

GRADUATE PROGRAM HANDBOOK

2017-2018

DEPARTMENT OF PHARMACOLOGY

AND

EXPERIMENTAL THERAPEUTICS

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GRADUATE STUDENT HANDBOOK

I. Introduction

The graduate program in the Department of Pharmacology at LSU Health Sciences Center in New Orleans is designed to prepare students for a career in teaching and research in academic institutions, the pharmaceutical industry, and other settings. Pharmacology is founded in the biological and physical sciences; thus, students should have a working knowledge of biology, chemistry and mathematics. The training program consists of both didactic and practical course work, seminars, and research experience. During the first two years students will take all required basic biomedical science and pharmacology graduate courses.

Following this period of broad training in pharmacology and related areas, advanced courses and directed research are undertaken. The particular area of research for the dissertation studies is chosen by the student, provided that departmental faculty expertise is available. As students advance and their interests become more specialized, the program becomes tailored to individual research areas and needs.

The Department has the following obligations to the student:

1. To provide an environment that fosters scholarship and meritorious research
2. To regularly evaluate student performance and progress toward the Ph.D. degree
3. To serve, through the faculty, as examples for the ethical conduct of research and critical, objective evaluation of data
4. To support and stimulate creative, original and independent research.

The student has the following obligations to the Department:

1. To achieve and demonstrate a clear understanding of material presented in formal courses, seminars and other teaching formats
2. To demonstrate an aptitude and enthusiasm for all aspects of research: knowledge of the literature, formulation and experimental testing of hypotheses, analyses of data, and clear presentation of data in both oral and written form
3. To participate in departmental seminars and other official Departmental functions.

II. Facilities

Most Departmental Faculty currently occupy office and laboratory space in the Medical Education Building. Other Faculty occupy space in the Clinical Sciences Research Building and Louisiana Cancer Research Consortium Cancer Center. All of these sites are located on the downtown campus. Parking is available. The Department has modern, well equipped laboratories.

III. Faculty

Wayne L. Backes, Ph.D., Professor, Associate Dean for Research

West Virginia University Medical Center, 1979

Metabolism of drugs and environmental pollutants by cytochrome P-450

Louis A. Barker, Ph.D., Professor Emeritus

Tulane University, 1968

Hamid Boulares, Ph.D., Professor

University of Connecticut, 1997

The DNA repair enzyme PARP-1 and associated proteins during inflammation and tumorigenesis.

Andrew D. Catling, Ph.D., Associate Professor and Graduate Coordinator

University of Glasgow, Glasgow, UK, 1992

Mechanisms of signal transduction by MAP kinases.

Jeffrey D. Erickson, Ph.D., Associate Professor.

George Washington University, 1993

Molecular and cellular studies on vesicular transporters that are potential sites for the regulation of presynaptic function.

Jesse Guidry, B.S., Instructor

Auburn University, 1991

Protein Biochemistry

Daniel R. Kapusta, Ph.D., Professor

Louisiana State University Medical Center, 1986

Central nervous system control of cardiovascular and renal function

Eric Lazartigues, Ph.D., Professor

University Paul Sabatier – Doctoral School of Toulouse, France, 1999

Role of ACE2 in the regulation of renin-angiotensin system activity in cardiovascular function

David J. Lefer, Ph.D., Professor and Director, LSU Cardiovascular Center

Wake Forest University

Cardioprotection, ischemic cardiac disease, nitric oxide and hydrogen sulfide

Joseph M. Moerschbaecher, Ph.D., Professor, Vice Chancellor for Academic Affairs and Dean, School of Graduate Studies

The American University, 1976

Effects of drugs on learning and memory

Imran Mungrue, Ph.D., Assistant Professor

University of Toronto, 2003

Translational biology: defining roles for the novel ER-stress inducible gene, CHAC1, in Cardiovascular biology and disease.

Donna M. Neumann, PhD., Associate Professor

University of New Orleans, 2004

Animal models of herpes simplex virus latency and reactivation and epigenetic regulation of herpesviruses

Charles D. Nichols, Ph.D., Professor
Carnegie Mellon University, 1997
Serotonin and GPCR pharmacology in the CNS and inflammation in rodent and fly models.

Dennis Paul, Ph.D., Professor
University of British Columbia, 1988
Osmotic lysis of cancer; pain and analgesia; and drug-drug interactions.

James R. Reed, Ph.D., Research Assistant Professor
University of Nevada, Reno, 1995
Drug metabolism by cytochromes P450 reductase

Martin Ronis, Ph.D., Professor
University of Reading, England, 1985
Pharmacological aspects of diet and nutrition

Emel Songu-Mize, Ph.D., Professor Emeritus
University of Pennsylvania, 1979
Factors related to development of high blood pressure

Kurt J. Varner, Ph.D., Professor and Head
Michigan State University, 1987
CNS control of the autonomic and cardiovascular systems

Peter J. Winsauer, Ph.D., Professor
The American University, 1989
Behavioral pharmacology of opioids, benzodiazepines and serotonin

Huijing Xia, Ph.D., Assistant Professor-Research
China Pharmaceutical University, 2006.
The role of brain Angiotensin Converting Enzyme 2 in metabolic syndrome.

