

RICE DEPARTMENT OF
BIOSCIENCES

2022 - 2023
ECOLOGY & EVOLUTIONARY
BIOLOGY

**GRADUATE PROGRAM
HANDBOOK**





This handbook summarizes the Ecology & Evolutionary Biology (EEB) Graduate Program policies and procedures and is updated annually. This guide to EEB graduate study contains information about exams, monetary support, required and recommended courses, and regulations and rules specific to this graduate program. It is intended to supplement the General Announcements by providing a more detailed description of the EEB graduate program.

In addition to being in agreement with the policies in this handbook, Ecology & Evolutionary Biology graduate students must also be in agreement with the General Announcements and Code of Conduct. In the case of conflicting information, university-wide regulations take precedence over department-wide regulations, which take precedence over research group-wide regulations. When in doubt, students should seek help first at the graduate program level (graduate program administrator, faculty director of the graduate program, research advisor, and/or department chair) and then at the central administration level (office of graduate and postdoctoral studies).

Please contact Susan Cates, Pedro Muniz, or Tom Miller with suggestions for additions or clarifications.



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STATEMENT OF DIVERSITY AND INCLUSION

BioSciences is firmly committed to work towards Rice University's stated goals of expanding and supporting diversity and fostering inclusiveness across our campus, classrooms, and research. We recognize and celebrate the contributions of diverse perspectives, ideas, and backgrounds in all our endeavors. In accordance with this policy, Biosciences does not discriminate in admissions, educational programs, or employment against any individual on the basis of race, color, religion, sex, sexual preference, national or ethnic origin, age, disability, or veteran status. We commit ourselves to creating welcoming, safe spaces in our teaching, in the laboratory, in field sites, at conferences, with our staff, and across academia. We invite feedback and conversations so that we can continue to do better.



GRADUATE STUDENT HELP MENU

EEB graduate students are welcome to ask any of our staff for assistance at any time. This page provides information regarding each staff member's job title.

The first help resource for graduate students is the graduate program administrator, Pedro Muniz in W132 GRB Hall, who is the contact for all graduate student records, stipends, scheduling, travel, reimbursements, GSA and graduate student events, as well as candidacy and defense logistics. The direct back-up for academic matters such as academic records, university offices and procedures, travel, awards and scholarships is Susan Cates. An additional contact for administrative support is George Razzo in W131 GRB Hall. Diane Hatton assists all graduate students who apply for independent funding and/or other scholarships and fellowships, or whose advisors submit federal grants for their funding. Nidia Aguilar, Laurie Ebertowski, and Connie Myrick assist students making lab purchases (please seek instructions from your labmates first). Juan Sanchez assists with packages, both delivery and receiving. Gerald Mixon is the contact for facilities issues such as installation of large equipment, building maintenance and refurbishments.

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BIOSCIENCES AT RICE
ECOLOGY AND EVOLUTIONARY BIOLOGY PROGRAM, 2021-22

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EEB STUDENT TIMELINE

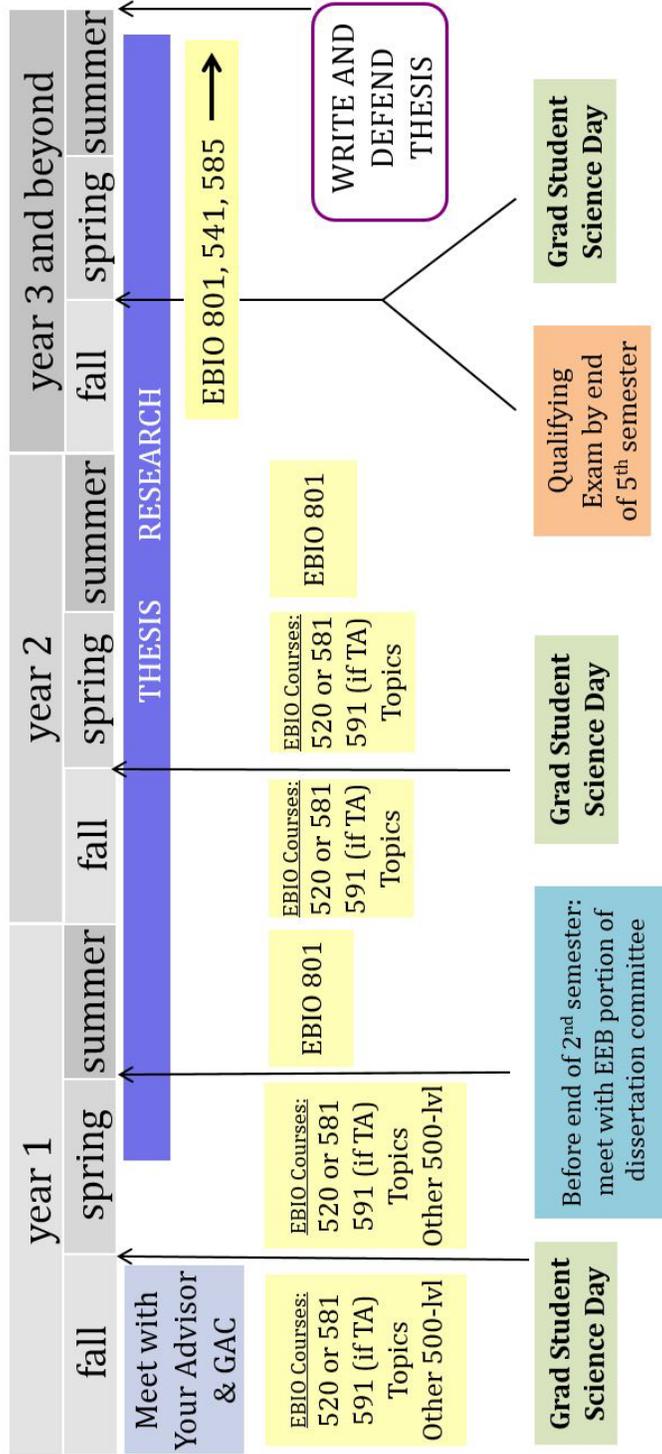




TABLE OF CONTENTS

Chapter	Title	Page No.
1	Goals of the Graduate Program	1
2	Doctor of Philosophy Degree Program in EEB	2
3	Master of Science Degree Program in EEB	3
4	Evaluation of Progress in Graduate Study	4
5	The Committee	6
6	Qualifying Exam and Advancement to Candidacy	7
7	Preparation and Defense of the Thesis	8
8	Department Seminars – BIOS 584/586	9
9	EEB Outreach Development Seminar - BIOS 589	9
10	Teaching Assistant Policy in EEB	10
11	BioSciences Teaching and Mentoring Program	12
12	First Year Student Mentoring Program	12
13	Individual Development Plan (IDP)	12
14	EEB Graduate Student Symposium	12
15	Financial Support	13
16	Graduate Student Travel	15
17	Department Vehicles	16
18	Policy on Extended Absence	16
19	Medical and Parental Leave	17
20	Vacation Policy	17
21	Procedure for Lab Accidents	18
22	Title IX Support	19
23	Dispute Resolution	20
24	Responsibilities and Expectations for Students & Advisors	21
25	Student Requests To Switch Advisors	23
26	Graduate Student Resources	24
27	EEB GSA Constitution	25
28	Graduate Student Awards	27
29	Frequently Asked Questions	28
30	Forms & Resources Appendix	30



1. GOALS OF THE GRADUATE PROGRAM

Graduate education provides advanced specialized training beyond the baccalaureate program. The goals of the graduate training provided by the Ecology & Evolutionary Biology graduate program are to guide students as they develop into graduates that:

- Are knowledgeable of past and current research accomplishments and techniques in ecology and evolutionary biology
- Are adept in independent problem solving and critical thinking skills
- Have demonstrated capacity for independent, publishable research
- Can thoughtfully relate their research to that of others in their field
- Possess effective written and oral communication skills
- Assume responsibility for continued professional growth
- Continuously strive to acquire the knowledge and skills needed for scholarly achievement and success in their chosen career

Graduate study requires that students be committed to:

- Assuming responsibility and demonstrating initiative in their research and scholarly activities
- Engaging in active learning, including participating in weekly departmental and graduate student seminars, attending relevant seminars outside of the department, and reading extensively within their chosen field of study
- Initiating and completing innovative and productive research activities
- Improving oral and written communication skills
- Accepting and providing constructive scientific criticism
- Exercising high professional standards in all aspects of work

The Ecology & Evolutionary Biology graduate program faculty members are committed to training and mentoring graduate students to reach their full potential as scientists. Faculty seek to facilitate students' progression towards fulfilling and exciting careers in academia, industry, or government, and to develop their skills as future leaders in science and society.

This handbook outlines requirements for earning an EEB Ph.D. or M.A., and also presents suggestions for beginning a successful career in science. Meeting these requirements is necessary, but not necessarily sufficient; a given advisor and/or dissertation committee will often determine additional requirements above and beyond the departmental minimum. For example, some advisors view grant writing as a fundamental part of graduate science education and will require evidence that a student regularly applies for outside funding. It is strongly suggested that, early in the process, a student talks with their advisor (or potential advisors) to understand the advisor's philosophy and to understand what will constitute acceptable progress in their lab. Students should note that there are a number of rules that appear in the Rice University General Announcements that apply to all graduate students but do not appear in this document.



2. DOCTOR OF PHILOSOPHY DEGREE PROGRAM IN ECOLOGY & EVOLUTIONARY BIOLOGY

Most of the formal course studies will be completed in the first year of residence to allow the students to begin thesis research at the end of their second semester at Rice. During the first semester, the student will meet with their major advisor (or provisional major advisor) and the GSAC (Graduate Student Advising Committee). The graduate administrator will schedule this meeting. Together the participants will outline a plan for the student's first year.

Among a student's goals during the first year should be to think deeply, read broadly, discuss ideas frequently with other students and faculty, develop needed lab, field, and computational/theoretical skills, and begin preliminary research, all in service of developing dissertation project ideas. This is an excellent opportunity in which to talk with different faculty members so that a student will have an informed set of choices for composing a committee. Appropriate committee members are those faculty who think what the student is doing is interesting, and have expertise that will be useful in carrying out the project.

Students should have completed coursework in ecology, evolution (or equivalent), mathematics (including calculus), and statistics prior to admission. Deficiencies in these subject areas should be made up during the first year of residence. Students who have not yet taken the equivalents (as determined by the GSAC) of BIOS 332 (Ecology) and BIOS 334 (Evolution) should complete these courses at the first opportunity.

Course requirements:

- BIOS 332 (Ecology) or equivalent
- BIOS 334 (Evolution) or equivalent
- BIOS 569 (Core Course in EEB); must be taken first time offered after student matriculates
- BIOS 561/562/563/568 ("Topics"); 2 semesters of any combination of Topics courses prior to candidacy
- BIOS 591 (Graduate Teaching); 2 semesters (typically 1 semester in both the first and second year)
- BIOS 584 (Departmental Seminar, "Graduate Seminar in EEB - Fall"); every semester of residence
- BIOS 586 (Departmental Seminar, "Graduate Seminar in EEB - Spring"); every semester of residence
- BIOS 589 (Outreach Development); at least one semester is required, can be repeated for credit
- BIOS 801 (Graduate Research in EEB); variable-credit course; required after first year of residency

Students must enroll in BIOS 584/586 during all years of residency. Students must complete at least six credit hours in a "Topics" course of their choice (BIOS 561/562/563/668) before the qualifying exam, and students are strongly encouraged to take at least one Topics course per semester during all years of residency. Students must complete at least two semesters of BIOS 591 to gain teaching experience; see Chapter 10 (Teaching Assistant Policy in EEB) for additional information on teaching expectations and opportunities.



Graduate students must be registered for a minimum of 9 hours each semester (including summer) to receive stipend, tuition waiver, and other subsidies. It is recommended that students take a total of 15 credits each semester, as 15 credit hours reflects a full-time academic schedule and is a more appropriate representation of the amount of time EEB graduate students spend on research and training than the minimum requirement of 9 hours. In summer, and after the core course requirements are completed, EEB graduate students should enroll in BIOS 801 Graduate Research. This is a variable-credit course. If students are registered for additional courses, they should adjust the number of BIOS 801 hours accordingly to bring the total number of credit hours to 15.

Students must maintain an overall average GPA of 3.0 (B) to remain in good academic standing. In the case where the average GPA falls below 3.0, the EEB faculty can elect to place the student on academic probation to allow them time to improve their GPA through additional coursework, or to dismiss the student from the program. In the most common case, students receive academic probation for one semester

3. MASTER OF SCIENCE DEGREE PROGRAM IN ECOLOGY & EVOLUTIONARY BIOLOGY

In addition to the general university requirements, the Master of Science in Ecology & Evolutionary Biology requires the completion and public defense of a thesis embodying the results of an original investigation. The course requirements are the same as those listed for the Doctor of Philosophy degree, except for the number of graduate research hours required to meet the minimum stated in the General Announcements for a thesis Master's degree. EEB students in the Master's degree program are expected to present a public seminar at the annual Graduate Student Symposium.

At least one committee meeting will be held for M.S. students in the second year of residence wherein the student will present their thesis outline. Once the committee approves the thesis outline, no other preliminary examination or report is necessary prior to the final oral defense of the written Master's thesis. General Announcements for the Master's degree in EEB can be found at:

<https://ga.rice.edu/programs-study/departments-programs/natural-sciences/biosciences/ecology-evolutionary-biology-ms/>.

Students defending a master's thesis must follow the protocols outlined in Chapter 7 for the PhD, but their deadline for publicly announcing the defense is one week prior to the defense date. The master's thesis is due to the committee and the graduate administrator at least one week prior to the defense date.



4. EVALUATION OF PROGRESS IN GRADUATE STUDY

Requirements for Satisfactory Annual Progress

Annual committee meeting

The first committee meeting should occur within the first three semesters. At least one committee meeting is required every academic year after the first meeting. See Chapter 5 on committees for additional information.

Participation in EEB Graduate Student Symposium

One day in December is set aside for short presentations by EEB graduate students to the whole program (see "Chapter 14, EEB Graduate Student Symposium" for more information). First-year students will attend the December symposium, but will present for the first time in the spring semester of year 1; the remainder of the graduate student cadre is expected to plan to present in December. The goals of this day are to:

- a) foster awareness of research currently being conducted in the department,
- b) encourage feedback that will improve research projects and
- c) give students practice in the fundamentally important skill of presenting research via a professional-meeting style talk.

Attendance at departmental seminars (BIOS 584/586)

Attendance at departmental seminars is required except under exceptional circumstances. In addition, participation in afternoon and evening receptions for visiting speakers is an excellent opportunity for students to increase their scientific networks and talk science with leading researchers.

Submit proposals for outside research and stipend funding

Procuring funding for research is a critically important skill for working scientists, and one that is best developed through frequent grant applications. The annual report template (see forms appendix) will guide students to include a list of their submitted proposals each year. See Chapter 15, Financial Support for additional information regarding applying for external funding.

Completion of the annual report

The annual report serves as a record of student progress towards the graduate degree. The report will be due (via email) to the graduate program administrator by December 1. Reports must follow the standard formatting guide outlined below (full template in Appendix). The report must include, but is not limited to, the student's research plan, a current CV, goals for the coming year, and a self-assessment that reflects upon progress made towards the previous year's goals.



The annual report must follow the below format, containing all specified components in the specified order (see template in Appendix for details on required report content).

