Policies for
Graduate Students

Genetics & Biochemistry

Clemson University
College of Agriculture, Forestry & Life Sciences

Revised 12/3/13
FOREWORD

This booklet has been prepared by the Genetics & Biochemistry faculty to inform graduate students of Departmental and Graduate School policies and regulations. The Graduate School Policies (also available on the web at http://gradspace.editme.com/policies) are the underlying regulations, so students should also become fully acquainted with the information contained on that webpage. Not being familiar with regulations may cost a student, their advisor, and the department time and money. Advice about other aspects of graduate study is included in the last section of this manual.

In Section XII, there is a checklist of important events and deadlines in the progression toward your degree. We suggest that students examine this list and carefully plan their activities as soon as possible. Some changes may be in order as time goes by, but this outline will serve as a good reminder and can be used by the Advisory Committee in a yearly evaluation of each student's progress. Careful planning assists with coordinating funding sources and teaching assistantship activities; thus you are strongly advised to continue planning and requesting input throughout your program.

We expect that this guidebook will be updated regularly. Policies that affect a given student are the ones in place at the time the student began the degree program. As a rule policy changes apply only to incoming students, but students already in the program can opt to follow the new policies if they wish.
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Section I. Assistantship Support

A. Support

Graduate students are supported either on a teaching assistantship (TA) or a research assistantship (RA). Teaching assistantships are assigned by the Department as recommended by the Graduate Committee for students with good oral English communication skills to assist professors in teaching the laboratory and lecture courses offered by the Department. These teaching assistantships are limited in number and are offered to outstanding applicants at the time of admission, based on their GRE and TOEFL scores, transcripts and recommendations. Teaching assistantships provide opportunities to learn skills valuable to career scientists but require a strong commitment to learning; thus TAs are expected to take their roles as assistants seriously. There are a limited number of research assistantships also available, at the discretion of individual investigators, to entering graduate students based on GRE scores, TOEFL scores, transcripts and recommendations as well as their interests in research programs under the direction of particular investigators. Arrangements for research assistantships are usually worked out between the applicant and the professor and the formal offer is tendered with the admission papers. Continuing financial support, as required by the student, is the responsibility of the Major Advisor (see Section II. Selection of Major Advisor) through research assistantships (from funds related to the Major Advisor’s research projects) or through teaching assistantships in consultation with the Graduate Committee. Some policies, especially the structure of the first year graduate experience, will differ depending on the student’s status as a research assistant or teaching assistant.

B. Employment

Because a graduate degree is a full time commitment, the department will not accept students into the Genetics or Biochemistry & Molecular Biology programs who do not have full stipend support. Students within the program may not be employed more than 10 hours per week in addition to their graduate work. Part time degree students are not allowed. By University policy, full time status is defined as being enrolled in 9 credit hours in fall and spring and 3 credit hours in each summer session.

C. Termination of Assistantship
A TA/RA can be terminated at any time for substandard, unsatisfactory, or unethical performance. A TA/RA who acts in an inappropriate manner will be given notice of deficiencies/unacceptable behavior in writing via a certified letter by their Major Advisor, the Graduate Committee, or the Department Chair. A copy of this written notice will be kept in the student’s file.

If redemptive action is not taken immediately by the student, a letter of dismissal from the Department Chair and the Graduate Dean will be sent via certified mail to the student’s residence. Depending on the severity of the deficiency/unacceptable behavior, the Department Chair’s certified letter of dismissal may be sent in as little as 2 weeks following the first notice.

Section II. Selection of the Major Advisor

A. Teaching Assistants (TAs)

Students who are accepted as TAs will spend their first academic year doing research in the laboratories of three faculty in order to choose a Major Advisor by the end of the first academic year. Research rotations are meant to introduce students to the type of research and atmosphere of the individual labs. Students may rotate in the laboratories of faculty who have a 51% or greater appointment in the department. Students will complete three 10-week long rotations. By the end of Spring Semester (if starting in Fall Semester) or by Summer II (if starting in Spring Semester), all students are required to choose a lab, by mutual agreement of the faculty member and the student and approval of the Department Chair. Students will sign up for the appropriate number of hours of GEN/BIOCH 991 research under the Rotation Advisor and be given a P/F grade for their work in the lab.

Each student MUST do three rotations, even if they have selected a Major Advisor early in the year. Until a student selects a lab, the respective faculty graduate coordinator is the Major Advisor.

B. Research Assistants (RAs)

Because RAs have chosen a faculty advisor by mutual agreement before matriculation, that faculty member, as the Major Advisor, will counsel the new graduate student, assisting the student in making initial decisions concerning coursework and plan of study (GS2) as outlined by the graduate school requirements. The Major Advisor and student will discuss mutual
research interests and possible research projects. Continuing support is based on performance of the student in the research laboratory. It is the responsibility of the Major Advisor to make the student aware of ongoing research in the lab and to help the student understand the work philosophy of the Major Advisor's research laboratory.