IV. General Graduate School Policies

A. Admissions

Applications for Fall admission to the graduate program in Pharmacology are reviewed annually. Applications should be submitted to the School of Graduate Studies; detailed application requirements, due dates and procedures can be found at http://graduatestudies.lsuhscc.edu/admissions_and_application.aspx. Under extraordinary circumstances applicants are considered for admission at other times of the academic year. Limited financial assistance is available on a competitive basis to accepted students.

The requirements for admission to the graduate program in Pharmacology include: 1) a baccalaureate degree from an approved college or university; 2) a grade point average of 3.0 or higher for undergraduate work, or in the case of advanced students, a grade point average of 3.5 or higher for graduate work (in both cases on a 4.0 scale); 3) a minimum of 1000 combined verbal and quantitative scores on GRE tests taken before August 2011, or a minimum combined verbal and quantitative score of 300 on GRE tests taken in or after August 2011; 4) at least two letters of recommendation; 5) a statement of career goals; 6) for international applicants whose native language is not English, a minimum of 100 on the TOEFL; and 7) fulfillment of all State and Federal health requirements, including immunizations, as defined by the LSU Health Sciences Center School of Graduate Studies. In addition to these requirements, it is recommended that the applicant have completed courses in biology, organic chemistry, cell biology and calculus; research experience is highly advantageous. The faculty may choose to waive certain minimal requirements provided the application for admission demonstrates exceptional strength in all other aspects.

There are three types of admission to the School of Graduate Studies. A student meeting all of the requirements is normally granted **unconditional admission**. Applicants who fail to meet some of these qualifications, but who are judged by the Department and the Dean of School of Graduate Studies to show promise for successful graduate work may be considered for **probationary admission**. Students accepted on a probationary basis must have a 3.0 grade point average at the end of the second semester of graduate study for continuation of graduate work; if a student fails to meet this grade point average requirement they will be dropped from the rolls of the School of Graduate Studies. Applicants who appear to be admissible and who are not able to supply the required credentials prior to the stated deadline may be accepted with **provisional admission**; in such cases, completed credentials must be received not later than 60 days after the first day of classes (45 days in the summer term). Upon receipt of all required application materials the admission status will be changed to that of **unconditional** or **probationary admission**.

B. Registration

Registration in the School of Graduate Studies is coordinated by the Dean's Office; Leigh Smith-Vaniz, in the Dean's Office (8th floor of Resource Center), can be contacted regarding all matters of registration (568-2211). All registration fees must be paid at the time of registration. Registration for the fall semester is usually scheduled for the second or third week in August. Because many courses start before this time, students should plan to be in New Orleans during the first week of August. An orientation for new graduate students in the Department of Pharmacology and Experimental Therapeutics is held during the first or second week of August. Full-time status requires registration for at least nine credit hours in the fall and spring semesters and at least six credit hours in the summer semester. Once students have completed all course and credit hour requirements and are expected to graduate within 3 semesters they can register "for examination only." All students, including those supported by stipends or assistantships, must pay fees described at <http://www.lsuhscc.edu/no/tuition/graduate.php>.

C. Grading

The School of Graduate Studies uses a 4.0 grading scale: A = 4, B = 3, C = 2, D = 1 and F = 0. To receive a graduate degree, a student must have at least a 3.0 average for all work taken as a graduate student and a grade of no less than B in all letter-graded, required courses offered by the Department of Pharmacology; these are PHARM 205/INTER 142 (Principles of Pharmacology I) and PHARM 207 (Medicinal Pharmacology). Credits received in seminars, thesis or dissertation research, are given a grade of S (satisfactory) or U (unsatisfactory) and are not used in computing the grade point average.

If the cumulative grade point average of a student falls below a 3.0 for three consecutive semesters, that individual will be dropped from the rolls of the School of Graduate Studies. Students in serious scholastic difficulties can be dropped from the rolls at the end of any semester if the faculty and the Dean feel that the student is not qualified to continue.

Work which is of passing grade, but because of circumstances beyond the student's control, is not complete, may be graded I (incomplete). An I grade is given only upon receipt by the instructor of an adequate justification. If adequate justification is not received, the grade of I will be converted to an F unless it is removed prior to the deadline for adding courses for the next semester. In extraordinary cases, the Dean can authorize that the I grade become permanent or authorize an extension of time for removal of the grade.

Students can register for a maximum of two elective courses outside of their major on an S-U basis. The passing grade of S is counted in the credit hours towards the degree, but not in computing the grade point average. Intent to register for a course on this basis must be declared at registration by entering S-U after the course number on the registration card.

V. Courses:

PHARM 202 (2 credits) **History of Pharmacology** - Two hours of faculty-student presentations and discussions on the history of pharmacology and experimental therapeutics, with an emphasis on classical experiments.

PHARM 203 (3 credits) **Methods in Pharmacology** - Instruction in classical methods used in investigating the action of drugs.

PHARM 204 (2 credits) **Current Concepts in Pharmacology** - Two hours of faculty-student presentations and discussions on recent advances in the field of pharmacology. All areas of pharmacology research will be included, with an emphasis on the implications of recent research findings.