- An up-to-date CV, any format may be used
- Annual self-evaluation questionnaire (template in Appendix)
- List of all funding efforts (grants, fellowships, awards) sought in the past year, with indication of status (e.g. awarded, pending, declined)
- List of all talks and research presentations conducted over the past year
- Dissertation research summary (format based on year in the program)
- Table of research activities over the past year

Evaluation of Annual Progress

During December, a meeting of the EEB faculty will take place to evaluate each student in the graduate program. Each student's annual report and the student's thesis committee report will be available to all faculty before and during discussion. Ratings will be based on student research activity and productivity as well as compliance with the basic requirements for degree progress listed in this handbook. It is expected that the majority of students will receive ratings of Satisfactory. Ratings of Excellent are rare and reserved for students who significantly exceed expectations, particularly with respect to publications and grants. Failure to meet any of the basic requirements listed in the handbook will result in an automatic Unsatisfactory rating. In cases where the student has met the basic requirements but is deemed to be making insufficient progress, the faculty may either give an Unsatisfactory rating, or dismiss the student from the program, based on a 2/3 majority vote. In cases of unsatisfactory progress, the student will be given a timeline to meet the requirements laid out in the progress evaluation. If the requirements are not met in accordance with the timeline, the student will be dismissed from the program. A helpful checklist of expected graduate student progress in the EEB program is in the Appendix. Ratings of Unsatisfactory in two consecutive years will lead to automatic dismissal.

Possible ratings for Annual Progress:

- Excellent
- Satisfactory
- Unsatisfactory
- Dismissed



5. COMMITTEES

Students tend to underestimate the value of a committee in designing a timely and feasible dissertation. Furthermore, when grant proposals are submitted and upon entry into the job market, students often rely on committee members for letters of reference. Thus, it is important to provide committee members with the opportunity to be familiar and enthusiastic about the topic, design, and execution of the dissertation through frequent meetings.

Committees in the Ecology & Evolutionary Biology program must have at least 4 members. Three of the four must be BioSciences faculty members, including the student's research advisor; the other two BioSciences members can include professors, associate professors, and assistant professors. Faculty Fellows in Ecology & Evolutionary Biology are not eligible to serve on thesis committees. The fourth member must be an "outside" member, i.e., faculty at Rice with a primary appointment outside the Department of BioSciences. For instance, Luay Nakhleh may be used as either the BioSciences or "outside" committee member but cannot be both. Students commonly identify faculty in Statistics (STAT), Computational and Applied Mathematics (CAAM), Psychology (PSYC), and Earth, Environmental & Planetary Sciences (ESCI) when looking for an "outside" member. It is also helpful to consult the research advisor and other graduate students for ideas for outside members. Students should ask prospective committee members if they would be willing to serve on the committee (this includes attendance at annual committee meetings, reading the thesis, and participating in the defense). Once a student has recruited their committee members, they should provide this list to the graduate program administrator.

First year students are encouraged to meet with the BioSciences members of the thesis committee during their second or third semester and no later than the end of the fall semester of the second year. Students should thereafter meet with the thesis committee once per academic year through the duration of their graduate tenure. Participation of the external (outside BioSciences) committee member is not required at first- and second-year meetings, but this member must be added no later than the committee meeting of the student's third year.

It is the student's responsibility to schedule each committee meeting after coordinating with the graduate program administrator and the committee members. The graduate program administrator can help find an available room for the meeting and will put the meeting on the Graduate Student Calendar; additionally, the graduate program administrator reports that the meeting occurred for the annual report. Students should bring a blank copy of the Graduate Student Committee Meeting form to each meeting (form template in Appendix). After the committee completes the form, it should be returned to the graduate program administrator to be filed in the student's departmental record. If the committee requires any additional reports, assignments, or courses to broaden knowledge regarding a student's research, the due date for these additional requirements should be written on the Graduate Student Committee Meeting form.

Officially, the graduate program director appoints each student's committee, but typically the advisor and student suggest committees and the director approves these suggestions. The graduate program director or department chair approves all changes to the committee.



6. QUALIFYING EXAM AND ADVANCEMENT TO CANDIDACY

Requirements for Advancement to Candidacy

1. Completion of all degree requirements and any additional coursework required by the student's major advisor and/or dissertation committee, and all University requirements listed in the General Announcements for doctoral candidacy.

2. The qualifying exam to achieve doctoral candidacy (referred to also as the candidacy exam) is a written dissertation project proposal of 8 single-spaced pages, excluding references and figures. The goals of this proposal are a) to ensure that students embark on their dissertation research with clearly-formulated questions and a plan, b) to present this plan to the committee in a comprehensive way, c) to develop general written communication and grant-writing skills, and d) to give the student a head start on applying for potential sources of research support. Proposals should include preliminary data. It is strongly suggested that a first draft of the proposal be given to the student's major advisor 60-90 days prior to the expected date of the candidacy exam. By doing so, a student increases the chances of producing a high-quality proposal and should be able to avoid last-minute postponements of the candidacy exam. The proposal must be approved by the student's major advisor prior to distribution to the dissertation committee, and the committee and the Graduate program administrator must receive the proposal no less than 2 weeks prior to the date of the scheduled candidacy exam.

3. An oral candidacy exam must be taken by the end of the 5th semester. The exam includes a) a required talk (suggested time: 20-30 minutes) presenting the student's research plan; b) questions from and discussion with the committee on the student's research plan; and c) questions from the committee on general knowledge of ecology and evolutionary biology at the level of an introductory ecology or evolution course. It is the student's responsibility to schedule the exam after coordinating with the dissertation committee. It is highly suggested that the student meet with each of their committee members individually, at least two months prior to the scheduled exam, to find out their expectations on what constitutes general knowledge and to get their suggestions for readings.

Students not passing the exam on the first attempt will have one opportunity to retake the exam; this second attempt must normally occur by the end of the 6th semester. On a student's first exam, the outcome will be either "Pass" or "Retake"; on a student's second exam, the outcome will be either "Pass" or "Fail". Under extraordinary circumstances, a student may petition the GSAC for an extension of the candidacy exam deadline past the 5th semester. The GSAC will make a recommendation to the department chair, who will make the final decision on whether the extension is granted. A rubric for the qualifying exam is available in the Appendix. After passing the qualifying exam, students should fill out the official petition for doctoral candidacy (Appendix) and submit the form to the graduate program administrator, who will supply the supporting documents.

The master's thesis and defense replace the qualifying exam for students who are approved to continue to the doctorate after receiving the M.S. degree from the EEB program.



7. PREPARATION AND FINAL ORAL DEFENSE OF THE PH.D. THESIS

Thesis

A Ph.D. thesis has a minimum of three publishable units. Students considering academia as a career should likely aim for more than three publications from their thesis work. It is wise to consult with the major advisor on this topic, as fields of study and labs differ. In addition, it is important to consult with the major advisor on the timing of manuscript submission. While some advisors may be fine with submission after the degree has been awarded, others may make the thesis defense contingent upon submission or publication of at least some of the thesis work.

For the format and deadlines associated with the preparation of the doctoral thesis see the Rice University guidelines. The structure of the thesis (number and format of chapters, etc.) will vary and will be designed in consultation with the major advisor.

Public Oral Defense

The doctoral thesis defense involves a public seminar presentation, followed by an oral examination defending the written thesis. All Ph.D. students must defend the thesis before the end of the 16th semester in residence. The student's advisor must give approval before a student can schedule his/her thesis defense. After approval is given, a student must talk to the graduate program administrator to reserve a room and to announce the defense officially through the Office of Graduate and Postdoctoral Studies (<https://events.rice.edu/rgs/>). This announcement must be submitted at least two weeks prior to the defense date. University rules also require that a copy of the thesis be available within the department. The department copy should be sent to the graduate program administrator in PDF format two weeks before the defense date. The student should also send a copy of the thesis to the committee no less than two weeks prior to the date of their oral defense. Students should check with committee members to find out if they prefer a PDF or a printed copy of the thesis.

Administrative deadlines for the last semester are imposed by the Office of Graduate and Postdoctoral Studies (GPS) and are listed for the current academic year in the General Announcements and on the GPS website. It is recommended that students contact the graduate program administrator, who can reduce these guidelines to the ones that are pertinent to the EEB graduate program for you. Additionally, the registrar's office requires that students file an application for degree by the deadline listed on the academic calendar for the semester they wish to receive degree conferral. The application is available in the Esther account. Students should investigate their stipend and insurance coverage end dates as they are scheduling their thesis defense. The deadline to submit the final, corrected thesis is 6 months after the defense, but the stipend and insurance coverage may end sooner than that. It is recommended that you consult with the graduate program administrator because many factors can affect stipend and insurance coverage, including which semester you plan to graduate, when you plan to submit the final thesis, and when you plan to apply for degree conferral.



8. DEPARTMENT SEMINARS – BIOS 584/586

Graduate students are required to register for and attend the departmental seminar series, which constitutes BIOS 584 (fall) and BIOS 586 (spring). These seminars are usually scheduled on Mondays at 12:00 pm. Ecologists and evolutionary biologists from outside of Rice meet with faculty and share their latest findings through a seminar presentation for all members of the EEB program. During the seminar speaker's visit graduate students can sign up for one of the limited spots to have lunch with the seminar speaker. Students should see the faculty coordinator to sign up for speaker lunches.

9. EEB OUTREACH DEVELOPMENT SEMINAR – BIOS 589

This course is for Rice students interested in developing life science outreach initiatives that target underserved K-12 students in the Houston area. Goals of the course include developing hands-on teaching modules related to Texas science education standards and expanding graduate student teaching experiences beyond the University setting. EEB graduate students must complete one semester of this course during their pre-doctoral training, and they are encouraged to participate beyond one semester. Each semester, BIOS 589 meets once a week (usually on Wednesdays at noon, and lunch is provided). Participation in this seminar is optional. The faculty director of the graduate program is the instructor-of-record, but the topics, objectives, class meetings, and events are student led and organized. This course will be graded on a Satisfactory (S)/Unsatisfactory (U) scale.



10. TEACHING ASSISTANT APPOINTMENTS IN ECOLOGY & EVOLUTIONARY BIOLOGY

BIOS 591

Students in the EEB graduate program are required to complete a minimum of two semesters of BIOS 591 (Graduate Teaching in Ecology & Evolutionary Biology) prior to PhD candidacy. In BIOS 591, students gain training and experience in teaching by serving as lecturers, discussion leaders, field and lab course assistants, and graders in sections of undergraduate courses. Prior to teaching, students are required to attend departmental and university training workshops to understand expectations, regulations, and strategies for working with undergraduates. Additionally, students should work with the faculty instructor to determine the duties particular to each course, and are encouraged to use this as an opportunity to develop professional pedagogical skills. Any disputes between TAs and instructors should be resolved according to the dispute resolution process outlined in section 23. Course assignments are made by the department chair at the recommendation of the EEB graduate program director, and are made in consideration of student and faculty preferences and departmental needs. Most students will satisfy this requirement during the first two years of their program. No student, in any year of their program, may be enrolled in BIOS 591 while fully supported on an external fellowship. In such cases, first or second year students who are fully supported on external fellowships such as the NSF GRFP may petition GPS to postpone the BIOS 591 requirement when applying for PhD candidacy and satisfy the minimum two semester requirement for BIOS 591 after advancing to candidacy. A second option is to go on reserve with the fellowship program in the first or second year to satisfy TA requirements, but this option requires advisor approval.

Graduate teaching beyond the two-semester requirement

EEB graduate students have opportunities to gain additional teaching experience beyond the minimum requirement of two semesters of BIOS 591. These additional teaching opportunities provide valuable preparation for teaching-oriented careers, allow students to explore topics of interest, and provide assistance to the department's mission in undergraduate education. Each spring, experienced students who have already met the two-semester teaching requirement will be surveyed by the graduate program administrator to assess their interest in enrolling in BIOS 591 during the following academic year and their course preferences. These course preferences will supersede faculty preferences and other considerations in graduate student placement (i.e., experienced student preference will be the first priority). In cases where multiple experienced students request the same course, placement will be made based on seniority when possible, or, for students of equal seniority, one will be selected randomly. Experienced students who enroll in BIOS 591 beyond the two-semester minimum will be eligible (but not required) to play a larger role in course development and delivery, including (but not limited to) syllabus design, exam preparation, and lecture delivery. These arrangements will be made in coordination with the faculty instructor.



In instances where the availability of graduate TAs falls short of the department's undergraduate teaching needs, the EEB program may require that students participate in graduate teaching, even if they did not express interest in doing so. In the case of this need, students who have already met the minimum requirements will be called to TA in reverse seniority (e.g., more junior students will be required to TA before students in their 5th year). These assignments will be made in coordination with the student's major advisor, to minimize any interruptions to research progress.

BIOS 119

EEB graduate students have the opportunity to serve as lead instructors in BIOS 119. BIOS 119 is a freshman seminar that introduces freshmen to biosciences research at Rice. Freshman students read and discuss scientific literature and tour Rice labs to see facilities and meet faculty and students. The goals of this seminar are to introduce freshmen to the excitement of research while providing interested graduate students a venue to hone their teaching skills. Graduate students serve as course instructors in a mentored, but independent, section format over seven weeks. Student instructors must have the consent and support of their major advisors to participate. Graduate student instructors are listed as the instructor-of-record and receive official Rice teaching evaluations. Serving as an instructor for BIOS 119 does not toward BIOS 591 degree requirements.



11. BIOSCIENCES TEACHING AND MENTORING TRAINING PROGRAM

The BioSciences Department offers a set of optional activities for graduate students and postdoctoral researchers interested enhancing and documenting their teaching and mentoring experiences at Rice. Support from the research advisor is required for participation. Progress must be documented on the Record of Training Activities form. Guidelines and the Record of Training Activities form can be found on the BioSciences website, under Graduate Studies. For additional formal pedagogical training, the Rice Center for Teaching Excellence offers an accredited "Certificate in Teaching and Learning" (<https://cte.rice.edu/grads>) that can be completed with advisor permission.

12. FIRST YEAR STUDENT MENTORING PROGRAM

Two to three first-year students are paired with two to three advanced students, usually a second year student and a more advanced student. These mentoring groups meet for lunch several times during the first year to provide advice and support for classes, rotations, adjusting to graduate school, and life in Houston. In addition to this formal mentoring program, any student experiencing difficulties is encouraged to talk with the EEB graduate program director, the EEB graduate administrator, the department chair, or the department assistant chair, who will endeavor to provide assistance. Additional resources are listed in the handbook chapter entitled Student Resources.

13. INDIVIDUAL DEVELOPMENT PLAN (IDP)

The American Association for the Advancement of Science has an online tool to help young scientists set and manage career goals. The Department of BioSciences recommends that all doctoral students take advantage of these online tools at <http://myidp.sciencecareers.org>.

14. EEB GRADUATE STUDENT SYMPOSIUM

While assessment is not a specific goal of the Graduate Student Symposium, students should be aware that their talks may be a major route by which some faculty (e.g., those not on particular thesis committees) learn about the progress the student is making, and therefore that the talk may play a role in the faculty discussions of annual progress. A checklist to help organize the research talk and a document with recommendations for creating an outstanding research presentation are included in the Appendix of this handbook. Faculty provide feedback on student presentations through a standardized evaluation form (Appendix). First-year students will attend the December symposium, but will present for the first time in the spring semester of year 1 and may choose to talk about previous research (e.g. from a master's thesis done elsewhere) or simply present a talk on a topic of interest and how it relates to a potential thesis.



15. FINANCIAL SUPPORT

As an entering student, the Ecology and Evolutionary Biology graduate program will provide a stipend of \$22,125 for 9 months, normally for a period of five years for doctoral students and two years for master's students. Including summer salary support (\$7,375) typically provided by the advisor, the total 12 month stipend is \$29,500. As a recipient of the program graduate stipend, the Office of Graduate and Postdoctoral Studies provides a full tuition waiver, a value of over \$50,000 per year. For students to receive these awards, they must be full-time Rice University Graduate Students (registered for a minimum of 9 credit hours). A student's ongoing financial support (program stipend and associated tuition waiver) each year will depend upon satisfactory performance and reasonable progress toward one's degree.

