

**Graduate Handbook**  
**Entomology and Nematology**  
**Department**

Revised by:

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and

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30th Edition  
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Welcome to UF Entomology & Nematology!

We are excited to have you join one of the largest communities of entomologists and nematologists in the country! We are happy you have chosen us for the next chapter in your academic career and look forward to helping you in your academic and professional development.

Our department is big—we currently have about 78 faculty members located in Gainesville as well as 11 other Research and Education Centers (RECs) throughout the state of Florida. The expertise of these faculty is equally sprawling, covering everything from the control of nematodes, modeling of new invasive pest distributions, and the discovery of new species. While this provides many opportunities and a deep well of expertise, it might also feel a little overwhelming. Your faculty mentor and fellow lab mates will play a key role in your transition, and I encourage you to find community with our large cohorts of ENY graduate students and other local groups. Making connection is key—even more so in the last couple years—and I encourage you to build out both your personal and professional networks as you are able. I myself am new here: I moved to Gainesville in May of 2023 to take on the department chair role. I have enjoyed exploring both the natural beauty of the area (the springs, botanical gardens) as well as downtown Gainesville and other regional urban hubs.

Whether you are starting or continuing your graduate school journey here, you'll find a range of opportunities to expand your horizons in research, teaching, outreach, and leadership. Our excellent graduate coordinator and graduate advisors also will play key roles in your journey, and I encourage you to also reach out to them if you need assistance.

Don't hesitate to reach out to me if you want to chat.

Best Wishes,  
Andrew Short  
Chair & Professor

## PREFACE

This handbook provides information for graduate students and faculty on policies and requirements specifically of the Entomology and Nematology Department and the College of Agricultural and Life Sciences (CALS), and to a lesser extent, of the Florida Board of Education, the University of Florida Board of Trustees, and the University of Florida. The Graduate School also publishes a [Graduate Student Handbook](#) each year that will provide you much useful information about University policies.

The handbook does not replace the Graduate School Catalog, which contains the official information concerning rules, regulations, course descriptions, degree requirements, etc. Faculty and staff will assist students in meeting all academic requirements that apply to their program, but the student (with the academic supervisor's support) is ultimately responsible for staying informed and on track in the program.

This is the 30th edition of the Graduate Handbook. Much of the information in previous editions was compiled and written by former Graduate Coordinators, especially by the late Dr. Stratton H. Kerr, Dr. John R. Strayer, the late Dr. Grover C. Smart, Dr. Donald W. Hall, and Dr. Heather McAuslane.

The first Graduate Coordinator in this department was Dr. Vernon G. Perry, who served (dates not known) under department chair Dr. W.G. Eden. Dr. Perry was followed by Dr. Thomas J. Walker (1975-1976), the late Dr. Stratton H. Kerr (1976-1988), Dr. John R. Strayer (1988-31 July 1993), the late Dr. Armen Charles Tarjan (1 August 1993-31 December 1996), the late Dr. Grover C. Smart, Jr. (1 January 1997-30 July 2003), Dr. Donald W. Hall (1 August 2003-31 December 2008), and Dr. Heather McAuslane (1 January 2009- 1 August 2021).

We are indebted to the Graduate Committee for improving the handbook. Current members of the Graduate Committee are Drs. Thomas Chouvenc, Sriyanka Lahiri, Eva Buckner, Ted Burgess, Zane Grabau, Hugh Smith, Mike Scharf, and Cameron Jack. In addition to suggesting improvements for the handbook, the Graduate Committee plays a prominent role in admitting students, awarding scholarships, awards, and other forms of recognition, and formulating graduate policies.

I'm honored to serve you, our graduate students, in this role. Please reach out if I can help you on your graduate journey.

Best wishes,  
Andrea Lucky  
Graduate Coordinator  
August 2023

## Graduate Student Rights and Responsibilities

Graduate students on assistantship are represented by the [Graduate Assistants United](#) union. The UF [Graduate Assistants Union contract](#) describes your rights and responsibilities. Graduate assistants are responsible for assigned duties from either their research advisor or the Graduate Coordinator, depending on the source of financial support. This assigned work will be specified in the initial letter of appointment and may be in addition to work done on a student's own research. Research advisors may set specific work hours for the assigned work. Students, including those on fellowships or with other sources of support, may have responsibilities for colony maintenance or other tasks with other students or technical support staff in their advisors' laboratories that are required for the mutual success of their and their advisors' research projects. Graduate study is a time-intensive commitment and may include evening and/or weekend obligations. Students are committed, outside of their assistantship duties, to classes, research, seminars, and service. Students must make arrangements with their faculty advisors for any changes to this requirement or any absences -- including those during university holidays. Please carefully read the University leave policy which is found in Section 8 of the [Agreement](#) between the University of Florida Board of Trustees and Graduate Assistants United 2017-2020.

