

# GRADUATE STUDIES IN PHYSIOLOGICAL SCIENCES

July 2022

College of Veterinary Medicine  
University of Florida  
Gainesville, FL 32610

These guidelines have been developed by the graduate faculty of the Department of Physiological Sciences, College of Veterinary Medicine and the Physiological Sciences Graduate Studies Committee. The purpose is to provide prospective graduate students and faculty with written statements of policy. The student should consult the graduate catalog and departmental website in addition to the information presented below.

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## **COLLEGE OF VETERINARY MEDICINE GRADUATE PROGRAM**

- I. The Department of Physiological Sciences accepts candidates for the Ph.D. degree only. Application for admission to the Graduate School must be made to the Director of Admissions as described in the Graduate Catalog. In addition to requirements stated in the catalog, the Department of Physiological Sciences and the College of Veterinary Medicine requires the following:
  - A. Grade Point Average (GPA): Admission is normally limited to students with an undergraduate GPA of 3.2 or above (overall) and 3.5 in the last two years. Particular attention will be paid to grades received in basic science courses.
  - B. Graduate Record Examination (GRE): A GRE total score of 308 or above for the combined verbal and quantitative parts will normally be required for admission (60th percentile in both the verbal & quantitative portions). Special attention will be given to results of the quantitative portion of the GRE examination.
  - C. Letters of Recommendation: Letters from at least 2 former teachers or persons with knowledge of the applicant's academic record and personal characteristics are required.
  - D. TOEFL Examination: Foreign applicants must present their scores on TOEFL (Test of English as a Foreign Language) and the Graduate Record Examination (GRE) before consideration for admission. A TOEFL score of at least 550 (paper) or 80 (internet) is required for admission. Students with a less than minimum score may be conditionally admitted if they enroll in a special English course for foreign students and meet other admission requirements. GRE scores of foreign applicants will be reviewed by the admissions committee.

### **II. Types of Admission**

- A. Direct: A student who meets the above requirements is classified by the College as a regular graduate student.
- B. Conditional: An applicant who fails to meet fully the above admission requirements, but is deemed to have potential as a graduate student may be admitted conditionally.
  1. A conditionally admitted student must attain regular graduate status by maintaining satisfactory academic progress.
  2. The program of a conditionally admitted student will be reviewed each semester by the Physiological Sciences Graduate Coordinator.

## **GRADUATE ASSISTANTSHIPS**

A limited number of College of Veterinary Medicine teaching assistantships and UF Graduate Alumni Fellowships are available and are awarded on the basis of academic and other qualifications. Conditionally admitted students are not eligible for an assistantship or fellowship until they attain regular

graduate status. Limits are placed on the amount of support - teaching assistantships are only given out for single or multiple semesters, and Alumni Fellowships are limited to 4 years of support. The CVM Graduate Studies Committee will recommend applicants for teaching assistantships and fellowships based on several criteria including: GRE score, GPA, scientific background and experience, strength of application and personal statement, letters of reference, and other academic metrics.

## APPOINTMENT OF SUPERVISORY COMMITTEES

Ph.D. candidates should form a supervisory committee of at least 4 members of the graduate faculty (preferably 5) by the end of the second semester of enrollment. The chairperson and at least one other member of the supervisory committee must have a primary appointment in the Department of Physiological Sciences (primary or affiliate appointment), and at least one other member of the supervisory committee must have a primary appointment in the Department of Physiological Sciences. Each supervisory committee for Ph.D. candidates must also have at least one external member from a department outside of the College of Veterinary Medicine. The student must send an **appointment of supervisory committee form** with appropriate signatures to the Dean of the Graduate School, via the CVM Office of Research and Graduate Studies.

## CURRICULA

Students with advanced standing may apply for course exemptions when minimum requirements have been met. For example, the typical professional veterinary medicine/medicine course background may satisfy core course requirements C and D (see below), but the student must petition for exemption through the Graduate Coordinator (Department of Physiological Sciences). Exemption from core course requirements will be based on the student's academic record in the courses under petition. A total of 90 course credits is required for the PhD.

- I. Prerequisite courses: The courses listed below are considered to be the minimal undergraduate academic background for Physiological Sciences graduate students. Deficiencies in prerequisite course-work must be removed before a student can be advanced to candidacy.
  - A. Mathematics: A minimum mathematics background is calculus through integral calculus.
  - B. Biochemistry: A minimum of 4 semester credits of general biochemistry is required.
  - C. A minimum of 6 semester credits of zoology or biology is required.
- II. Core courses: The following are the minimum course requirements for all Physiological Sciences graduate students. Should the student wish to substitute a course not listed below for one that is listed, the student's Major Professor must petition the Graduate Coordinator prior to registration. Any "equivalent" course may be used to satisfy requirements in only one of the categories below, and must be first approved by the Departmental Graduate Coordinator.

