

**GRADUATE STUDENT HANDBOOK, DEPARTMENT OF BIOLOGICAL SCIENCES  
UNIVERSITY OF SOUTH CAROLINA, COLUMBIA**

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## **GENERAL INFORMATION FOR GRADUATE STUDENTS**

The purpose of the graduate program in Biology is to train biological scientists, skilled in teaching and research. Because of the vast scope of Biology, it is necessary that a mechanism be provided for a student to focus his/her primary attention on a specialized field within this discipline. In addition, a mechanism must be provided whereby a student may develop his/her background in areas supporting his/her primary interest. The organization and operating procedures of the graduate programs in Biology are designed to address both of these parameters.

### **I. General Policies for All Graduate Students**

Each student must satisfy not only the requirements of the Department of Biological Sciences listed in this Biological Sciences Graduate Studies Handbook, but also those of the Graduate School as shown in the USC Graduate Bulletin (<http://www.sc.edu/bulletin/grad/>). A student may choose any one annual version of the Handbook / Bulletin which is in effect during his/her graduate enrollment, but must satisfy all regulations in the Handbook / Bulletin chosen. Students are advised to secure copies of this Biological Sciences Graduate Studies Handbook and the USC Graduate Bulletin for their own use and read it carefully. Lack of knowledge of a regulation will not excuse the student from compliance with any regulation or degree requirement.

The Department of Biological Sciences offers diverse research and training opportunities that span the Biological discipline, including but not necessarily restricted to Ecology, Evolution, Organismal Biology, Environmental Microbiology, Molecular, Cell and Developmental Biology, Genetics, human disease, plant biology, and computational genomics.

Below is a summary of student activities, in pursuit of a graduate degree in the Biological Sciences. Further details follow.

- **MAJOR PROFESSOR / COMMITTEE (FIRST YEAR):** All students choose or are matched with a Major Professor and, with the assistance of their major professor, select additional faculty to serve on an Advisory / Thesis (Master) or Doctoral Committee. The Major Professor and Committee supervise all aspects of the student's graduate education, except for the Qualifying Exam.
- **QUALIFYING EXAM (FIRST YEAR):** All students take a Qualifying Exam consisting of a brief written research plan developed with the assistance of their major professor and orally presented to and evaluated by a departmental committee appointed by the Department Chair.
- **CURRICULUM PLAN (FIRST OR SECOND YEAR) :** All students develop a Curriculum Plan (1<sup>st</sup> Year) with the assistance and approval of their major professor and their Advisory Committee; a formal Program of Study (POS) detailing the curriculum plan is approved by the student's Committee and the Graduate Director, and submitted to the Graduate School (2<sup>nd</sup> Year). M.S. students must submit their POS by the end of their first year; PhD students may submit their POS by the end of their second year. Deviations in the POS are reviewed for approval by the Thesis (Master) or Doctoral

Committee near the time of graduation. There are no specific curriculum / course requirements; the curriculum plan should broadly reflect the student's educational needs in the context of their training and research goals.

- **RESEARCH PLAN (SECOND YEAR, determined by Thesis (Master) / Doctoral Committee):** All students present a research plan to their Committee for approval; a written copy of the research plan is placed in the student's file in the Graduate Office.
- **COMPREHENSIVE EXAM (END OF SECOND OR THIRD YEAR):** All students take a comprehensive examination, under the guidance of their Thesis (Master) or Doctoral Committee. For M.S. students, the written Thesis and its oral defense serves as the Comprehensive Examination. For Ph.D. students the Comprehensive Exam is separate from the Dissertation; the style and details of the Ph.D. Comprehensive Exam is determined by the student's Doctoral Committee.
- **THESIS / DISSERTATION (FINAL ACT):** All students write and orally present and defend a research based Thesis (M.S.) or Dissertation (Ph.D.); the Thesis / Dissertation is presented to the Thesis (Master) / Doctoral Committee which determines whether or not the student has sufficient accomplishments to receive the appropriate degree. Ph.D. students present their research to a general audience; M.S. students are not required to do this but are encouraged to do so.

#### **GRADUATE CURRICULUM / COURSE WORK:**

The Department has no specific course requirements; a Curriculum Plan is individually developed for each student by the student and his/her Major Professor and with the guidance and approval of the student's Advisory Committee. This Curriculum Plan (signed by the Committee) is submitted to the Graduate School and is recognized as the student's approved Program of Study.

**Credits required to graduate with a M.S. degree:** To graduate, the University of South Carolina requires that M.S. students register for at least 30 course credits. At least half of the total credits (at least 15) must be courses numbered 700+, excluding Biol 799. These +700 courses can include Biol 798 (Research in Biology).

**Credits required to graduate with a Ph.D. degree:** To graduate, the University requires that Ph.D. students register for at least 60 course credits if entering without a completed M.S. degree, or 30 course credits if entering with a completed M.S. degree. Twelve (12) credits must be Biol 899 (Dissertation Preparation); at least half of the total credits (at least 30 without a M.S., or at least 15 with a M.S.) must be courses numbered 700+, excluding Biol 899. These +700 courses can include Biol 798 (Research in Biology).

**Credits required for Full Time Status (Assistantships, Fellowships, Neither):** USC distinguishes between Assistantships (funded by USC) and Fellowships (funded by outside sources), as well as between Fellowship support administered through USC and Fellowship support paid directly to the student. **Graduate Assistantships:** Students supported as Graduate Assistants (Research or Teaching) must be registered as "Full Time Students". The University and the Department require that students, for Full Time status, must therefore register for at least 6 credits each Fall and Spring term, and 1 credit each of 2 Summer Terms (total 14 credits per year). **Non-Assistantship Support:** USC requires

students NOT supported as Graduate Assistants (Research or Teaching) to register for 9 credits each Fall and Spring term for Full Time status. **Fellowships:** Fellowships are considered Non-Assistantship Support. Students supported by Fellowships must refer to the terms of their Fellowship, which typically require Full Time enrollment as the University defines it (9 credits Fall and Spring, unless otherwise stated); students supported on a Fellowship should consult with the Graduate Director and Graduate Office regarding this, as credit reduction to 6 credits may be possible. **SREB Fellowships:** Students on SREB Fellowships may register for 6 credits Fall and Spring to satisfy both the terms of their fellowship and receive Full Time status at USC; so far this is the only Fellowship with this distinction. **Part Time Status:** Part Time status does not prevent a student from graduating with a M.S. or Ph.D.; however, certain University privileges are denied students designated Part Time rather than Full Time. Consult the Graduate Office for more information.

**Biol 798 - Research in Biology:** You should register for Biol 798 (section number associated with your Major Professor) if you are not taking a lecture / discussion course, Thesis Preparation (Biol 799) or Dissertation Preparation (Biol 899). The majority of your registered credits will probably be Biol 798, especially for Ph.D. students.

**Biol 799 - Thesis Preparation.** The Department requires the University minimum of 3 credits of Biol 799 for M.S. students. To register for these credits, you will need to see the Graduate Studies Coordinator (Ms. Pat Earley). Because of the complexity of the formula regarding the number of credits required to graduate, it is strongly recommended that M.S. students do NOT register for more than 3 credits of Biol 799.

**Biol 899 - Dissertation Preparation.** The Department requires the University minimum of 12 credits of Biol 899 for Ph.D. students. To register for these credits, you will need to see the Graduate Studies Coordinator (Ms. Pat Earley). Because of the complexity of the formula regarding the number of credits required to graduate, it is strongly recommended that Ph.D. students do NOT register for more than 12 credits of Biol 899. Furthermore, we recommend that students satisfy their 899 requirement early (Year 4) as one never knows when the end is near.

**GRADUATE LECTURE / DISCUSSION COURSES:** In consultation with his or her advisory committee each student should develop a curriculum of courses that is designed to best advance their training and career. There is no required set of specific courses. Students may use courses graduate courses offered through the Department (see Graduate Bulletin for a list of available courses), as well as graduate courses offered outside of the Department or University (with approval of the student's committee and subject to the restrictions outline below).

## II. Research

The department assigns high priority to research. A research program is an essential and strongly emphasized part of the requirements for both the M.S. and Ph.D. degrees in Biology. In consultation with his/her professor, a graduate student develops an original research proposal for approval by his/her Advisory Committee. The research is carried out under the direction of the major professor, and is the basis of the Thesis (M.S.) or

Dissertation (Ph.D.). A high level of research performance is expected of all students, with a quality appropriate for publication in refereed scientific journals.