Further helpful information, including grievance procedures, can be found at the [Dean of Students' Office](#) web site.

## Helping Resources

Graduate school can be a stressful, and exciting, time in a student's life. We can direct you to resources to help you deal with issues that are concerning you and impeding your success in graduate school. We can help you figure out what your next step is after graduate school! Feel free to talk to Elena Alyanaya or to Dr. Lucky for advice on how to get the most out of your Entomology & Nematology graduate student experience or check out these resources.

- [U Matter/We Care](#)
- [Career Connections Center](#)
- Graduate School [Student Life](#)
- Graduate School [Health and Safety](#)
- Graduate School [Spouse and Family Resources](#)
- [UF Student Legal Services](#)

## Discrimination and Bias

Our department has zero tolerance for discrimination or bias against any individual or group. There are established methods recommended by UF and [IFAS Human Resources](#) for reporting instances of bias, discrimination, or harassment. They are described [here](#) and [here](#). The person who has been harmed may seek an informal resolution by speaking directly to their supervisor or, if their supervisor is the source of their complaint or concern, to their supervisor's supervisor. Students should talk to the Graduate Coordinator or department chairperson for guidance. If an informal resolution is not possible, the harmed person should contact IFAS HR or the appropriate office listed at the web link above with a request to investigate the concern informally or formally. There is also an option for anonymous reporting using a [third party client](#).

This is an [anonymous suggestion/comments box](#) for members of the Entomology & Nematology department to voice concerns about issues of diversity, equity, and inclusion within the department and to provide suggestions for change. This comment box can be used to voice concerns about the climate in the department that you don't think need to be formally or informally addressed but that affect your experience of the department as a welcoming place to work. This comments box is also a place to make suggestions for changes in practices, policies, and procedures surrounding our departmental missions of research, teaching and extension that you think would promote a more inclusive, diverse and equitable department community. In addition, we have a [Diversity, Equity and Inclusion Committee](#) and your input is always welcome.



## **Plagiarism and Academic Honesty**

Plagiarism is a serious problem in academia today, especially with the ease of obtaining information from the internet. Plagiarism is defined as representing the words or ideas of another person as one's own, without attribution to the source. All words and ideas must be attributed to a source unless they are considered common knowledge (i.e., widely known by many people and found in many different sources). There are many kinds of plagiarism. One of the most common forms is insufficient paraphrasing. Even with attribution, you may be guilty of insufficient paraphrasing because your sentence too closely follows the content and structure of the cited author's sentence. Please look at this reference to learn about ways to avoid plagiarism.

Plagiarism is unethical, unacceptable in science, and prohibited by the UF Student Honor Code. The consequences for plagiarism while at the University of Florida range from receiving a grade of zero for the plagiarized assignment or a failing grade for the course to, for repeated offenses, expulsion from the university. Plagiarism after graduate training calls into question one's scientific integrity and can lead to banning of publication in journals and the loss of jobs/careers. In some countries, it is an acceptable practice to write in a manner that faculty members at the University of Florida consider being plagiarism. Students studying in our university and with plans to publish their research in the English language need to know what plagiarism is and how to avoid it.

Please read the [student honor and conduct code](#) in its entirety.

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**GRADUATE STUDENT CHECKLIST**  
**PLEASE READ CAREFULLY**

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

**Many of the forms you need are posted on our website and additional information for enrolled students and their supervisors can be found on the Canvas Advising Hub. Check these first before reaching out to Elena Alyanaya, graduate program advisor ([eaalyanaya@ufl.edu](mailto:eaalyanaya@ufl.edu), 352-273-3903, Steinmetz Hall Room 1028).**

