coordinator (in Room 409) for instructions on how to register by web, if help is needed.
4. Returning graduate students who fail to pre-register must pay a late registration fee.

All returning graduate students should consult with the major professor concerning courses.

### **Academic Load**

The total semester or term load of a student is the sum of all credits carried. The minimum semester load of a full-time graduate student is 9 credit hours or equivalent. Under no circumstances may the load exceed 15 credit hours or equivalent. During the summer term, the maximum load for the eight-week term is nine credit hours, and the four-week inter-session is four credit hours. The maximum load for any combination of the four and eight-week terms is 12 credit hours. The University classifies students satisfactorily completing nine course credits, or equivalent, of graduate level work during a semester, as full-time students. After passing the Qualifying exam, 2 credit hours per semester of PHR 767 is considered full-time status.

## ***Graduate School Grading Policies***

### **Grading**

An overall average of 3.0 on all graduate work in the program must be attained before an advanced degree may be awarded. Graduate level courses (400G-799) are computed in the graduate grade point average. D grades are not given to graduate students. A grade of I (incomplete) may be assigned to a graduate student if a part of the work for a course remains undone and there is a reasonable possibility that a passing grade will result from completion of the work. An incomplete (I) must be removed within 1 calendar year after the close of the term in which the I is assigned if the student is to receive credit (unless the Dean of the Graduate School grants an extension of time). I grades will automatically convert to a grade of "E" after 12 months, or at the point of graduation, whichever occurs first. A grade of S (satisfactory work in progress) may be recorded for students in graduate courses, which carry no credit, and in graduate seminars, independent work courses and research courses that extend beyond the normal limits of a semester or summer term. When the work has been completed, a final grade will be substituted for the S. With an I on his/her record; a graduate student may not take the Qualifying examination and will not be considered for a U.K. Fellowship. Once a grade (other than an I or S) has been reported to the Registrar's Office, it may not be changed unless an error was made at the time the grade was given and recorded, and then only upon the written unanimous approval of the instructor, the Registrar, and the Dean of the Graduate School.

### **Scholastic Probation**

If a student who has completed 12 or more semester hours of graduate course work has a GPA less than 3.0, the student is placed on scholastic probation and has one semester or equivalent (9 semester hours) to remove the probation by attaining a cumulative GPA of 3.0. The Graduate School automatically drops students who do not meet this requirement. Students on probation are not eligible for out-of-state tuition scholarships.

### **Repeat Option**

A graduate student may elect to repeat a graduate course and count only the second grade as part of the GPA. A student may exercise the repeat option only once in a degree program. To exercise the option, a student must obtain the necessary form from the Graduate School. The request must be filed before the course is repeated; in no case will the request be accepted later than the last day on which a course may be dropped without having it appear on the transcript.

## ***Miscellaneous***

### **Identification cards and badges**

Student identification (<http://www.uky.edu/UKID/>) can be obtained from the WildCard ID Center in room 107 of the Student Center (<http://ukcc.uky.edu/cgi-bin/dynamo?maps.391+campus+0030>). The WildCard ID Center is open Monday – Friday from 9:00 a.m. – 5:00 p.m. A photo ID is required. The charge is \$15 for the first card. Payment can be made with cash, check, Plus Account, Visa or Mastercard.

Medical Center identification badges are made in the first floor security office (H105A) in the university Hospital from 9:00 a.m. to 1:00 p.m. and 5:00 p.m. to 8:00 p.m. Please obtain a UKPD/Hospital Security Identification and Record from the Student Affairs Coordinator in room

409. The College of Pharmacy (COP) building is open 6:00 a.m. – 6:00 p.m., Monday through Friday. These badges must be worn at all times. Security officers may challenge individuals who are not displaying their badges.