Fellowships

While grant opportunities vary among students (e.g., non-U.S. citizens have fewer options than citizens), students should make annual attempts to procure outside research and stipend funding. Many of the students in the BioSciences Department have been awarded independent funding from sources such as the National Science Foundation Graduate Research Fellowship Program, other federal funding sources, private sources, and university fellowships. A student's major advisor can help him/her determine the fellowships for which they would be most competitive. (Note! The NSF GRFP can only be awarded in the first or second year of study.)

Research Funding

Sources of funding for student research vary across labs. In some cases, the student's research is closely allied with that of the major advisor and is funded via their/her grants. In other cases, students will find it necessary to obtain funding from outside sources for particular projects. Philosophies differ across advisors and it is wise to have an early and frank discussion with one's advisor about these issues. Additionally, the Office of Graduate and Postdoctoral Studies curates a database of grant opportunities that you can find at their website (graduate.rice.edu). Students should coordinate all proposal submissions with Diane Hatton, who can assist you in complying with the university guidelines and is also a resource for grant opportunities, budget templates, and other grant proposal components (rdh@rice.edu),

Once a student receives a fellowship or research grant, they should immediately notify Diane Hatton and Connie Myrick to complete any paperwork that might be required to make the funds available from the granting agency.

Summer Salary

Nine months of a student's salary in the EEB program comes from either the department, a fellowship, or the research advisor. Summer salary typically comes from the advisor's research or start-up funds, and is dependent on available funds and student progress; as decided by the advisor. All students should discuss summer salary with their research advisors at the beginning of the spring semester, preferably in January.



Bonus Pay

For fellowship applications submitted after July 1, 2022, the practice of paying 10% bonuses for all years of the fellowship will be discontinued. This practice will be replaced with a new fellowship bonus model. A \$500 bonus, contingent upon availability of funds, will be awarded by the department to a student who applies for an external (non-Rice) fellowship during their residency in the graduate program and receives an award in an amount that corresponds to at least 50% of the student's annual stipend. A student may receive a bonus only once during the student's residency in the graduate program even if multiple awards are received.

Reimbursements

See the chapter on Graduate Student Travel before planning any travel (conferences, fieldwork, meetings, workshops, collaborations). The following are some basic guidelines to review before you travel.

- Reimbursements cannot be issued until AFTER a student returns from the trip.
- Check with the graduate administrator before expending personal funds on research or travel. Often, these expenses can be borne directly by the department and the student won't have to wait on a reimbursement. This is most relevant with large expenses such as airfare and hotel; ask if these costs can be covered by a university credit card.
- In the case where one can't avoid reimbursements, the student must collect all itemized receipts, along with the fund that the expense(s) should be charged to and the reason for the expense. A detailed spreadsheet with description of expenses and fund information for allocation purposes should be sent to the graduate program administrator with your request for reimbursement. A credit card slip alone is not sufficient; you may need to specifically request an itemized receipt from a vendor/restaurant. Reimbursement deadline is 30 days after travel ends.
- Rice is a tax-exempt educational institution in the state of Texas. Be sure no Texas sales tax or Texas hotel tax is charged. Tax exemption forms can be obtained from department staff.
- If Texas sales or hotel taxes are charged, the student is responsible for paying the tax.
- Rice is exempt from hotel tax in some other states, as well; ask staff for a list.
- Federal grant monies cannot be used to cover alcoholic beverages or entertainment, only meals, lodging, and other typical travel expenses. Where travel and business meeting costs are charged to a sponsored agreement (grant or contract), any terms of the agreement that are more restrictive than this policy will govern the payment.
- In general, students are not allowed to use per diem on student travel in the BioSciences Department. If a student's travel is funded by a research grant or fellowship that requires per diem travel, the student can request an exception to this rule prior to when the travel occurs.
- Mileage reimbursement is allowed only when your personal vehicle is used for travel on Rice business. In this case, Rice uses a mileage rate published by central accounting and does not allow reimbursement of gasoline receipts.
- Rental cars should be approved by the department in advance to be eligible for reimbursement. Rice has an account at National or Enterprise and carries its own auto insurance. You must decline the rental agency insurance or pay for it yourself. Rice will not reimburse extra expenses such as a GPS device and avoid paying the high rental company fuel charges by refilling the tank before returning the car. Keep all fuel receipts.



16. GRADUATE STUDENT TRAVEL

Students are encouraged to participate in national and international scientific conferences, symposia, and workshops. This participation enables students to present their work to a wide audience, listen to research presentations from a range of speakers, and meet with individuals sharing common research interests. Students also use these meetings to network with future collaborators and employers. To expedite participation, funds may be available to defray the costs of attendance. These funds are available to students who will present their research (oral or poster). Calls for applications (Appendix) for the BioSciences Graduate Student Travel Award are typically issued in June and December each year. BioSciences Graduate Student Travel Awards are dispensed depending on the available funds and number of applicants in a given year. Funds can be used for transportation, shared lodging, meals, and registration. If more students apply than funds can support, applications will be prioritized based on time of last travel support, seniority, academic standing, and importance of the meeting for the professional development of the student.

Students should ask their research advisors if they recommend a particular conference. Most conferences have travel awards sponsored by the conference association. Students are expected to apply for conference travel awards and travel awards from other Rice sources such as the Institute of Biosciences & Bioengineering (IBB) and Women in Natural Science (WiNS), in addition to applying for department funds. Failure to apply for external awards could reduce chances of receiving departmental travel funds.

All graduate students must use the BioSciences Graduate Student Travel Authorization Form (Appendix) for research-related travel of any length (e.g. field work, trips to other institutions, conference/workshop). This form is essential for administrative and safety purposes. Forms should be submitted to the graduate program administrator at least 2 weeks before departure. It is important to communicate travel plans with the graduate program administrator before making travel arrangements. Regardless of the fund source for the expenses, Rice guidelines must be followed. Reviewing guidelines in advance will prevent misunderstandings regarding costs that are reimbursable versus costs that cannot be reimbursed. The graduate program administrator can help students make travel/registration purchases in advance to avoid carrying large expenses on personal accounts and work with students on approved reimbursements. Reimbursements for travel expenses cannot be repaid until the travel is completed (see Reimbursement section of Financial Support, Chapter 15).

See the university travel policy for more details at <https://policy.rice.edu/806>.



17. DEPARTMENT VEHICLES

To drive a department vehicle or a vehicle rented for Rice use, students MUST:

- Fill out a Motor Vehicle Record Check (MVR) form that allows Rice to do an investigative consumer report that would reveal any records concerning any driving, criminal history, credit history, and civil record. A copy of the driver's license must also be submitted with this form. Submit these documents to the graduate program administrator who will send it to the Department of Risk Management.
- Take an online defensive driving course and pass. This no-cost course is available through a Rice online portal: <https://catalog.rice.edu/browse/eeo/courses/driver-safety>. Students should speak to the graduate administrator who will set up the course registration through the online portal. Students should share their course completion certificate with the graduate program administrator after completing the course.

If graduate students get in an accident while driving a department vehicle, they should notify the BioSciences office staff immediately.

18. POLICY ON EXTENDED ABSENCE

Students in the EEB graduate program are expected to maintain a regular presence on campus during the academic year and participate in program activities. The faculty recognize that there may be good reasons for students to engage in extended off-campus activities during the academic year, such as field work or visits to collaborating institutions. If a student expects to be absent for more than four weeks of a semester (cumulatively), they are required to notify the Graduate Student Advising Committee (GSAC) with the duration and reasons for extended absence. GSAC will approve extended absences for activities that clearly add value the student's degree program. GSAC approval should be arranged through the graduate program administrator at the beginning of a semester but may also be sought during the semester for cases when unexpected off-campus activities arise. This policy applies to the academic year (Fall and Spring semesters) and not summer.



19. MEDICAL OR PARENTAL LEAVE

Medical leaves and other types of interruptions of study are handled according to the guidelines in the General Announcements (<http://ga.rice.edu/>). If a graduate student temporarily cannot fulfill the duties of their appointment due to a medical emergency or the adoption/birth of a child, the student may be temporarily released from academic responsibilities as described below. A student may apply for short-term medical or parental release at any time during the semester. The application form can be found in the Graduate and Postdoctoral Studies form library (<http://graduate.rice.edu/>). Enrollment and stipend support may be continued for up to six weeks or until the appointment expires (whichever occurs first). Graduate and Postdoctoral Studies requests that short-term parental release requests be submitted four weeks prior to the expected start date. Students taking a voluntary short-term release should make arrangements with their advisor and instructors to complete their academic responsibilities in a timely manner. Students receiving a short-term medical or parental release may also request a 1-semester postponement of graduate program deadlines that occur in the year following the 6-week leave. For example, upon returning to full-time research following the 6-week leave, a student may request a 1-semester delay in an upcoming EEB Graduate Student Symposium presentation, committee meeting, and/or qualifying exam.

A student may request deferral of TA responsibilities for one semester. Such requests should be made in writing via email to the graduate program director and copied to the department chair. In subsequent years, the student would be expected to meet standard program deadlines. We strongly encourage students who are experiencing a medical issue or anticipating the birth or adoption of a child to talk with the director of graduate studies, the department chair, and/or the assistant department chair to discuss the full range of options that may be available.

20. VACATION POLICY

Arrangements for holidays and other time off must be made in advance in consultation with the advisor and must be in compliance with university rules and any guidelines from funding agencies. Full-time graduate students are entitled to 10 weekdays of paid annual leave, in addition to University holidays. Unused days may not be carried forward year to year and do not accrue payable time upon departure. Graduate students must coordinate their vacation plans with their advisers sufficiently far in advance to avoid last-minute conflicts. Students may sometimes be required to work on University holidays in order to staff ongoing projects and operations; students who work on a University holiday will be able to use this paid day off at another time.

Time away for professional activities (conferences, workshops, interviews, for instance) shall not count against vacation time.



Short absences (those anticipated to be less than one week) due to a student's illness or that of a family member should be granted upon notice to a student's supervisor, provided they are commensurate with the episode. These should not be deducted from any vacation leave. Longer absences may require temporary release from academic responsibilities. Please see Chapter 19 (Medical or Parental Leave) for more information.

21. PROCEDURE FOR LAB ACCIDENTS

Graduate Students classified as a Fellow, Teaching Assistant (TA) and/or Research Assistant (RA) injured in the lab at Rice University are covered under worker's compensation. Rice Student Health Center does not provide medical services for workers compensation care. Therefore students injured in the lab should not go to Rice Health Services. The following protocol should be used for all lab injuries.

Emergency

Call Rice University Police Department at 713-348-6000 (X6000, Do not call 911)

- RUPD will dispatch officers to the scene and Rice EMS if needed.
- In case Houston Fire Department trucks or ambulances are needed, RUPD will meet them at the entrance gates and guide vehicles to the location.
- Be sure to tell the RUPD dispatcher of the location, and clearly describe the incident.

If the incident involves chemicals, biological material, or radioactive materials your supervisor or someone in the laboratory should contact Rice Environmental Health and Safety at 713-348-4444 (x4444).

When injury or illness involves a chemical, the Safety Data Sheet (SDS) should accompany the victim to the hospital. A First Report of Injury Form must be filed with the Director of Risk Management, VP for Administration (MS-670). An Accident/Incident Report must be submitted to your Department head and Environmental Health and Safety. The form is available on the Environmental Safety website at <http://safety.rice.edu/>

Administer First Aid, if necessary.
Evacuate the area, if necessary.



Non-Emergency

Minor medical injuries/illness occurring in the workplace should be reported immediately to the injured party's supervisor. The supervisor should fill out a First Report of Injury Form (available from Risk Management <http://riskmanagement.rice.edu/> or Environmental Health and Safety <http://safety.rice.edu/>). Submit this form Risk Management staff as soon as possible (<https://riskmanagement.rice.edu/contacts>).

If non-emergency medical attention is needed, the student should seek treatment at NOVA Clinic (workers compensation care) located 9563 Main Street. Contact Risk Management for an appointment. If transportation is not available, a request can be submitted to NOVA to provide transport.

22. TITLE IX SUPPORT

Assault, harassment, discrimination

Rice encourages any student who has experienced an incident of sexual, relationship, or other interpersonal violence, harassment or gender discrimination to seek support. There are many options available on and off campus for graduate students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone not affiliated with the university.

Title IX of the Higher Education Amendments of 1972 prohibits discrimination on the basis of sex in education programs and activities. Students should be aware when seeking support on campus that most employees are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can support the student. The therapists at the Rice Counseling Center and the doctors at Student Health Services are confidential, meaning that Rice will not be informed about the incident if a student discloses to these staff members and requests confidentiality. Rice prioritizes student privacy and safety, and only shares disclosed information on a need-to-know basis. If you need assistance or simply would like to talk to someone, please call Rice Wellbeing and Counseling Center, which includes Title IX Support: (713) 348-3311.

Additional resources are available at www.safe.rice.edu.



23. DISPUTE RESOLUTION

Petitions

Students may need to file a petition for an exception to academic requirements, regulations, and decisions for a number of reasons, including personal illness, family illness or death, off-campus externships, etc. Under University guidelines, petitions are to be viewed as “unusual, rather than typical.” Students should address questions about the petition process to the Graduate Student Advisory Committee (GSAC). All appeals of decisions should be made at the lowest possible administrative level above that at which the original decision was made. For example, exceptions to a course requirement would be made to the GSAC. An appeal of a decision made by a thesis committee, the GSAC, or a member of the EEB faculty would be to the director of the EEB graduate program or to the department chair. Graduate students may petition for exceptions to academic requirements, regulations, and judgements by following the procedures outlined in the Rice General Announcements (<http://ga.rice.edu/>).

Grievance Process

Problems or conflicts may arise during a student’s graduate education, and students must take responsibility for informing faculty. Depending on the problem, students should feel free to ask for advice from their advisor, members of their thesis committee, the BioSciences or Natural Sciences ombudsperson or a member of the grievance committee (i), or any faculty member with whom they feel comfortable. It is best to move to resolve any conflicts quickly and amicably.

However, if attempts to resolve a problem informally are unsuccessful, the following grievance procedure should be followed:

1. The student should submit the grievance in writing to the department chair, who will attempt to resolve the problem.
2. If the student remains unsatisfied, the problem should be presented for resolution to the BioSciences graduate grievance committee, a standing departmental committee (i). If a member of this committee also serves as the student’s advisor or on the student’s thesis committee, the student may ask the chair for an alternate pro tem committee member. Both the student and the chair should submit a written record of their view to this committee.
3. If the student remains unsatisfied with the resolution of the issue, the problem should be referred to a standing subcommittee designated at the Graduate Council and composed of three faculty members (representing diverse disciplines within the University), one graduate student, and the Dean of Graduate and Postdoctoral Studies. A written report of proceedings at stage two should be presented to the Chair of the Graduate Council, for forwarding to the subcommittee, together with all other written materials generated during the investigation. The decision of this subcommittee will be final.



24. RESPONSIBILITIES AND EXPECTATIONS FOR EEB GRADUATE STUDENTS AND FACULTY ADVISORS

Students and advisors are encouraged to discuss relevant items from the list below periodically. These lab-specific topics do not override program, department or university policies or requirements. Regular discussion around these issues may provide education, increase productivity, and avoid misunderstandings.

1. Research and training

What is the initial project? How flexible is the project direction? How might the project develop or change over the course of training? To what extent are students encouraged or expected to collaborate on additional projects in the lab? How will collaborations outside the lab be navigated? Who, in addition to the advisor, will/may provide research guidance? What additional formal training (via courses or workshops at Rice or elsewhere) is recommended? What software is needed on the student's computer? What training is required to use instruments and equipment in and outside the lab?

2. Frequency and methods of communication

How often will the student and advisor meet in person? Communicate via email? Who is expected to initiate one-on-one meetings? Will these meetings be scheduled or sporadic? What should students bring to meetings (notebooks, data, etc.)? Are there regular lab meetings? What level of participation in lab meeting discussions is expected? When is it acceptable to miss lab meeting?