PHARM 205/INTER 142 (2 credits) **Principles of Pharmacology I** - Basic concepts in pharmacology including in depth studies of pharmacokinetics and pharmacodynamic principles, drug metabolism, and drug-receptor interactions.

PHARM 207 (5 credits) **Medicinal Pharmacology** - Lectures, conferences, and discussion leading to a broad general understanding of the effects of drugs.

PHARM 211 (2 credits) **Renal Pharmacology** - Lecture, discussion, and laboratory experience covering diuretics and factors influencing renal blood flow and electrolyte excretion.

PHARM 221-224 (1-4 credits) **Advanced Topics in Pharmacology: Seminars in Principles of Pharmacology** - A course designed for advanced studies of special groups of drugs.

PHARM 225 (2 credits) **Sensory Pharmacology** - Lecture and discussion of drugs acting on the neural pathways involved in perception of sensory information. Drugs used in therapeutics, diagnoses and research will be included. A paper written on a subject involving a sensory system and a drug or drug class is required.

PHARM 231 (3 credits) **Drug Abuse** - This course is designed to provide the student with a basic understanding of behavioral and pharmacological principles underlying various problems of drug abuse. The course will expose the student to both basic science and clinical issues as they relate to drug abuse and dependence.

PHARM 232 (2 credits) **Autonomic Pharmacology** - Lecture, discussion and laboratory exercises designed to provide the student with the basics of peripheral autonomic functions and their regulation by CNS mechanisms. The course will also cover the role of receptor sub-types and release of co-transmitters in control of autonomic function.

PHARM 233 (2-3 credits) **Neuropharmacology** - A study of the chemical transmitters in the central nervous system with special emphasis on drug-modifications of transmitter action and neuronal function.

PHARM 234 (1-3 credits) **Psychopharmacology** - Lecture and laboratory designed to provide an understanding of the effects of drugs on behavior. Special emphasis will be given to pharmacological methods useful in the elucidation of normal and pathological behavior.

PHARM 236 (2 credits) **Gastrointestinal Pharmacology** - Lecture and reading assignments designed to provide students with a basic understanding of drugs affecting selected aspects of gastrointestinal function through central nervous system and peripheral mechanisms.

PHARM 237 (1-3 credits) **Biochemical Pharmacology** - Lecture and discussion designed to provide the student with the basics of drug metabolism and the use of biochemical techniques in pharmacology.

PHARM 238 (2 credits) **Cardiovascular Pharmacology** - Lecture and discussion to study drugs used to treat cardiovascular disorders with primary emphasis on basic mechanisms of action.

PHARM 240 (1-3 credits) **Behavioral Pharmacology** - Basic principles of the experimental analysis of behavior, including operant and classical conditioning are discussed. The utility of using scheduled-controlled behavior to investigate drug effects is the primary focus of the course. Behavioral mechanisms of drug action are discussed within the context of a variety of environmental situations.

PHARM 251/2; 253/4 **Research in Pharmacology** - An in-depth experience in research development, design, methodology and implementation. Students will undertake specific projects of limited scope and develop their findings under the guidance and direction of faculty preceptors. Number of credits to be declared at registration.

PHARM 280 (3 credits) **Advanced Topics in Cell Signaling and Integrated Pharmacological Sciences** - The objective of this course is to provide a forum for discussing timely topics in the field of cell signaling in the context of integrated experimental approaches that include model organisms, human disease and molecular therapeutics

TBD **Principles of Pharmacology II: Integrative and Systems Pharmacology** - The objective of this course is to utilize an experimental approach to understanding the development of therapeutic agents for the treatment of diseases. Lectures will provide the pathophysiological basis of diseases and the rationale for developing specific therapeutic agents.

PHARM 298 & 299 (1 credit) **Seminar**

PHARM 300 (1-6 credits) **Thesis Research**

PHARM 400 (1-9 credits) **Dissertation Research**

VI. Graduate Study

A. Required Courses

The requirements for graduation are outlined in the Graduate School Catalog thus:

“Specific course requirements are dependent upon individual Program policy. However, in general, a minimum of 60 credit hours is required and at least 30 of those hours must be taken in courses, which require a letter grade for evaluation. The minimum courses required by each Program are listed in the Course Descriptions in the Catalog/Bulletin. Some of the credit must be earned in one or more minor fields and, ordinarily, it is expected that a student should have at least twelve hours outside of the major field. At least 15 hours must be in courses outside of the medical or dental curriculum. No more than fifteen credits may be counted for research and dissertation and no more than four credits for seminar, even though both may be carried throughout the program. Programs may have additional requirements for students to participate in teaching in the graduate, medical, dental, nursing, allied health, and undergraduate courses. INTER 220 and INTER 260 are required courses for all students.”

The Pharmacology Ph.D. program is a flexible program which encourages students and mentors to select a particular course of studies that best fits individual interests and needs. However, the Department requires that **all Ph.D.-only students** take the following courses:

PHARM 207	Medicinal Pharmacology
INTER 111	Biochemistry
INTER 131	Biological Systems A
INTER 132	Biological Systems B
*PHARM 222	Introduction to Faculty Research
*PHARM 251/252	Lab Rotations
*students entering from the Interdisciplinary Program are exempt from these courses	

All M.D./Ph.D. students must take the following courses:

PHARM 207	Medicinal Pharmacology
BIOCH 100	Medical Biochemistry
PHYS 100	Medical Physiology

Credits for Medical School courses should be transferred to the Graduate School upon joining the Department of Pharmacology. Up to 26 credit hours can be transferred (see http://graduatestudies.lsuhscc.edu/docs/Quick_Facts_MD_PhD_Students.pdf). See the Graduate Coordinator for more information.