COMPLETION DATE	WHAT / WHEN / WHERE
__ 1. Attend ENY orientation or meet with Graduate Advisor or Coordinator	ENY Orientation is scheduled for the week before classes begin each Fall and Spring semester
__ 2. Review Canvas Advising Hub and Schedule of Courses online	Upon acceptance to UF
__ 3. New Students: Attend Graduate School and International Student orientation sessions	You have been notified of date, time and place.
__ 4. Complete payroll and appointment forms for an assistantship, if appropriate	By appointment with your REC Human Resources staff member In GNV - Glinda Burnett <a href="mailto:gburnett@ufl.edu">gburnett@ufl.edu</a> (273-3904)
__ 5. Student ID card (Gator 1)	Upon arrival - Reitz Union Welcome Center. REC students may apply online <a href="http://ufl.to/gator1apply">http://ufl.to/gator1apply</a>
__ 6. Parking permit	Upon arrival - Traffic and Parking Building
__ 7. Key to building/computer lab	Upon arrival - See office staff (GNV: Cheryl Johns, Rm. 1017)
__ 8. Have picture taken for the bulletin board display	GNV: Graphics Department, Rm. 1023; RECs: please send a high-quality professional photo to the Graduate Advisor.
__ 9. Meet with major professor to determine courses to take the first semester	Before arrival
__ 10. Register	Online at <a href="http://one.ufl.edu">one.ufl</a> (Late registration fee is \$100.00; Late payment fee is \$100.00)
__ 11. Sexual Assault Prevention for Graduates course, Required	<a href="https://ufhealth.org/sexual-assault-prevention">https://ufhealth.org/sexual-assault-prevention</a> ; Required by UF during your first semester
__ 12. First committee meeting	Completed no later than end of second semester; email approved committee agreement form to Student Services (Appendix E or at our website). Upload Supervisory Committee Agreement in the Advising Hub
__ 13. Ph.D. students: request for possible transfer of up to 30 credits from M.S. degree	Contact Student Services; must be done the first semester enrolled; official M.S. final transcript must be provided to UF Admissions Office (may take up to one year to transfer)
__ 14. Program of study	Meet with committee to complete no later than end of the second semester; email approved program of study to Student Services (Appendix F or at <a href="#">our website</a> ) and Upload to the Advising Hub
__ 15. Complete Individual Development Plan (Ph.D. only) annually	Last page due to Student Services by August 1 each year
__ 16. Oral and written research proposal	M.S. students by end of the second semester; Ph.D. students at least one full semester (2nd -4th) prior to qualifying exam; written proposal in PDF form must be submitted to supervisory committee and Student Services at least 10 days prior to oral presentation; see Rm. 1028, Student Services, for room reservation for oral presentation/Zoom. <a href="#">Research Proposal Assessment</a> due to Elena after the presentation. Upload the proposal in the Advising Hub

__ 17. Letters of appointment (LOA) and semester evaluation	Prior to the end of each semester; the student and committee chair must sign and return forms: LOA to REC HR, or in GNV Glinda Burnett Rm. 1021; Semester Evaluation goes to the academic assistant (Appendix G or at our website)
__ 18. Ph.D. qualifying exam; written and oral	Should be taken the third semester and no later than fifth semester of graduate study beyond M.S.; arrange date and time with supervisory committee as early as possible; provide Student Services with title, date, and time at least 10 days prior to date using form at our website. reserve room with Student Services, Rm. 1028. PhD Qualifying Exam Assessment due to the academic assistant after the exam
__ 19. Admission to candidacy for Ph.D.	Form submitted to Graduate School upon satisfactory completion of oral qualifying exam
__ 20. Registration for Doctoral Research	ENY 7980 or NEM 7980 may be used only after qualifying exam has been passed
__ 21. Guide for Preparation of Thesis and Dissertation	On the web at: <a href="http://graduateschool.ufl.edu/about-us/offices/editorial/thesis-and-dissertation/">http://graduateschool.ufl.edu/about-us/offices/editorial/thesis-and-dissertation/</a>
__ 22. Application for Degree	Check degree application deadline; must apply for degree each term you expect to graduate. Usually first 2 weeks of semester.
__ 23. M.S. department defense deadline	Provide your committee members your thesis 2 weeks before you plan to defend. Check graduate school deadlines for defense. <a href="http://graduateschool.ufl.edu/about-us/offices/editorial/editorial-deadlines/">http://graduateschool.ufl.edu/about-us/offices/editorial/editorial-deadlines/</a>
__ 24. First submission of thesis or dissertation to the Graduate School	See “DEADLINES” for each submission of your thesis or dissertation; <a href="http://graduateschool.ufl.edu/about-us/offices/editorial/thesis-and-dissertation/">http://graduateschool.ufl.edu/about-us/offices/editorial/thesis-and-dissertation/</a>
__ 25. Dissertation/thesis defense and M.S. final exam	Arrange date with all committee members as early as possible; give the title, date and time to Student Service and have Student Services reserve room at least 10 days prior to defense. <a href="#">M.S. Final Exam Assessment</a> and <a href="#">M.S. Final Defense and Thesis Assessment</a> due. <a href="#">PhD Final Defense and Dissertation Assessment</a> due.
__ 26. Exit seminar: Required of all M.S. with thesis and PhD	Given the term of graduation one hour prior to final exam; reserve room/Zoom with Student Services, Rm. 1028
__ 27. M.S. non-thesis oral and written exams	Contact Student Services for room assignment and preparation of written announcement; clear date with supervisory committee. <a href="#">M.S. Final Exam Assessment</a> due.
__ 28. Final copy of thesis or dissertation	Provide Graduate Coordinator’s office with a final copy of thesis or dissertation prior to graduation
__ 29. Exit interview with department chairperson and exit survey	<a href="mailto:Andrew.short@ufl.edu">Andrew.short@ufl.edu</a> , 273-3970; <a href="#">exit survey form via Qualtrics</a>
__ 30. *Return all keys issued by the department	As soon as possible, to Cheryl Johns, Rm. 1017