### **III. Seminars**

The Department of Biological Sciences conducts formal and informal seminars. Through these seminars, students are introduced to current developments in the biological sciences and have the opportunity to meet recognized scientists. Formal seminars usually involve speakers from other departments and campuses. Additional seminars are scheduled periodically. ALL GRADUATE STUDENTS ARE EXPECTED TO ATTEND FORMAL SEMINARS ON A REGULAR BASIS.

Informal seminars provide an opportunity for graduate students and faculty to meet in an informal setting, where they may present their own research findings or discuss current literature. Faculty and students organize their own informal seminars and schedule these at times convenient to the participants. Each graduate student can be expected to present at least one informal seminar each year.

### **IV. Graduate Student/Faculty Relationships**

Graduate students in the Department of Biological Sciences are considered an integral part of our professional family. They should always feel free to discuss their curricula, career goals, and other concerns with any of the faculty. The graduate student normally establishes close rapport in the daily working relationships with his/her major professor and research colleagues. Mutual respect and common courtesy should prevail in all relationships among faculty and graduate students.

### **V. Office and Laboratory Care**

Graduate degree students will be assigned desk and laboratory space appropriate to their requirements. It is essential that graduate students maintain these areas in an orderly state and not infringe upon the space and patience of their colleagues. In the event that additional space is needed the graduate student should contact his/her major professor or the Department Chair.

## **Ph.D. DEGREE PROGRAM**

The Ph.D. degree in the Department of Biological Sciences is a research degree and is awarded to those individuals who have exhibited the ability to do independent and original scientific investigation. The M.S. degree is not a prerequisite for the Ph.D. Program.

The following procedures and examinations are required of all students enrolled in the Ph.D. degree program of the Department of Biological Sciences. A checklist containing these steps is located in the Appendix.

<b>Year</b>	<b>All PhD Students (Months noted for students starting Fall term; students starting Spring term may alter schedule accordingly)</b>
1	Major Professor Form Advisory Committee Curriculum plan - Provisional POS (Jan) Qualifying exam
2	POS – Spring (Approved by Advisory Committee) Advance to Candidacy Form Doctoral Committee* Research Proposal
3	Comprehensive Exam
4-6	Dissertation and Defense

\*"Doctoral Committee" is a formal designation for the Committee after the student Advances to Candidacy" (passes Qualifying Exam and Submits POS). The Advisory Committee can be redesignated as the Doctoral Committee.

**NOTE:** If any deadlines in this Handbook are not met and an extension has not been granted by the Graduate Studies Committee, THE STUDENT MAY BE DISSALLOWED FROM REGISTERING. Since students must register in order to qualify for financial support, a hold on his/her registration would terminate such support. Please do your utmost to adhere to the schedules. Discuss any concerns with the Graduate Director.

## **I. Major Professor (Year 1).**

A. When: All students must have a Major Professor. In general, all students are accepted into a specific laboratory, and therefore have a Major Professor when they join the Department. In specific cases, students may be allowed to rotate through 2 or 3 labs prior to choosing one, or may transfer into the Department from another program (e.g. the Integrated Biomedical Sciences Graduate Program); in such cases all students should have chosen a Major Professor by the end of Year 1, Spring term (May).

B. How: As the relationship between student and Major Professor is by mutual agreement, it is formalized by submission of a completed "Selection of Major Professor" form to the Graduate Director upon arrival or as soon as a major professor is chosen (e.g. for rotation students, students entering from another program, students changing Major Professors). The form is available at the end of this document (see Appendix), or from the Graduate Office.

A graduate student may change his/her Major Professor at any time up to the point at which he/she attempts the Comprehensive Examination. In the event that a graduate student deems a change of Major Professor necessary, he/she should discuss the situation with the Graduate Director as soon as possible, and will be strongly encouraged to discuss matters with the current Major Professor to resolve issues or to mitigate transition to a new laboratory. In the event that personal friction is involved, the Department Chair will serve as an intermediary to arrange for a mutually satisfactory transition.

## **II. Form Advisory Committee (Year 1).**

A. When: Students must form an Advisory Committee as early as possible but no later than the end of two academic semesters in residence. The make up of this Committee should follow the guidelines of the Doctoral Committee (for Ph.D. students); however, the Advisory Committee need not have outside members.

B. How: The Advisory Committee should be selected by the student in consultation with the Major Professor. Notification of Committee membership should be given to the Graduate Office (Director and Program Coordinator). Members of the Advisory Committee may serve as the Doctoral Committee following Advancement to Candidacy.

C. Duties: The duties of the Advisory Committee are to provide curriculum guidance during the initial years of the student's program and to approve the student's Program of Study. The Advisory Committee and student must meet at least annually until the formation of the Doctoral Committee; the Graduate Director must be notified (e.g. by email) that this meeting has occurred.

## **III. Take Qualifying Exam (Year 1).**

A. What: All students are Admitted to Candidacy after they have (1) satisfied the Qualifying Exam and (2) submitted their formal Program of Study (POS) to the Graduate School (**Each student's Program of Study must have the approval of the student's**

**Advisory Committee (Chairperson) and the Graduate Director; the POS can be submitted prior to completing the core curriculum).**

The Qualifying Exam in the Dept. of Biological Sciences consists of a brief (5+ page) written and orally defended research plan, focusing on research planned for the immediate future and projected to a Ph.D. dissertation. This research plan should be presented in the general form of an NSF or NIH grant proposal (though of noted shorter length) and developed with the assistance of the student's Major Professor. The written research plan will be presented to and will be orally presented to and evaluated by a departmental committee appointed by the Department Chair.

A major goal of the Qualifying Exam is to ensure that a dialogue is occurring between student and Major Professor and that the student has a plan in place for initiating his or her graduate research. Other goals are to ensure that students can develop a research plan and communicate that plan in writing and orally, and that students can research the literature of their area or field.

B. When: The Qualifying Exam will be scheduled during the student's first year. Workshops will be scheduled during the months preceding the exam to help student's develop their research plans. Successful completion of the qualifying exam will be communicated to the Graduate Program Coordinator by submission of the Graduate Program Assessment form that is available on the Departmental website. In the eventuality a student fails to pass the qualifying exam they may be allowed to retake the exam at the next available opportunity.

Failure to successfully complete the qualification procedures within the allotted period will result in dismissal from the Ph.D. program

**IV. Develop Core Curriculum (Year 1).**

A. What: The Ph.D. graduate curriculum in Biological Sciences consists of coursework chosen by the student, in consultation with his/her Major Professor and Committee. There are no general course requirements. A Ph.D. student must earn at least 60 credits at least half of which must shall be at the 700 and 800 levels (including 798) and at least 12 of which (and no more than 30) must be Dissertation Preparation (Biol 899). In addition, graduate students will be restricted to 12 h of coursework over their graduate careers from any single department/program outside of the Department of Biological Sciences; this restriction can be waived by the Doctoral Committee. These requirements should be considered the minimum; additional requirements may be imposed up by the Advisory or Doctoral Committees with the approval of the Department Chair.

B. How: Students choose a curriculum appropriate to their needs and interests, with consultation from their Major Professor and Committee. Note that the Committee must approve the Program of Study (see below); thus the Program of Study (POS) becomes a contract between the Student and the University regarding the student's curriculum. Deviations from the POS must be reviewed and approved by the student's Committee prior to graduation.

C. Grades: A student is required to pass all courses in their program and must maintain a minimum GPR of 3.00 for each academic year. In addition, the student's GPR must be at least 3.00 for all courses attempted for graduate credit and on all courses numbered 700 or above. A student who accumulates more than 8 hours of C+ or lower in graduate courses will be dismissed from the degree program.

D. Credit for Previous Work: Any of the above requirements completed at the M.S. level at USC-Columbia may be applied to the Ph.D. requirements. The number of credit hours that can be transferred is limited to 24 (see the Graduate School Bulletin). Course work transferred for credit toward a doctoral degree must 1) be approved by the Advisory or Doctoral Committee; 2) be from an accredited institution recognized by USC; 3) carry graduate credit with a grade of "B" or better (or equivalent marks if different grading system is used); 4) be dated within the eight-year period for courses used in the doctoral program; and 5) not constitute more than 50 percent of the hours listed on a program of study (not including 899 or the equivalent). NOTE: A "Request For Transfer of Graduate Credit" form must be submitted in order for transfer credit to be counted (visit Graduate Office for help). Transfer credits are not posted to the student's transcript until graduation and are not calculated into the student's cumulative GPA; acceptance of credit can be confirmed through the Graduate Office.