All students regardless of track must take the following courses:

PHARM 205/INTER 142	Principles of Pharmacology I
Course number TBD	Principles of Pharmacology II
PHARM 298/299	Seminar
PHARM 300/400	Thesis and Dissertation Research
INTER 220	Ethics in Biomedical Sciences
INTER 260	Responsible Conduct of Research
BIOS 6100 or 6221	Introduction to Biostatistics

Students may take elective courses tailored to individual needs, including but not limited to:

INTER 121	Cell and Molecular Biology A
INTER 122	Cell and Molecular Biology B

B. Recommended Schedule for the Ph.D. program:

FIRST YEAR

PHARM 298/299	Seminar	2 credits
INTER 111	Biochemistry	4 credits
PHARM 205/INTER 142	Principles of Pharmacology I	2 credits
PHARM 251/252	Lab Rotations	2 credits
PHARM 222	Intro to Faculty Research	1 credit
INTER 121	Cell and Molecular Biology A	2 credits
INTER 122	Cell and Molecular Biology B	3 credits
INTER 131	Biological Systems A	2 credits
INTER 132	Biological Systems B	5 credits
INTER 220	Ethics in Biomedical Sciences	1 credit
PHARM 253	Optional Lab Rotation	1 credit
or		
PHARM 300	Thesis Research	1-6 credits

SECOND YEAR

#TBD	Principles II	TBD
PHARM 195	General	5 credits
*PHARM 300	Thesis Research	1-9 credits
PHARM 298/299	Seminar	2 credits
BIOS 6100 or 6221	Biostatistics	4 credits
INTER 260	Responsible Conduct of Research	1 credit
Electives		

PRELIMINARY EXAMINATION PART I (Written Examination)

PRELIMINARY EXAMINATION, PART II (Oral Presentation)

Principles II may be offered every other year, to be taken in a student's second or third years

*PHARM 400 (Dissertation Research) replaces PHARM 300 after parts I and II of the preliminary examination are successfully completed.

Note that course timing and credits are subject to change; please pay attention to information provided by the Graduate Coordinator and the School of Graduate Studies.

THIRD AND SUBSEQUENT YEARS

To be considered full-time, students must register at least for 9 credits during Fall and Spring semesters, and 6 credits for summer semesters.

Normally all required courses are completed during the first two years. Students are required to register for Dissertation Research (PHARM 400) and Seminar (PHARM 298 or 299); however, students have the option of taking other elective courses during the third and fourth years of study, and Principles II may be taken after the Preliminary examination if necessary. Typically letter grades are issued for PHARM 207, PHARM 205/INTER 142, INTER 111, INTER 121, INTER 122, INTER 131, INTER 132, BIOS 6100, BIOS 6221 and most electives. **Please note: while the mentor and graduate coordinator are available for guidance, the student alone is responsible for insuring that all requirements for graduation are met. It is highly recommended that each student maintain a checklist of the coursework/credits required and those successfully completed to prevent unnecessary delays in graduation.**

C. Laboratory Rotations

The training program in pharmacology is intended to provide an optimal research experience that is sufficiently flexible to meet the needs of a variety of students. In order to increase awareness of the many research opportunities available in pharmacology, Ph.D. track students are required to participate in laboratory rotations in their first two semesters of study. Thus, students register for PHARM 251 (Research) during their first semester laboratory rotation and for PHARM 252 (Research) during their second semester laboratory rotation. Students rotate through a minimum of two laboratories with each rotation being one semester in length. A third rotation is optional, in which case, students register for PHARM 253 during their third semester. In addition, PHARM 222 Introduction to Faculty Research, is offered in the fall semester to complement the lab rotations.

The emphasis during the research rotations should be on: 1) active participation in laboratory work; 2) spending sufficient time in each laboratory to obtain a working knowledge of the field; and 3) production of sufficient experimental results that a valid evaluation can be made regarding the student's potential for a career in research. Note, this does not mean that positive results need to be obtained; a high quality effort is what is required.

Students who enter the graduate program either with an MS degree from another institution or with other professional experience and who are certain of their area of research interest may request a waiver of the rotation requirements. The request should be directed to the Graduate Coordinator who will present the request to the Graduate Training Committee.

D. Selection of a Mentor

Prior to the time a graduate student enters into a thesis research arrangement with a faculty member, the Graduate Coordinator along with the Faculty member in whose laboratory the student is conducting research (i.e., laboratory rotation) will act as advisors. These advisors will be available to assist the student in selecting courses and in preparing seminars.

The knowledge obtained during the laboratory rotations will enable the graduate student to choose a mentor and an area of research interest. The choice of mentor is usually made by the end of the second semester, but can be delayed until the third semester if the student needs more information or experience in order to choose a laboratory for their dissertation research. It is important to note that graduate students will not be assigned a mentor. The choice of mentor will be contingent on the mutual consent of the student and faculty member. A subsequent change of mentor is possible only after approval of the Department Head.