The College of Pharmacy (COP) building is open 6:00 a.m. – 6:00 p.m., Monday through Friday. After-hours building access is granted by the Office of Administration-Dean's Office, located in room 327F of the Pharmacy building. Once an employee is authorized by their supervisor and department administrator to be issued an encoded badge by the Medical Center Safety and Security Office, the employee can be added to the pharmacy security database. Badge/card readers are located at the front and back entrances of the building.

### **Keys**

Keys for laboratories and offices may be obtained by completing a key request form [<http://www.uky.edu/AuxServ/keyshop/keyrequest.html>] and submitting for signature to the Pharmaceutical Sciences Business Administrator in Room 327P College of Pharmacy Building. The signed form should then be delivered to the Key Shop in Room 49 Donovan Hall [<http://ukcc.uky.edu/cgi-bin/dynamo?maps.391+campus+0072>]. Hours of operation are Monday through Friday 8:00 a.m. to 5:00 p.m. Phone: 859-257-5397

### **Parking**

As a teaching assistant or research assistant you will be eligible for an "E" parking permit. You will be able to purchase the permit through payroll deduction once you are officially on payroll with at least 50% FTE. Students with fellowships may not be eligible for payroll deduction. <http://www.uky.edu/Parking/index.html> UK Parking Services is located at 721 Press Avenue (in the parking garage). Parking Services issues permits Monday-Friday from 7:30 a.m. – 4:00 p.m.

### **Paid Internships Off Campus**

Graduate Students participating in paid internships off campus must first have this internship approved by the academic advisor. A letter from the academic advisor must be submitted to the DGS stating the beginning and ending date of the internship.

### **Vacation Leave**

Graduate Students are eligible for ten vacation days per year. This vacation time does not accumulate if not used, except for foreign graduate students who may accumulate 20 days of vacation leave. An absence request form, available from the Student Affairs Coordinator, must be completed and approved by the Mentor prior to taking the vacation leave. Teaching assistants must also have the approval of the course instructor and DGS. Vacation leave must not interfere with a teaching assignment.

### **Post Office and Electronic Mail**

There are two post offices on campus. One is located in the basement of the White Hall Classroom Building Room 21A, and the other is located on the ground floor of the Chandler Medical Center Room M63. Hours of operation are Monday through Friday from 8:00 a.m. until 4:30 p.m.

There is a mailroom in the Pharmacy Building (room 160) for outgoing mail. All graduate students are assigned a mailbox on the fourth floor. These should be checked daily for seminar announcements, messages from the Chair of the Department, Director of Graduate Studies, etc. Most announcements are made through electronic mail. All graduate students are assigned an e-mail address that can be accessed through personal computers/modems, laboratory computers with an Ethernet

connection, or in the first year student office (bullpen). Students are encouraged to check their email on a daily basis.

### **Libraries/Photocopying**

The Medical Center Library [[http://www.uky.edu/Libraries/lib.php?lib\\_id=12](http://www.uky.edu/Libraries/lib.php?lib_id=12) ] has a number of services available to students including electronic search engines and interlibrary loan. Copies are 12 cents per page if you use your Plus account/dart card, 15 cents if you pay using cash. You can make copies using coins, \$1.00 for the old printed \$5.00 bills, Dart (CSVT) Cards or UK and BCTB student IDs. The Library does not have a change machine. If you do not have a Dart card you can purchase one from any Dart card dispensing machine for \$1.00 [[http://www.uky.edu/Libraries/libpage.php?lweb\\_id=270&llib\\_id=12](http://www.uky.edu/Libraries/libpage.php?lweb_id=270&llib_id=12) ]. The Young Library [[http://www.uky.edu/Libraries/lib.php?lib\\_id=14](http://www.uky.edu/Libraries/lib.php?lib_id=14) ] contains the Main Campus collections and Medical Center collections prior to 1987.

A photocopy card for the copier in the Graduate Student Office in Room 425 can be obtained from the Research and Graduate Education Office in Room 511B. A "College of Pharmacy General Order Sheet" should be completed indicating the amount of money to be placed on the card and signed by the Pharmaceutical Sciences Business Administrator in Room 327P College of Pharmacy Building.