- A. Statistics Core: A minimum of 3 semester credit hours of graduate level statistics: STA 6166 (Statistical Methods in Research I, 3 credits), PHC 6052 (Biostatistical Methods, 3 credits), STA 6934 (Special Topics in Statistics, 3 credits), or equivalent.
- B. Biochemistry and Molecular Biology Core: A minimum of 3 semester credit hour of graduate coursework: BCH 5413 (Mammalian Molecular Biology and Genetics, 3 credits), BCH 5045 (Survey of Biochemistry), BCH 6206 (Advanced Metabolism, 3 credits), BCH 6740 (Physical Biochemistry/Structural Biology, 3 credits), GMS 6051 (Signal Transduction, 1 credit), GMS 6052 (Ion Channels, 1 credit), or equivalent.
- C. Physiology Core: A minimum of 4 semester credit hours of graduate level physiology: VME 5244 (Physiology of Mammals, 4 credits), GMS 6400C (Principles of Physiology, 6 credits), GMS 6072 (Neuroendocrinology/Neuroimmunology, 1 credit), GMS 6023 (Molecular Neuropharmacology, 2 credits each), VME 6650 (Mammalian Pharmacology, 4 credits), PCB 6377C (Physiological Ecology of Vertebrates, 4 credits), VME 6934 (Respiratory Physiology or Cardiovascular Physiology, 2 credits each).
- D. Anatomy Core: A minimum of 3 semester credit hours of vertebrate anatomy. Supervised teaching of anatomy in the veterinary curriculum can satisfy this requirement: VEM 5101 (Gross Anatomy, 3 credits), VEM 5112M (Large Animal Gross Anatomy, 3 credits). Also, these courses qualify for some or all of the anatomy requirement: GMS 5605 and 5606L (Medical Anatomy and Anatomy Lab, 5 credits), GMS 6635 (Organization of Cells and Tissues, 3 credits), GMS 6705 (Functional Human Neuroanatomy, 4 credits), GMS 6073 (Developmental Neurobiology, 1 credit), or equivalent courses.
- E. All students are required to register for VME 6767, Issues in the Responsible Conduct of Research (1 credit), for one semester during their enrollment.
- F. All students are required to register for VME 6932, Seminars in Physiological Sciences (1 credit), two semesters per year throughout the entire duration of the student's graduate enrollment.
- G. A minimum of a B grade in each core course (A-F) is required for fulfilling the core course requirements. Failure to achieve this performance will result in remediation, repeating the course, or dismissal from the program, as determined by the Graduate Coordinator in conjunction with the Supervisory Committee.

#### INTERDISCIPLINARY TOXICOLOGY CONCENTRATION

Students seeking a concentration in Interdisciplinary Toxicology have a somewhat different set of core course requirements. \* In general, the core course requirements are similar to the list above except that the vertebrate anatomy requirement is waived. However, the student is required to take the following toxicology courses:

- A. General Toxicology, VME 6602 (3 credits)

- B. Advanced Toxicology, VME 6603 (3 credits)
- C. Drug Biotransformation and Molecular Mechanisms of Toxicity, PHA 6425 (3 credits)
- D. One of the following elective toxicology courses: VME 6934 (Ecotoxicology and Risk Assessment, 3 credits), VME 6607 (Human Health Risk Assessment, 4 credits), VME 6605 (Toxic Substances, 3 credits), GMS 7593 (Functional Genomic Applications in Pharmacology and Toxicology, 2 credits), or other course as approved by the Interdisciplinary Toxicology Concentration Committee.

\* Formal designation as an Interdisciplinary Toxicology student requires approval by the Interdisciplinary Toxicology Concentration Committee, which has multi-departmental representation and is coordinated through the Center for Environmental & Human Toxicology.

### III. Coursework Beyond the Core:

- A. The supervisory committee has the responsibility for recommending individual courses of study for each student.
- B. The student must present a **proposed program of study form** to the Physiological Sciences Graduate Coordinator for approval and review by the graduate studies committee shortly after appointment of the supervisory committee.

### EVIDENCE OF SATISFACTORY PROGRESS

A minimum average grade of 3.0 (B) must be maintained for all courses, excluding problems, research, and seminars.