The general duties of the mentor are:

- To direct and evaluate research activities;
- To advise and guide the academic curriculum;
- To assist in preparing seminars; and
- To serve as Chair of the preliminary examination and Ph.D. dissertation examination committees.

E. Graduate Training Committee

The Graduate Training Committee (GTC) is composed of faculty who meet as needed with the aim of maintaining and improving the quality of the Pharmacology Graduate Training Program.

The committee meets to discuss the pharmacology graduate training program with the following purposes:

- to recruit qualified graduate students,
- to maintain the quality of the graduate curriculum as well as to develop and implement new ideas,
- to advise and consult with the Department Head regarding the graduate training program,
- to report regularly to the faculty on the progress of the committee,
- to construct and design the preliminary examination with input from the Faculty.

F. Progress Evaluation

The evaluation of students is a continual process. During the first two years evaluation is predominantly via course grades, participation (attendance and presentation) in Seminars and laboratory rotations. Faculty hosting rotation students assess a student's aptitude for research and laboratory work. To instill the importance of professional conduct each student entering the Department of Pharmacology will meet with a First Year Advisory Committee to outline the Department's and student's expectations and responsibilities. Subsequent meetings between the Advisory Committee and the student will take place after each laboratory rotation. These meetings will discuss progress and problems in each rotation; the choice of a mentor for thesis/dissertation research; and any other issues arising. The First Year Advisory Committee will be appointed by the Graduate Training Committee and shall consist of three members, including, wherever possible, a Junior Faculty member, at least one female Faculty member, and at least one senior Faculty member.

After choosing a laboratory in which to pursue thesis research, each student will, with guidance from their mentor, form an individualized Pre-Examination Committee. The Pre-Examination Committee will consist of the mentor and three additional Department of Pharmacology Faculty, and will meet with the student approximately six months after the student has joined the mentor's laboratory and at intervals thereafter until an Examination Committee is chosen. The Pre-Examination Committee will serve in the following capacities to enhance the education of the student:

- to assess the student's understanding of the research project; the student will provide the committee with a brief (one page or less) synopsis of the project for this purpose
- to evaluate the feasibility of the proposed research project and offer advice on technical matters as appropriate
- to monitor student progress
- to set performance goals and critically evaluate student performance as necessary
- to mediate between student and mentor as necessary
- to make recommendations to the Graduate Training Committee regarding student progress

After satisfactory completion of all required courses, students take a two part Preliminary examination consisting of written and oral parts (see G.). A passing grade on the written examination is required to proceed to the oral examination. Based on the student's performance in the qualifying examination recommendation is made concerning the student's candidacy for the Doctorate degree.

The Department of Pharmacology and the Dean of the School of Graduate Studies review the qualitative and quantitative academic progress of each student. A student will be placed on probation if their grade point average falls below 3.0; if they obtain less than a B grade in a required course; or if they fail a Preliminary Exam (see G.). The Graduate Training Committee will meet promptly to determine if a student on probation shall be *a)* permitted to remediate; *b)* transfer to the M.S. track; or *c)* be dismissed from the program. The Committee's decision will be made on the basis of the student's overall performance in academics, research, and professional conduct, and may take into account relevant extenuating circumstances. A decision to dismiss a student from the

program will be contingent upon a review of the case by the Dean of the School of Graduate Studies (see VII.N).

If the student's grade point average is below 3.0 for three consecutive semesters they will be dropped from the rolls of the School of Graduate Studies.

G. Examination

Satisfactory performance in the two part Preliminary examination is required for admission to candidacy for the Ph.D. degree. The objective of the written examination is to determine the student's breadth of knowledge in the area of pharmacology; conceptual ability and aptitude for integrating knowledge in various fields of study; and the ability to think critically. This examination is administered after the student has satisfactorily completed all required courses and selected an Examination Committee. The Examination Committee will typically consist of a minimum of five members including four Faculty members from the Department of Pharmacology plus a mandatory external member from another Department or Institution. Exceptions to this format will be considered on a case-by-case basis by the GTC. Since Medicinal Pharmacology (PHARM 207, Spring Semester, 2nd year) is the last required departmental course, the written examination is generally given 2-4 weeks after completion of this course (i.e. in late May or early June of the 2nd year). After successful completion of the written examination, students should schedule their oral presentation with the Examination Committee and this presentation will constitute the student's seminar for the second academic year.

NOTE: The **Request for Preliminary Examination** form can be obtained from the School of Graduate Studies website. This form must be completed and returned to the School of Graduate Studies at least two weeks prior to the examination.

1. Preliminary Examination, Part 1: Written

A written examination consists of twelve questions to be answered over two days. This is a broad-based examination covering all aspects of the student's training in pharmacology. Examination will include questions from the Pharmacology faculty and one question from the external member of the Examination Committee. The student and the mentor select the outside committee member.

The examination will be administered by the Graduate Coordinator and returned to the faculty for grading on a pass/fail (S-U) basis. The student must score 80% or greater to pass a question, and must pass 10 of 12 questions to proceed to the oral examination.