### **Paycheck Statement Distribution**

Paycheck Statements are distributed bi-weekly by the Department of Pharmaceutical Sciences staff assistant. Direct Deposit <http://www.uky.edu/eForms/forms/dirdepos.pdf> is required by UK.

### **Tax Information**

The University of Kentucky has adopted the 1990 Federal Tax Code regarding the taxation of stipends, fellowships and scholarships. The interpretation used by financial aid officers is as follows:

"The new law has amended Section 117 and in general notes that the only amount that can be excluded from gross income is the amount of the scholarship or fellowship grant received by the degree candidate that is required to be used, and in fact is used, for tuition and course-required fees, books, supplies, and equipment. Any other amount of scholarship or fellowship grant received by a degree candidate (e.g., amount for room, board, or incidental expenses) must be included in gross income, as is the full amount of any scholarship or fellowship grant received by an individual who is not a degree candidate. Therefore, under the new law, degree candidates exclude from gross income any amount received and used for qualified tuition and course-related expenses. Qualified tuition and course-related expenses are defined as tuition and fees required for enrollment in an educational institution, and the necessary fees, books, supplies and equipment required for courses. Other expenses not actually required for enrollment at the school or in a course. such as room and board, travel, research, clerical help, non-required equipment and supplies, are no longer excluded. If all or part of a scholarship or fellowship grant is earmarked for non-qualified tuition and course-related expenses, it would then be considered as taxable income".

International students should consult with the Office of International Affairs for information on taxes. [http://www.uky.edu/IntlAffairs/current\\_student/tax.htm](http://www.uky.edu/IntlAffairs/current_student/tax.htm)

### **Acquisition of Supplies**

Ordering items from outside vendors requires completion of a "College of Pharmacy General Order Sheet". An account number and the signature of the Principal Investigator or Lab Manager are re-

quired. Completed forms should be taken to the College's Accounting Office (Room 327N) so they can verify that you are using a valid account number. Upon arrival of the item, the Receiving Clerk (160) will notify the person who made the order. Rush orders can be walked through the system.

### **Use of Animals in Teaching and Research:**

All teaching and research utilizing animals must be approved prior to its initiation. A faculty member must submit an Animal Care & Use Application to obtain approval. Further information may be obtained from the UK Animal Resources and Procedures Handbook [<http://www.research.uky.edu/dlar/>] or by contacting the Office of Research Integrity [<http://www.research.uky.edu/ori/>].

### **Use of Humans in Teaching and Research:**

All teaching and research that utilizes human subjects must be approved prior to its initiation. A faculty member must submit an Institutional Review Board Application to obtain approval. Further information may be obtained from the Institutional Review Board (IRB) Member Resource Guide or by contacting the Office of Research Integrity. <http://www.research.uky.edu/ori/>

### **Laboratory Safety**

<http://www.mc.uky.edu/pharmacy/depts/research/safety.html>

EH&S Training Classes <http://ehs.uky.edu/classes.html>

All questions on laboratory safety should be directed to the College Senior Safety Specialist, Room 511 COP.

Practices and procedures to assure that laboratory workers at the University of Kentucky are protected from health and safety hazards associated with hazardous chemicals with which they work can be found in the UK Laboratory Safety Manual. A copy is in each research laboratory.

Common sense should guide the cleanup of any chemical spill. Gloves, air mask, and absorbent pads should be used when necessary. Call the College Senior Safety Specialist (Jay Young; phone 323-1630; cell: 859.519.0880; Room 511) for spills that cannot be easily cleaned up. There is a small spill control station on every floor, and a mercury control spill station on the fifth floor in Room 511.

Disposal of Chemical Waste is to be done in accordance with University regulations. All incoming students will participate in a laboratory safety orientation that describes proper disposal procedures. Be sure to check with the College's safety officer if you have any questions. Never dispose of organic solvents in a laboratory sink. Food and beverages are not allowed in laboratories. These items should be confined to conference rooms and staff lounges.