### TEACHING

- A. All students in the Physiological Sciences graduate program are required to have teaching experience during their graduate enrollment.
- B. The student must submit a plan for fulfillment of their teaching requirement at the time that the proposed program of study is presented. Approval by both the student's Supervisory Committee and the Department Graduate Coordinator are required.
- C. The teaching requirement is defined as a minimum of one semester teaching that is equivalent to a 1/3 time teaching assistantship for a 3 semester credit hour course. This requirement may be fulfilled over the duration of the graduate student's enrollment. **While not required, a student may register for VME 6940 - Supervised Teaching (2 credit minimum) while fulfilling this requirement.**

## GUIDELINES FOR SUPERVISORY COMMITTEES

- A. The supervisory committee should meet at least once a year and preferably twice a year to monitor the student's progress. A copy of the minutes for each committee meeting, signed by the chairperson and student, must be sent to the Graduate Coordinator.
- B. The qualifying exam must have written and oral portions for the Ph.D. candidate and is generally taken during or just after the second year of graduate study.
- C. The qualifying exam will be administered by the supervisory committee. The supervisory committee must submit the proposed examination format to the Physiological Sciences Graduate Coordinator one month prior to the administration of the exam.
- C. There are two possible formats for the qualifying examination, decided by the supervisory committee. The format must include a written component and an oral component. The first option for the written examination is a series of written questions, closed or open book, which cover the subject matter with which the supervisory committee feels the student should be familiar. The second option for the written examination is for the student to write and submit a full NIH R01 format grant proposal describing the proposed dissertation project. In both options, the supervisory committee is strongly encouraged to assess the student's knowledge of broad subject matter rather than focusing narrowly on specific aspects of a Ph.D. research project. Regardless of format, the written portion will then be followed by an oral examination, which may focus on more specific aspects of the proposed research project.
- D. The Graduate Coordinator or a designated representative should be present at the oral examination. Therefore, planning the date for the examination must include the Graduate Coordinator. All Physiological Sciences graduate faculty will be notified in writing of the oral examination at least one week before the date of the examination and invited to attend. This notification and invitation should be coordinated with the CVM Office of Research and Graduate Studies.
- F. Upon successful completion of the qualifying examination, the chairperson of the supervisory committee must send an **admission to candidacy form** with appropriate signatures to the Dean of the Graduate School via the CVM Office of Research and Graduate Studies.

## THESIS/DISSERTATION PROPOSAL

- A. A detailed plan for the thesis/dissertation research project should be presented to the supervisory committee after the successful completion of the qualifying examination.
- B. The finalized proposal must be presented in a seminar open to the graduate faculty and attended by the supervisory committee and members of the Physiological Sciences graduate studies committee. Often, this presentation is given at the beginning of the qualifying examination, which is open to everyone. The proposal should also be presented as one of the Physiological Sciences weekly seminars.

C. The approved thesis/dissertation proposal should be filed with the Graduate Coordinator.

## **THESES AND DISSERTATIONS**

The recommended format for the thesis/dissertation is an introductory chapter including a comprehensive literature review, followed by additional chapters equivalent to papers for publication. This format will facilitate publication of the thesis/dissertation as individual papers in scientific journals. Following the specific manuscript-ready chapters, a summary/conclusion chapter should encompass the entire dissertation.

The original and first copy are to be deposited in the Graduate School and the College. The Department of Physiological Sciences requires the third copy (sent to the Graduate Coordinator), and the fourth and fifth copies are for the chairperson of the supervisory committee and the student. These can be electronic in format rather than a hard copy printed version.

It will be the responsibility of the student to present the final copy of the thesis or dissertation to members of the supervisory committee and to the Graduate Coordinator at least 2 weeks before the final dissertation defense examination.

It will be the responsibility of the student to make an electronic copy of their thesis or dissertation available to all departmental faculty at least 1 week before the final examination.

Similar to the Qualifying Examination, all graduate faculty will be notified in writing of the thesis or dissertation defense (final examination) one week before the date of the examination and invited to attend. Upon successful completion of the thesis or dissertation defense, the chairperson of the supervisory committee must send a **report on thesis/dissertation form** with appropriate signatures to the Dean of the Graduate School through the CVM Office of Research and Graduate Studies.