C. Major Advisors outside the Department

A student may be supported as an RA with a co-Major Advisor outside the department but one co-Major Advisor must be full-time (more than 51% appointment) tenured or tenure-track faculty in the Department of Genetics and Biochemistry and the graduate student must follow the guidelines in Section III for composition of the Advisory Committee.

Occasionally a student supported as a RA will be associated with a co-Major Advisor who has a minority appointment in the department. The co-Major Advisor and the graduate student must follow the guidelines in Section III for composition of the Advisory Committee. However, in this case, financial support for this student must come from the external co-Major Advisor and/or from the majority Department of the Major Advisor.

Genetics & Biochemistry graduate students being trained by Genetics & Biochemistry faculty at off campus locations shall not be required by virtue of their location to fulfill additional obligations beyond those specified in the handbook. This does not preclude voluntary participation, but mandatory requirements are the same for all students in the department regardless of physical location.

Section III. The Advisory Committee

A. Composition

No later than the beginning of the second year, the student and Major Advisor must organize an Advisory Committee of faculty members who oversee the progress of the graduate student toward the Ph.D. degree. This committee also administers oral and written examinations including that for admission to candidacy for the Ph.D. degree. The Chair of the Advising Committee may be the Major Advisor and must be a tenured or tenure-track faculty member of the Genetics and Biochemistry Department (51% or more appointment). The Major Advisor will supervise the research and, together with the Advisory Committee, will ensure that the quality of the research meets the standards of the department.
The Advisor Committee will have a minimum of four members for Ph.D. students. A majority of the members must be full-time (more than 51% appointment) tenured or tenure-track faculty in the Department of Genetics and Biochemistry. An additional member of the committee may be a faculty person from outside the university in an area compatible with the proposed research, who will participate at minimum as a reader of the thesis, with greater participation at the option of the student, the committee and the outside member. Students and Major Advisors should be aware that while addition of an outside faculty member is strongly encouraged, there are complications such as adjunct appointment status (which requires submission of transcripts and university approval) and availability for committee meetings that must be addressed.

It is possible in extenuating circumstances to change the composition of a student's Advisory Committee before completion of the degree. In such circumstances, a new GS-2 form must be signed by the Major Advisor and the Department Chair and filed with the Graduate School.

Below is a helpful flowchart for assembling an Advisory Committee that meets the needs of the student, the department, and the Graduate School.

**B. Responsibilities**

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The Advisor Committee will have a minimum of four members for Ph.D. students. A majority of the members must be full-time (more than 51% appointment) tenured or tenure-track faculty in the Department of Genetics and Biochemistry. An additional member of the committee may be a faculty person from outside the university in an area compatible with the proposed research, who will participate at minimum as a reader of the thesis, with greater participation at the option of the student, the committee and the outside member. Students and Major Advisors should be aware that while addition of an outside faculty member is strongly encouraged, there are complications such as adjunct appointment status (which requires submission of transcripts and university approval) and availability for committee meetings that must be addressed.

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**B. Responsibilities**

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The Advisory Committee, convened by the Chair, reviews the student's plan of study, decides on appropriate coursework, conducts the qualifying examinations (See Section VIII. Ph.D. specific requirements), assists in the preparation of and approves the thesis, and makes the final decision regarding the recommendation to award the degree. This committee is designed to help the student complete a good thesis and ensure the quality of the training of the student; thus, the composition of the committee should facilitate this process.

C. Advisory Committee Meetings - Presentation of Research

The student will meet with the Advisory Committee at least once per calendar year and it is the student’s responsibility to schedule these meetings. The student is expected to give a short presentation at the first meeting with the Advisory Committee that outlines the research project and progress to date. Similar presentations are expected at each subsequent meeting of the Advisory Committee. The intent is to verify that the student is making reasonable progress in accomplishing the research objectives.

A memo summarizing the meeting will be prepared by the student, signed by each of the Advisory Committee members and filed with the Departmental office (given to Carol Duckworth) after each meeting of the committee. These summaries will be kept in the student’s file as evidence of degree progress.