2. Preliminary Examination, Part 2: Oral

The purpose of this part is to formulate a feasible research plan and then formally defend it. The oral presentation is in the form of a seminar (approximately 45 minutes) and will be presented to the entire faculty, followed by a question and answer session with the Examination Committee and faculty. The topic of the oral presentation should be decided upon thorough discussion with the student's mentor. Together, they should agree upon a testable hypothesis. The student will also be responsible for developing a "specific aims" page (no more than two or three aims) along with a brief general background (no more than 5 pages) to be reviewed by the Examination Committee at least 2 weeks prior to the presentation. Under each specific aim, the student should propose specific experiments that are directed to testing the hypothesis. The student should also present an example of potential results and be prepared to discuss the interpretation of these data and any limitations of experimental approach. Although the oral exam will focus on the hypothesis and experimental approach with an emphasis on critical thinking and judgment, the exam is also open to all questions on material covered in courses during the first two years of the

program. The Examination Committee will determine whether the student's performance on this part of the examination was satisfactory or unsatisfactory. The student's mentor will chair this part of the examination and the student will be responsible for bringing a copy of the **Report of Preliminary Examination** form, available from the School of Graduate Studies website.

In the event that a student does not pass both parts of the Preliminary examination, the student's mentor and the GTC will consider whether: 1) the student can remain in the doctoral program and be re-examined at a future date; 2) the student is eligible for a Master's of Science degree; or 3) the student should be dismissed from the graduate program. If a failing grade is obtained upon re-examination, eligible students will be considered for a Master of Science degree or will be dismissed from the program.

Students who have passed both parts of the Preliminary examination are considered candidates for the Ph.D. and return to the laboratory to continue research that will lead to their dissertation under the guidance of their mentor and the Dissertation Committee.

H. Criteria for Admission to Candidacy

A student becomes a Candidate for the Doctorate Degree after satisfactory completion of all required courses; passing grades on both parts of the Preliminary examination; demonstration of research ability; participation in and presentation of departmental seminars; and the accumulation of at least 30 credit hours in which a letter grade was received.

I. Dissertation Committee Selection

The Examination Committee selected by the student for his/her Preliminary examination (see G. above) will serve as the Dissertation Committee, with the option of selecting an additional member. The Ph.D. Dissertation Committee will perform the following functions:

- advise the student regarding departmental requirements;
- read and evaluate the dissertation research proposal during regular committee meetings - the committee should meet at least once annually;
- attend the defense of the dissertation research; and
- be available for consultation and advice outside the regularly scheduled committee meetings.

Members of the Dissertation Committee will be available for consultation and advice at all times during a student's course of study and research. Students are encouraged to meet with their Dissertation Committee frequently.

J. Dissertation Proposal

A Ph.D. candidate must prepare and present a proposal (written and oral) of his/her dissertation research. This proposal should be in the format of a NIH pre-doctoral grant application. This proposal is expected to contain a description of completed studies and proposed dissertation work. The Department expects that the presentation of this proposal will be within one year after the successful completion of the preliminary examination. A copy of the written proposal must be submitted to all dissertation committee members at least 2 weeks prior to the oral presentation of the proposal. The written proposal can be accepted, accepted with minor revisions, or rejected. If

the proposal is unacceptable and major revision is warranted, the student must submit a revised proposal to the dissertation committee for approval.

The oral presentation that is in the form of a public seminar is followed by a public question and answer session and is followed by questions from the Dissertation Committee members. Oral presentation of the proposal will constitute the student's seminar for the third academic year. Subsequent to the oral presentation, the student should meet with the mentor and dissertation committee members to discuss and incorporate suggestions and changes.

K. Defense of Dissertation

The dissertation defense is the final examination prior to awarding the Ph.D. It is expected that each student will carefully go over the dissertation with their mentor **prior** to distribution of the dissertation to other committee members. Dissertations must be submitted to all dissertation committee members 2 weeks prior to the defense. Further, two copies are to be placed in the Pharmacology offices for review by the faculty: one copy will be sent to the Dental School Office and the other will remain at the Medical Education Building Office.

Students are expected to speak with all dissertation committee members about recommended changes of the dissertation **prior** to the defense to assure that the dissertation will be in **final form** at the time of the defense. The University requires that the dissertation be defended and delivered to the School of Graduate Studies at least one month prior to graduation.

The final dissertation defense should consist of a seminar, not to exceed one hour in length and covering the research performed during the student's tenure, followed by a question and answer period. The defense seminar is open to the public and is followed by questions from the Dissertation Committee. Upon completion of all questioning, the dissertation committee will vote with no more than one negative vote permitted. All graduate students are expected to attend the seminar part of the dissertation defense.

Students are required to provide one bound copy of their dissertation for the Department of Pharmacology Library.

NOTE: Students must petition the Dean for permission to take the final examination; a **Request for Dissertation/Thesis Defense and Final Examination** form must be obtained from the School of Graduate Studies website. This form must be completed and returned to the School of Graduate Studies at least two weeks prior to the Final Examination. The student should also have available the **Dissertation/Thesis Defense and Final Examination Report** form (available from the School of Graduate Studies website, <http://graduatestudies.lsuhscc.edu/>) for signing by the Dissertation Committee members at the defense.

