

**INTEGRATIVE PHYSIOLOGY AND PHARMACOLOGY
(IPP)**

GRADUATE PROGRAM

GRADUATE STUDENT HANDBOOK

(Revised December 2022)

A GUIDE FOR GRADUATE EDUCATION IN THE INTEGRATIVE PHYSIOLOGY AND PHARMACOLOGY (IPP) GRADUATE PROGRAM

**Department of Physiology and Pharmacology
College of Veterinary Medicine**

The purpose of this manual is to provide a ready source of information concerning graduate education procedures and policies of the Department of Physiology and Pharmacology and the Graduate School of the University of Georgia. The manual is furnished for the benefit and guidance of all graduate students in the department. It is the responsibility of each graduate student to study and be aware of the contents and to meet deadlines on time. By so doing, the graduate student can expect his/her stay within the department to be a pleasant and scholarly experience.

table of contents: [Checklist for Ph.D. Degree](#)

- [I. Purpose and Objectives of the Graduate Program](#)
- [II. Academic Responsibilities](#)
- [III. Assignment of Faculty Advisor and Major Professor](#)
- [IV. Role of the Major Professor](#)
 - A. Selection of the Advisory Committee
 - B. Program of Study
 - C. Progress Reports
 - D. Selection of Research Problem
- [V. Role of Advisory Committee](#)
 - A. Program of Study
 - B. Thesis or Dissertation Problem
 - C. Comprehensive Written and Oral Examinations
- [VI. Doctoral Comprehensive Examination](#)
- [VII. Dissertation Approval and Defense](#)
- [VIII. Department Seminar Program](#)
- [IX. Program of Study for the Doctor of Philosophy Degree](#)
- [X. Departmental Policy for Vacation Time \(Annual Leave\)](#)

Checklist for Ph.D. Degree

It is the responsibility of the student to keep this checklist up to date and meet all requirements on time.

Date completed

_____ 1. Make appropriate consultations prior to registration for the first semester's classes upon joining the IPP program. Consult with your Major Professor. If a Major Professor has not been obtained, see the departmental Graduate Coordinator to get initial course information.

_____ 2. Introduce yourself to professors in the department. This requirement may be automatically met as you arrange for a Major Professor. If your Major Professor was chosen before your arrival, you must still contact department professors to introduce yourself as a new graduate student in the department.

_____ 3. Select a Major Professor no later than the end of the 2nd semester of classes (3rd semester if rotations are extended).

_____ 4. In consultation with your Major Professor, choose an Advisory Committee and submit the "*Advisory Committee for Doctoral Candidates*" form to the Graduate Coordinator to be submitted to the Graduate School via GradStatus (gradstatus.uga.edu) by the end of the first semester of your second year in the program.

_____ 5. Have an annual meeting with the Advisory Committee and the annual evaluation form filled out by the Major Professor and signed by all committee members. Send the signed annual evaluation form to the Graduate Administrator in the department.

_____ 6. Develop a Preliminary Doctoral Program of Study with advice from your Major Professor and submit this form to the Graduate Coordinator by the end of the first semester of your second year in the program.

_____ 7. If approved, prepare the "*Final Doctoral Program of Study*" form, have it signed by your Major Professor and Advisory Committee, and submit it to the Graduate Coordinator for submitting to the Graduate School via GradStatus.

_____ 8. Complete didactic coursework by the third year in IPP program.

_____ 9. Obtain approval from your Major Professor to take the comprehensive examinations. The Advisory Committee is responsible for arranging the comprehensive examinations.

_____ 10. Request the Graduate Coordinator to notify the Graduate School of time and place of oral examination. This notification must be done at least two weeks prior to the examination, using the "*Announcement of Doctoral Oral Comprehensive Examination*" form.

_____ 11. Take the written and oral comprehensive examinations. The comprehensive examinations will cover all completed coursework and training within the student's field of study. Questions may deal with elementary and advanced topics. These examinations are

administered by the student's Advisory Committee. Other faculty members may also be present during the oral examination.

_____ 12. Ask the Graduate Administrator in the department to notify the Graduate School of results of written and oral comprehensive examinations on the appropriate form.