Section IV. The Graduate Committee

The Graduate Committee is charged in the Departmental Bylaws to “coordinate the recruiting, selection and admission of graduate students and make recommendations for financial support, as well as review student performance.” In order to discharge this responsibility, the Graduate Coordinators surveys each graduate student in the Department annually to review the student’s progress and performance. Completion and submission of a survey form (see Section XIII. Additional Information Part G) to the Graduate Committee before July 1 of each year is required. The completed form will be added to the student’s file as part of the yearly progress record. The committee will consider as part of the review process the summaries of the student’s Advisory Committee meetings, grades in formal coursework, and for students supported on a teaching assistantship, teaching evaluations and evaluation comments from the laboratory prep staff and faculty responsible for the course will also be considered. The Graduate Committee will
forward to the Department Chair the file, with a report from the Committee, of any student the Committee feels requires further review. Thus, the Graduate Committee review serves as screening mechanism for the Department Chair.

**Section V. Graduate Curriculum**

**A. Notice from the Graduate School:** DOCTOR OF PHILOSOPHY/EDUCATION DEGREE, LENGTH (CREDIT REQUIREMENTS POLICY)

“The advisory committee aids the student in developing a degree curriculum which includes the selection of specific courses and their sequence. At Clemson University, a minimum of 30 credits past the masters and 60 credits past the bachelors degree are required for the doctoral degree. A minimum of 18 hours of doctoral research is required. Should the direction of study or research interest change, the student may request the appointment of a new advisor. Coursework leading to the Doctor of Philosophy/Education degree is planned to give the student a comprehensive knowledge of his/her field of specialization and a mastery of the methods of research. The degree is not awarded solely on the basis of coursework completed, residence, or other routine requirements. The final basis of granting the degree is the student's grasp of the subject matter of a broad field of study, competence in planning and conducting research, and ability to express him/herself adequately and professionally orally and in writing.”

**B. Graduate Degree Curriculum form**

Upon selection of a Major Advisor, the student should confer with the Major Advisor and prepare a plan of study and select members of the Advisory Committee. The Advisory Committee should meet by the beginning of the second year for Ph.D. students, and approve the "Clemson University Graduate Curriculum" (GS-2 Form). The completed form must be signed by the Department Chair, the Dean of the College, and the Dean of the Graduate School and then submitted to the Graduate School.

**C. Coursework**

The Ph.D. degree in Genetics or Biochemistry and Molecular Biology requires 12 hours of coursework. Additional hours required for full time status are fulfilled by GEN/BIOCH 991 for Ph.D. students. At least 18 hours of GEN/BIOCH 991 are required for the Ph.D. In addition, all students must register for Seminar GEN/BIOCH 825 (1,0) each semester enrolled. In the
final semester in which a student defends the student should register for BIOCH/GEN 851 instead of 825.

**Curriculum for Ph.D. in Genetics**

**First Year** (note that courses may be offered in alternate years, requiring more than 1 year for completion)

**Fall Semester:**
- Advanced Genetics I GEN 814 (3,0)
- Advanced Biochemistry I BIOCH 814 (3,0)
- Seminar GEN 825 (1,0)

**Spring Semester:**
- Issues in Research GEN 805 (3,0)
- Advanced Genetics II GEN 890 (3,0)
- Seminar GEN 825 (1,0)

**Subsequent years:**
- GEN 825 each semester (1,0)
- GEN 851 final semester (1,0)

**Curriculum for Ph.D. in Biochemistry & Molecular Biology**

**First Year**

**Fall Semester:**
- Advanced Biochemistry I BIOCH 814 (3,0)
- Advanced Genetics GEN I 814 (3,0)
- Seminar BIOCH 825 (1,0)

**Spring Semester:**
- Issues in Research BIOCH 805 (3,0)
- Advanced Biochemistry II BIOCH 800 (3,0)
- Seminar BIOCH 825 (1,0)

**Subsequent years:**
- BIOCH 825 each semester (1,0)
- BIOCH 851 final semester (1,0)
Selected Elective Courses for Genetics and Biochemistry & Molecular Biology Programs:

These courses can be added to the required courses as students or their Advisory committees deem appropriate. Many of these courses are not offered every year; check the online course registration for information on what is offered in a given term.

- Fundamentals of Genetics I GEN 610 (Population & Quantitative Genetics)
- Fundamentals of Genetics II GEN 620 (Molecular Genetics)
- Bioinformatics GEN/BIOCH 640
- Comparative Genetics GEN 650
- Human Genetics GEN 670
- Cytogenetics GEN 801
- Quantitative Genetics GEN 803
- Developmental Genetics GEN 815
- Methods of Analysis in Molecular Evolution and Population Genetics GEN 830
- Special Topics in Genetics GEN 890
- Physical Approach to Biochemistry BIOCH 631
- Biochemistry of Metabolism BIOCH 632
- Nucleic Acid and Protein Biosynthesis BIOCH 636
- Biochemical Basis of Disease BIOCH 643
- Signal Transduction BIOCH 816
- Cellular Metabolism BIOCH 818
- Proteins BIOCH 821
- Enzymes BIOCH 822
- Supramolecular Structure BIOCH 828
- Structure and Function of Nucleic Acids BIOCH 832
- Special Topics in Biochemistry BIOCH 890