E. Residency: USC imposes a doctoral residency requirement stating that, all students admitted to a doctoral degree program must enroll in at least 18 graduate credit hours within a span of three consecutive semesters (excluding summers). Enrollment in a summer term is not required to maintain continuity, but credits earned during summer terms (including May Session) will count toward the 18 hours required for residency.

The intent of a residency requirement is to ensure that doctoral students benefit from and contribute to the full spectrum of educational and professional opportunities provided by the graduate faculty of a research university. When establishing residency, the student should interact with faculty and peers by regularly attending courses, conferences, and seminars and using the library, library services, and other resources that support excellence in graduate education.

F. Program of Study: a formal Program of Study (POS) must be submitted to the Graduate School by the end of the second year (see below).

G. Course validation, revalidation: All coursework (including that taken at other institutions) must be completed within 8 years of the defense of the student's dissertation. Courses that fall outside of this time frame and that were taken at USC can be revalidated by having the professor responsible for the course either certify that the course content has not changed during the elapsed time or that the professor has reexamined the student and found that he/she has satisfactory knowledge in the area. This certification is evidenced by the faculty member's signature on the Permit for Revalidation Form (GS 04), obtained from the Graduate School. If the original professor is not available, the professor currently teaching the course can revalidate it. If the original professor is not available and the course is no longer being taught, the course can be revalidated by the student's Committee. Courses taken outside of USC cannot be revalidated.

H. When: The core curriculum (e.g. lecture courses) should be completed as early as possible, and must be completed by end of the second year.

## **V. Submit Program of Study (Year 2).**

A. What: The Program of Study (POS) (required by the University) is a form on which are listed all courses taken (lecture and research) (1) which are approved by the student's Committee and (2) which sum to the credit requirement of the University (30 credits for M.S., 60 credits for Ph.D. without an M.S., 30 credits for Ph.D. with an M.S.). Because the POS is submitted well in advance of graduating, courses planned to be taken (as well as those already taken or in progress) are entered. The majority of courses may be Biol 798; Ph.D. students must include at least 12 (and no more than 30) credits of 899. The POS should include the following:

1. All coursework required to satisfy the above requirements (including up to 24 credits taken at other institutions (see "Credit for Previous Work" above) as approved by the student's Advisory Committee;
2. At least 12 (and no more than 30) credits of BIOL 899, Dissertation Preparation;
3. Additional coursework to total 60 hours (or 30 hours for students entering with a M.S. degree) (e.g. Biol 798);
4. The language to be used to satisfy the language requirement or a statement that this requirement is to be waived (see below);
5. The signatures of the student and the Chairperson of his/her Advisory Committee (representing the full Committee).

B. How: The form is available in the Graduate Office and online through the Graduate School: <http://www.gradschool.sc.edu/> ("Doctoral Program of Study", Forms Library)

C. When: The POS can be submitted at any time, but should be submitted no later than the end of the second year, and must be submitted prior to taking the Comprehensive Exam. Submission of the POS is required for Admission to Candidacy (along with passing the Qualifying Exam). The POS can be submitted prior to completion of core curriculum.

D. Approvals. The POS must be approved (signed) by the Chairperson of the student's Advisory Committee (representing the full Committee) and by the Graduate Director, and is then submitted to the Graduate School for final approval.

E. Revisions. An updated POS should be submitted if the curriculum deviates significantly from the initial version; changes (omission) of proposed lecture courses must be approved by the student's Doctoral Committee.

## **VI. Form a Doctoral Committee (after Advancing to Candidacy - Year 2-3)**

A. Who: The Doctoral Committee consists of at least five members:

1. The major professor;
2. One member of the Biological Sciences Department whose interests are directly related to the student's research goals;

3. One member of the Biological Sciences Department whose interests lie outside the student's research goals;
4. One other member of the Biological Sciences Department; and
5. A member from outside the Department of Biological Sciences.

Members of the Advisory Committee may continue serving as members of the Doctoral Committee, but membership on the Doctoral Committee must be formalized by submitting a Doctoral Committee Appointment Request to the Graduate School for approval (see below).

It should be noted that while the Graduate School recognizes several different committees as performing specific functions in the student's education, the Department of Biological Sciences consolidates all of these functions into (1) an Advisory Committee prior to Advancement to Candidacy and (2) a Doctoral Committee following Advancement to Candidacy.

B. Duties: The Doctoral Committee is responsible for approval of a dissertation research program, administration of both the comprehensive and dissertation examinations, and approval of the dissertation. The Doctoral Committee is formed after the student Advances to Candidacy (passes Qualifying Exam AND submits Program of Study). The Doctoral Committee must meet at least once a year to review the progress of the student. The Committee Chairperson is responsible for notifying the Graduate Director in writing (e.g. by e-mail) of all official actions of the Committee. Four positive votes are required for approval of any action by the Committee.

Graduate students in the Biological Sciences are required to have an annual meeting with their doctoral or advisory committee; one intention of this requirement is to ensure that each student is making satisfactory progress towards completing their degree. The student deserves an accurate assessment of their progress and in cases where this progress is not satisfactory they and their committee members can devise a plan to rectify any deficiencies. A student may have more than one meeting per year with their advisory or doctoral committee but at least part of this meeting should be devoted to assessing the student's progress towards graduation. At the completion of the annual assessment the Chair of the student's committee should inform the Graduate Studies Coordinator and the Graduate Director of the outcome of the meeting. Where the student is making satisfactory progress the Chair's summary should indicate which landmarks have been completed over the past year and what the expectations are for the upcoming year.

If the student is not making satisfactory progress the committee should work with the student to diagnose the problem(s) and a plan and timeline to resolve those problems established. The student's committee should reconvene as necessary to assure the student is making good progress towards rectifying any problems and establishing a positive trajectory towards degree completion. Should the student fail to make satisfactory progress within the timeline established by the committee the committee should meet form a recommendation regarding the student's continuation in the program. The student's supervisor and the Chair of the Committee should then meet with the Graduate Studies Director to discuss the recommendation and to form a report to the he Graduate Studies Committee which will then determine whether the student will continue in the program.

Prior to the establishment of the student's doctoral committee, it is the responsibility of the student's supervisor to work with the student's advisory committee to make an assessment of the student's progress towards graduation and to forward that assessment to the Graduate Studies Coordinator.

If a student fails to convene his or her Committee or if a progress report is not filed with the Graduate Studies Coordinator by May 1, the student will be placed on probation for three months. If, at the end of the probationary period, a progress report has still not been received the student will not be considered in good standing. Students who are not in good standing are not eligible for financial assistance.

C. When: The Committee must be in place as soon as possible following Advancement to Candidacy (end of second year) and must be formalized prior to taking the Comprehensive Exam.

D. How: The Major Professor must notify the Graduate Director in writing (e.g. by e-mail) recommending faculty members for the student's Committee. The composition of the Committee is then approved by the Department Chair and the Graduate Dean. The Department Chair will designate a member other than the Major Professor as the Chairperson of the Committee.

NOTE: IF THE OUTSIDE MEMBER IS NOT A MEMBER OF THE GRADUATE FACULTY OF USC, THEN THE PROPOSED MEMBER MUST BE NOMINATED TO THE GRADUATE SCHOOL FOR A "TERM APPOINTMENT". The form is available in the Graduate Office and online through the Graduate School: <http://www.gradschool.sc.edu/> ("Term Appointment Nomination Request", Forms Library). The nomination must include the nominee's curriculum vitae and a memo of nomination that provides justification for the appointment, addressing both the nominee's qualifications and the unit's need for making the nomination. If the person does not hold the terminal degree, special justification must be provided.

If the composition of the Committee needs to be changed at a later time, the major advisor should follow the same procedure outlined above and the proposed changes must be approved by the Graduate Director.

## **VII. Complete Pilot Project (Science Education student)**

A. What: The student is required to spend a year participating in faculty research in education, designing studies, collecting data, etc.