_____ 13. Apply to the Graduate School for admission to candidacy as soon as coursework from the program of study is completed, written and oral comprehensive exams have been passed and these results have been reported. It is recommended to obtain candidacy by the end of third year in the program.

_____ 14. Apply for graduation using the online form, observing the posted deadlines for the desired semester of graduation. You must be registered for a minimum of 3 credit hours the semester in which you complete all degree requirements.

_____ 15. Prepare your dissertation document according to the style and format guidelines posted by the Graduate School.

_____ 16. Submit a copy of your dissertation to your Major Professor at least four weeks before the date you plan to schedule the final defense of the dissertation. To avoid possible problems with deadlines, caused by revision of the dissertation, a good target date for submission of the dissertation to the Major Professor is the first day of classes of the semester you plan to graduate.

_____ 17. At least 3 weeks ahead of time, ask the Graduate Coordinator to schedule the final oral examination using the "*Announcement of Doctoral Oral Defense of Dissertation*" form. The final oral defense committee is composed of the Advisory Committee. The dissertation defense is open to the public and is counted as a departmental seminar.

_____ 18. Submit copies of the dissertation to the members of your Advisory Committee at least three weeks before defense of research.

_____ 19. Ask your Major Professor to initiate approval for doctoral dissertation and final oral defense. The Advisory Committee may (a) accept, (b) accept with changes, or (c) reject the dissertation.

_____ 20. Ask the Graduate Coordinator in the department to report the action of the Advisory Committee to the Graduate School.

_____ 21. Submit the final copy of the dissertation to the Graduate School for the first format check by the published deadline. All requirements must be completed no less than two weeks prior to graduation.

_____ 22. The dissertation is copyrighted, but make sure that a copyright does not result in a situation in which it is illegal for the line of research to continue in the major professor's laboratory.

_____ 23. Make sure all requirements for the degree have been met and that published deadlines concerning graduation commencement requirements have been observed.

_____ 24. It is recommended to graduate by the end of fifth year in the program.

I. Purpose and Objectives of the Integrative Physiology and Pharmacology (IPP) Graduate Program

The objective of this program is to provide students with the tools to conduct original research in aspects of physiology and/or pharmacology. Students are provided with an intensive experience in research laboratories, supplemented with academic instruction (course work, study of current literature, seminars, etc.). Each student's program is tailored to meet this objective and to attain a high level of competency in their field. Having completed the requirements for the advanced degree, each student should be prepared for a career in research, education, industry, or government, etc.

A primary objective of a graduate program is to train the student to perform effective and independent research. The essence of research is problem-solving and, therefore, the student must learn to precisely define the problem, design meaningful experiments to test a proposed hypothesis, conduct experiments and collect data in a careful and precise manner, analyze and evaluate collected data, and finally, draw logical conclusions from the research data. Research skills and problem-solving abilities will be acquired mainly in the laboratory by dedicated work and long hours of effort. The student should anticipate spending the usual 8 AM to 5 PM hours of the work week in the laboratory (when not attending classes or fulfilling departmental teaching assignments). Additional evening and weekend work in the laboratory, is also commonplace. This effort will be rewarded by the acquisition of skills that are unattainable from course work or library studies.

For developing a scholarly attitude, there is no substitute for spending long hours reading and scanning literature found in scientific journals. The disciplines of Physiology, and Pharmacology, - are based upon biological, biochemical and physical sciences. Therefore, advanced study in these areas requires a working knowledge of chemistry, mathematics, anatomy, and physics as well as biology. Training will be centered in the Department of Physiology and Pharmacology, but some courses will be taken in other departments as well.

In addition to the in-depth training offered by the research and course work experience, it is important to develop communication skills. The importance of being able to communicate cannot be overemphasized to ensure research findings are accurately reported to the scientific community, and a career in teaching is successful. Thus, attendance and participation in the Departmental seminar series are required for all graduate students.

II. Academic Responsibilities

For graduate students who do not hold assistantships, 3 credit hours is the minimum enrollment required by the Graduate School, whereas 18 credit hours is the maximum credit hour enrollment permitted without special permission from the Dean of the Graduate School. Graduate School policy requires that graduate students with at least 1/3-time assistantships enroll for at least 12 credit hours each semester (9 credit hours for summer semester). Clinical interns and residents and other part-time students may enroll for fewer credit hours. Graduate students must enroll for a minimum of 3 credit hours if they are using University of Georgia facilities.