Other courses in BIOSCI, MICRO, HORT, CHEM, etc. can also be taken in consultation with the Advisory Committee. However, a course substitution must be noted on the GS-2 form.
**D. Grade Requirements**

The course work described within the curriculum comprises a body of information essential for both breadth and competence in a student's field of interest. Core courses in biochemistry and genetics are listed (see Requirements below) as well as more specialized courses essential for pursuing research in the chosen area. Accordingly, good grades are expected in these courses. A minimum of a B average (3.0) in all course work listed on the GS-2 form is **required** for continuation in graduate school. A student with a grade average of less than 3.0 is placed on probation. A student on probation will be permitted a period of nine graded credit hours (Fall or Spring, not a Summer Semester and not P/F) to raise a deficient grade average to 3.0. However, a grade lower than C in any of the courses found on the plan of study (GS-2) will immediately disqualify a student from further graduate study in Genetics and Biochemistry.

**Section VI. Research**

The Ph.D. degrees in Genetics and Biochemistry & Molecular Biology are research degrees. While course work is required to broaden the student's training and to increase his or her professionalism, the primary goal of this course work is to increase one's ability to do competent research. It is the quality of the student's research that will eventually lead to the award or denial of the desired degree. Following completion of required coursework, duties associated with research will occupy most of a student’s time and thought. Unlike courses, research is not structured with well-defined hours. This requires that the student have the proper maturity, mental discipline, and work habits to be independent and productive. **Research is not done on a forty hour a week basis from 9:00 A.M. to 5:00 P.M. Monday through Friday.**

Ph.D. students should plan to make maximal use of the summer period. It is advisable that after the first academic year, course loads should be kept to a minimum to allow maximum research time. Unlike undergraduate students, graduate students should not view class breaks specified in the university calendar as vacation time. Rather, these breaks from scheduled classes should be seen as invaluable time for performing research.
Section VII. Ph.D. Specific Requirements

Entrance into the Ph.D. degree program for students obtaining the M.S. degree from Clemson is not automatic. Application to enter the program is accomplished by filing a GS-1 Form (Application for Admission) through the Graduate School and applicants are considered in the same competitive pool as applicants from outside the university. Acceptance into the program requires approval of the Genetics and Biochemistry Graduate Committee. Coursework for students who have completed an M.S. will be determined by the student's Advisory Committee and Graduate School Policies, but it should be noted that the Graduate School at Clemson forbids awarding credit for courses already applied to another degree.

A. Candidacy for the Ph.D. Degree (Comprehensive Exam)

Upon completion of the second year, but before the end of the fifth semester of graduate work, students in the Ph.D. program take a two-part Comprehensive Exam. Passing the Exam allows a student to become a candidate for the Ph.D. degree. If a Ph.D. student has not completed the Comprehensive Exam by the end of the fifth semester of enrollment (exclusive of summers), his or her teaching assistantship will be terminated and the student will not be permitted to enroll in BIOCH 991 or GEN 991 for the sixth semester. Extraordinary circumstances can be appealed to the Chair of the Department and put to a vote of the faculty for a one-time extension for this requirement until the end of the sixth semester of enrollment in Graduate School.

1. Written Exam

The student will first take a written exam consisting of submitting answers written “open book” style to written questions posed by each Advisory Committee member. Usually a day is allowed for each member’s question. The written answers are graded by the committee member who gave the questions.

Within 14 days of the last answer being submitted, the Committee members will return comments to the Major Advisor, who will inform the student of the consensus of the Advisory Committee of the student’s performance on the written exam. Successful completion of the written exam should be considered as answering all questions in a level of detail and clarity that is acceptable to the person who wrote the question. This allows for an answer to be largely
acceptable, but with minor deficiencies. The questioner may accept the written answer as submitted and then explore it more fully as part of the oral exam. This process also allows for slight misinterpretations of the points of certain questions without the need to unnecessarily "fail" the student.

If the student does not successfully complete the written portion, he or she may have one more attempt within one month to pass this portion. If the Advisory Committee deems the written portion acceptable, a date will be set for the oral exam within one month of passing the written exam.

2. Oral Exam

The student next will prepare a written proposal of their own research plans in NSF grant proposal format (up to 15 pages including figures but not reference pages). The student may provide a one page summary of their proposal to the Advisory Committee members at the time of scheduling the oral exam. The student can directly discuss the summary page with any Committee member and revise accordingly. Upon approval, the student then will prepare the full proposal without further faculty consultation. The student will submit the full proposal at least two weeks before the date set for the exam. Sample proposals from departmental faculty other than the student’s Major Advisor will be available in the main office for the student’s review by asking Carol Duckworth. The Committee members will provide the Major Advisor with general comments on the acceptability of the proposal at least one week before the exam date. If the Advisory Committee feels the proposal is unacceptable as written, the oral exam may be cancelled without penalty and rescheduled within one month. In this case, the student should consult with the Advisory Committee on revisions before setting a new exam date.