B. When: This project is usually performed during the second year.

C. Notification: The faculty member supervising the project should notify the Graduate Director in writing of the completion of the project.

## **VIII. Complete the Foreign Language Requirement**

USC requires all candidates for the Ph.D. Degree to have one foreign language with a significant scientific literature. However, the Department of Biological Sciences has permission to automatically waive this requirement. "Waived" should be entered in the appropriate space on the "Ph.D. Program Form" (See Appendix).

### **IX. Satisfy Teaching Requirements (Waived)**

A Ph.D. student is required to complete two semesters as a teaching assistant in Biology courses. All students, irrespective of financial support (e.g., Research Assistantship, Fellowship), must complete this requirement. If the student has previous teaching experience at the collegiate level or its equivalent, he/she may request a waiver of this requirement from the Graduate Studies Committee.

### **X. Submit Research Proposal (Year 2)**

Each student must develop a research proposal that details the plan for his or her research. The format and content of the research proposal is determined by the student's committee. The written proposal must be submitted to the student's committee and orally presented and defended. A copy of the student's Research Proposal as approved by his/her Doctoral Committee must be submitted to the Graduate Director for inclusion in the student's permanent file. Successful completion of the research proposal will be communicated to the Graduate Program Coordinator by submission of the Graduate Program Assessment form that is available on the Departmental website. In the eventuality a student fails to successfully defend their research proposal they may be allowed another opportunity with the permission of the committee.

Failure to successfully complete the research proposal will result in dismissal from the Ph.D. program

### **XI. Pass the Comprehensive Examination (Year 3)**

A. What: The candidate will be required to pass a written, followed by an oral, comprehensive examination on the fields of study for which he/she is responsible. There is no standardized style or format for the Comprehensive Exam. For all students, the format of the Comprehensive Examination and its administration is determined by the student's Doctoral Committee. However, the Examination must include both a written document and an oral presentation/defense of that document.

Two common formats for the Comprehensive Exam within the Department of Biological Sciences have been: (1) a grant proposal in the style of an NSF or NIH grant proposal on a subject different than the student's dissertation research (subject chosen by the Committee from among several submitted by the student); and (2) essays written in response to specific questions posed by each member of the Doctoral Committee. A limited time may be imposed for the completion of the written component.

At least ten days but not more than six weeks shall elapse between the completion of the written and oral examinations. Any member of the Biology Faculty may attend the oral

examination, and ask questions of the candidate, but the Committee alone will assess the student's achievement. In the event that a student does not pass either the written or oral portion, he/she may, at the discretion of the Committee in consultation with the Department Chair, be allowed one retake of that examination after a three-month interval.

B. Notification: Successful completion of the comprehensive exam will be communicated to the Graduate Program Coordinator by submission of the Graduate Program Assessment form that is available on the Departmental website. In addition, the written portion of the comprehensive examination must be submitted for inclusion in the student's permanent file. A Committee member, if he/she chooses, may release a copy of his/her part of this examination to the student.

C. When: The Comprehensive Examination should be taken during the student's third year.

## **XII. Write and Successfully Defend a Dissertation (Final)**

A dissertation based on original investigation is required of all Ph.D. candidates. During the writing of the dissertation, the Major Professor and at least one other committee member will read and advise on one or more preliminary drafts. Copies of the final manuscript will be evaluated by all members of the Dissertation Committee.

The Ph.D. candidate must also pass an oral Dissertation Examination, which shall be administered and evaluated by his/her Doctoral Committee. Members of the academic community may attend the examination and ask questions but may not vote. The Biological Sciences faculty should be informed of the time and place of the defense at least one week ahead of the event. Approval of the Dissertation requires at least four affirmative votes. The Committee Chairperson is responsible for notifying the Graduate Director of the results of the vote, in writing (e.g. e-mail).

**NOTE:** typically, the oral portion of the Dissertation Examination follows the public presentation of the Dissertation Seminar (below), and thus the two are combined in a single event. A period of public questioning may follow the Dissertation Seminar, after which the general public is asked to leave, allowing questioning by the Doctoral Committee and members of the academic community as described above.

## **XIII. Give a Dissertation Seminar (Final)**

Upon completion of his/her dissertation research, the Ph.D. candidate presents a formal seminar to the Department of Biological Sciences, in which he/she will discuss and defend his/her dissertation.

The dissertation seminar is a public exposition of the student's research findings and interpretations, with open discussion of his/her presentation. The seminar should therefore be

1. Scheduled on a day, and at a time, suitable for attendance by most Biological Sciences Faculty and graduate students,
2. Formally publicized a minimum of one week prior to the seminar (a copy of the announcement should be submitted to the Biological Sciences Graduate Office), and
3. Announced to other departments whose faculty or students might be interested in the seminar subject.

The seminar should precede the defense, and may serve the function of an oral presentation for the Doctoral Committee as a part of the dissertation examination. Successful completion of the dissertation will be communicated to the Graduate Program Coordinator by submission of the Graduate Program Assessment form that is available on the Departmental website. In the eventuality a student fails to successfully defend his or her dissertation they may be given another opportunity at the discretion of his or her committee.

#### **XIV. Supply a Curriculum Vitae and Future Plans Form (Final)**

All students must supply the Biology Graduate Office with a current Curriculum Vitae and a completed "Future Plans" form before being cleared for graduation.

#### **XV. Appeals Process**

A. Any Graduate School regulation concerning academic matters only can be appealed to the Graduate School. The written petition should contain the name of the petitioner, his/her social security number, the endorsement of the departmental Graduate Studies Committee and the following:

1. The regulation in question,
2. The action requested,
3. A justification for the action,
4. The consequences if the appeal is approved/disapproved, and
5. Any other facts relevant to the student's request.

The petition will be reviewed by the Graduate Dean who may act on the request; or the Dean may refer the matter to the Petitions and Appeals Committee of the Graduate Council for review and recommendation to the Graduate Council, whose decision is final.

B. Any departmental regulation can be appealed to the Graduate Studies Committee. The student can appeal a negative decision to the Graduate School only if there is evidence of any of the following:

1. Inequitable application of the regulations,
2. Bias,
3. Conflict with the Graduate School regulations, or
4. Extenuating circumstances.

Such petitions to the Graduate School should follow the procedures outlined in (A) above. Any further appeal must be directed to the Office of the Provost.

C. Students having disputes with their advisors or committee members can request mediation by the Graduate Director and/or Department Chair. However, the Department Chair cannot overrule graduate faculty with respect to their judgments of the quantity or quality of their students' research, supplemental coursework expected, or other requirements for the awarding of graduate degrees.

## **M.S. DEGREE PROGRAM**

The following procedures and examinations are required of all students enrolled in the M.S. degree program of the Department of Biological Sciences. A time line for these requirements is shown below and a checklist containing these steps are located in the Appendix.

<b>Year</b>	<b>All MS Students (Months noted for students starting Fall term; students starting Spring term may alter schedule accordingly)</b>
1	Major Professor Form Thesis Committee Curriculum plan (provisional POS) (Jan) Qualifying exam POS (May) (Approved by Advisory Committee)
2-3	Thesis and Defense

\*Thesis Committee, see Graduate School Bulletin for guidelines  
Thesis and Defense = M.S. Comprehensive Examination

**NOTE:** If any deadlines in this Handbook are not met and an extension has not been granted by the Graduate Studies Committee, THE STUDENT MAY BE DISSALLOWED FROM REGISTERING. Since students must register in order to qualify for financial support, a hold on his/her registration would terminate such support. Please do your utmost to adhere to the schedules. Discuss any concerns with the Graduate Director.

### **I. Major Professor (Year 1).**

A. When: All students must have a Major Professor. In general, all students are accepted into a specific laboratory, and therefore have a Major Professor when they join the Department. In specific cases, students may be allowed to rotate through 2 or 3 labs prior to choosing one, or may transfer into the Department from another program (e.g. the Integrated Biomedical Sciences Graduate Program); in such cases all students should have chosen a Major Professor by the end of Year 1, Spring term (May).

B. How: As the relationship between student and Major Professor is by mutual agreement, it is formalized by submission of a completed "Selection of Major Professor" form to the Graduate Director upon arrival or as soon as a major professor is chosen (e.g. for rotation students, students entering from another program, students changing Major Professors). The form is available at the end of this document (see Appendix), or from the Graduate Office.