Graduate students must maintain a cumulative grade point average (GPA) of 3.0 on all graduate courses to be considered in good academic standing. Students with a cumulative GPA below 3.0 the first time will receive an academic warning from the Graduate School. Students with a cumulative GPA below 3.0 for two consecutive semesters will be placed on academic probation by the Graduate School. They then must achieve a 3.0 or higher GPA

each succeeding semester that they are on probation. Students are no longer on probation when their cumulative GPA is 3.0 or above. If a student's semester GPA falls below 3.0 while on probation, they are automatically dismissed by the Graduate School. Each semester that a student remains on probation, their registration will be flagged until the student completes a probation advisory form/plan of action in consultation with their major professor. Often, the best way to raise a GPA is to repeat a course in which a low grade was received. When students repeat a graduate course, the most recent grade will be utilized to calculate the cumulative GPA that is used for probation and dismissal. Grades of "S", "U", "I", and "V" will not be used in calculating the cumulative GPA. When students are dismissed under the terms of this policy, they may not apply for admission to another graduate program offered by the University.

Students may be dismissed by the Department of Physiology and Pharmacology at the end of any semester if they have not made sufficient academic progress to warrant continuation of study, have not met their responsibilities, or have not maintained accepted standards of conduct. This would apply to: students on academic probation who receive a grade below a "C" in a required course, students who fail to pass the comprehensive examination or the final oral examination, students who fail to make acceptable progress in their thesis or dissertation project, students who fail to gain approval of their thesis or dissertation, or students who have ethical violations.

Ethical violations considered by the faculty to be sufficiently serious to warrant dismissal from the department include, but are not limited to the following:

1. Violation of ethical principles concerning treatment of animals.
2. Violation of ethical principles concerning teacher-student relationships.
3. Violation of the University of Georgia's Non-discrimination and Anti-harassment (NDAH) policy including workplace violence.
4. Falsification of data or records.
5. Academic dishonesty, including incorporating materials in papers, theses, dissertations, etc. without appropriate attribution. *Student code of conduct can be found at <https://conduct.uga.edu/>.*

Procedures for considering dismissal by the department are:

1. The Major Professor shall convene the Advisory Committee. After considering the student progress, the committee shall recommend: (a) retention; (b) dismissal; (c) detailed warning. The Graduate Coordinator, after due consideration, shall execute the recommendation with a copy of the recommendation to the Dean of the Graduate School.
2. After being duly notified by the Graduate Coordinator, the student shall have 10 days to contest the recommendation with the department head. The department head shall respond to the contestation with a ruling within 5 days of receipt.
3. Following the decision by the department head, if the department head upholds the Advisory Committee, further appeals should be directed to the Dean of the Graduate School. Dismissal from the department does not necessarily mean dismissal from the Graduate School.

No clear path to degree completion:

In rare circumstance, a student who cannot identify a Major Professor (excluding students on rotations) or who cannot form a committee will be placed on a status called "No clear path to degree completion." This status is distinct from "Not in good standing," which refers to academic status. The student will be given one semester after being placed on this status to identify a Major Professor or form a committee. The Graduate Coordinator will work closely with the student to try to rectify the problem. If the situation is not resolved during this semester, the student will be dismissed from the program.

III. Assignment of Faculty Advisor and Major Professor

Students enter the IPP graduate program mainly through two mechanisms: the Integrated Life Sciences (ILS) umbrella program and direct admit. The ILS students will go through 3 lab rotations in the first semester (Fall) prior to selecting a Major Professor and joining IPP. Direct admit students normally have selected a Major Professor prior to directly entering the IPP graduate program. In rare cases that a student has not selected a Major Professor at time of entry into the IPP program, the student will be in the status of "No clear path to degree completion", the Graduate Coordinator can act as the faculty advisor to direct and advise the student concerning the required course work, and the student has to identify a Major Professor with the first semester to avoid dismissal. Eventually the student, the major professor, and the Advisory Committee will prepare and approve a complete program of study.