On the day of the oral exam, the student will present and defend the research proposal by answering any questions posed by the Advisory Committee. The student also will answer any questions related to any portion of the written exam that a Committee member might want to ask. The Advisory Committee will determine successful completion of the oral portion on the day of the exam. At the conclusion of the exam, each Committee member will return to the student a written review of the proposal. A Committee member can also choose to provide specific written comments related to the written exam.

Following completion of the exam, the student will immediately file a GS-5 form ("Results of the Ph.D. Comprehensive Exam Form") with the Dean of the Graduate School.
(through the Administrative Graduate Coordinator). Upon successful completion of the oral exam, the student becomes a Candidate for the Ph.D. degree. If the student does not successfully complete the oral exam, she or he will have one more opportunity to retake the exam within one semester.

**B. Ph.D. Dissertation and Oral Defense**

The student must prepare a Ph.D. dissertation describing the original research accomplished and the results obtained. The research must be of publishable quality and at least a portion of the research is expected to be submitted for publication for award of the Ph.D. degree. In addition, the dissertation must be of such quality that the student has shown the skill and knowledge to be awarded such a degree. When the dissertation has met the approval of the student's Major Advisor, the student will present his or her research before the public and defend the research before the Advisory Committee and all faculty who wish to attend in a private oral examination. The date, time, location, and abstract of the public defense must be provided to the Departmental Administrator (Carol Duckworth) and the Graduate School at least 14 days in advance of the defense date.

In addition to the notification of the Graduate School and the Advisory Committee members, the date, place and time of the oral defense will be posted in the departmental office. A copy of the dissertation must be submitted to each member of the student’s Advisory Committee and a copy left on file in the Departmental office at least two weeks prior to the final oral examination/defense. Deadlines for the oral defense and submission of the final dissertation to the Graduate School are given in the Graduate School Announcements (see Section XI. Checklist of Important Events). The deadlines are stringently enforced by the Graduate School.

The Major Advisor facilitates the examination process but does not play a major role in the examination. If the student fails the oral dissertation exam, he or she will be permitted one re-examination at a time agreed upon by the Advisory Committee (no more than six months later).

**C. Time Requirements and Financial Support.**
A student without the M.S. degree should complete the requirements for the Ph.D. degree in approximately five to six years, or in three to four years if a M.S. degree is already held. The Graduate School requires that all work towards the degree be completed within five years after Candidacy (filing the GS-5).

Departmental financial support for students on teaching assistantships is based on the quality of teaching and progress toward the degree, and is reviewed annually by the Graduate Committee. Departmental support beyond five years for students earning a Ph.D. degree without holding an M.S. must be approved on a semester by semester basis by the Department Chair and the Graduate Committee. If the student seeks the Ph.D. after obtaining the M.S., departmental support beyond four years is rare and must be approved on a semester by semester basis by the Department Chair and the Graduate Committee.

Section VIII. Departmental Seminars

When the student enters graduate school, he or she is entering the scientific profession. Part of professional training involves continual expansion of the student's areas of knowledge, and keeping abreast of current advances in research. The department provides a schedule of scientific speakers from within and outside Clemson University to aid this process.

Whenever possible, the department provides the student with the opportunity to meet informally with the visiting speakers. Students are strongly urged to use this opportunity to best advantage. Contacts made during this time can be of great importance in the student's professional life.

All graduate students in Genetics and Biochemistry & Molecular Biology students must enroll in the seminar course (GEN 825 and BIOCH 825) each Fall and Spring semester in which they are a full time student in the degree program. Attendance by all graduate students in Genetics and Biochemistry & Molecular Biology at Departmental Seminars and at Research in Progress Presentations is mandatory. Absence from more than 20% of departmental seminars or Research in Progress Presentations (described below) will result in an F in GEN/BIOCH 825. Any exception must be approved in advance by the Major Advisor and the Department Chair.
Section IX. Research in Progress (RIP) Presentations

All students are required to present formal seminars during their residency. The Research in Progress (RIP) seminar series, which is separate from the departmental seminar series, was created to give students more opportunities to present their own research and gain experience in giving formal seminars. First year students are not expected to give presentations outside of those assigned in their courses. Each year thereafter, students will be required to give a presentation as part of the RIP series. These presentations will be on a student's own research, as described below, and fulfill part of the Ph.D. degree requirements.