A graduate student may change his/her Major Professor at any time up to the point at which he/she attempts the Comprehensive Examination. In the event that a graduate student deems a change of Major Professor necessary, he/she should discuss the situation with the Graduate Director as soon as possible, and will be strongly encouraged to discuss matters with the current Major Professor to resolve issues or to mitigate transition to a new laboratory. In the event that personal friction is involved, the Department Chair will serve as an intermediary to arrange for a mutually satisfactory transition.

## **II. Form a Thesis Committee (Year 1)**

A. When: Students must form an Thesis Committee as early as possible but no later than the end of two academic semesters in residence.

B. Who: The Thesis Committee consists of at least three members:

1. The Major Professor;
2. One member of the Biological Sciences Department whose interests are directly related to the student's research goals;
3. One member (from Biological Sciences or another Department at USC, Columbia) whose interests lie outside the student's research goals;

C. Duties: The Thesis Committee is responsible for (1) approval of the student's Program of Study, (2) overseeing the thesis research program, and (3) administration of the Comprehensive Examination, which, in the case of M.S. students in Biological Sciences, consists of the written Thesis and its oral defense. The Thesis Committee must meet at least once a year to review the progress of the student. The committee chair is responsible for notifying the Graduate Director, in writing or by email, of all official actions of the committee.

D. How: The Major Professor must notify the Graduate Director in writing (e.g. by e-mail) recommending faculty members for the student's Committee. The composition of the Committee is then approved by the Department Chair and the Graduate Dean. The Department Chair will designate a member other than the major professor as the Chairperson of the Committee.

If the composition of the Committee needs to be changed at a later time, the major advisor should follow the same procedure outlined above.

## **III. Take Qualifying Exam (Year 1).**

A. What: All graduate students are required by University of South Carolina to pass a Qualifying Exam. The Qualifying Exam in the Department of Biological Sciences consists of a brief (5+ page) written and orally defended research plan, focusing on research planned for the immediate future and projected to a Ph.D. dissertation. This research plan should be presented in the general form of an NSF or NIH grant proposal (though of noted shorter length) and developed with the assistance of the student's Major Professor. The written research plan will be presented to and will be orally presented to and evaluated by a departmental committee appointed by the Department Chair.

A major goal of the Qualifying Exam is to ensure that a dialogue is occurring between student and Major Professor and that the student has a plan in place for initiating his / her graduate research. Other goals are to ensure that students can develop a research plan and communicate that plan in writing and orally, and that students can research the literature of their area or field.

B. When: The Qualifying Exam will be scheduled during the student's first year. Workshops will be scheduled during the months preceding the exam to help student's develop their research plans.

Successful completion of the qualifying exam will be communicated to the Graduate Program Coordinator by submission of the Graduate Program Assessment form that is available on the Departmental website. In the eventuality a student fails to pass the qualifying exam they may be allowed to retake the exam at the next available opportunity.

Failure to successfully complete the qualification procedures within the allotted period will result in dismissal from the M.S. program

### III. Complete Course Requirements

A. What: The M.S. graduate curriculum in Biological Sciences consists of coursework chosen by the student, in consultation with his/her Major Professor and Thesis Committee. There are no general course requirements. A M.S. student must earn at least 30 credits at least half of which must shall be at the 700 and 800 levels (including 798). In addition, graduate students will be restricted to 12 h of coursework over their graduate careers from any single department/program outside of the Department of Biological Sciences; this restriction can be waived by the Thesis Committee. These requirements should be considered the minimum; additional requirements may be imposed by the Thesis Committee with the approval of the Department Chair.

B. How: Students choose a curriculum appropriate to their needs and interests, with consultation from their Major Professor and Committee. Note that the Committee must approve the Program of Study (see below); thus the Program of Study (POS) becomes a contract between the Student and the University regarding the student's curriculum. Deviations from the POS must be reviewed and approved by the student's Committee prior to graduation.

C. Grades: The student must maintain a minimum GPR of 3.00 for each academic year. In addition, the student's GPR must be at least 3.00 for all courses attempted for graduate credit and on all courses numbered 700 or above. A student who accumulates more than 8 hours of C+ or lower in graduate courses will be dismissed from the degree program.

D. Credit for Previous Work: Curriculum requirements may be satisfied by coursework taken at another institution, approved by the student's Thesis Committee. The number of credit hours that can be transferred is limited to 12 (see the Graduate School Bulletin). Course work transferred for credit toward a master's degree must: 1) be from an accredited institution recognized by USC; 2) carry graduate credit with a grade of "B" or better (or

equivalent marks if different grading system is used); and 3) be dated within the six-year period for courses used in the master's program. NOTE: A "Request For Transfer of Graduate Credit" form must be submitted in order for transfer credit to be counted (visit Graduate Office for help). Transfer credits are not posted to the student's transcript until graduation and are not calculated into the student's cumulative GPA; acceptance of credit can be confirmed through the Graduate Office.

E. Program of Study: a formal Program of Study (POS) must be submitted to the Graduate School by the end of the first year (see below).

F. Course validation, revalidation: All coursework (including that taken at other institutions) must be completed within 6 years of the Comprehensive Examination (i.e. Thesis Defense). Courses that fall outside of this time frame and that were taken at USC can be revalidated as described above under Ph.D. Degree Program, which also describes requests for waivers of this requirement.

F. When: The core curriculum (e.g. lecture courses) should be completed as early as possible; no later than the end of the first year.

#### **IV. Submit Program of Study**

A. What: The Program of Study (POS) (required by the University) is a form on which are listed all courses taken (lecture and research) (1) which are approved by the student's Thesis Committee and (2) which sum to the credit requirement of the University (30 credits for M.S.). Because the POS is submitted in advance of graduating, courses planned to be taken (as well as those already taken or in progress) are entered. The majority of courses may be Biol 798. There is no requirement to register for 799 (Thesis Preparation); however, no more than 9 credits of 799 may be used to satisfy the 30 credit requirement to graduate.

The POS should include the following:

1. All coursework required to satisfy the above requirements (including up to 12 credits taken at other institutions (see "Credit for Previous Work" above) as approved by the student's Advisory Committee;
2. Additional coursework to total 30 hours;
4. The language to be used to satisfy the language requirement or a statement that this requirement is to be waived (see below);
5. The signatures of the student and the Chairperson of his/her Thesis Committee (representing the full Committee).

B. How: The form is available in the Graduate Office and online through the Graduate School: <http://www.gradschool.sc.edu/> ("Masters Program of Study", Forms Library)

C. When: The POS can be submitted at any time, but should be submitted no later than the end of the first year, and must be submitted prior to taking the Comprehensive Exam (Thesis Defense). The POS can be submitted prior to completion of core curriculum.

D. Approvals. The POS must be approved (signed) by the Chairperson of the student's Thesis Committee (representing the full Committee) and by the Graduate Director, and is then submitted to the Graduate School for final approval.

E. Revisions. An updated POS should be submitted if the curriculum deviates significantly from the initial version; changes (omission) of proposed lecture courses must be approved by the student's Thesis Committee.

## **V. Complete the Foreign Language Requirement**

USC requires all candidates for the M.S. Degree to have one foreign language with a significant scientific literature. However, the Department of Biological Sciences has permission to waive this requirement. "Waived" should be entered in the appropriate space on the "M.S. Program Form" (See Appendix).

## **VI. Satisfy Teaching Requirement**

A M.S. student is required to complete one semester as a teaching assistant, in a Biology course. All students, irrespective of financial support (e.g., Research Assistantship, Fellowship), must complete this requirement. If the student has previous teaching experience at the collegiate level or its equivalent, he/she may request a waiver of this requirement from the Graduate Studies Committee.

## **VII. Pass a Comprehensive Examination (Final)**

A M.S. candidate must pass a Comprehensive Examination, which must have both a written and oral component. For M.S. students in Biological Sciences, the Thesis (written) and Thesis Defense (oral) serves as the M.S. Comprehensive Examination, and is administered and evaluated by the student's Thesis Committee. The Comprehensive Examination must follow the passing of the Qualifying Exam and submission of the Program of Study. Approval of the Comprehensive Examination requires at least two (of three) affirmative votes. The Thesis Committee Chairperson is responsible for notifying the Graduate Director of the results of the vote, in writing (e.g. e-mail).