To choose a major professor, each student is expected to make an appointment to interview selected faculty members. During interviews with faculty, the student should discuss such items as the faculty member's research interests, possible research problems, special course work requirements for the area of interest, opportunities for employment upon completion of degree requirements, and compatibility of the student in the lab, etc. Prior experiences in the selected professors' laboratories (e.g., via lab rotations) will be useful. In this manner, the choice of a major professor, if not already decided, can be based upon mutual interests. At this time, the faculty member can also indicate his/her need, desire, or qualifications to have a graduate student.

IV. Role of the Major Professor

A. Selection of the Advisory Committee

When a Major Professor has been identified and approved, the Major Professor and the student should select an Advisory Committee. It is helpful for students to work on a potential dissertation project for at least a short time before selecting faculty member to form the Advisory Committee that is a good fit for the scope of the proposed dissertation project. It is recommended that the Advisory Committee is selected by the end of the first year in the IPP graduate program.

The Advisory Committee for the Doctor of Philosophy (PhD) degree will consist of the Major Professor as chair and at least two other members of the Graduate Faculty. The Major Professor and at least two of the other members of the committee must be appointed members of the Graduate Faculty. At least one of the members of the committee must be a tenure-track member of the department. One member of the Advisory Committee can be a member from departments other than Physiology and Pharmacology (joint or courtesy appointees of the department qualify to meet this requirement). Additional persons may be

added (see Graduate School guidelines), keeping a majority of the committee composed of members from the Graduate Faculty.

B. Program of Study

A student must develop a *preliminary program of study* with advice from the Major Professor and submit it to the Graduate Coordinator by the end of the first semester of the second year in the IPP program. The Graduate Coordinator will check the preliminary program for proper completion and adherence to departmental and University regulations. As soon as the Advisory Committee has been formed, the Major Professor will call a meeting of this committee and the student for the purpose of reviewing the program of study. Courses used for a previous degree may not be used to satisfy credit requirements for a subsequent degree, but they may be used to satisfy departmental core course requirements as long as this action does not violate Graduate School policy on overall credit requirements for the subsequent degree.

Once the *program of study* has been approved by the Advisory Committee, it will be signed by the major professor, the Advisory Committee and the Graduate Coordinator, and submitted to the Graduate Dean.

C. Progress Reports

The student is required to report to the Major Professor at frequent intervals for the purpose of detailing progress in graduate work including course completion, grade and research progress. The student will meet annually with their Advisory Committee to assess progress in their program. Adequate progress will be documented by completion of the "*Graduate Committee Assessment*" Form.

D. Assist in Selection of Thesis or Dissertation Prospectus

It is expected that close communication between the Major Professor and the student will serve to guide the student toward planning a meaningful research proposal. A thorough review of the literature in the area of interest should be the basis for formulating the thesis or dissertation proposal.

V. Role of the Advisory Committee

A. Program of Study

The Advisory Committee will meet with the student to formulate a program of study tailored to the needs of the student, taking into consideration the student's research area of interest and future plans. Subsequent modifications to the program of study must also be approved by the Advisory Committee.

B. Thesis or Dissertation Prospectus

The student is required to prepare and submit a written preliminary research proposal (prospectus) to the Advisory Committee as soon as possible after the Advisory Committee has been formed. The Major Professor and Advisory Committee shall guide the student in planning the dissertation. The student will prepare a dissertation prospectus. When the Major Professor certifies that the dissertation prospectus is satisfactory, it must be finally

considered by the Advisory Committee in a meeting with the student. This formal consideration may not take the place of the comprehensive oral examination. A prospectus may be a part of qualifying exam.

Approval of the dissertation prospectus signifies that members of the Advisory Committee believe that it proposes a satisfactory research study. Approval of the prospectus requires the agreement of the majority of members of the Advisory Committee which, together with the approved prospectus, is filed with the Graduate Coordinator.

The preliminary research proposal should contain the following:

1. Introduction—State the overall problem.
2. Literature Review—Review previous work and describe the current research status of the intended problem. A thorough search of the literature is an important activity of a graduate degree problem.
3. Hypothesis.
4. Rationale—This should consist of a brief statement regarding the reasons for doing the proposed research.
5. Specific Aims of project.
6. Materials and Methods—Describe the experiments to be conducted, including experimental designs, assay procedures, animal use if applicable, data collection, and statistical analyses.
 - 6a. It may be instructive to include an estimated budget. This could include the costs of purchase and care of experimental animals, chemicals, drugs, supplies, services, travel expenses, and any additional equipment needed for the study.
7. Discussion—Discuss the potential significance of the proposed research. Point out any novel ideas or concepts of the study. Include potential outcomes, anticipated problems, and alternative approaches to the problems.
8. Bibliography.