Ph.D. students are required to present a minimum of one seminar per year on their research in progress, and one as a final research report as part of the dissertation defense (the final defense may count as the RIP presentation for that year). Please note that after the first year, each student will be scheduled to give a RIP presentation every year on the student's own research, but second year students will have shorter time slots and may present more of an overview. More presentations may be assigned at the discretion of the student’s Advisory Committee.

Mandatory attendance at both the RIP presentations and the departmental seminar series is required to pass GEN/BIOCH 825. Absence from more than 20% of departmental seminars or RIP presentations (combined) will result in an F in GEN/BIOCH 825.

A. Research in Progress (RIP) Presentation Contents

These presentations should be used to provide an introduction to your area of research, your specific project, and the progress you have made thus far. In each year, the student will give a RIP presentation but will enroll in GEN/BIOCH 825 (with the exception of the final research presentation given as part of the thesis/dissertation defense which is enrolled in as GEN/BIOCH 851).

There is no time requirement for RIP presentation. Talks should only be as long as you deem necessary to give a thorough presentation. A general outline for these presentations is given below. Please note that pauses for questions/discussion should be included after each major section to enhance positive interactions with the audience.

GENERAL OUTLINE FOR PRESENTATIONS

Introduction
1) Why is this research important? Put things in context for a general scientific audience. Remember, your audience has general biochemistry and genetics knowledge but may not have specific knowledge of your subject area.

2) What is already known about your specific subject area (setting up the question). You may use other people's figures and data, including past research in your lab, but must properly cite/acknowledge the sources.

3) What is/are the question(s) your research addresses?

4) Stop and ask for questions. You want to be sure your audience understands the foundation for your research before you start presenting your data.

Preliminary Data/Methods

1) Explain the techniques you are using. Standard molecular biology techniques (e.g., PCR, Northern blot, Southern blot, PCR) do not need explanation, but special nomenclature or techniques should be explained so you audience will be able to understand your results better.

2) Explain the experiments you have done so far. Why did you do them? What were the results? Do the results make sense given what is known or what your hypothesis is? Are there problems you are trouble shooting? Walk your audience through your thought processes in performing and evaluating your experiments.

3) Stop and ask for questions/comments. Interaction with your audience at this point will provide valuable feedback and new ideas.

Future Experiments

1) What new questions are raised by your results? How do you plan to address them?

2) What other questions still need to be addressed? How do you plan to do that?

3) Stop and ask for questions/comments. Again, this is an ideal point to get feedback and new ideas from your audience.

Summary
1) Review your questions and your progress toward answering them. A bullet slide or two is all that is usually needed.
2) Review your future directions.
3) Thank the audience and ask again for questions.

*Other tips:*
- Remember to speak slowly and with enough volume to be heard throughout the room. This may require some concentration on your part, as inexperienced speakers often start out strong but tend to become quieter over the course of the presentation.
- By using the stopping points indicated above, your audience will have the opportunity to remind you if you are speaking too softly to be heard.

**B. Thesis Seminars**
All students are required to give a final presentation of their thesis work as a regular 45 minute Ph.D. defense seminar. The Advisory Committee and student will decide when to hold the actual thesis defense, but the defense and public presentation do not need to be on the same day. Adequate notice of defense (minimum of 14 calendar days) must be given to the departmental office (Carol Duckworth) so that proper notice can be given to the graduate school and department faculty.

**C. Grading and Evaluations**
All GEN/BIOCH 851 presentations (thesis defenses) will be graded as P/F or incomplete by the student’s Advisor Committee. Attendance by enrolled graduate students at all departmental seminars and RIP presentations is the major component for receiving credit each semester for GEN/BIOCH 825.

**Section X. Thesis and Dissertation Preparation**
Students should review the formatting rules for dissertations from the Graduate School before writing the first draft of the thesis. A checklist and detailed FAQs addressing common issues in formatting are available online at [http://www.grad.clemson.edu/Manuscript.php](http://www.grad.clemson.edu/Manuscript.php). The rules and formats prescribed by the University are rigidly enforced by the Graduate School and
final submission requires electronic conversion to a pdf file. Also, journals such as the Journal of Biological Chemistry, Biochemistry, Genetics, Cell, and others, writing manuals such as Strunk's Elements of Style or the American Chemical Society's Guidebook for Authors should be consulted for form. The English Department’s Writing Support Center offers assistance in writing to students for whom English is not their native language, as well as to any Clemson student who requests it.

The following rules govern the citation of references in a thesis or dissertation:

1. References will be cited as done in a leading journal of biochemistry, molecular biology or genetics and agreed upon by the Advisory Committee, and must include the full title of an article.