## **VIII. Write and Successfully Defend a Thesis (Final)**

A thesis based on experimental investigation is required of each M.S. candidate. This thesis and its oral defense must be approved by two of the three members of the Thesis Committee. The Thesis and its oral defense serve as the Comprehensive Exam.

Successful completion of the thesis will be communicated to the Graduate Program Coordinator by submission of the Graduate Program Assessment form that is available on the Departmental website. In the eventuality a student fails to pass the qualifying exam they may be allowed to retake the exam at the next available opportunity.

## **VII. Supply a Curriculum Vitae and Future Plans Form**

All students must supply the Biology Graduate Office with a current Curriculum Vitae and a completed "Future Plans" form before being cleared for graduation.

## **IX. Transfer to the Ph.D. Program**

An M.S. candidate may request transfer to the Ph.D. degree program at any time after entering the M.S. program. The student should write the Graduate Director a letter requesting the transfer and providing an explanation. In addition, the request must be supported by letters from his/her Major Professor and at least one other faculty member from the Department of Biological Sciences. The Graduate Studies Committee will then vote on the request.

## **X. Appeals Process**

The appeals process is the same as that described under the Ph.D. Degree Program (Sect. XV).

## **TRANSIENT GRADUATE STUDENTS**

### **Admission Requirements**

The category of transient student is reserved for students who are advanced degree candidates at some institution other than the University of South Carolina and who wish to matriculate in the Department of Biological Sciences in order to participate in particular courses or research programs which are not adequately represented in their own institutions.

No formal admission standards are required of transient students. In order to enroll in this capacity, an applicant must obtain the approval of his/her major professor, the department in which he/she is a degree candidate, the Chairman of the Department of Biological Sciences at the University of South Carolina, and the Dean of the Graduate School. He/she must meet all prerequisites to courses he/she wishes to take at the University of South Carolina.

## **TEACHING ASSISTANTS**

### **Duties and Responsibilities**

Once awarded a teaching assistantship, the assistant is an employee of the Department and is expected to perform his/her assigned duties in a professional manner. Assigned duties include teaching laboratory sections of any of numerous courses offered by the department and/or performing other educationally related tasks, such as laboratory material preparation, examination proctoring and grading, and taking role in lecture sections. Each task is important, and assignments are made in an attempt to assure that the overall operation of the Department is at maximum efficiency.

Assistants normally are assigned up to eight contact hours of laboratory teaching and are expected to prepare themselves and their laboratory materials adequately. In most cases the testing and grading within assigned laboratory sections are also the teaching assistant's duty, but may be under the close direction of the professor of the course. Frequently, students will request an assistant's time outside of class to clarify academic problems. An assistant should be available, within reason, to grant such requests. From the above, it is obvious that an eight contact-hour assistantship will entail well over eight hours of work.

Teaching Assistants assigned duties other than in-class teaching are expected to render service comparable to the time spent in and out of class by teaching personnel (20 hour/week). Such assigned tasks are no less important than those of laboratory teachers. In fact, the adequacy of the classroom instruction is often directly related to the adequacy of out-of-class work.

Each assistant has a three-fold responsibility:

1. To his/her students.
2. To the professor of the course with which the student is associated.
3. To the Department of Biological Sciences.

Teaching assistants will be given and asked to sign a Teaching Assistant Contract Letter provided by the Undergraduate Office. Signing this contract letter provides an acknowledgment that the assistant understands and agrees to abide by the expectations outlined in the letter. Assistants should be aware however that additional expectations may be required by professor of the course or by the University. A copy of the Contract Letter is provided in the Appendices.

Questions, problems, or suggestions directly related to assigned jobs should be directed to the professor of the course. Other problems or suggestions, dealing with broader aspects of teaching assistantships, should be directed to the Undergraduate Director.

### **Personnel Actions**

The Business Office is responsible for initiating all personnel actions regarding teaching assistants. Primarily, this paperwork includes employment verification for payment of stipends and for eligibility for special tuition rates. Any questions regarding these matters should be directed to the Business Office.

### **Payment Schedule**

Teaching assistants are routinely paid on the fifteenth and the last working day of each month. A graduate stipend is paid in nine equal checks each semester, regardless of the length of the semester. Summer TA stipends are paid in two checks on June 15 and 30 for Summer Session I, or as two checks on July 31 and August 15 for Summer Session II. Summer RA stipends are normally paid semimonthly as during the regular semester.

### **Reappointment**

Assistantships are awarded for one semester and may be re-awarded on a semester basis according to the following criteria.

1. Academic eligibility.
2. Evaluation of performance by the faculty.
3. Departmental needs.
4. Years as a teaching assistant. (Generally, assistantships are granted for a maximum of two years for an M.S. candidate and four years for a Ph.D. candidate.)

Teaching assistants should be aware that failure to fulfill their assigned responsibilities may result in immediate termination of appointment, even during a semester.

Teaching assistantships for summer sessions are awarded to a limited number of students as departmental needs and budgetary considerations dictate. Most summer support depends upon grants or other funding sources.

### **Required Registration**

Graduate School regulations specify that teaching and research assistantships can be held only by students in a graduate degree program, not by non-degree students. Graduate students, M.S. and Ph.D., holding regular (half-time) assistantships must register for at least 6 hours each semester during the academic year. An enrollment of 1 hour each summer half-term (2 credits total) is required for graduate students awarded summer TA's or RA's.

### **Other Employment**

In accordance with Graduate School Regulations, a graduate student may not hold any other position of employment while he/she is supported by a TA or RA without special permission.

TEACHING ASSISTANTS ARE INSTRUCTED TO AVOID ANY PERSONAL OR SOCIAL INVOLVEMENT WITH STUDENTS ENROLLED IN THEIR SECTIONS. SUCH INVOLVEMENT COMPROMISES THE ASSISTANT'S OBJECTIVITY AS AN INSTRUCTOR, AND IS SUFFICIENT GROUNDS FOR TERMINATING THE ASSISTANTSHIP.

## **MISCELLANEOUS INFORMATION AND POLICIES**

### **Room (Office) Assignments**

The department will attempt to provide office and/or study space for all graduate students. Such space is limited, and it is departmental policy that students with graduate assistantships will be given first priority. Students with research assistantships normally will be placed in the area of their work. Students without support will be located with their major professors, if such is agreeable to the professors concerned. The Graduate Director is responsible for these assignments.

Normally, the only furniture provided is a carrel (table with bookshelves) and chair. Office supplies are not furnished.

### **Keys**

Keys to department facilities are issued on an as-required basis. The Business Associate is responsible for the control of keys. A fee of \$5.00 per key is required at the time of key request and is refunded when key is returned.

In no case will a key be issued to a faculty member's office or research laboratory without specific authorization by the faculty member. Under no circumstance is a key to be duplicated or loaned to other persons. If a key is lost, such should be reported promptly to the Business Office.

### **Areas of Limited Access**

Access is limited to some areas within the Department (e.g., photographic darkroom, greenhouse). When use of such facilities is necessary, see the Business Office.

### **Equipment and Facilities**

If any piece of equipment is in improper working condition or is missing, the appropriate staff or faculty member should be notified. Students should always be alert for conditions that warrant repair or are unsafe.

No area should be left unsecured. Thefts, unfortunately, are not uncommon, and precautions must be taken to prevent loss of personal and departmental items.

### **Telephones**

Most assigned study spaces are near a telephone. These phones are limited to on-campus calls or calls within the greater Columbia area. Under no circumstance is a student to place a toll call from a departmental phone, without the express approval of their major professor or the Department Chairman. Collect calls cannot be accepted under any circumstances. These regulations also pertinent to the department FAX machine; the secretary to the Department Chairman is responsible for charging grants or individuals for FAX transmission.

## **Mail**

The department provides mailboxes for graduate students in the mailroom next door to CLS 401. Mail is delivered and picked up twice a day. Outgoing mail should be placed in the appropriate trays above the faculty mailboxes in CLS 401. Students are to furnish their own postage stamps.

## **Safety Regulations**

Teaching assistants are responsible for the safe operation of the laboratories they teach. Proper procedures for using volatile and flammable solvents, explosive or poisonous chemicals, and radioactive materials must be followed. A fire extinguisher is located in each teaching laboratory, and first-aid kits are in CLS 401 and most teaching labs. The safety officer (p 35) and can provide additional information on request. Be alerted that a teaching assistant is legally responsible and may be liable for any accident that occurs in his/her laboratory.