C. Comprehensive Written and Oral Examinations

The Advisory Committee, in addition to advising and approving the student's program of study and research proposal (prospectus), also is charged with arranging the comprehensive written and oral examinations, approving the completed thesis or dissertation, and approving the student's defense of his/her research.

VI. Doctoral Comprehensive Examination

To become a candidate for the Ph.D. degree, the student must first pass both a written and an oral comprehensive examination (qualifying exam). The comprehensive examinations are designed to ensure that the student has gained a thorough knowledge of his/her chosen major field.

The examinations are administered by the student's Advisory Committee. The Advisory Committee will decide the time and place for each written examination and for oral examination.

The comprehensive examinations should be administered when the student completes most or all course work requirements. When the written comprehensive examinations have been

passed, the student will schedule the comprehensive oral examination, the Graduate Coordinator will notify the Graduate School of the date, time, and place for the comprehensive oral examination. The Graduate School must be notified at least two weeks prior to the oral examination.

VII. Dissertation Approval and Defense

When the Major Professor is satisfied with the completed dissertation, the professor will certify that it is ready to be read. The student will then distribute copies of the dissertation to the remaining members of the Advisory Committee at least two weeks before the oral defense. The student must schedule a final oral defense and inform the Graduate Coordinator to submit a notification to the Graduate School at least two weeks before the scheduled oral defense. Subsequently, the Graduate School will announce the time and place of the defense of the dissertation to the University community.

Written assent of a majority of committee members (other than the major professor) will be required before a dissertation will be approved as ready for a final defense. If the Advisory Committee declines to approve the dissertation as ready for the final defense, the Major Professor will notify the student and the Graduate School.

The defense of the dissertation will be chaired by the student's Major Professor. In addition to the Major Professor, a majority of the remaining Advisory Committee must approve the student's dissertation and defense and must certify their approval in writing. The results of the defense of the dissertation must be reported to the Graduate School by Graduate School deadline prior to graduation. The dissertation must be submitted to the Graduate School for final approval no later than the last day of classes of the semester. If this deadline is missed, the dissertation must be defended again and reapproved by the Advisory Committee.

VIII. Department Seminar Program

Department seminars are considered an important part of the training of all graduate students. It is an important venue for a student to learn critical scientific literature review, communications in scientific language, and effective scientific presentation skills. Furthermore, the seminar permits a significant broadening of the knowledge of all in attendance by bringing together the newest information on the particular subject of the day. For these reasons, ALL GRADUATE STUDENTS ARE REQUIRED TO ATTEND ALL SEMINARS (VPHY 8900).

IPP PhD students are required to present at least three 40 to 50-minute seminars (VPHY 8901) related to their dissertation research in the department. Credit is given in the semester in which the student presents the seminar. It is suggested that one seminar should incorporate the research proposal accepted by the Advisory Committee. The last seminar will be the final dissertation defense.

IX. Program of Study for the Doctor of Philosophy Degree in Integrative Physiology and Pharmacology (IPP)

The program of study shall be compiled by the Advisory Committee and the student. The Graduate School requires a total of 16 credit hours of 8000- or 9000- level courses (including VPHY 8901 but excluding VPHY 9000 research and VPHY 9300 dissertation writing

credit hours). Also, a minimum of 3 credit hours of dissertation research (VPHY 9300), a total of at least 30 credit hours of course work including VPHY 9000, or VPHY 9300, and at least 2 consecutive semesters of full-time work in resident study on campus is required. If not already taken as part of the course requirements for the M.S. degree at the University of Georgia, the following courses must be included in the Program of Study for the Ph.D. in IPP*.