**\*Return of Stockroom items and keys will be verified before departmental certification of degree**

## ADMISSION

The Entomology and Nematology Department encourages inquiries and applications from all qualified students. In order to access information about our department including the faculty, student body and courses taught, prospective students are encouraged to visit the department's web site at: <http://entnemdept.ifas.ufl.edu/>

Prospective students must apply online, by visiting the University of Florida web site where information is available to guide the student through the application process. The \$30.00 application fee and residency form must be submitted before the department may review the application.

<http://www.admissions.ufl.edu/apply/graduate>

To be admitted to the Graduate School, the student must have earned a bachelor's degree from an accredited college or university and have obtained at least a 3.0 GPA (upper division GPA). The Entomology and Nematology Department does not require an undergraduate major in entomology, nematology, or biology as a condition of admission; however, if the bachelor's degree is in a non-science field, it should be supplemented with the following coursework:

- one year of general biology (2 semesters)
- at least one semester of general chemistry
- algebra and trigonometry
- at least one semester of physics (recommended)
- introductory statistics (recommended)

Applicants must provide the **Office of Admissions** with official transcripts of all previous college and/or university studies and official TOEFL or IELTS (if applicable) scores submitted directly from the educational testing service (University Code: 5812, Dept. Code: 0209). If the transcripts and diploma or degree certificate are not in English, certified copies of English translations must be included. Send documents to the Office of Admissions (201 Criser Hall, P.O. Box 114000, University of Florida, Gainesville, FL 32611-4000) -- **not to the Graduate School**.

Our department requires the following documents, which should be included in your online application: (a) a 1-2 page [Statement of Purpose](#) written by the student, which should indicate previous training and experience, interests, and educational and career goals as an entomologist or nematologist; (b) three letters of recommendation from persons in a position to evaluate the student's academic potential; (c) copies of transcripts with degree statement (photocopies are satisfactory); and (d) [curriculum vita](#).

Each prospective student must have the written support of a faculty member who will be his/her major advisor and provide a research opportunity, which may include an assistantship. Students are expected to contact faculty members directly; the Graduate Coordinator may help the prospective students find a faculty member. We do not review application documents for graduate study until students have the commitment of a faculty advisor and until the source of funding is known. The faculty member must provide a letter to the Graduate Coordinator's Office stating that she/he will supervise the student, whether she/he also will provide funding, and outline a mentoring plan.

Our Graduate Committee, chaired by the Graduate Coordinator, makes the admission decision, not the University. If a student is denied admission by our Graduate Committee and wishes to appeal the decision, the Department Chairperson and the Graduate Coordinator serve as an appeals committee. Their decision is final. For various reasons we may not be able to accept everyone who meets the minimum requirements. Alternatively, we may accept a prospective student who does not meet all of the minimum requirements if exceptional strength is shown in a particular area. For example, if the undergraduate GPA is below the minimum, and if strength is demonstrated in other areas of the application, we have the option, subject to approval by the Graduate School, of accepting a student on a conditional basis. Conditional admission usually requires that the student make at least a B average in the first semester of registration, with no I, U, NG, or W grades.

For international students whose language of academic instruction is not English, the Graduate School requires a minimum score of 550 on the paper-based TOEFL, 213 on the computer-based TOEFL, 80 on the internet-based TOEFL, or 6.0 on the IELTS. Additionally, international students must certify financial responsibility as stipulated in the documents obtained from the University of Florida International Center web site. Financial support may come from the student's government, a granting agency, personal funds, or from a faculty member. The Certification of Financial Responsibility form must be submitted to the International Center before an I-20 can be issued.