2. If journals are to be abbreviated, they must conform to standard abbreviations.

When a student has prepared a draft, the student should consult with his or her Major Advisor. The draft should be re-written with appropriate changes and the procedure repeated as many times as necessary. The thesis or dissertation must be in essentially final form for the oral examination: graphs should be in finished form with complete captions and the text of the final draft typed with special care. It should be understood that if there are no additions or corrections, as a consequence of the oral examination/defense, this copy of the thesis could be considered the final draft. A prudent candidate will have consulted the Advisory Committee members and the Graduate School with respect to the text and format of his or her thesis before the oral to anticipate any major alterations. As noted previously, a copy of the thesis or dissertation must be submitted to each member of the student's Advisory Committee at least two weeks before the final oral examination/defense and a copy left on file in the departmental office. Additions, deletions or alterations may be suggested or required at the oral examination/defense.

The Genetics and Biochemistry faculty strongly disapproves of students leaving residency before the successful completion of the thesis or dissertation. Completion by mail is a time consuming, difficult process and generally results in a less than optimum quality thesis.
## Section XI. Checklist of Important Events

<table>
<thead>
<tr>
<th>Task</th>
<th>Timing of task</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Selection of Major Advisor</td>
<td>RAs: Before admission</td>
</tr>
<tr>
<td></td>
<td>TAs: By the beginning of Summer Session II.</td>
</tr>
<tr>
<td></td>
<td>Can be changed, but may have consequences for financial support</td>
</tr>
<tr>
<td>B. Advisory Committee</td>
<td>Not later than the end of the first year of enrollment</td>
</tr>
<tr>
<td>C. Submit Graduate Degree Curriculum Form GS-2</td>
<td>By the third semester of enrollment</td>
</tr>
<tr>
<td>D. Admission to Candidacy for a PhD degree Form GS5D</td>
<td>Preparation and oral defense of original proposal is normally carried out after the completion of the bulk of the formal course requirements in the plan of study; usually after the second year. <strong>Special exemptions are required for postponement past the 5th full semester of enrollment.</strong></td>
</tr>
<tr>
<td>E. Presentation of thesis research RIP</td>
<td>Every year after the first.</td>
</tr>
<tr>
<td>F. Application for Graduation and Diploma Order (GS4)</td>
<td>The beginning of the final semester before graduation*</td>
</tr>
<tr>
<td>G. Order cap, gown and hood</td>
<td>About three months before graduation*</td>
</tr>
</tbody>
</table>
H. Completion of thesis

Best well in advance, but no less than two weeks before oral defense. The Advisory Committee must approve the thesis before it is submitted to the graduate school.

I. Announcement of exam & placement of thesis in office

Two weeks before oral defense date.

J. Oral defense (GS7)

At least a month before graduation*

K. Obtain approval of thesis format from Graduate School

At least two weeks before graduation*

L. Submit copies of thesis to Graduate School

At least one week before graduation*

!!!!!Graduation*!!!!!!

*Formal deadlines for each of these events are posted by the graduate school keyed to graduation dates in December, May, and August (http://www.grad.clemson.edu/Deadlines.php). These deadlines are immutable, so it is wise to check early.
Section XII. Additional Information

A. Library

The genetics, biochemistry, and molecular biology holdings at the Clemson University Library are excellent. At the earliest possible date, each graduate student should make himself aware of the library holdings. In particular, the student should make sure that she is acquainted with the "current journals" shelves, the various abstracts, and especially the numerous electronic holdings. The student should become very familiar with search engines such as PubMed or BIOSIS. Graduate students are allowed to check out journals for up to three days. This is a unique privilege and must not be abused or it will be revoked. In addition, all electronic holdings can be printed to any printer, allowing students to quickly obtain copies of the most current research. Occasionally, a reference is not held in our library. In this case, the student should request an inter-library loan, which is free.

B. Academic Integrity

Clemson University has an official policy on academic integrity. “As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a ‘high seminary of learning.’ Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.” Because there are serious consequences for any instance of plagiarism or misconduct, including suspension from the degree program, students are advised to become familiar with the Clemson Graduate Academic Integrity Policy (http://gradspace.editme.com/AcademicGrievancePolicyandProcedures#integritypol).

Research, the creation of new knowledge, and the membership of a young scientist into the ranks of other scientists engaged in research activities, involves special aspects of truthfulness, honor, responsibility, trust and respect. We direct students to the National Academy of Sciences online book (the pdf is a free download), On Being a Scientist: Responsible Conduct in Research (http://www.nap.edu/catalog.php?record_id=12192) for guidelines and discussions of these matters. Students should consult with their Advisory
Committee chair or the chair of the department if they encounter any practices that seem questionable or have any doubts about what are appropriate practices in collecting and reporting data. During graduate training, students will be given opportunities to discuss these matters in some detail with experts in ethics and appropriate practices in research.