3. Preparation of progress reviews, candidacy exam, and thesis documents

Does the advisor have suggestions for possible committee members? What level of input will the advisor provide on written documents and presentations? How much time does the advisor need to provide useful feedback? What is the targeted number of iterations? Who else in the lab can provide feedback? Will opportunities for practice talks be provided? What writing and organizational strategies during the course of the project will facilitate preparation of the thesis document?

4. Authorship and publication

What constitutes authorship? How is the order of authors determined on a manuscript or abstract? What is the process for writing manuscripts? In what ways, besides authorship, might a contribution be acknowledged? How is the outlet for publication decided? Is there a specific expectation for a number of manuscripts (published, submitted, and/or in preparation) and the student's authorship position on these manuscripts for graduation? Are there situations (e.g., publications by other groups) that would alter this expectation? Will there be opportunities or expectations for providing feedback on manuscripts of other lab members?

5. Intellectual property

What is the policy for claims on intellectual property and data ownership? When are claims worth considering? How will pending claims impact when the research can be presented in public forums?



6. Notebooks, data, media, samples

What are the laboratory policies for storing, backing up, and sharing notebooks, samples, or other information relevant to ongoing and completed projects?

7. Common laboratory responsibilities

Which duties are shared among lab members? Which are the student's specific responsibilities? What is the procedure for purchasing materials for research?

8. Mentoring experience

Are there opportunities or expectations that the student gain experience mentoring junior lab members (e.g., undergraduate researchers or other visiting students)?

9. Work hours and time management

How many hours per week is the student expected to work in the lab? Does the schedule matter? (E.g., should there be substantial overlap with the hours of the advisor or another lab member?) How should students balance time conducting experiments/research versus reading relevant literature? Are there advantages or disadvantages to doing some work (e.g., computer work, reading, writing) off site? Which outside activities require consultation with the advisor prior to participation? How much advance notice is required when requesting vacation days?

10. Seminars and conferences

Which seminars in addition to department-sponsored seminars should the student attend? Under which conditions can or should a student travel to a conference? (E.g., only if the student is presenting?) Which specific meetings are most relevant? Who covers costs, and what is covered?

11. Professional development and career planning

What career path is the student considering? What arrangements can be made for participation in internships, workshops, teaching, courses, etc. relevant to possible careers without compromising research training? What is the process in the field of interest for academic and non-academic job searches? Are there individuals in the career path of interest who could be useful resources for the student? A student's plans may change during the training period; this is a good conversation to revisit periodically.

*Adapted from text suggested by a TAMU Faculty-Student Agreement Task Force with input from BioSciences faculty, students, and graduates.



25. STUDENT REQUESTS TO SWITCH ADVISORS

Because switching advisors will likely affect progress towards the degree and/or financial support arranged by the previous advisor, students should only consider switching advisors in extraordinary circumstances. However, in rare cases a student may feel that his or her interests could be better served by working with a different advisor. Requests to switch advisors will be handled on a case-by-case basis. The EEB graduate program will endeavor to assist the student; however, the student bears the ultimate responsibility of finding a new advisor.

Procedure:

1. The student should first discuss issues with the current advisor and attempt to resolve any concerns or problems.
2. If the student feels that issues are insurmountable, he or she is encouraged to request guidance from the EEB graduate advising committee members, the BioSciences or Natural Sciences ombudsperson, or the department chair.
3. If the student still wishes to switch advisors, the student should speak with a faculty member whose research interests are in line with his or her interests, who is willing to serve as the student's advisor, and who has funding to support the student.
4. If the student finds another faculty member willing to serve as his or her advisor, the student should submit a petition to the department chair for approval of the change. This petition must have the endorsement of the new advisor.
5. If the department chair approves the switch, the graduate program administrator will process the paperwork required to change advisors.
6. If a student changes advisors prior to achieving candidacy, the new advisor and the student may wish to petition the graduate advising committee to request a short delay in the timeline for completion of the qualifying exam.



26. RESOURCES FOR STUDENTS

Center for Academic and Professional Communication

<https://pwc.rice.edu/center-academic-and-professional-communication>; (713) 348-4932

Help with writing papers and theses, presentation skills through individual consultations and workshops

Center for Teaching Excellence (CTE)

<http://cte.rice.edu/>; (713) 348-2929

Offers Certificate in Teaching and Learning and TA training

Graduate Student Association (GSA)

<http://gsa.rice.edu/>

Hosts community-building events and represents graduate student interests

Office of Graduate and Postdoctoral Studies (GPS)

<http://graduate.rice.edu/>; (713) 348-4002

Forms, registration information, time boundaries, thesis guidelines, and other resources

Campus resources for students with children

Human Resources Child Care Resources Page

<http://people.rice.edu/benefits-rewards/other/child-care-resources/>

Office of International Students and Scholars (OISS)

<http://oiss.rice.edu/>; (713) 348-6095

Support for international students, including visa assistance and advice for living in Houston

Pride @ Rice

<https://ricepride.rice.edu/>

Resources for students and allies of the LGBTQ+ community

Rice Counseling Center

<https://wellbeing.rice.edu/counseling-center/about-us> (713) 348-3311

Consultation and individual and group mental health counseling for Rice students

Student Health Services

<http://health.rice.edu/>; (713) 348-4966

Preventive and outpatient medical care for Rice students

Student Wellbeing Office

<https://wellbeing.rice.edu/student-wellbeing/about-us> (713) 348-3311

Advice for students, including tools for managing conflict and academic challenges

Women's Resource Center

<http://women.rice.edu/>

Works to increase awareness of and sensitivity to gender issues

Disability Resource Center (713) 348-5841

<https://drc.rice.edu/>

<https://drc.rice.edu/students/grievances> - specific link to report a grievance



27. EEB GRADUATE STUDENT ASSOCIATION (EEB GSA) CONSTITUTION

PURPOSE

The EEB GSA functions to foster strong professional and personal relationships among students and between students and faculty members. Additionally, the EEB GSA provides a forum for concerns, both professional and personal, about graduate student life.

MEMBERSHIP

A general member shall be any current graduate student (enrolled in a post-bachelor graduate program) who is interested in ecology & evolutionary biology. A voting member shall be any general member who has been accepted into the Ecology & Evolutionary Biology Graduate Program or is advised by a professor in the EEB graduate program and who has not passed the oral thesis defense. An alumni member shall be any graduated general member.

EXECUTIVE COMMITTEE

The EEB GSA will be governed by an Executive Committee elected by voting members. To run for office on the Executive Committee, one must be a voting member in the EEB GSA. Multiple persons may be elected to an office with equal responsibility, as deemed necessary by the Executive Committee at the time of election. In addition, persons may be elected to multiple offices, as deemed necessary by the Executive Committee. Offices and corresponding duties shall be as follows:

President

- Organizes and leads general meetings
- Attends monthly meetings of the BioSciences GSA, faculty, and staff
- Attends joint EEB/BCB GSA event planning meetings
- Plans the annual picnic (Crawfish Boil) in collaboration with BCB and Earth, Environment, and Planetary Science (EEPS) GSAs
- Organizes voting for Graduate Student Selected Seminar Speaker
- Maintains EEB GSA organizational status
- Acts as a liaison between the faculty and students

Departmental GSA Representative

- Acts as the contact person for EEB GSA
- Represents EEB at University GSA meetings and reports back to the program
- Attends monthly meetings of the BioSciences GSA, faculty, and staff, as needed
- Distributes University GSA emails

Secretary/Treasurer

- Manages funds and composes a yearly budget
- Attends monthly meetings of the BioSciences GSA, faculty, and staff
- Conducts fundraising initiatives, when necessary
- Manages budget and payments associated with the annual picnic (Crawfish Boil)
- Records minutes during meetings



Activity Chair(s)

- Organizes social events, such as welcome back event for new students
- Attends monthly meetings of the BioSciences GSA, faculty, and staff
- Attends joint EEB/BCB GSA event planning meetings
- Organizes social events in collaboration with the BCB GSA
- Oversees publicity for all EEB GSA events

FACULTY ADVISOR

The faculty advisor shall be any member of the faculty or adjunct faculty of the EEB Graduate Program who is chosen by the Executive Committee. The purpose of the faculty advisor is to provide advice and guidance to the organization, as well as to promote consistency by facilitating the transition of officers from year to year.

BUDGET

The Secretary/Treasurer shall oversee all financial matters related to the EEB GSA. Expenditures of less than \$50 shall be authorized by both the Secretary/Treasurer and the President (or the EEB GSA Representative in the President's absence). Expenditures of greater than \$50 must be agreed upon by a 3/4 vote of the Executive Committee.

VOTING

Only voting members shall be allowed to vote. A passing vote on general matters/officer elections shall be simple majority of members present at the general meeting (early voting shall be permitted by emailing or other official written notification before meeting). Changes or amendments to the constitution shall require advance notification of the proposed amendments at least one week prior to the general meeting and require a 3/4 majority of the members present at the general meeting (early voting shall be permitted by emailing or other official written notification before meeting).

ELECTIONS

At least one general meeting shall be held per year to elect new officers; elections for all offices shall be held no less than three weeks before the last day of exams of spring semester. Officer turnover will occur on the last day of the spring semester. Before the voting of each office occurs, the current President shall 1) read officer duties from the constitution, 2) ask for nominations and allow all nominees to accept or reject nominations, 3) distribute a ballot via Google forms or other program to all voting members. The President shall then announce new officers.

ANTI-HAZING POLICY

This organization shall not engage in any form of hazing, as defined by the Code of Student Conduct and any other applicable Rice University rules and regulations.

NON-DISCRIMINATION POLICY

This organization shall not discriminate against individuals on the basis of race, color, religion, sex, sexual orientation, gender identity, national or ethnic origin, ancestry, age disability, or veteran status.



28. GRADUATE STUDENT AWARDS

Ecology and Evolutionary Biology Outstanding Thesis Award

2018: Michelle Sneck
2019: Patrick Clay and Emily Schultz
2020: Shannon Carter
2021: Linyi Zhang
2022: Eric Wice

Ecology and Evolutionary Biology Outstanding Graduate Student Paper

2017: Brad Ochocki
2018: Emily Schultz and Shannon Carter
2019: Patrick Clay
2020: Linyi Zhang
2021: Eric Wice
2022: Pedro Brandao Dias Ferreira Pinto and Carsten Grupstra

Ecology and Evolutionary Biology Peter Savvas Nelson Award

2017: Jade Tonos Luciano
2018: Marion Donald
2020: Carsten Grupstra
2021: Joshua Fowler
2022 Marina Hutchins

Ecology and Evolutionary Biology Outstanding Student Seminar

2017: Emily Schultz
2018: Patrick Clay
2019: Marion Donald and Eric Wice
2020: Linyi Zhang
2021: Jade Tonos Luciano
2022: Carsten Grupstra

Ecology and Evolutionary Biology Joe Davies Prize for Outstanding Service as a Teaching Assistant

2017: Andrea Drager and Mattheau Comerford
2018: Emily Schultz and Patrick Clay
2019: Jennifer Drummond
2020: Marina Hutchins
2021: Hengxing Zou and Robert Laroche
2022: Joshua Fowler and Chia Hsieh

BioSciences Leadership Award

2017: Amy Prater and Michelle Sneck
2018: Patrick Clay and Razan Alnahhas
2019: Jordan Bluford
2020: Marion Donald and Melissa Traver
2021: Marina Hutchins
2022: Robert Laroche, Joshua Moore, Mario Escobar



29. FREQUENTLY ASKED QUESTIONS

The following is a compilation of frequently asked questions submitted by current EEB graduate students:

Q: Does Rice EEB offer graduate application fee waivers for prospective graduate students?

A: The EEB program waives the application fee for all US Citizens and international students who have earned their most recent degree in the US. This is usually automatically applied, but students can also email the application administrator. Do not pay the fee online if you wish to request a waiver; the department cannot authorize refunds.

Q: In what ways does Rice EEB alleviate relocation costs for incoming graduate students?

A: There are a limited number of scholarships for first year students that can alleviate relocation costs, but the program does not routinely cover relocation costs.

Q: What resources does the program allocate towards helping incoming first year graduate students transition into graduate school?

A: The Biosciences Department has a 1st year student mentoring program, along with the components of the training program that are targeted for 1st year students. (See handbook chapters 4, 12, 13, 14)

Q: What is the retention rate at Rice EEB? What careers do Rice EEB alumni pursue?

A: Reporting since Fall 2015, only 2 students who were currently in the program or who entered the PhD program after Fall 2015 left without the PhD degree. One received a master's degree at the end of year 2 and one decided to make a career change after the first semester of study. This corresponds to a 96% retention rate over the 7 year period. EEB students pursue a variety of positions in academia, government, and industry, but the majority move on to an academic postdoc as their first position after graduation.



Q: How does Rice EEB facilitate a culture of care? What protocols are set in place within the program to protect graduate students from acts of discrimination? How does the program support students with disabilities?

A: See Chapters 4, 12, 13, 19-23, 25-26 for policies and resources. Additionally, the department has a Grievance Committee and a Diversity, Equity and Inclusion Committee that both promote a culture of care.

Q: What fees required by Rice does the tuition waiver not cover? How much can I anticipate the out-of-pocket expense for these fees to be each semester?

A: The tuition waiver that all students receive does not cover any fees such as student health fee, parking, etc. Some of the fees are optional, like parking, but the student health fee and a few other fees for services are not optional. The offer letter estimates the amount of fees for first year students based on the previous year's costs to help new students know how they should budget for fees. The amount changes each year, but it tends to go up in small increments, so it is not unreasonable to estimate that your fees will be similar to the previous year.

Q: How is the annual stipend amount determined?

A: The program faculty decide the annual stipend based on estimated costs of living, stipends of peer programs nationally, and the availability of funds.



30. FORMS APPENDIX TABLE OF CONTENTS

COURSE REGISTRATION WORKSHEET	A-1
GRADUATE STUDENT PROGRESS CHECKLIST	A-2
GRADUATE STUDENT COMMITTEE MEETING SUMMARY	A-3
QUALIFYING EXAM RUBRIC	A-4 TO A-5
PETITION FOR DOCTORAL CANDIDACY	A-6
BIOSCIENCES TRAVEL AWARD APPLICATION	A-7
BIOSCIENCES PRE-TRAVEL AUTHORIZATION FORM	A-8
GRADUATE TRAVEL RESOURCES AND PROCEDURES	A-9 TO A-17
ANNUAL REPORT TEMPLATE	A-18
SELF-EVALUATION QUESTIONNAIRE TEMPLATE	A-19
GRADUATE STUDENT SYMPOSIUM PRESENTATION GUIDE	A-20
GRADUATE STUDENT SYMPOSIUM FEEDBACK FORM	A-21 TO A-22
THESIS RUBRIC	A-23 TO A-24
RESEARCH PRESENTATION TIPS	A-25 TO A-34
GUIDELINES ON PLAGIARISM & CITATIONS	A-35 TO A-41
TEMPLATE FOR TAKING NOTES ON RESEARCH ARTICLES	A-42
WHEN SHOULD I REFERENCE SOMETHING	A-43

REGISTRATION WORKSHEET FOR 1ST YEAR EEB GRADUATE STUDENTS

First year students in the Ecology & Evolutionary Biology Graduate Program register for the course BIOS 801 Graduate Research with varying credit hours, depending on their course load. The Department of Biosciences recommends that graduate students enroll in 15 credit hours total each semester, which is equivalent to working ~ 40 hours per week on courses, scholarly reading, and research. **Graduate students must register for at least 9 credit hours every semester (including summer) to receive a stipend.**

Registration checklist for fall of the first semester:

1. Do you have an undergraduate (or master's level) course in Ecology? In Evolution? These are pre-requisites for the PhD, so if you have not taken courses in these subjects speak with your advisor about whether they wish for you to take them at Rice.
2. Do you have previous courses in statistical analysis and/or data science? If you have not taken any courses in these subjects, speak with your advisor about whether they wish for you to take any statistics or data science courses at Rice.
3. Are you assigned as a teaching assistant in the fall semester? If so, register this fall for BIOS 591 Graduate Teaching, 3 credit hours.
4. Speak with your advisor about which of the topics courses they'd like you to take in your first semester, BIOS 563 Topics in Ecology or BIOS 561 Topics in Evolution.
5. Feel free to talk to the other graduate students about the topics courses, plus the graduate-student led course in EEB Outreach, BIOS 589. Graduate students are recommended to take at least one semester of BIOS 589.
6. Register for the Core Course in Ecology & Evolutionary Biology, BIOS 569, 3 credit hours. Students who matriculate in a year when the core course is not offered should register for it in the fall of year 2.
7. Register for 1 credit hour of BIOS 541 research seminar (lab meeting) in your advisor's section.
8. Register for enough hours of BIOS 801 Graduate Research to bring your total hours for the semester up to 15 credit hours.
9. Consult with your research advisor to find out if there are any other specific courses they recommend given your research specialization.