VII. General Information

A. Attendance

It is expected that students will attend all classes and departmental seminars.

B. Dissertation Expenses

The student is responsible for all expenses related to preparation of the dissertation.

C. Extramural Support

In consultation with their mentor, all students are encouraged to apply for extramural support (e.g., NIH, American Heart Association, Department of Defense etc) within the first three years of study. Only students enrolled on an unconditional basis and in good academic standing will be allowed to apply for extramural grant support. Failure to obtain extramural support will **not** affect the student's academic standing in the Department.

D. Foreign Language Requirement

The Department of Pharmacology does not require a foreign language to fulfill degree requirements.

E. Good Laboratory Practice, Laboratory Safety and Compliance

All students must demonstrate good, proper and safe laboratory practices. Each student will follow standardized laboratory procedures as described by LSU Health Sciences Center, including radiation safety and proper use and care of laboratory animals. Online training in radiation, blood-borne pathogen, biological and chemical safety is available through the Office of Environmental Health and Safety website; students must complete any safety training required by LSUHSC or the PI. An important and often overlooked component of these safety regulations is appropriate dress in the laboratory. Specifically, LSUHSC and OSHA standard prohibit open-toed shoes, shorts and short skirts in the laboratory. Additional clothing requirements and safety equipment may be dictated by the standard operating procedures (SOP's) specific to each laboratory.

F. Student Government Association

The Student Government Association (SGA) of LSUHSC School of Graduate Studies is a liaison between students, faculty, and administration. Additionally, SGA helps to plan events on and off campus sponsored by LSUHSC including graduate research day, new student orientation, and Mardi Gras social events. Most importantly, the SGA is established so that students have a voice and can make a change in their school environment and the world that surrounds them.

G. Holidays

The normal LSUHSC holidays are Independence Day, Martin Luther King Day, Labor Day, Thanksgiving, Christmas, New Years, Mardi Gras, and Easter. The time between semesters is to be utilized as an active part of the research experience. Any student leaving the Department for any reason for an extended period must request approval in writing for such leave stating the reasons for the absence. Approval for such leave may be granted by the student's mentor or the Department Head. Discontinuance of stipend support may be incurred depending upon the length of leave.

H. Housing

Many housing options are available in the Greater New Orleans Metropolitan Area including an on-campus dormitory. Students can apply for admission to the dormitory by contacting the manager of the facility.

I. Libraries

The Health Sciences is supported by two libraries: the Medical Library which is located on the 3rd floor of the Resource Center (433 Bolivar) and the Dental Library which is located on the 3rd floor of the Administration Building at the School of Dentistry. A valid LSU Health Sciences Center ID is required for checking out library materials.

J. Masters Degree from Other Institutions

Students entering the Ph.D. program with a professional degree or a Masters degree from another university must satisfy the course requirements for Pharmacology. Students can request a waiver from the faculty for areas of study in which they have adequate prior training. Any request for waiver will be presented to the GTC by the Graduate Coordinator. With Departmental approval, up to 15 hours of credits can be transferred from an accredited institution. Special circumstances are handled by the Dean's office. Credits will not be transferred from courses in which a grade below B was received and any credit transfer does not alter the residency requirement.

K. Outside Employment

Graduate school is a full-time endeavor and students are discouraged from pursuing outside employment. Although the University does not prohibit outside employment by a graduate student, the student should be aware that Assistantship stipends are for services rendered and are not scholarships. The Department requires that students participate in teaching and research functions to fulfill service requirements.

It is recognized that a student's situation may be complicated by family responsibilities and other factors. In such cases it is recommended that the student seek the counsel of their mentor at the earliest opportunity.

L. Parking

There are dedicated student parking lots at LSU Health Sciences Center. There is ample parking at the Dental School campus and a free shuttle runs between the Medical Education Building and the Dental School. Transfer of parking privileges from one vehicle to another can be arranged by contacting the Parking Office.

M. Participation in Departmental Duties and Functions

Each graduate student is a member of the Department. Therefore, in consultation with their mentor, they are expected to participate in any functions and/or duties that may be required by the Department.

N. Procedure for Review of Academic Dismissal

The procedure for review of academic dismissal is as follows:

1. Upon notification of a departmental decision that the student's performance is unsatisfactory the Department Head will notify the student of the faculty's recommendation for dismissal.
2. If the student thinks the dismissal is not justified, the student shall forward a written request for review of the reasons and actions leading to dismissal to the Graduate Coordinator. This letter should outline the student's grievances in detail. In addition, the student should recommend a Review Committee that will consist of two graduate faculty members and a graduate student in good standing in the Department of Pharmacology. The Department Head will be an *ad hoc* member of the Review Committee.

3. The Review Committee shall elect a Chair and convene the Committee as soon as possible. Normally it is expected that the review process will be completed within two weeks of its formal initiation by the student.
4. The student requesting the review shall have the opportunity to discuss their grievances directly with the Committee and provide any supporting material relevant to the review.
5. The Review Committee shall then determine what additional information or consultation is necessary to complete their review.
6. Upon review of relevant information, the Review Committee shall communicate their findings and recommendations in writing to the student and the Graduate Coordinator. The Committee's report should include major considerations in the decision. The Department Head, in consultation with the faculty, will make a decision on the review. A decision to dismiss a student from the program will be contingent upon a review of the case by the Dean of the School of Graduate Studies
7. All written records of the foregoing procedure will be considered confidential communications, and may be released for general information only with the consent of both the student and the Department Head.