The guiding document for all safety matters is the USC Health and Safety Manual. A number of copies are available in the department. All graduate students must complete USC Health and Safety training. Graduate students cannot use radioisotopes until they have completed an instructional course offered by the Safety Services Office. Your major professor is responsible for alerting you to any unusual hazards.

## **Accidents and Injuries**

Accidents that pose a threat to persons or property should be reported at once to the Department Office. Minor injuries may be treated using first aid kits found in CLS 401 or in various labs. If professional attention is needed, the injured should go or be taken to the Health Center for treatment. Students who are injured while on the job are covered under Workman's Compensation.

Fire extinguishers are located in most labs and in the halls. Students should be familiar with their use. When an extinguisher is used, the Business Office should be notified, so that the extinguisher can be refilled.

## **Photocopiers**

The photocopiers in the Department are for official use only. They are not to be used for theses, dissertations, personal notes, or other personal papers.

## **Computers**

Computers are available in CLS 401, CLS 202 and various other computer labs around the campus. The computers in CLS 401 and 202 are to be used exclusively for academic purposes; personal use is prohibited.

## **Library**

Interlibrary loans and use of the library's "non-coin" photocopiers are charged to the department and must be authorized by the student's major professor. Uncommitted students may seek such authorization from the faculty member directing the course or project, or from the Business Manager.

## **Administrative Assistance**

The office staff does not provide secretarial services for graduate students. Teaching assistants are expected to prepare and duplicate the exams and materials for their own lab sections; communal computers are located throughout the department. Any material requiring secretarial assistance must be submitted by your faculty supervisor.

## **GRADUATE ASSOCIATION OF BIOLOGICAL SCIENCES** **(G.A.B.S.)**

The Graduate Association of Biological Sciences draws its membership from graduate students in the life sciences. Primarily a social body, the chief aim of the organization is to promote informal social interactions among graduate students in the various scientific disciplines.

Academically, the group hosts an annual invited speaker, selected by the membership. Group members are also active participants in the recruitment of new graduate students, and assist the department in various capacities. The organization also selects a representative to attend faculty meetings.

New graduate students are especially encouraged to become active in the GABS organization, as this provides an excellent means of establishing oneself as a member of the graduate student community of both the Department and the University.

## DIRECTORY OF KEY PERSONNEL

<b><u>Position</u></b>	<b><u>Name and Address</u></b>	<b><u>Tel. #</u></b>	<b><u>Responsibilities</u></b>
Dean Graduate School	Dr. Lacy Ford Byrnes Int'l. Ctr. 302	7-4243	Policies and University regulations for all graduate programs.
Chair, Biological Sciences Dept.	Dr. Richard Showman CLS 401 CLS 511	7-4141 7-7036	Departmental policies, special problems.
Director of Graduate Studies	Dr. Jerry Hilbish EWS 715 / CLS 401	7-6629 7-2755 7-4141	Direction of graduate program, interpretation of regulations, information.
Graduate Studies Coordinator	Ms. Patricia Earley CLS 401	7-2755	Handles all records, BIOL 799/899 clearance, progress reports and general administration for the graduate program.
Undergraduate Director	Dr. Amanda Polson CLS 108	7-2518	Assigns TA teaching schedules.
Coordinator for MAT, MED, MT programs	Dr. Bert Ely CLS 701	7-2768	Responsible for the MAT, MED and MT programs.
Chair, Plant Biology Group	Dr. Johannes Stratmann CLS 407	7-5730	Coordinates Activities of this Research Group
Chair, Integrative Biology (aka EEOB)	Dr. James Pinckney PSC 512-A	7-7133	Coordinates Activities of this Research Group
Chair, Molecular, Cellular and Developmental Biology Group (MCDB)	Dr. Deanna Smith CLS 607	7-3020	Coordinates Activities of this Research Group
Director, Bioinformatics Professional Masters Program (PSM)	Dr. Austin Hughes CLS 501	7-9186	Directs the PSM in Bioinformatics
Director, Biotechnology Professional Masters Program (PSM)	Dr. László Márton CLS 509	7-6676	Directs the PSM in Biotechnology

<b>Position</b>	<b>Name and Address</b>	<b>Tel. #</b>	<b>Responsibilities</b>
Network Manager	Mr. John Alam CLS204 help@biol.sc.edu	via email	Email and web accounts, network support, classroom and office computer support.
Electronics Technician	Mr. Eric McKeown CLS 603a	7-7163	Electrical and mechanical emergencies and problems, electrical / mechanical repair.
Business Manager	Ms. Keith Warren CLS 401	7-4141	General business administration.
Personnel Associate	Ms. Charlene Martin CLS 401	7-4141	I-9, payroll, keys
Administrative Assistant	Faith Falise CLS 401	7-4141	Travel authorization, reimbursements, DEV
Stockroom Manager	Sherri Howell GSRC 109	7-2396	Acquisition and issue of supplies; shipping.
Safety Officers	Dr. Franklyn Bolander CLS 307	7-7656	Safety information and training
Graduate Studies Committee	Various faculty members, chaired by Graduate Director. Currently (8/12) Reisman, Krizek, Smith, Griffin, Friedman, Laura Enzor -student rep. selected by GABS.		Handle recruitment, admission, regulations, policies.
President, Graduate Association of Biological Sciences (GABS)	Nick Colvard	7-3931	Association sponsors seminars and social activities for graduate students in the Biological Sciences.

## **ACCESS TO GRADUATE STUDENT EDUCATIONAL RECORDS**

Access to graduate student educational records of the Department of Biological Sciences is regulated in accordance with the “Notification of Student Rights under FERPA” published in the Carolina Bulletin and in the Carolina Community Student Handbook. The following guidelines include the main points of the policy, but be aware that the entire policy will be followed.

1. Most of the information in student records is confidential, and may not be made public nor released to outside parties except as noted in the “Notification of Students Rights under FERPA”, unless the student requests such release in writing.
2. Department faculty, administrators, and appropriate staff have direct access to student educational records in the exercise of their academic and administrative duties, but may not remove graduate records from the office except according to procedures established by the graduate records clerk.
3. Graduate students may examine their own educational records with the exception of parental financial records, any confidential letters of recommendation filed before November 12, 1974, and any letters of recommendation filed since that date to which the student has signed a waiver of access.

Materials not included in educational records are unshared personal notes and non-student employment records. Law enforcement records, medical and psychiatric records, and counseling records are not kept in the Department of Biological Sciences.

Students must follow the procedures outlined below in order to obtain access to their educational records.

## Procedures for Access to Student Records

Each enrolled student or former student of the University of South Carolina is accorded the right to inspect and review official educational records or files of the University directly related to that student, other than materials to which the student has waived access. The following procedures will be followed.

<u>Responsibility</u>	<u>Action</u>
Student	1. Request access to a specific record or file at the office where the file is maintained.
Student Program Coordinator, Graduate Office	2. Initiate a Request for Access to Student Records form in duplicate, filling in the information as supplied by the student. 3. Submit the application to a designated department officer for approval. 4. When a request is approved, make an appointment between the designated staff member and the graduate student to examine the requested records.
Graduate Director	5. Review the record with the student right away, if possible, or arrange a convenient time to review the record if it is not immediately available. 6. When the documents have been reviewed, obtain the signature of the student on the application indicating that access to the record was granted. 7. Sign the application form indicating that the records were reviewed by the student in his/her presence. 8. Distribute copies of the application form: Copy 1 - Student's file. Copy 2 - Student.

A student may obtain certain types of information contained in his/her records by making inquiry through the graduate director, graduate records clerk, or the student's major professor. Such inquiries should be limited to specific information such as dates, grades, or the presence or absence of pertinent materials. No information not otherwise accessible to the student will be communicated to him/her indirectly through such an inquiry.

## **APPENDIX**

(Copies of all of the Forms listed in this Appendix can be found in the Graduate Studies Office, CLS 401)

1. Selection of Major Professor Form
2. Teaching Assistant Contract Letter

**SELECTION OF MAJOR PROFESSOR**

I, \_\_\_\_\_ have agreed to serve as Major Professor for  
(Print Faculty Name)

\_\_\_\_\_ during his/her work toward the \_\_\_\_\_ degree  
(Print Student Name)

in Biology.