Below is an example first year registration, fall semester, that includes common courses. BIOS 569 is mandatory, but may only be offered every other year. BIOS 584(fall)/586(spring) are mandatory every semester; they represent the Monday guest seminar series hosted by the department and graduate students are expected to attend.

COURSE	NAME	CREDITS
BIOS 589	SEMINAR IN EEB: OUTREACH	1
BIOS 541	RESEARCH SEMINAR (research advisor's section)	1
BIOS 563	TOPICS IN ECOLOGY	1
BIOS 569	CORE COURSE IN ECOLOGY & EVOL	3
BIOS 584	GRAD SEM IN ECOL & EVOL BIOL	1
BIOS 801	GRADUATE RESEARCH (research advisor's section)	8
	TOTAL CREDITS	15

Rice University uses a student database named Esther (esther.rice.edu). You will register for courses every term in Esther. Feel free to consult the graduate program administrator for administrative questions or questions about Esther.

BioSciences at Rice EEB Program

Graduate Student Progress Checklist

During annual progress reviews in December, EEB graduate students will be evaluated on the following criteria:

All Students will have:

- Completed an annual written progress report
- Had a thesis committee meeting in past academic year (except 1st year students)
- Presented talk at the EEB Graduate Student Symposium in December
- Regularly attended the BioSciences/EEB seminars
- Taken 2 topics courses (e.g. BIOS 561, BIOS 562, BIOS 563, or BIOS 568) before candidacy

1st year students will have:

- Found non-EEB courses to fill any gaps in education/preparation
- Made progress toward selecting a thesis topic; at least one project should involve the student in the conceptual development of the idea
- Demonstrated familiarity with the literature related to student's intended thesis topic
- Considered potential members of thesis committee
- Begun data collection, OR demonstrated sufficient progress to ensure that they will be able to collect potentially publishable data, no later than the beginning of fall semester of the second year
- Written a draft of the thesis abstract
- Made attempts to obtain outside funding (e.g., NSF GRFP if eligible)
- Earned a B or better in BIOS 569 Core Course (if offered this year)
- Met with Graduate Student Advising Committee (GSAC)
- Read the EEB Handbook

2nd year students will have:

- Collected data that is potentially publishable
- Formed a thesis committee and held the first committee meeting
- A firm thesis topic and a tentative outline of what the sub-topics will be that will form the chapters of the thesis
- Made up any coursework deficiencies
- Made attempts to obtain outside funding (e.g., NSF GRFP if eligible)
- Fulfilled teaching requirements or established plans to fulfill requirements
- Earned a B or better in BIOS 569 Core Course (if offered this year but not during student's first year)

3rd year students will have:

- Collected data that will be publishable in a reputable peer-reviewed journal
- Attended at least one national meeting
- Passed the qualifying exam and filed the formal petition for candidacy to Graduate & Postdoctoral Studies
- Made attempts to obtain outside funding (e.g., NSF or other grants/fellowships)
- A firm thesis outline with clear descriptions of chapters and a plan showing how these chapters will translate into publications

4th year students will have:

- Thesis chapters that are either completed or currently in progress
- At least one thesis chapter has been submitted for publication
- Presented at a national meeting
- A time table for the completion of the thesis and degree
- Made attempts to obtain outside funding (e.g., NSF or other grants/fellowships)

5th and 6th year students will have:

- Demonstrated they are on track to produce a thesis with at least 3 first- or sole-authored papers publishable in peer-reviewed journals
- Presented a talk at a national meeting
- Made progress lining up postdoctoral opportunities (whether in academia, agencies, private sector)
- Developed plan for future, post PhD

EEB GRADUATE STUDENT ANNUAL COMMITTEE MEETING

NAME OF STUDENT:

DATE OF MEETING:

MEMBERS OF COMMITTEE:

ADVISOR:

STUDENT'S YEAR IN PROGRAM:

ACTION OR DISPOSITION:

PASS

CONDITIONAL PASS

ADDITIONAL MEETING REQUIRED

SUMMARY:

ADDITIONAL REQUIREMENTS OR ASSIGNMENTS and DEADLINE(S):

MILESTONES TO BE MET BEFORE NEXT COMMITTEE MEETING:

RESEARCH ADVISOR SIGNATURE

Qualifying Exam Evaluation

Ecology & Evolutionary Biology Graduate Program, BioSciences Dept., Rice University

Student: _____ Date of exam: _____

*Please review guidelines for evaluation on reverse and provide comments as needed
(comments required for "unsatisfactory" components)*

	excellent	satisfactory	unsatisfactory
Specific Aims	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Background and Significance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Preliminary Results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Research Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Novelty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Document text	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			
Response to questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>			

Summary evaluation

I have read this exam, and recommend: pass qualifying exam
 conditional pass (see comments above and in summary document from committee chair)
 fail qualifying exam

Committee member: _____ signature _____

Guidelines for Evaluation of EEB Qualifying Exam

<i>Specific Aims</i>	Excellent:	Each aim is a logical test of the hypothesis or has clear rationale at its foundation. Hypotheses are soundly based predictions of biological importance and address scientific concepts rather than experimental outcomes.
	Satisfactory:	Aims are clearly stated; a case is made for the work's rationale
	Unsatisfactory:	Aims are not clearly stated; little context or justification is provided
<i>Background and Significance</i>	Excellent:	Identifies all relevant results and techniques from the literature, and synthesizes them in a thoughtful discussion
	Satisfactory:	Discusses major previous works and places them in context for the present project
	Unsatisfactory:	Fails to cite or assimilate previous work
<i>Preliminary Results</i>	Excellent:	Extensive preliminary results with thoughtful discussion
	Satisfactory:	Some preliminary results that are adequately described
	Unsatisfactory:	Limited preliminary results or low quality of discussion
<i>Research Plan</i>	Excellent:	Research plan would be competitive for funding with clear rationales, experimental plans, controls, interpretation of expected results, and alternative approaches
	Satisfactory:	Research plan clear; experiments are technically sound and feasible
	Unsatisfactory:	Research plan unclear, lacks description of controls or rationale, or includes inappropriate level of detail
<i>Novelty</i>	Excellent:	Original research that demonstrates distinct creativity in the question or experimental design
	Satisfactory:	Describes a novel problem appropriate for a Ph.D.
	Unsatisfactory:	Incremental approach unlikely to yield publishable findings
<i>Document text</i>	Excellent:	Good organization, fluent prose, and few grammatical errors; full compliance with formatting guidelines
	Satisfactory:	Decent organization, coherent prose, and limited grammatical errors; full compliance with formatting guidelines
	Unsatisfactory:	Poor organization, incoherent prose, and/or numerous grammatical errors; not in compliance with formatting guidelines
<i>Presentation</i>	Excellent:	Engaging, highly polished presentation with well crafted slides that illustrate key results in the project and clearly describe future directions
	Satisfactory:	Professional presentation on par with a solid conference talk; includes a coherent project narrative and future plans
	Unsatisfactory:	Too much or too little detail; unclear about project goals and direction; incoherent or illegible slides; read from slides
<i>Replies to questions</i>	Excellent:	Complete answers that demonstrate a deep understanding of the discipline that extends beyond the contents of the document
	Satisfactory:	Competent answers that illustrate a facility with the issues and techniques immediately relevant to the thesis project
	Unsatisfactory:	Answers reveal a limited familiarity with the thesis project or its context

RICE UNIVERSITY
OFFICE OF GRADUATE AND POSTDOCTORAL STUDIES



PETITION FOR APPROVAL OF CANDIDACY FOR A DOCTORAL DEGREE

Candidacy for the Doctoral degree cannot be approved until the applicant has completed all course requirements, all qualifying or preliminary examinations or department equivalent, and any foreign language requirements.

1. Name of applicant _____
(Last) (First) (M.I.)

2. Department _____ Student ID# _____

3. **Attach** to this application a current transcript (printed from Esther).

4. **Attach** to this application a statement of all applicable departmental requirements for both course work and qualifying or preliminary examinations.

5. **Attach** student's departmental checklist to candidacy to document how the student has fulfilled departmental requirements.

6. Proposed thesis topic (tentative title) _____

7. Thesis Committee, subject to the approval of the GPS. (**type or print**)
 - (a) Thesis Director _____
Committee Chair within the department (**if different**) EEB DOES NOT USE THIS LINE
 - (b) Member **within** the department _____
 - (c) Member **outside** the department _____Additional member(s) _____

8. Signatures:

Original signature of Department Chair or Director of Graduate Studies	Date _____
Graduate Coordinator signature	Date _____
Dean of Graduate & Postdoctoral Studies	Date _____

RETURN TO DEPARTMENT COORDINATOR

BioSciences at Rice
Graduate Student Travel Award Application

STUDENT NAME: _____ **STUDENT ID#** _____

Name of Conference or Other Purpose of Travel:

Presentation Type (Circle One): POSTER ORAL

Presentation Title (abstract should also be attached to this application form):

Location of Conference: _____

Dates of Travel: _____

Estimated Expenses for this Travel (In the accompanying column, please note the estimated source & amount of funds to cover expenses beyond potential BioSciences travel award)

Expense	Estimated Amount (\$)	Other Travel Award, PI Fund, or Personal Funds?
Transportation (flight, other travel)		
Shared Lodging		
Registration		
Meals		
Total		

Source and amount of other meeting/travel awards applied for:

Faculty Advisor Signature: _____

Submit completed application materials (Application form, CV, presentation abstract) to the Graduate Program Administrator. Electronic submissions permitted.

Office Use

Submission Date:	Submitted to Dept. Chair:	Approval Date:	Amount Awarded:	Student Notified:



BioSciences Graduate Student Pre-Travel Authorization Form

If you are planning any travel for a Rice- or BioSciences-related reason, you should talk to the graduate program administrator and complete the following form at least 2 weeks **IN ADVANCE**. Electronic or paper copies accepted.

Student Name: _____

Emergency Contact Information (partner/parent/family member/friend): Name, phone, email.

What is the best way to reach you during this travel, if essential/emergency?

Copy/paste additional entries for 2+ travel locations, as needed

First Travel Location: _____

Travel purpose: _____

Dates of travel to/from this location: _____

Hotel/lodging/host name: _____

Address (city, state, country): _____

Host/colleague email, in case of emergency: _____

Will you request a travel advance?

Will you request reimbursements?

Yes No

Yes No

Reimbursements

Check with the graduate administrator before using personal funds on travel; BioSciences may be able to pay up-front, minimizing reimbursement.

If seeking reimbursements, bring the graduate administrator all **itemized** receipts, along with the fund to use for expense(s) and the reason for the expense. A credit card slip alone is not sufficient; you may need to specifically **request an itemized receipt** from a vendor/restaurant. **Reimbursement deadline is 30 days after travel ends.**

Rice is a tax-exempt institution in Texas. We cannot reimburse Texas sales tax or Texas hotel tax; try to ensure none is charged. See BioSciences staff for tax exemption forms that you can take while traveling.

Has your thesis advisor approved all of the travel listed here?

Rice University Fund that will cover your expense reimbursement _____

Advisor Signature (or email approval to the grad administrator): _____

This completed pre-trip authorization form is important for safety and reimbursement purposes. Failure to complete this form in advance and secure appropriate expense documentation may result in lack of reimbursement for out-of-pocket expenses.

Office Use

Submission Date:	Approval Date:	Expense Reports Submitted:

Ecology & Evolutionary Biology Annual Grad Student Report Format

Ecology & Evolutionary Biology graduate students are expected complete an annual report and submit the report to the Graduate Program Administrator by December 1 of each year. EEB program faculty review students' annual reports and Graduate Student Symposium talks as part of the annual review process.

The report must follow the below format, with all components in the specified order.

- Up-to-date CV, any format may be used
- Annual Self-Evaluation Questionnaire
- List of all funding efforts (grants, fellowships, awards) sought in the past year, with indication of status (e.g. awarded, declined, pending)
- List of all talks and research presentations conducted over the past year
- Dissertation research summary (format based on year in the program, as specified)
 - *Students in years 1 & 2* – A paragraph describing research interests and likely directions for the dissertation
 - *Students in years 3 and beyond* – Abstract for each dissertation chapter
- Table of research activities over the past year
 - *Over the past year, how have you divided your time among the diverse activities that are part of your research training? This may include but is not limited to, reading literature, attending seminars, developing/designing experiments, performing experiments/collecting data, data analysis, preparing written and oral presentations, writing manuscripts. Not all categories need be used; you may include other categories that are not listed here. The table will likely vary by student and year in program.*

Example table:

Research Activity	% time spent on activity over the past year (100% total)
literature	20
data analysis	30
seminar	10
writing/preparing manuscripts	40

- *Indicate the average number of hours worked per week, over the past year, by filling in the below blank.*

Over the past year, I worked ___ hours per week, on average.

- *In addition, express whether you think changes in your time management would be useful for your productivity during the next year, and describe what changes you are planning*

Ecology & Evolutionary Biology Graduate Student Annual Self-Evaluation Questionnaire

It is valuable to evaluate periodically how well you are expending your time and to make changes in your behavior that improve your productivity (even after you have your degree). In addition, it is important to identify ways to engage others effectively in discussions that accelerate your research progress, extend your research skills, and expand your intellectual breadth. Finally, it is vital that you assess what steps you need to take to become an independent researcher who identifies hypotheses that are compelling, testable, and worthy of your valuable time and effort. To help you think about these issues as you proceed through graduate school, you should provide typed answers to the following questions as a component of your annual report (no more than one page). You are encouraged to discuss these with your advisor and committee and to ask them for input on the changes you are planning for the upcoming year.

- 1. Did you think your goals for the previous year were realistic, too ambitious, or not ambitious enough? ‘**
- 2. What aspects of your research represented the biggest obstacles?**
- 3. What aspects of your research represented the biggest successes?**
- 4. List your research, academic, and professional development goals for the coming year.**



EEB Graduate Student Symposium: Presentation Preparation Guide

Title

- Clear and appropriate title (should summarize contents of your presentation), author name, affiliation/lab

Introductory Slides

- Forecast: Briefly identify the problem you're addressing and insight you found
- Outline: Give the structure of the talk you're about to give
- Motivation and Problem:
 - Why should anyone care about this topic you are presenting? How will your information benefit the audience?
 - Describe the current state of understanding in the field
 - What is known and not yet known
 - Relate **your** research project to previous literature.
 - How does your work relate to previous work?
 - How does your work advance (add to) the field?
 - Are there wider/broader implications of your work for science or society?
 - What is your specific hypothesis or research objectives/goals?