O. Safety

LSUHSC maintains a security force of police who are on duty 24 hours a day.

Emergency (Police or Fire):	568-8999
Non-Emergency:	568-8270
General Situations (Police)	
Dental School:	941-8100
Lions/LSU Clinic Bldg:	
Resource Center (HQ):	568-2156
Medical Education Bldg.:	
Residence Hall:	568-6190
New Orleans Police (General):	821-2222
New Orleans Fire Department:	581-3472

When in doubt, dial **911** to obtain emergency assistance.

P. Seminars

The Department of Pharmacology has a seminar series each year. The program includes presentations by visiting scientists as well as faculty, post doctoral fellows and graduate students from LSUHSC.

Graduate students are expected to attend all seminars and are required to present at least one seminar each year. The purpose is to aid proficiency in presentations of all types as well as communicating ideas to colleagues and students. The organization of the seminar is the responsibility of the student; however, faculty members are available for assistance and advice during the preparation of the seminar and for assessment afterwards.

Q. Stipends

The Department of Pharmacology may provide financial assistance to students in the form of a stipend that usually includes a waiver of tuition. These stipends are limited in number and are awarded to beginning students on a competitive basis prior to the start of the academic year. Students awarded stipends must

maintain a 3.0 average to guarantee support; if a student's grade point average falls below 3.0 financial support may be withdrawn. Extenuating circumstances (including illness, family issues beyond the student's control) may be grounds for continuation of stipend to a student with grade point average less than 3.0: this determination will be made by the Graduate Training Committee. Financial support may be reinstated when the student's grade point average is brought back to at least 3.0. Departmental stipends generally provide support for no longer than five years of full time study.

If the Graduate Training Committee determines that a student be moved to the M.S. track, the student may receive financial support for no more than one year after this determination has been made.

R. Student Health

Please refer to the student health website for important information regarding health care services, facilities and health insurance requirements/options:

<http://www.lsuhs.edu/orgs/studenthealth/>

S. Teaching

An important component of graduate training is to develop the ability to communicate through teaching. Therefore, all graduate students in the Department are strongly encouraged to participate in teaching during their graduate tenure. The Department teaches courses to Dental Hygiene, Nursing, Allied Health, Dental and Medical students. During the first year or two, students will assist in proctoring examinations. After satisfactory completion of PHARM 207, students will also have assigned lectures in courses taught by the Department. Students will be assigned no more than eight contact hours of lectures per year. Topics and number of lecture hours are assigned by the course directors in consultation with the Graduate Coordinator, student, mentor, and Department Head.

T. Travel

The Department believes that attendance at national scientific meetings is a beneficial part of graduate training. Depending upon the availability of funds, the Department will attempt to send all students beyond the first year to present data at one national meeting a year.

U. Visas

International students must provide a copy of their current immigration documents to the Graduate Coordinator for inclusion in the student's file. Any problems or questions regarding immigration or visas should be addressed to the International Services Office at InternationalServices@lsuhs.edu or 504-568-4802.

VIII. Forms

A. Check List

It is the responsibility of the student to maintain this form up to date and to meet all requirements on time. The student must also inform their mentor of the completion of each requirement.

Date Completed

1. _____ Rotate through two laboratories of departmental faculty.
2. _____ Select a mentor.
3. _____ Complete required courses.
4. _____ Select an examination committee.
5. _____ Arrange preliminary examination date, time and place. Obtain and process forms from the School of Graduate Studies.
6. _____ Pass preliminary examination.
7. _____ Select dissertation committee.
8. _____ Present dissertation proposal.
9. _____ Finish elective courses.
10. _____ Finish laboratory work and begin writing dissertation.
11. _____ Inform graduate school of intent to graduate during registration for final semester.
12. _____ Obtain mentor's approval for distribution of dissertation to members of Dissertation Committee.
13. _____ Distribute dissertation to committee members. Provide two copies for Pharmacology Office.
14. _____ Obtain and process forms from School of Graduate Studies concerning dissertation defense.
15. _____ Collect and discuss changes in dissertation proposed by dissertation committee members.
16. _____ Final defense of revised dissertation.
17. _____ Present completed forms and copies of final dissertation to School of Graduate Studies.

B. Request for Preliminary Examination

http://graduatestudies.lsuhsu.edu/docs/Request_Preliminary_Exam.pdf

C. Report of Preliminary Examination

<http://graduatestudies.lsuhsu.edu/docs/ReportPreliminaryExamination.pdf>

D. Request for Dissertation/Thesis Defense and Final Examination

http://graduatestudies.lsuhsu.edu/docs/Request_Dissertation_Thesis_Defense_&_Final_Exam.pdf

E. Dissertation/Thesis Defense Final Examination Report

http://graduatestudies.lsuhsu.edu/docs/Dissertation_Thesis_Defense_Final_Exam_Report.pdf