**Substitution of other courses is allowed if approved by the Advisory Committee, Department, and Graduate School.*

A. Departmental Requirements

VPHY 8210. Integrative Systems Physiology I (Fall, 3 credit hours)

VPHY 8250. Integrative Systems Physiology II (Spring, 3 credit hours)

STAT (4-6 credit hours) with the options below:

STAT 6210. Statistical Methods I (3 credit hours) and STAT 6220. Statistical Methods II (3 credit hours)

STAT 6315: Statistical Methods for Researchers (4 credit hours)

BIOS 7010/7010E. Introductory Biostatistics I (3 credit hours) and BIOS 7020.

Introductory Biostatistics II (3 credit hours)

BIOS 8010. Regression and Analysis of Variance (3 credit hours) and BIOS 8020.

Linear and Generalized Linear Models (3 credit hours) (or equivalent)

VPHY 8900. Physiology and Pharmacology Seminar (1 credit hour, required for all registered IPP students)

VPHY 8901. Physiology and Pharmacology Seminar Presentation (1 credit hour/presentation, 3 credit hours total required)

VPHY 9000. Research

VPHY 9300. Dissertation Writing

B. Electives:

ADSC 8400. Advanced Animal Reproduction (3 credit hours)

BCMB (4 credit hours) with options below:

BCMB(CBIO)(GENE) 8112. 4 credit hours. Advanced Genetics, Cell Biology, Biochemistry and Molecular Biology I (Spring semester)

BCMB(CBIO)(GENE) 8212. 4 credit hours. Advanced Genetics, Cell Biology, Biochemistry and Molecular Biology II (Fall semester)

BCMB(CBIO)(GENE) 8213. 2 credit hours. Advanced Genetics, Cell Biology, Biochemistry, and Molecular Biology III (Fall semester)

BCMB(CBIO)(GENE) 8214. 2 credit hours. Advanced Genetics, Cell Biology, Biochemistry, and Molecular Biology IV (Fall semester)

BIOL (CBIO) (VPAT) 7040: Electron Microscopy (3 credit hours)

CBIO 8050-8050L: Techniques in Modern Microscopy (4 credit hours)

CBIO(IDIS) 8100. Advance Immunology (4 credit hours)

CBIO 8920L: Cellular Biology Research Techniques (1-2 credit hours)

GENE 8920. Nucleic Acids (3 credit hours)

KINS 8410. Neuromuscular Mechanisms in Exercise (3 credit hours)

PHRM 7210. Special Topics in Pharmacy: Neurophysiology/Neuropharmacology of the Synapse (1-5 credit hours. 2-10 hours lab per week)

PHRM 8420. Cardiovascular Pharmacology (3 credit hours)

PSYC 8330: Laboratory Apprenticeship in Biopsychology (3 credit hours)

VPHY 7690. Skeletal Muscle and Mitochondrial Physiology
VPHY 8000. Cardiovascular Physiology (2 credit hours)
VPHY 8001. Current Topics in Reproductive Endocrinology and Reproductive Biology (3 credit hours)
VPHY 8010. Mammalian Cell Physiology (3 credit hours)
VPHY 8020. Neuroanatomy (3 credit hours)
VPHY 8120. Renal and Fluid-Electrolyte Physiology (2 credit hours)
VPHY 8330. Laboratory Apprenticeship in Physiology and Pharmacology (3 credit hours)
VPHY 8400. Neurophysiology (3 credit hours)
VPHY 8450. Advanced Clinical Pharmacology (Chemotherapy) (2 credit hours)
VPHY 8600. Current Topics in Synaptic Physiology (3 credit hours)
VPHY 8940. Organ System Toxicology (4 credit hours)
VPHY 8960. Molecular Toxicology (3 credit hours)

X. Departmental Policy for Vacation Time (Annual Leave)

The department abides by the policy formulated by the Associate Dean for Research, College of Veterinary Medicine, for annual leave for Graduate Assistants. Graduate Assistants accrue leave at the rate of 6.67 hours per month, i.e., 10 days per year. Leave forms should be submitted to the departmental secretary with the signature of the Major Professor prior to taking leave. Leave may not be taken until accrued. Effective each January 1, any leave remaining from the preceding fiscal year ending June 30 will be deleted. Graduate Assistants may take University holidays if it does not interfere with program responsibilities.

Disclaimer statement: The above guide for graduate education in Integrative Physiology and Pharmacology PhD Program is subjected to modifications.