Methods, Design, Analysis

- Heading or other indication that experimental methods are now being presented
- Introduce study system and relevant biology/ecology of you study organism/population/community
- Explain overall methodological approach
- Explain analytical methodology and statistical methods
- Convey appropriateness of methods to achieving stated study objectives or goals

Results

- Heading or other indication that you research results are now being presented.
- Focus on key results and key insights.
- All figures should be clear and readable
- Figure contents (e.g. axes, symbols, scales) and patterns (e.g. trends, relationships, statistical outcomes) are explained thoroughly
- Avoid large tables; utilize clear figures

Conclusion

- Summarize main points
 - Interpret the results in the context of the story laid out in the Introductory slides
- Do these results solve the problem presented in the introductory slides?
- Offer next steps or future work generated by the presented research
- Final slide with take home points
- Acknowledgements (funding sources, advisor/collaborators, field or lab assistants, others who helped make your work possible).

Sources:

<http://pages.cs.wisc.edu/~markhill/conference-talk.html#interview>

Dr. Mary Purugganan – BIOC 583 seminar on presenting seminars, Feb. 6, 2017.

<http://www.northwestern.edu/climb/resources/oral-communication-skills/creating-presentation-body.html>

Presenter Name: _____

Presentation Content:

Criteria	Rank*	Comments
<p>Title—Clear and appropriate title which summarizes contents of the presentation.</p>	<p>1 2 3</p>	
<p>Introduction—Briefly identified the issue being addressed and why we should care. Clearly conveyed conceptual background, motivations, and identified the “gap”. Provided clear questions, potential alternative hypotheses, and/or objectives.</p>	<p>1 2 3</p>	
<p>Methods—Clearly explained why/how methodological approach will answer big question(s)/objective(s) outlined in intro. Provided necessary details to understand results without getting lost in detail.</p>	<p>1 2 3</p>	
<p>Results—Focused on key results and insights. Figure contents (axis, symbols, and scales) and patterns explained thoroughly. Revisited the question and its relation to the results.</p>	<p>1 2 3</p>	
<p>Conclusion—Summarized main points in the context of the story presented in the introduction. Explained if or how the results addressed the question/filled the gap.</p>	<p>1 2 3</p>	
<p>Q&A—Answered questions clearly, confidently, and concisely. Gave reasonable speculation if answers were unknown or not straightforward</p>	<p>1 2 3</p>	

***Rank—1: Needs Improvement; 2: Good; 3: Very Good**

Presentation Style:

Criteria	Rank*	Comments
<p>Delivery—Avoided use of fillers (e.g., “um”, “so”, “kind of”). Effectively used delivery tools (e.g. spoke clearly, at good tempo & volume, sounded engaged, with limited reliance on slides).</p>	<p>1 2 3</p>	
<p>Presentation of self—Projected confidence and familiarity with the topic and slides. Avoided distracting body language (e.g., repetitive motions, wild gestures with pointer etc.). Appropriate eye contact.</p>	<p>1 2 3</p>	
<p>Organization—Clear narrative & logically ordered flow, with clean transitions & connections between big question, results & take home.</p>	<p>1 2 3</p>	
<p>Visuals—Figures were clear and readable. Used visuals with very limited use of text. avoided large/complex tables and figures or build up complex results step by step. Used color-blind safe colors. Avoided small font.</p>	<p>1 2 3</p>	

***Rank—1: Needs Improvement; 2: Good; 3: Very Good**

GENERAL COMMENTS:

Graduate Thesis Evaluation

Ecology & Evolutionary Biology Graduate Program, BioSciences Department, Rice University

(To be completed by all committee members as part of our graduate program assessment)

Student: _____ Date of defense: _____

	excellent	very good	satisfactory	unsatisfactory
Knowledge of background research and techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>				
Research results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>				
Problem solving and critical thinking skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>				
Document text (written communication skills)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>				
Presentation (oral and visual communication skills)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Comments:</i>				

Committee member: _____

signature

Guidelines for Evaluation of EEB Graduate Thesis

<i>Background and Significance</i>	Excellent:	Identifies all relevant results and techniques from the literature, and synthesizes them in a thoughtful discussion
	Satisfactory:	Discusses major previous works and places them in context for the present project
	Unsatisfactory:	Fails to cite or assimilate previous work
<i>Results</i>	Excellent:	Extensive published or publishable results with thoughtful discussion
	Satisfactory:	Some published or publishable findings that are adequately described
	Unsatisfactory:	Limited or unpublishable results or low quality of discussion
<i>Problem solving and critical thinking skills</i>	Excellent:	Demonstrates a deep understanding of the discipline that extends beyond the contents of the document
	Satisfactory:	Competent answers that illustrate a facility with the issues and techniques immediately relevant to the thesis project
	Unsatisfactory:	Answers reveal a limited familiarity with the thesis project or its context
<i>Thesis text</i>	Excellent:	Good organization, fluent prose, and few grammatical errors; full compliance with formatting guidelines
	Satisfactory:	Decent organization, coherent prose, and limited grammatical errors; full compliance with formatting guidelines
	Unsatisfactory:	Poor organization, incoherent prose, and/or numerous grammatical errors; not in compliance with formatting guidelines
<i>Oral presentation</i>	Excellent:	Engaging, highly polished presentation with well crafted slides that illustrate key results in the project and clearly describe wider implications
	Satisfactory:	Professional presentation on par with a solid conference talk; includes a coherent project narrative
	Unsatisfactory:	Too much or too little detail; unclear about project goals and direction; incoherent or illegible slides; read from slides

Research Presentation Tips – the art of a truly great seminar

Compiled and edited by Josh Tewksbury...

The following document was prepared by soliciting feedback from a wide range of faculty at R1 research institutions. I am an ecologist, but consistent advice came from colleagues in a wide range of fields. I have edited the advice only slightly, and organized it into main themes.

Two principles and a rule of thumb to begin. First, every talk is a job talk. Unless you never see yourself moving, then every time you talk about your work, you are giving a talk that could lead you to the next job. Job opportunities have been lost because of sloppy "informal" talks in which chairs or search committee members were unimpressed. Second, the research seminar is almost always the most important aspect of an actual interview.

You learn to give a good seminar the same way you get to Carnegie Hall -- practice, practice, practice. Get critical, constructive feedback on several iterations of your talk before any high-stakes event. A good rule of thumb for any high stakes talk – give yourself a minimum of 40 hours of work time to build the talk and hone it to perfection. The difference between a competent talk and an exceptional talk is that last 20 hours of practice AFTER you think the talk is “in good shape”.

I have organized this into 5 sections – I. the art of preparing the talk (9 commandments for building a truly great research seminar), II. the art of giving the talk (12 tips focused on the delivery of a great talk), III. a bundle of tips for making clear slides, IV a quick hit list to check if you are truly ready to give you talk, , and V. a small number of resources (we can add more during the seminar).

I. The Art of Preparing the Talk

1) Provide a narrative: the art of clarity and mystery

- Care about story telling and narrative structure. The best seminars are good stories and like all good narratives they have an interesting and engaging plot. They keep the listener at the edge of their seat. The art of a good narrative is to combine predictability and surprise. Tell your audience what the story will be about (this is what "organizing slides" are about) but have a plot with surprises and interesting turns. The art of a good narrative comes from either being an innately good story-teller, or from reading good fiction (Poe, Hemingway, some of the good pulp and mystery writers such as Elmore Leonard are great models). It does not hurt to make an outline of your plot rather than just putting a bunch of slides together. Posing mysteries/questions is a ploy that can be used to great dramatic effect.
- use a story-telling technique other than chronological - "first i did this, then i did this, then i did that" is, well, boring. extra points for creating a suspenseful story. two story-lines i use regularly use:

- 2x4 from the left - leading your audience in one direction, with the implicit expectation of a certain result or outcome, dashing their expectations (the 2x4), using that research "disaster" to realize some greater pattern, outcome or underlying fundamental truth (this structure works well for a series of experiments with early "failures" leading to a divergent path and final success)
- baptist preacher - start high, bring low, end high. works really well for conservation talks where the end message mixes scientific outcomes with a larger social/societal message of interaction/responsibility/ etc.
- Science is a detective story. Tell it like one. State hypotheses explicitly, with at least two strong, plausible alternatives so that nobody can figure out in advance what your results will be. Highlight the unexpected and the counterintuitive results. Play up any clever insights that let you solve the problem, or any exceptionally large datasets and analytical savvy that let you do what nobody else has been able to do before. Science is (or at least should be) a CREATIVE enterprise, not just a slog.

2) Provide context and structure

- Care about didactics. When you give a lecture you are both an entertainer and a teacher. Audience members should go out knowing something new and having learned how to explain it in a couple of pithy sentences. The best talks are those in which people leave saying "I didn't know that! Man, feather lice are so cool!" Do not be embarrassed about giving all the background/context needed for the talk to be understood and for its importance to be appreciated. What is obvious to you might not be to the rest of the audience. Ecologists will welcome a refresher on how G proteins work and physiologists will thank you if you explain how the neutral theory works and why it matters.
- Why is your research important to science? What are the big questions you're addressing? Why is your system BY FAR the best way to get at these questions? Context and relevance are EVERYTHING for the majority of the audience.
- Avoid assuming your audience knows as much about the nitty gritty as you do. If you start a talk with a statement like "You probably all know the importance of the corticosteroid hormones for..." well, then you've lost (and perhaps alienated) those in your audience that don't (which at the very least, will be graduate students - also see point 3 above: what to do).
- Start with saying what you are going to say. It could be an outline of the talk or even some of the major conclusions right up front. People want to know within less than 5 min what the point is going to be and whether they are in the right lecture. Only after this brief statement, begin an introduction of the general area of this work and why it is interesting. After an introduction, you have your observations, and towards the end, summarize all over again. Include broader implications. Don't forget this last section on implications, else people may go away wondering, "so what?"
- Have a clear overarching question that you start with, flesh out, and return to (i.e. say what you will say, say it, remind people what you said). The bricks are the

excellent results and data you have garnered, but without the mortar, no one will understand their significance. Outlines, schematics with parts highlighted, etc, are great for this.

- Have a good conceptual framework explaining what you like in Biology (or whatever field...). Usually only a small fraction of the audience will really get the details of what you do. They need to hear and see (with a schematic) what the big picture is. This is usually three topics, like “behavior, physiology, and environment” or “modeling, field observations, and manipulations”. It really can be anything...but often this is the ONLY thing that the majority of the audience will take away about the candidate. It gives people an idea of what you would do for 30 years, and how you would fit into that department.

3) Keep it simple

- Bad seminars frequently try to pack far too much into the time slot. My gut tells me that you can hit only 2-3 pieces of the big picture story in any seminar.
- In any talk you will have some goal--a few points to make. Organize the talk to maximize the clarity of these points. Throughout focus on items that lead you to these specific goals and reject tempting tidbits that don't aid in getting there.

4) Care deeply about representation, from graphics, to art to font

- Slides must be clear but in great seminars they are beautiful. Spending time making beautiful images that are didactical and clear separates the good/competent talks from the excellent ones. What we do, the creatures and systems that we study, are so damn beautiful that there is no justification for esthetically sterile talks.
- No slides where ANYTHING is unreadable or hard to interpret. How many times have you heard a slide introduced like this: "I know you can't read this in the back of the room, but ..." "These colors didn't show up as well as I thought, but ..." ""This is a very busy figure so I'll walk you through it ..." "I know this slide is a little dark, but trust me -- this little smudge is really important ..." "There are no labels on these axes, but they are ..." IF YOU HAVE TO APOLOGIZE FOR A SLIDE IT IS NOT WORTH SHOWING.
- Clear and beautiful figures that are clearly explained. What is the x-axis? What is the y axis? What pattern (trend line, colors, differences, no relationship, etc) do you want people to see in the figure? Only after explaining all that will people really understand the significance (which you should also tell them).

5) Cut text, then cut more text, then remove even more text.

- No text-only slides. EVER. Images should be compelling, clear, and large enough for the old timers in the audience.
- Use PowerPoint as an image projector, not a presentation crutch. That means minimal text, rarely if ever in bullet point form, always large font.

- Use as few words as possible. Avoid long lists of anything. People can't retain them. If you have to say, "I know you can't read this but....," you have too much material on your slide.
- Make sure that you'll talk about everything on each slide. Otherwise, remove unneeded figures or panels.
- Minimize text on slides - put only enough text on the slide to remind yourself of what you need to say, or very very strategically to remind the audience of some key concept or number that they need to remember as the story rolls out¹. And if you can remind yourself what you need to say with just a photograph or a graph, even better. This produces a more professional slide set that seems a little more 'mature', and it draw the audience into the speaker's story rather than reading slides.

6) Know and care about your audience

- Know your audience. The first 10 minutes and last 10 minutes (at least) must be accessible to EVERYONE in the audience. I have never, EVER heard anyone complain that a speaker spent too much time on introducing the subject and putting it in context.
- Know your audience. A seminar to a biology department is different than a seminar to a cell biology or ecology/evolution department.
- Know the audience. It's crucial to gauge the level appropriately. If you know key people in the field will be in the audience, make sure that you cite their work appropriately, but not gratuitously. Also, don't confuse appealing to a broad audience with "dumbing down" - colleagues (including undergraduates through senior faculty) from other disciplines or sub-disciplines are not stupid, even if they aren't up on the latest bayesian technique,
- For the job seminar, talk briefly in a very genuine way about your fit to the department. This is not an idle shout out to all the professors you might have something in common with. Instead, this takes researching the departmental resources and understanding how you could both use and contribute to them.
- For the job seminar, use the last 5-10 min. to talk about what you would do in your new lab. This could even have potential specific aims for a grant. Consider what experiments your first rotation or grad student or undergrad(s) would do in the lab.

7) Be clear about YOUR research

- Be very clear what YOU, PERSONALLY have contributed to the science. Own the work. Don't say "I'm a postdoc in the xx lab and we study....". This is especially important if you're coming out of a big lab. Some tips:
 - Use your acknowledgements well. Be classy, complete, and quick. This is one of the only times in your seminar when you will put text and information

¹ Beware: This latter use of text is where speakers go horribly wrong, thinking the audience needs to remember dozens of full sentences and big bulleted lists.

on a slide that you will not talk about. List funding, list advisors and lab-mates, list collaborators. Don't call them all out by name.

- List published works under relevant results, so folks know what is published.

8) Reduce the number of slides and the number of transitions

- The exact number depends a lot on how you use them, but you will almost always have too many
- Up to 35 slides for a 45-minute talk might be possible. More than that, especially if many have data, is just overload. For a 15 min talk, 10 slides seems the upper limit. You may be able to get through more, but the audience will not. You want them to come away satisfied rather than frustrated. Boil down the message to the essentials.
- Avoid data diarrhea: Sometimes your story has lots of data you are very proud of. One approach is to show the audience how you carefully analyze one or two points using the raw data. Do this until the audience recognizes that you think well and trusts that you are satisfying rigorous criteria. Then say that you investigated the five other points with similar methods, care, and scrutiny, but since there isn't time to show each of the individual experiments, you will just be stating the results. This way, you have illustrated how to do it well with details and yet not dragged the audience through too many details.

9) The E's of life, in 15-minute packets, and with clarity

- Giving talks as all practices is about all these E's of life, isn't it: Empathy, Ethics, Esthetics, and Etiquette ...
- Any talk over 15 minutes is longer than our brain's attention span, so break up your talk into 15 minute pieces and then pause for a minute or so between each one so that people can rest.
- get over the need to show your disciplinary colleagues you speak the jargon and can "out-math" them - live in fear of a resurgence of buzzword bingo, and strive to make your work understandable and relevant to the broadest audience

II. The Art of Giving the Talk:

1) Stay on Time

- Stay on time, and under the full amount of time allotted. Make sure to allow time for questions, e.g. if it's a 50 min time slot, aim for 40 min - I think it's pro when I see a speaker clock in around 40-42 min, treating the seminar as a time for a collegial exchange of ideas rather than just a show about themselves. It shows both confidence and openness.
- Finish on time to leave room for questions. Nobody every complained about a seminar that was TOO SHORT.