\_\_\_\_\_  
(Faculty Signature)

\_\_\_\_\_  
(Student Signature)

\_\_\_\_\_  
Date

Student: \_\_\_\_\_

Course/Section: \_\_\_\_\_

Semester: \_\_\_\_\_

Dear Graduate Student,

You have been hired to teach the above laboratory sections for the upcoming semester for the Department of Biological Sciences. You are therefore asked to adhere to the following guidelines (please initial each one):

\_\_\_\_\_ Teaching assistants are responsible for **professional, quality teaching**. You are therefore expected to arrive for class early, clearly explain concepts and procedures, and assist students with difficult concepts. You are strongly discouraged from missing a class; but if you have an unavoidable conflict, you must contact the Instructor of Record to make alternate arrangements (under no circumstances should you cancel a class). It is your responsibility to grade worksheets and other materials prior to the next laboratory period and to be available to discuss the results with students.

\_\_\_\_\_ Teaching assistants are also responsible for **knowing the lab curriculum** prior to teaching it. You are therefore expected to prepare for and run through the experiment during the prep meeting for the laboratory, as well as prior to the first lab meeting (if necessary), to work through any potential difficulties before presenting the lab to the students. If your background or performance suggests gaps in your knowledge, you may be required to attend the course lectures.

\_\_\_\_\_ Teaching Assistants are also responsible for the **safety and conduct** of the students in their section(s). You are therefore expected to enforce lab safety rules with your students (i.e. students with sandals must leave the lab). You are also asked to monitor the integrity of your students' work and notify the Instructor of Record of any problems (e.g. plagiarism).

\_\_\_\_\_ Teaching Assistants are also responsible for keeping the lab and prep room **neat and organized**. You are therefore asked to clean up after your section(s), to put everything back in its place, to prepare the lab for the next section, and to report broken or missing items to the Instructor of Record for the laboratory. Any general lab supplies should be replaced and ordered as needed.

\_\_\_\_\_ Teaching Assistants are expected to be available to **proctor** examinations in courses. Additionally, Teaching Assistants are expected to assist in **grading** of examinations for the course associated with their assigned laboratory upon the request of the Instructor of Record.

\_\_\_\_\_ Teaching Assistants are expected to work **20 hours per week**. In addition to teaching lab section(s), you are expected to attend all orientations, training sessions, and meetings as required by the Instructor of Record or the Director of Undergraduate Studies and to produce your compiled grades by the date requested.

.....  
**By signing this letter, I am acknowledging that I have read the document above and will fulfill the responsibilities intended for this position.**

Student Signature \_\_\_\_\_

Date: \_\_\_\_\_

# PROFESSIONAL SCIENCE MASTER PROGRAM

## Overview

The Professional Science Master (P.S.M.) program is a master's-level program designed to provide students with the skills needed for success in the development, application, and/or marketing of science and technology in a business setting. As an alternative to the traditional research-based M.S. or Ph.D. programs, the P.S.M. attracts students who are interested in careers in science- and technology-based business. In the Department of Biological Sciences there are two areas of emphasis that the student may select from: **1) biotechnology** and **2) bioinformatics** (offered by the Department of Biological Sciences in cooperation with the Department of Statistics and the Department of Computer Science and Engineering in the College of Engineering and Information Technology).

The ultimate goal of the P.S.M. is the successful placement of the graduate into a rewarding career in an evolving, high-tech job market. It is for this reason that this degree involves case studies and problem-solving, group projects, and internships with industry. Students also benefit from the collaboration of the Moore School of Business, the USC School of Law, and the College of Mass Communications and Information Studies. The professional skills component of the program enhances students' scientific training with the practical skills needed to apply their technical proficiency to problem solving in a business setting.

## Program components:

- Core courses in the chosen science discipline, plus supplementary math or statistics courses.
- Course modules or seminars focusing on professional skills and real-world case studies.
- An internship with industry.

## Degree Requirements

Depending on the chosen area of emphasis, a professional science master's degree program is 33-37 semester hours of graduate credit. **At least half of the credit hours on the master's program of study must be earned in courses numbered 700 and above**, so students should exercise care in selecting course work to meet this requirement. **The master's program of study (MPOS) must be submitted to the Department's Graduate Studies Office CLS Room 401 by the end of your first year.** Please visit the Graduate School website and click on "Forms Library" to obtain the "Masters Program Study" Form. (A copy of the MPOS form is located in the back of the handbook.)

## Core Requirements

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All students enrolled in the professional science master's degree program are required to take the following courses for a 9-credit hour core:

- [COSM 701 - Business and Legal Issues for Science Managers](#)
- [COSM 702 - Scientific and Technological Problems in Business and Industry](#)
- [COSM 790 - Internship in Science and Technology Based Business](#)

## Area of Emphasis

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Remaining credit hours are listed by area of emphasis and selected with advisement from the area of emphasis list.

### Course Curriculum for Biotechnology

(Requires 33 total credit hours)

Biotechnology Program Manager: Laszlo Marton

#### Required:

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- [BIOL 523](#) or [BIOL 543](#) or [BIOL 530](#)
- [BIOL 655 - Biotechnology](#)
- [BIOL 764](#) or [BIOL 714](#) or [BIOL 640](#)
- [BIOL 671](#) or [BIOL 717](#) or [BIOL 620](#)
- [BIOS 700](#) or [STAT 509](#) or [STAT 515](#) or [STAT 700](#) (or other statistical methods course approved by the director)
- [BIOL 798 - Research in Biology](#)

#### Plus an additional 6 credit hours from the following:

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- [BIOL 610 - Hallmarks of Cancer](#)

- [BIOL 620 - Immunobiology](#)
- [BIOL 670 - Plant Ecology](#)
- [BIOL 702 - Selected Topics in Plant Biology](#)
- [BIOL 703 - Selected Topics in Ecology](#)
- [BIOL 704 - Selected Topics in Genetics and Developmental Biology](#)
- [BIOL 711 - Structure and Function of Nucleic Acids](#)
- [BIOL 712 - DNA Transactions and Gene Expression](#)
- [BIOL 717 - Biological Chemistry](#)
- [BIOL 718 - Biological Chemistry II](#)
- [BIOL 798 - Research in Biology](#)
- [BIOL 802 - Seminar in Plant Biology](#)

Note:

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Other relevant course work (e.g., biology, business, law, public health) may be approved by the graduate director of the program and the dean of the Graduate School as appropriate.

## Course Curriculum for Bioinformatics

**Bioinformatics Program Director: Austin Hughes**

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### Required:

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- [BIOL 653 - Bioinformatics](#)
- [BIOL 655 - Biotechnology](#) or [BIOL 656 - Experimental Biotechnology](#)
- [STAT 530 - Applied Multivariate Statistics](#) or [STAT 730 - Multivariate Analysis](#)
- [CSCE 555 - Algorithms in Bioinformatics](#)
- [STAT 700 - Applied Statistics I](#)
- [STAT 701 - Applied Statistics II](#)

or

- [STAT 712 - Mathematical Statistics I](#)
- [STAT 713 - Mathematical Statistics II](#)

**Plus an additional 9 credit hours from the following (at least three of which are in CSCE):**

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- [BIOL 552 - Population Genetics](#)
- [BIOL 652 - Evolutionary Biology](#)
- [BIOL 711 - Structure and Function of Nucleic Acids](#)
- [BIOL 712 - DNA Transactions and Gene Expression](#)
- [BIOL 714 - Advanced Cell Biology](#)
- [BIOL 717 - Biological Chemistry](#)
- [BIOL 718 - Biological Chemistry II](#)
- [BIOL 777 - Statistical Phylogenetics and Molecular Evolution](#)
- [BIOL 798 - Research in Biology](#)
- [CSCE 520 - Database System Design](#)
- [CSCE 564 - Computational Science](#)
- [CSCE 565 - Introduction to Computer Graphics](#)
- [CSCE 567 - Visualization Tools](#)
- [CSCE 582 - Bayesian Networks and Decision Graphs](#)
- [CSCE 721 - Physical Database Design](#)
- [CSCE 763 - Digital Image Processing](#)
- [CSCE 768 - Pattern Recognition and Classification](#)
- [CSCE 784 - Neural Information Processing](#)
- [STAT 750 - Response Surface Methodology](#)
- [STAT 775 - Generalized Linear Models](#)