## **DEPARTMENTAL SEMINARS**

As stated above under the core course requirements, all graduate students are expected to attend departmental seminars and register 2 semesters per year for VME 6932 (Seminars in Physiological Sciences) throughout their graduate enrollment. In addition, all Graduate students are required to present a minimum of 2 seminars. One seminar must be a presentation of the thesis or dissertation proposal given prior to or following the qualifying examination. A second seminar on the results of the thesis or dissertation research should be given during the last semester of enrollment prior to the thesis/dissertation defense. It is the responsibility of the student and the chairperson of the supervisory committee to schedule these seminars.

**GRADUATE STUDENT CHECKLIST**  
Department of Physiological Sciences

*NOTE: The **student** is responsible for fulfilling all requirements and meeting all deadlines.*

<u><b>Date done</b></u>	<u><b>Task</b></u>	
_____ 1.	Meet with Faculty Advisor (mentor) Complete forms for stipend Get keys to building and lab Decide which courses to take the first semester	Upon arrival
_____ 2.	Meet with Dr. John Bowden - Graduate Coordinator Room B3-027, Basic Science Bldg. <a href="mailto:john.bowden@ufl.edu">john.bowden@ufl.edu</a> Office Phone: 941-716-4431 Orientation to Dept. of Physiological Sciences Picture for CVM/departmental website/VGSA Familiarity with Physiological Sciences departmental website <a href="#">Department of Physiological Sciences</a> Familiarity with Graduate School website <a href="#">UF Graduate School</a>	Upon arrival
_____ 3.	Meet with Sara Rubenstein Graduate Program Assistant Office of Research and Graduate Studies - VAB Bldg. <a href="mailto:s.rubenstein@ufl.edu">s.rubenstein@ufl.edu</a> New Student Orientation to CVM Graduate Program – Dr. Jorge Hernandez Registration procedures/possible transfer of up to 30 credits from M.S. degree	Upon arrival
_____ 4.	Get Gator One ID card and UF parking permit	Upon arrival
_____ 5.	Join the CVM Veterinary Graduate Students Association <a href="#">VGSA</a>	Upon arrival
_____ 6.	Attend Graduate School and Departmental orientation sessions You will be notified of date, time and place.	
_____ 7.	Appointment of Supervisory Committee Form supervisory committee by the end of the second semester of enrollment or records will be flagged.	
_____ 8.	<i>Appointment of Supervisory Committee</i> form This form with appropriate signatures must be sent to the office of the Assoc Dean for Graduate Studies, CVM and to the Graduate Coordinator.	
_____ 9.	<i>Proposed Program of Study</i> form This form must be submitted by all graduate students to the Graduate Coordinator shortly after the first committee meeting in which coursework is agreed upon.	
_____ 10.	Qualifying Examination Ph.D. candidates should take their qualifying examination by their 6 <sup>th</sup> semester of graduate enrollment.	
_____ 11.	<i>Admission to Candidacy</i> form	



Upon successful completion of the qualifying examination, the chairperson of the supervisory committee must send this form with appropriate signatures to the Dean of the Graduate School.

- \_\_\_\_\_12. Registration for Doctoral Research  
Enrollment in VME 7980 may be done after passing the Qualifying Exam.
- \_\_\_\_\_13. Research Proposal  
This is a detailed written proposal presented to the Supervisory Committee.
- \_\_\_\_\_14. Seminar on Proposed Research  
Once a Ph.D. candidate and the supervisory committee have reached agreement on a research project, the student must present a seminar on the proposed research in the departmental seminar series (VEM 6932). This seminar is usually presented shortly before or after passing the qualifying examination.
- \_\_\_\_\_15. Seminar on Research Results  
All Ph.D. candidates must present a seminar on the results of their research projects in the departmental seminar series (VEM 6932) during their last semester of enrollment.
- \_\_\_\_\_16. Guide for Preparation of Thesis and Dissertation  
On the graduate school website, pay attention to upcoming submission deadlines.
- \_\_\_\_\_17. Application for Degree  
Must apply for the term you expect to graduate.  
Check degree application deadline on Graduate School website
- \_\_\_\_\_18. First submission of Thesis or Dissertation to the Graduate School  
Check deadline on Graduate School website
- \_\_\_\_\_19. Notify Sara Rubinstein and the Dr. John Bowden of the dissertation defense date/title at least two weeks prior to defense.
- \_\_\_\_\_20. Dissertation Defense (Final Examination)  
Upon successful completion of the final examination, the chairperson of the supervisory committee must send a report on dissertation form with appropriate signatures to the Dean of the Graduate School.
- \_\_\_\_\_21. Exit Interview with Graduate Coordinator, Dr. John Bowden, prior to graduation.
- \_\_\_\_\_22. Return all keys to department office prior to graduation.