2) Slow down

- Avoid talking too fast, not looking at your audience and reading from notes. If you are not engaged in your audience because you are nervous they will check out. Learn to work with your nervousness.
- Speaking faster to say more does not improve a talk. Give yourself time to make points clearly and for the audience to think while you are talking. Leave the slide you are talking about up until you have finished making any points about it. It is easy to make the mistake of flipping to the next slide while still finishing your statements about the previous one.

3) Connect with individuals

- Care about your audience. Respect and pay attention to those in front of you. Engage them. This takes place at, at least, two time scales. Get to know your audience before giving the talk and prepare a suitable one. It is deadly to give a seminar full of ecological/neuroscience/molecular jargon to a general biology department (or worse, to a general lay audience). It is also bad to give too general a talk to a specialized audience. The second time scale is while delivering the talk. Paying attention to your audience is key. Are they engaged? Is it time to crack a joke or do something vaguely outrageous to bring them back into the fold? It is often nice to engage the audience at a personal level. There are all sorts of ways of doing this... (e.g. involve someone in the audience as an element of the talk. "Josh, what do you think. Does this graph make sense?" Make eye contact and ask questions to the audience "Have you all watched the director's cut of Bladerunner?". Make frequent eye contact to see if you are keeping the audience with you. There will always be someone snoozing ... Do not freak out.
- No matter how many people are in the audience, talk to them as if you are in the hallway with a single colleague and are in a conversation. positive, intense, focussed. LOOK at people - stare straight at them as you make your points. connect! get out from behind the lectern/podium and move towards the audience. people will stay awake, and stay involved if you are looking/talking directly at/to them. This means be prepared and bring your own equipment (see #11).
- Especially if you're on a job talk and you've had a chance to meet/talk with folks before your seminar - include points raised in those conversations in a causal way, and name them without being overly pandering. connect to your audience.

4) Consider the power of the spoken word, and the power of silence

- Channel David Attenborough, Oprah, and Carl Sagan. Don't rush. Emphasize individual words/points. Use silence to allow a visual point, or a spoken point, to sink in. Allow yourself to use a broader vocabulary than is customary in science. Cement your messages with metaphor...

5) Vary your pace, vary your voice and convey excitement

- You're not 'giving a seminar', you're not nervous. You're just talking science with some colleagues, and there's nothing else you'd rather be doing.

- Let your voice communicate your excitement about your science. If you don't care, why should I?
- Vary from detail to generalization. After a dense part, say something lighter...after a few graphs, have a colored picture of your preparation or of a model or of anatomy... Try to make it fun as well as interesting. Eventually public speaking will be a pleasure for you as well because one can enjoy communicating technical ideas in a clear and effective manner. Your enjoyment will be evident and will help audience enjoyment. And practice a punchy last sentence or two so you don't end with, "Well I guess that's all I have to say."

6) Recognize that many people do not hear as well as you

- A significant number of older people hear poorly, and many speakers' voices tend to disappear toward the end of sentences. They have a nice strong voice, but in mid sentence it goes into a gravelly lower register and fades as perhaps they are running out of breath. The sentence ends like a casual parenthetical whisper that can't be heard. I suggest trying to catch yourself doing that and developing a more consistent audible tone to the end of the sentence. Keep the voice up all the way through. Pause and take a breath instead of squeezing more out. Despite this, variations in voice are good ways to catch attention. For that you can go loud for emphasis but not soft.
- Many people in your audience will not be native English speakers. Try to use simple, widely understood words, allusions, and humor rather than local idioms, however trendy. Talks have an implied formality. Consider that you are on show and are the leader of an intellectual experience.
- Your talk is accessible only if it can be heard and understood. In each room, try to estimate how loudly you need to speak to reach the back row. If you are not confident of being heard, use the microphone when available. The microphone helps only if you remain near it and speak towards it. Experiment a bit before the talk starts.

7) Don't apologize and make statements

- Avoid being self-deprecating. Don't put yourself down (saying things like "I know this pattern isn't strong but..." or using too many caveats like "This may mean"). Be confident (without being annoyingly cocky). Never apologize for anything in a job talk.
- Try very hard to make statements about what you see rather than say them as questions (because your voice goes up at the end of a question, reducing its impact).

8) Start and end strong

- Consider starting, or ending, your talk extemporaneously with the lights up. force the audience to look at you, and to follow your words. it takes a bit of guts, but it also connects the audience to you, instead of to your images.
- Know your first and last sentences cold. So, "Thank you for inviting me to..." (also know your first scientific sentence). If you mumble through the first few minutes,

you're toast. You should also be able to end your seminar gracefully. 'That's all folks' is great for Bugs Bunny, but not for a seminar.

9) In the question and answer session

- Don't interrupt questioners.
- For aggressive questions, always answer the substance, never answer the tone.
- Don't make your answer to a question too long.

10) Make peace with the pointer(s) – point it, don't circle or draw with it.

- Use the pointer to indicate the data you are describing. Move it slowly to guide movement of the eyes to exactly what you are now talking about.
- Don't wave it rapidly or in circles to call attention to an area. The observer gets dizzy and can't see through all the visual interference you are creating. I just close my eyes when that happens. Point and hold.
- Always bring your own pointer to a job talk

11) Always prepare for the unexpected

- Try your talk on different platforms (PC, Mac) and projectors. Prepare for something to fail (e.g., an embedded movie). Bring a backup of your talk on a flash drive, and put a copy on the web where you can retrieve it anywhere that there's web access. Shit happens.
- Bring a second laser pointer to every talk. Laser pointer batteries run down often in a lecture. The batteries have very little capacity. You can see the pointer light better than the audience. If the light starts looking dim to you, the audience will not see it; switch to an old fashioned stick or pull out your other pointer.
- Bring your own USB remote, so you can walk around the room.
- Assume your computer will die en-route, so always carry backups (jump drive, CD) of your presentation and have a copy in dropbox that you can access from a distance, if needed.
- Check your images on a data-projector, not just on your computer. Data projectors often alter colors and brightness.
- If you have multimedia (sound, video), check, practice, verify, have alternate solutions. Even if problems that arise are not your fault, some will see them as your fault. If problems do arise (with any part of your talk) never apologize. Just move on. Never point out misspellings that you suddenly see during your presentation. Stiff upper lip. Fix the error immediately afterwards.
- Show up early to test your setup. Remind your host about knowing how to access technical help, in the event of a glitch.
- If you are going to a meeting and need to upload your presentation onto a session computer, check for Mac-PC incompatibility, preferably before you go. Have a .pdf

version as a backup -- that should work on any computer, but you'll lose any animations.

III. A bundle of tips for building a clear slide

- **Titles:** Use a simple declarative/informative brief title at top of EACH slide. Not "Effects of A" but "A Blocks B" or "A is Inactive" or "A activates B." This will help those who doze or looked down or jotted a note when you first said what the slide was.
- **Size of lettering.** 20 to 35 point in PowerPoint! Everyone makes them too small. 18 points is the lowest you can go for a label. The larger size is for titles. A convenient rule of thumb is that the lowercase letters of any label need to be 1/40 of the size of the picture at least--you can measure this during practice projection. This goes for the numbers labeling tic marks on graphs and the indication of their units too. Don't be embarrassed to use large letters. Look at any billboard. No printed figure labeled for publication has letters big enough for a projected slide made from the same picture. Re-letter figures from the literature to meet this requirement. You can erase the old letters in Photoshop and relabel in PPT, or cover the old letters with new ones in a white box. To make a test, project something in the auditorium and go to the very BACK of the room and ask if it is clear. Can you really read the smallest letter? Similarly a transparency made with the 12-point type that we would consider generous for a printed document is not visible on projection.
- **Lines:** Often you will import graphs from another program. Either in PPT or in the original program, make the axis thickness and symbol sizes adequate. A 1 point line thickness does not show. If you import graphs and then shrink them on the PPT page, letters, lines, and symbols will become smaller.
- **Colors:** Colors are great but try also to have contrasting brightness. Objects differing in color but not brightness are hard to see. Contrast is paramount. Textured backgrounds just make it hard to see the stuff you are presenting. They obscure your message. Dark reds and blues are brilliant on the computer screen but disappear if put on a black background. Dark reds are fine against white. Yellow disappears against a white background
- **Consistency and continuity:** Movies have a continuity editor who makes sure that the cars stay the same color from scene to scene and people wear the same clothes coming out of the door as they did going into it. Similarly, you can try to keep the same color/symbol/thickness for control data versus that for test data. In diagrams, represent the same object the same way each time.
- **Transitions:** use av to supplement your message, not provide the main entertainment. zooming slides, too many animations, lots of videos, etc. etc. the audience should remember YOU first, your message/science second, and your av third.

IV. You know when you are ready when...

- You know what is on the next slide without having to think, and you can transition easily from one slide to the next
- You have eliminated all the text “crutches” from your talk
- You know what part you would cut if your talk is running too long and you are able to cut it on the fly without a pause²
- You are comfortable explaining all of your material and working with the audience directly

V. Resources

- Watch 'power poses': http://poptech.org/popcasts/amy_cuddy_power_poses
- Garr Reynolds' blog Presentation Zen is pretty good if you can get past the self-promo and wise sage schtick. <http://www.presentationzen.com/>
- It is worth studying - though not necessarily emulating - the so-called Lessig method. http://presentationzen.blogs.com/presentationzen/2005/10/the_lessig_method.html
- Watch, and re-watch some fantastic seminars. There are plenty to choose! Here is one, for example.. <http://128.208.114.46/seminars/02-08-12/index.html>

² It is excruciating when a speaker says 'I should skip this since I don't have time', and then they end up talking a long time about it anyway (And this is where having less text on the slides useful because it's way less obvious if you're skipping something...)

Plagiarism: Recognize and Avoid It

What is plagiarism?

Plagiarism is the use of someone else's ideas, processes, results, equipment design, visuals, wording, or even sentence structure as if they were your own, whether the source is printed or electronic.

Every incoming student receives information about plagiarism from the Rice University Honor Council, which judges cases of alleged **Academic Fraud**: "Violating the **Honor Code** requirements of an assignment or failing to credit one's sources constitutes academic fraud and would, therefore, violate the Honor Code." The Council defines plagiarism as "quoting, paraphrasing, or otherwise using another's words or ideas as one's own without properly crediting the source." A "false citation" or "false data" are also violations. Current penalties range from a three-semester suspension and a failing course grade to a warning, depending on circumstances. Check the Honor Council website for further details.

Rice University Policy No. 324, Research Misconduct, states "Research misconduct means fabrication, falsification or plagiarism in proposing, performing, or reviewing research, or in reporting research results. . . . Research misconduct, however, does not include honest error or differences of opinion" (2011).

Professional journals, too, are checking more closely for plagiarism, including self-plagiarism (using your own previously published work with or without citation).

Therefore, **you plagiarize if you**

- Use someone else's ideas, processes, results, equipment design, visuals, or wording without citing the source;
- Copy something word for word without using quotation marks, even if you cite the source;
- Write an unacceptable paraphrase, changing the source wording only minimally, even though you cite the source;
- Use all or part of a visual without crediting the source.

Why is it important to avoid plagiarism?

In the United States, plagiarism is considered **academic misconduct**, and you are expected to recognize and avoid plagiarism. It is YOUR responsibility to use quotation marks when using exact source words, to paraphrase correctly, and to cite all sources whether on slides or in written text. You must cite the source even if no author is identified, as on Wikipedia.

Plagiarized work can result in a failing course grade, expulsion from graduate school, rejection of a paper submitted for publication, denial of an advanced degree, loss of your scholarly reputation, or loss of job.

Most journals run every submitted paper through software that checks for plagiarism. Some journals say explicitly that a paper containing any plagiarism will be rejected; in some cases no paper by that author will be accepted for 3-5 years or longer. Unfortunately, the Internet has made plagiarism easier than ever before, much research is done online, and it is easy to import blocks of text without noting the source. You might also infringe on someone's patent, thereby leaving yourself open for a lawsuit.

How can you avoid plagiarizing?

1. For each source you read, **keep electronic notes**. You might want to use the **Template for Taking Notes**, which can be downloaded from the Rice Center for Engineering Leadership (RCEL): www.rcel.rice.edu, and is available in this handbook. As you enter the information, proofread for

completeness and accuracy. Be careful to put quotation marks around any blocks of text or wording that you import so that later you can put it into your own words and won't accidentally plagiarize.

2. If in your writing you copy something **word for word**, put **quotation marks** around it and cite it: (Jones 2010). **Paraphrase by putting ideas into your own words**; cite the source of the ideas: (Adams et al. 2009). Because you cannot paraphrase a visual, **if you copy a figure or table, cite it** at the end of the caption and inside the period: (Alvarez 2010). **If you change a figure or table or use only part of it, cite it** at the end of the caption: (Adapted from Alvarez 2010). Put the **complete bibliographic reference for all citations** in the Bibliography (or Works Cited).
3. **Practice paraphrasing (putting someone else's ideas into your own words)** because it's often difficult to do. Avoid the temptation of paraphrasing too many details. Focus on the main idea or evidence that you need to cite. (Read carefully—don't change the meaning!) Once you have determined what you need to paraphrase, reread the source and then cover it up. Write the main idea from memory and then check to verify that you haven't used exact wording or sentence structure. Simply changing the verb tense or substituting one adverb for another, but leaving the sentence structure essentially the same, is still considered to be plagiarism. Remember, too, that a paraphrase is always considerably shorter than the original text.
4. **Always cite your source, whether for text, visuals, or ideas**, including those from papers or posters at conferences. If you cannot remember the source, you cannot use the information. Put citations in as you write your first draft so that you don't have to go back later when identifying the source may be difficult. If you use any material from one of your own previously published sources, cite it.

If you are using parts or all of one or more of your published papers in a Master's thesis or PhD dissertation, check the journal contract to see if you already have permission to do so. Otherwise, contact the journal for permission. Keep a paper copy of your request and of their answer. If you are using an entire paper as a chapter, identify it at the beginning of the chapter and then cite it often during the course of the chapter.

Rice now publishes all theses and dissertations as open access works. Since journals want to publish only new material, they probably won't accept work from your Rice-published thesis as a paper. Therefore, if you plan to write a paper based on previously unpublished research reported in your thesis, your advisor can request that your thesis be "embargoed" for 6 – 12 months to give you time to submit a paper. Only then will the university put your thesis into open source electronic access. But your advisor must request that embargo from the Dean of Graduate and Postdoctoral Studies!

5. In your text, **make clear whose work you are referencing**. It often works well to name the author at the beginning of a short paragraph and then give the citation reference at the close of the paragraph. For example: Alvarez disagrees, however, stating that the polymer is not strengthened significantly by Indeed, the evidence given in the paper indicates increased strength of only .005 percent (2010). If the paragraph is long or includes more than one reference, you need to give the reference more than once.
6. Generally, it is a good idea to **identify an author by name rather than by referring to a number in your bibliography**, though this practice varies somewhat by field or by journal. In any case, **try not use a reference number as a part of speech**. Do not, for example, write that "[10] gives more compelling evidence than [98] provides." Think of how time consuming it is for a reader to have to keep flipping to the bibliography to see who has said what. It would be preferable to write "Johnson et al. (10) give more compelling evidence than Dickerson et al. (98) provide." And then move to the evidence, clearly identifying the references as you discuss the evidence each author gives. [Whether you use square brackets or parentheses depends on the field or journal.]

Examples of Citation within the Text

CONFUSING: [10] and [15] were the next to apply this algorithm to new nanoshell applications.

CONFUSING: The first big improvement came in the work of [10].

CLEAR: Koninsky et al. (10) and Rebert et al. (15) were the next to apply this algorithm to new nanoparticle applications.

CLEAR: The first application of this algorithm to gold-coated silica nanoparticles came in 2007 (Smith and Wesson 2008).