### **Radioactive Materials and Radiation Safety**

All requests for radioactive materials are to be made on a Radioisotope Order Form (<http://ehs.uky.edu/radiation/KYReg/appe.html>) available through the Radiation Safety Office (102 Animal Pathology Building). The Principal Investigator (usually your dissertation Major Professor) must be an Authorized User and is ultimately responsible for the handling of radioactive materials in his/her laboratory.

Any student who wishes to use radioactive material in their research must attend Radiation Safety Classes that are offered at regular intervals by the Radiation Safety Office. They must also be familiar with the University's policies regarding acquisition, use and disposal of radioactive materials that are stated in the Radiation Safety and Control Handbook

(<http://ehs.uky.edu/radiation/KYReg/radman.html>). In addition, they must always use the appropriate precautions when handling radioactive materials, and work in a manner that will minimize radiation exposure to themselves, their fellow workers, and the general public. Radioactive spills should be reported to the Radiation Safety Office (323-6777).

The basement laboratory houses two liquid scintillation counters and two gamma counters. This lab has a card reader entry system, which requires authorized radioisotope lab users to employ their Medical Center ID badge to enter the lab. To become an authorized radioisotope lab user, have your dissertation Major Professor send an e-mail message to Dr. Peter Crooks ([pcrooks@email.uky.edu](mailto:pcrooks@email.uky.edu)) stating that he/she will take full responsibility for your actions and conduct in this laboratory. The message should contain your full name and UK ID number.

DO NOT LET ANYONE USE YOUR ID BADGE TO ENTER THIS LAB. Do not prop the door open to allow unauthorized users to enter the lab (this signals an alarm in the security office), and do not leave your vials or other extraneous materials in this laboratory when you are finished counting your samples.

### **Smoking**

Smoking is not permitted by students, faculty members, visitors or patients in any part of the College of Pharmacy building, or the buildings of the UK Health Care enterprise. Details of this policy are available at: <http://www.ukhealthcare.uky.edu/about/tobacco-free/index.asp>

### **Conference Rooms**

Conference rooms are available for scheduling Advisory Committee meetings, qualifying exams, etc. Arrangements for their use should be made with the Student Affairs Coordinator:

- Third Floor (Dean's Conference Room; Room 327A)
- Fourth Floor (Room 442)
- Fifth Floor (Room 542)

### **University Health Service Fee and Student Health Insurance**

<http://www.uky.edu/StudentAffairs/UHS/index.htm>

Not all graduate students are required to pay the health fee. Only full-time students in nine hours or more pay the mandatory health fee. For all other students, the health fee is optional. Full-time graduate students who have paid the health fee have access to University Health Service (Student Health) at little or no cost. Part-time students may access University Health Service by voluntarily paying a health fee or by being seen on a fee-for service basis. All voluntary requests for the health fee should be made to the Student Billing office. To use University Health Service in the summer, all students must pay the summer health fee or pay on a fee-for-service basis. The health fee does not cover hospitalization, surgical procedures, accident care and any other health care provided outside University Health Service. The University, including University Hospital, assumes no responsibility for a student's medical expenses.

### **Health Insurance Coverage for Funded Graduate Students**

<http://www.gradschool.uky.edu/fellowship/healthcoverage.html>

Health insurance coverage is provided to all enrolled and degree-seeking graduate students with full-time teaching, research, or graduate assistantships, full-time fellowship recipients, or a combination of these positions. The Graduate School Funding Office administers this insurance program.

The insurance is provided to eligible graduate students at no cost. The student insurance plan is a preferred provider organization (PPO), and UK Hospital and UK College of Medicine physicians are the in area preferred providers. When receiving treatment away from UK, students can expect higher out-of-pocket costs. Additionally, the plan is an illness and injury plan only; it does not provide for preventive care or coverage of treatment in the absence of illness or injury, except as specifically provided in the policy.

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