C. University Ombudsman

The ombudsman is an independent, confidential resource that provides assistance to faculty and graduate students in resolving problems, complaints and conflicts when normal processes and procedures have not worked satisfactorily. The Ombudsman's Office serves as a central information source on policies, procedures and regulations affecting faculty and graduate students. The office refers individuals to persons able to resolve problems or handle appeals at the lowest possible level. Where appropriate, the ombudsman can facilitate and/or mediate communication between parties who find themselves in a dispute. More information about the functions of the ombudsman can be found at http://virtual.clemson.edu/groups/FacOmbudsman/. Concerns can be directed to the university ombudsman for faculty and graduate students by letter, walk-in, appointment or telephone:

R. Gordon Halfacre, member of the Ombudsman Association
University Ombudsman for Faculty and Graduate Students
101-E Clemson House
248 N. Palmetto Blvd.
Clemson, SC 29631-5107
Office: (864) 656-4353 or 656-6353 (admin assistant)
Email: rhlfc@clemson.edu

D. Other Sources of Support/Advice

1. The Graduate Student Resources Page
   (http://www-personal.umich.edu/~danhorn/graduate.html)
2. The Graduate School Survival Guide
   (http://faculty.washington.edu/wpratt/survive.htm)
3. How to Be a Good Graduate Student
   (http://www.cs.indiana.edu/how.2b/how.2b.html)
4. PhD.org
   (http://www.phds.org/)
**E. ANNUAL REPORT TEMPLATE**

Please obtain an electronic copy to file from the Graduate Committee- this is printed here for your information, as submission is electronic.

This form needs to be updated by **July 1** each year and emailed back to the graduate committee along with your **Written Summary of Annual Committee Meeting** for that year.

**Please Enter the following Data since the last report period...**

<table>
<thead>
<tr>
<th><strong>Report Date (Please Enter Year)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Last name</td>
</tr>
<tr>
<td>First name</td>
</tr>
<tr>
<td>Degree program (Genetics/BMB)</td>
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<tr>
<td>Year you entered the program</td>
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<tr>
<td>Major professor</td>
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<tr>
<td>Date of annual committee meeting</td>
</tr>
<tr>
<td>Manuscripts Submitted</td>
</tr>
<tr>
<td>Manuscripts Accepted (<em>Enter details below</em>)</td>
</tr>
<tr>
<td>Applications for support – Submitted (1)</td>
</tr>
<tr>
<td>Applications for support – Funded (<em>Enter details below</em>) (1)</td>
</tr>
<tr>
<td>Number of Awards/Honors Received. (<em>Enter details below</em>)</td>
</tr>
<tr>
<td>Were you supported by TA, RA or RA/TA?</td>
</tr>
<tr>
<td>How many scientific meetings did you attend? (<em>Enter details below</em>) (2)</td>
</tr>
<tr>
<td>TA course code #1 (3)</td>
</tr>
<tr>
<td>TA course code #1 (3)</td>
</tr>
<tr>
<td>TA course code #3 (3)</td>
</tr>
<tr>
<td>Course work completed #1 (4)</td>
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<tr>
<td>Course work completed #2 (4)</td>
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<tr>
<td>Course work completed #3 (4)</td>
</tr>
<tr>
<td>Course work completed #4 (4)</td>
</tr>
<tr>
<td>Course work completed #5 (4)</td>
</tr>
<tr>
<td>Patents Filed</td>
</tr>
<tr>
<td>Other Notes</td>
</tr>
</tbody>
</table>

**DETAILS**

<table>
<thead>
<tr>
<th>Publication #1 Reference</th>
</tr>
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<tbody>
<tr>
<td>Publication #2 Reference</td>
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<tr>
<td>Publication #3 Reference</td>
</tr>
<tr>
<td>Publication #4 Reference</td>
</tr>
<tr>
<td>Publication #5 Reference</td>
</tr>
<tr>
<td>Funding Award #1 (Agency, Amount)</td>
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<tr>
<td>Funding Award #2 (Agency, Amount)</td>
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<tr>
<td>Award/Honors #1</td>
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<tr>
<td>Award/Honors #2</td>
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<tr>
<td>Award/Honors #3</td>
</tr>
<tr>
<td>Award/Honors #4</td>
</tr>
<tr>
<td>Award/Honors #5</td>
</tr>
</tbody>
</table>
NOTES
(1) Applications submitted for support (fellowships, etc).
(2) Meetings you attended where you presented a poster/talk.
(3) Enter a single course code for a class you TA’d (if applicable).
(4) Enter a single course code for a non-research credit hour class you took
(if applicable)

Form Revision 1.4