LESS CLEAR: Research teams then began to apply this algorithm to gold-coated silica nanoparticles [10, 15]. (But at least the reference is not used as a part of speech.)

CLEAR: Research teams then began to apply this algorithm to new nanoparticle applications. (See, for example, Smith and Wesson 2008 and Rebert et al. 2009.)

CORRECT, but LESS CLEAR: Research teams then began to apply this algorithm to new genetic sequences. (See, e.g., 10, 15, and 22.) [Too many commas—not clear]

CLEAR: (See, e.g., Smith and Wesson 2008 and Rebert et al. 2009.)

For suggestions on how to avoid plagiarism and cite information, see Diana Hacker and Nancy Sommers's *The Bedford Handbook*, 8th ed., 2010 or 9th ed., 2014. The book, available either as a print or an electronic copy, includes extensive examples of APA and Chicago style guides or go to other web sources. Always check a journal's Style Guide for citation specifics for a paper you are submitting. If you are submitting for publication outside the U.S., style expectations will differ. The preferred style may differ from field to field, as well. Ask fellow graduate students if they can recommend software that can automatically reformat to differing styles. If you have kept an accurate and complete electronic file of notes on what you read, you'll be able to meet any requirements.

Using Internet Resources

- Everything on the Internet is copyrighted and requires permission to use in a journal article unless the site specifies free use. Check to see if the author provides information on how his/her work (e.g., video, audio, graphic, icon, web page) may be used. Follow the guidelines, if they exist. Free use simply means that you do not need permission to use the material; you still need to cite the source. You do not need permission for use in a class paper or a thesis, though you must cite the source, even for a source in which the author is not identified, as on Wikipedia.
- For anything you plan **to publish**, ask the owner of the copyright of the electronic source for permission to use the work. Because a journal usually owns the copyright of a published article, contact the journal for permission to cite. You need to specify what you would like to use. Keep a paper copy of your request for permission and of the permission received.
- If you use one of your own (first author) published papers in your thesis, you don't legally need permission from the other authors because all the authors have equal copyright rights, but you should notify them about your plans. (Some departments and faculty require you to get written permission from the other authors.) In your thesis clearly state the source and identify the contributions of the other authors. Most journals will give you permission to use your published paper, but check the contract!
- If you post on your personal web site a chapter from your unfinished thesis or a paper you plan to submit for publication, it is considered published and copyrighted by the act

of placing it on the Internet. Some journals will allow a previous posting on a personal web site; others will not: journals are becoming increasingly careful about self-plagiarism—if the material has been on the web, it has been published and a journal wishes to publish only information that is NEW. Some journals will let you reference your published paper on your personal website with a link to the journal after the paper has been published. Check the Style Guide and publishing requirements in the journal you wish to submit to *before* you post your work! Become familiar with the requirements of the major journals in your field.

- If you download from the Internet and then print a copy of an article published as print, you may cite it as a printed source. If you cite an article in an electronic journal, you must cite it as a Web source. If you read it on a Kindle or similar source, be aware that graphics are often omitted or distorted, though those sources are rapidly improving.

Examples of Citation in a Bibliography or Works Cited

Notice that the same basic information is included in the three entries for journal articles, although the styles differ. Choose the style appropriate for what you are writing, and then be consistent within the document. You must follow a style guide.

If the Bibliography is set up numerically rather than alphabetically, references are numbered consecutively within a text, and the bibliography entries would be numbered with the authors' names listed with first name (or initial) first as in [24] J. Conant.

Print sources

Beattie, Christopher, Mark Embree, and D. C. Sorensen. *Convergence of Polynomial Restart Krylov Methods for Eigenvalue Computation*. *SIAM Rev.*, 47 (2005), pp. 492-515. [Journal style]

Chen, J. Y., A. Kutana, C. P. Collier, and K.P. Giapis. Electrowetting in Carbon Nanotubes. *Science* **310**, 1480-1483 (2005). [Journal style]

Hacker, Diana & Sommers, Nancy (2010). *The Bedford Handbook*. Boston: Bedford/St. Martin's. [APA style]

Nicolo, Micah J., Gerald R. Dickens, Christopher J. Hollis, and James C. Zachos. "Multiple early Eocene hyperthermals: Their sedimentary expression on the New Zealand continental margin and in the deep sea," *Geology* 35, no. 8 (2007): 699-702. [Chicago style]

[24] J. Conant. *109 East Palace: Robert Oppenheimer and the Secret City of Los Alamos*. New York: Simon & Schuster, 2005. [IEEE style]

Electronic sources

Travis, E. R.; Hannink, N. K.; van der Gast, C. J.; Thompson, I. P. ; Rosser, S. J.; Bruce, N. C. Impact of transgenic tobacco on trinitrotoluene (TNT) contaminated soil community. *Environ. Sci. Technol.* **2007**, 41 (16), 5854-5861; DOI 10.1021/es070507a. (As illustrated in the Style Guide for *Environmental Science & Technology*; note the substitution of the DOI for the URL and date retrieved when the DOI is available.)

Herbst, Roy S., M.D., PhD., and Scott M. Lippman, M.D. Molecular Signatures of Lung Cancer—Toward Personalized Therapy. *New England Journal of Medicine* 356, no. 1 (January 4, 2007): 76-78. Retrieved April 18, 2007 from <http://www.nejm.org>

Examples of Plagiarizing and Paraphrasing

The original text

“The times people choose for writing are often vestiges of old habits and time constraints. Undergraduates tend to write in the evening or late at night because they have classes and other responsibilities during the day. But habits of nocturnal writing often persist, unexamined, long after the writer’s circumstances have changed, among people who really function best in the morning. The majority of professional writers prefer to work during the day.

Regardless of your preferences, this needs to be a matter of choice, to the extent that you can choose times for writing. After all, you probably schedule other activities at appropriate times, according to your needs. I imagine that you cook or buy meals when you are likely to be hungry, that you sleep when you are tired, and that you run or play tennis when you have some energy, not when you are completely exhausted. Yet a surprising number of people try to write when they are least rested and alert, or most likely to be distracted.”

Hjortshoj, Keith (2001). *Understanding Writing Blocks*. New York: Oxford University Press, 108-9.

(The term “writing blocks” refers to those situations in which a writer is unable to make writing progress; in other words, a graduate student, for various possible reasons, is unable to write and may instead focus time and energy on other tasks, such as reading an almost endless list of background papers or running another iteration.)

Read the following examples and decide if each is paraphrasing or plagiarism. Underline any plagiarism.

1. The times graduate students choose for writing are often based on old habits and time limitations. If as an undergraduate you wrote at night, you need to look at how your circumstances have changed to see if you are one of those people who really function best in the morning. Most professional writers work during the day. But your decision needs to be a matter of choice, to the extent that you are able to choose times for writing. After all, you choose when to eat and when to sleep. Don’t try to write when you are least rested and alert, or likely to be distracted (Hjortshoj 2001).
2. If you are in the habit of doing your dissertation writing late at night, examine your motivation for writing then. You might simply be continuing old undergraduate habits instead of choosing to do your writing during the day when you are not too tired to think clearly.
3. Hjortshoj suggests that students should decide when to schedule their time for writing based on actual conditions rather than on habit. Whereas an undergraduate may need to write at night, a graduate student might be more alert and productive during the day (2001).
4. Keith Hjortshoi (2001) points out that students often choose times to write based on old habits and time constraints of undergraduate days when students tended to write in the evening or late at night. He recommends writing during the day rather than when you are least rested and alert, or more likely to be distracted.

Analysis of the four responses

1. The times graduate students choose for writing are often based on old habits and time limitations. If as an undergraduate you wrote at night, you need to look at how your circumstances have changed to see if you are one of those people who really function best in the morning. Most professional writers work during the day. But your decision needs to be a matter of choice, to the extent that you are able to choose times for writing. After all, you choose when to eat and when to sleep. Don't try to write when you are least rested and alert, or likely to be distracted (Hjortshoj 2001).

The underlined portions are not sufficiently changed. Although some words are changed, “people” to “graduate students” in the first sentence and “majority of professional writers” to “most professional writers,” much of the paraphrase is taken word for word from the source. Even though the source is cited, this is clearly **PLAGIARISM**. Another problem: the attempted paraphrase is too long and summarizes unimportant points such as choosing when you eat or sleep.

2. This may look like a good paraphrase, but because the source is not cited, it is **PLAGIARISM**.
3. This is an acceptable **PARAPHRASE**. It summarizes the major points about choosing writing times based on current circumstances rather than on undergraduate habits. It suggests choosing to write during the day, but with the use of “may” and “might,” it also recognizes that a single approach won't work for all.
4. Keith Hjortshoi (2001) points out that students often choose times to write based on old habits and time constraints of undergraduate days when students tended to write in the evening or late at night. He recommends writing during the day rather than when you are least rested and alert, or more likely to be distracted. **PLAGIARISM**. Even though the source is cited, the underlined portions are all taken word for word. Changing the verb tense of “tend” to the past tense of “tended” is not sufficient change. And notice that the author's name is not spelled correctly.

Frequently asked questions

1. When don't I have to cite the source for information?

You don't have to cite basic knowledge that is found in two or more textbooks. But neither can you use it word for word—you must paraphrase. The exception would be something like a common formula or algorithm; those you would have to use as they appear in the source. Just because 2000 people have read it on Wikipedia, that doesn't make it “basic knowledge.” It's basic if it is found in a number of reputable sources.

2. What if I'm using a common method that's difficult to reword? Do I have to cite the source?

If you use it word for word rather than paraphrasing it, you must cite the source. Many authors simply refer the reader to a paper that contains a clear explanation of the method instead of copying the method. I know of an Assistant Professor who was denied tenure for taking a commonly used method word for word from a published paper.

3. How do I cite a source that I read about in a different article, a review article, for example?

You will have to cite the source as well as the review article. However, as a scholar, you should read the original article instead of relying on what someone else says about it. Reviewers are not equally good, and even a good reviewer may be focusing on different

aspects of the article than you need. The exception would be an article originally published in a language you can't read or an article that is no longer available. In such cases you must make clear that it is the reviewer's interpretation that you are citing.

4. What do I put in the Bibliography or Works Cited?

Everything you cited and nothing that you did not cite.

5. What should I do if I have an important quotation or a really relevant figure, but I can't remember where I found it?

See if you can track it down via the Internet. If you can't find it, you can't use it.

6. Can I cite my own previously published paper in my thesis or cite my thesis in a paper I'm submitting for publication?

Of course, but ask the journal for permission, unless your contract with the journal already gives you permission to use the article in your thesis. You don't need to ask the other authors for permission because every author listed on a published paper has equal copyright ownership, but you should acknowledge their contributions. (Some departments require you to ask permission—be sure to check.) If you were first author and are now using essentially the entire paper as a chapter in your Master's or PhD thesis, make clear at the outset of the chapter that it comes from your paper (cite it clearly!). Then several times in the chapter, cite it again. If you use any figures or tables from the published paper, cite those as well at the end of the caption.

See #4 on page 2 for how to write and publish a paper based on previously unpublished research in your thesis or dissertation. Your advisor can request that your thesis be "embargoed" (meaning that Rice will not put it in open electronic source form for 6 – 12 months) so that you can write and submit a journal paper.

7. Can I cite or publish something of mine that I have already posted on the Internet?

Anything you have posted on any portion of the Internet is already copyrighted and therefore published. You can use that material in your thesis, but most journals will not accept anything that has already been "published" on the Internet. Once your paper has been published, though, you can put a link to it on your personal website.

8. When do I have to get permission to quote or paraphrase someone else's work?

In the academic world, this is sometimes a gray area. You usually don't have to get permission for use if you are writing a paper for a class, a Master's thesis, or a PhD dissertation, though you must cite the source. And because being cited helps faculty receive tenure or academic awards, most researchers are delighted to be cited. Because a journal usually owns the copyright of a published paper; you must ask the journal for permission to cite a written portion or a visual for anything you are submitting for publication (including your thesis or dissertation), including a paper in a *Proceedings*. If your paper comes out of funded research, you may need permission to publish what might be considered the intellectual property of the funding agency.

Modified from an original document by Janice L. Hewitt, PhD

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Use the following format (or something similar—from LaTeX or Endnote, for example) to make an electronic record of your notes for later easy access. You may think you'll remember everything you read, but details will slip away. The time spent filling out the form will help you understand the reading and will save you hours of rereading when you write a Background, Related Work, or a Literature Review section. Put quotation marks around any exact wording, including imported blocks of text, that you include so that you can avoid accidental plagiarism when you later cite the article.

Complete citation. Author(s), Date of publication, Title (book or article), publisher, Journal, Volume #, Issue #, pages. How you use this information will vary by journal Style Sheet requirements, class requirements, or thesis advisor/departamental requirements. Put everything down initially so you'll have what you later need. Check key journals in your field for Style requirements; use the Web to access detailed examples of Chicago or APA styles. You can also find examples in a recent edition of a writer's handbook such as Diana Hacker's *The Bedford Handbook*. Always be consistent within a document!

If electronic source: URL (may be required by your advisor or professional journal); DOI (digital object identifier) if available or name of database or document number; date retrieved. **PUT QUOTATION MARKS AROUND ANY IMPORTED BLOCK OF TEXT** so that you won't later think it is your wording.

Key Words (Be precise, not general):

Specific subject:

Authors' Hypothesis or Claim (What do they say they are presenting that is new?):

Method(s):

Result(s):

Evidence:

Summary of key points: Use quotation marks around any exact wording.

Context and relationships (How does this article relate to YOUR work and to other research? Needed for a lit review):

Important Figures and/or Tables (brief description; page number):

Cited References to follow up on (Cite those obviously related to your topic AND any papers frequently cited by others because those works may well prove to be important as you develop your own work):

Your evaluative comments on the work: For example, does the paper clearly identify its contribution to the field? Is the method used an appropriate one? Do the results match the claim? Is the evidence sufficient and convincing? What flaws do you see in the paper? What strengths? How can this paper be helpful to your own research and/or writing?

Janice L. Hewitt, PhD, Brown School of Engineering, 2014 jhewitt@rice.edu

When should I reference something?

Give a reference if

- its someone else's idea
- its some one else's technique
- its some one else's observation

Disruption of xxx blocks the yyy pathway in Arabidopsis (Smith and Jones, 2003). Because of their similarity to xxx, the abc kinases may be part of the yyy pathway (Doe, 2005). To test this, I will use homologous recombination (Jones and Smith, 2001) to disrupt abc1 and determine if this blocks the yyy pathway.

You could leave the reference off of the second sentence only if this is completely your idea, and was not published by someone else or told to you by someone else. So if Doe mentioned this idea to you but never published it, you would write:

Because of their similarity to xxx, the abc kinases may be part of the yyy pathway (Doe, personal communication).

A good rule of thumb is that each sentence in an introduction needs a reference; sometimes a sentence clearly continues the description of the work in a previously referenced sentence and then doesn't need a reference .

How do I reference material from a review article?

Sometimes you get a review article (Epsilon, 2008) that reads something like

The abc kinases were first discovered by Alpher (Alpher, 1982). There are 15 abc kinases (Beta, 2007). There are two types of abc kinases, type I and type II (Gamow, 2006). The type I but not the type II abc kinases are present in plants but not in animals or fungi (Delter, 2008).

If you paraphrase the above section without reading the four articles, and/or without referencing the review article, you will be in trouble. If you didn't read the 4 original papers, you should only reference the review article:

Two types of abc kinases have been described (see Epsilon, 2008 for review).

If you read the 4 original papers, and in your writing you follow the general outline or format of the review paper (or any other document), you need to reference the review paper or document.

A recent review Epsilon (Epsilon, 2008) describes how Alpher first identified abc kinases (Alpher, 1982), and that are 7 type I and 8 type II abc kinases (Gamow, 2006; Beta, 2007).....