### **Direct Admission to the Ph.D. Program (without M.S. degree)**

Only the most academically talented students will be considered for acceptance into the research-intensive Ph.D. program without first completing the M.S. (thesis) degree. We believe that the M.S. degree is very good training for research and should not be bypassed, except in exceptional circumstances.

- The following academic and research achievements are highly recommended in order to be considered for direct admission to the Ph.D. program:
  1. Undergraduate GPA of at least 3.5
  2. In lieu of an M.S. thesis, students must document significant research-related activities and a solid understanding of the scientific process. Documentation should include multiple examples in the following categories: undergraduate thesis, peer-reviewed published paper(s), and oral or poster presentations at scientific meetings.
- Applicants should provide a clear and focused [statement of purpose](#) (i.e., letter of intent; personal statement). This should address the rationale for pursuing doctoral study without first completing a master's degree, the area in which they wish to specialize, their professional goals and how graduate study will help them accomplish those goals, and their particular qualities and experience that make them a good fit for the department research program that they are hoping to join.
- Letter(s) of recommendation from former research supervisor(s) must be detailed and strong, indicating ability of the student to proceed to the doctoral program without a master's degree.
- Letter of support from proposed University of Florida mentor must indicate diligence in contacting references and arranging Zoom, phone, or personal interviews with the applicant, strong confidence in the student's ability to complete a Ph.D. successfully, and a willingness to support financially the student who may need more than four years of funding to complete the Ph.D. without a prior M.S. degree. A mentoring plan must be included in this letter.

Members of the departmental Graduate Admissions committee will judge the application of each student on its own merits and admission will require a majority vote of the graduate committee members. Admission decisions are made based on the individually perceived likelihood of the applicant's success in their proposed graduate program.



## FINANCIAL ASSISTANCE

### DOMESTIC STUDENTS

#### Gahan Assistantships

The Gahan assistantships were established by the late Dr. James B. Gahan, USDA Entomologist, and his wife, Mrs. Margaret H. Gahan, to be awarded to outstanding M.S. or Ph.D. students in entomology according to personal goals, interests, and academic achievements. Students awarded these assistantships are given a stipend, tuition waiver and health insurance. Students awarded a Gahan assistantship will be assigned teaching duties by the Graduate Coordinator, usually serving as the supervisory teaching assistant for the introductory entomology laboratories.

#### Steinmetz Assistantships

The Steinmetz assistantships were established by Mr. C.P. and Mrs. Lynn Steinmetz to be awarded to outstanding M.S. or Ph.D. students. Students awarded these assistantships are given a stipend, tuition waiver, and health insurance, and may be assigned teaching duties during part of their program.

#### Departmental Assistantships

The department has a few assistantships that can be awarded to outstanding M.S. or Ph.D. students. Current departmental assistantships are: 1) teaching assistant for face-to-face CURE (Classroom-based Undergraduate Research Experience) and introductory entomology courses, 2) teaching assistant for distance courses, and 3) entomology outreach and informal education. Students awarded these assistantships are given a stipend, tuition waiver, and health insurance. Teaching duties are assigned by the Graduate Coordinator. See Table 1 for the maximum number of semesters that the Gahan, Steinmetz, and departmental assistantships may be held.

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Table 1. Number of Semesters that Gahan, Steinmetz, and Departmental Assistantships may be held

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Degree Sought	No. of Semesters*
Masters (M.S. with thesis or M.S. non-thesis)	6
Ph.D. (M.S. earned elsewhere or not sought)	12
M.S. and Ph.D. at the University of Florida	15

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\* Summer semester "C" counts as a semester

#### Grant-Funded Assistantships

Faculty members often award assistantships from grants. Students awarded these assistantships must perform work relevant to the grant stipulations. In many cases, the research conducted, or at least a part of it, may be used for the thesis or dissertation. Students on these assistantships are provided a stipend, tuition waiver, and health insurance. The faculty members holding the grants determine the length of time these assistantships may be held.

#### Work Requirements for Assistantship Holders

Assistantships are 1/2 time. Recipients of 1/2 time assistantships are obligated to work 20 hours a week at whatever assignments their advisors designate. Students supported from a faculty research grant usually must perform work according to the grant stipulations. For Gahan, Steinmetz, and departmental assistantships, the Graduate Coordinator determines the work to be done, which usually is as a laboratory instructor or assistance for an online course.

## **Stipends and Benefits**

Stipends for Gahan, Steinmetz, and departmental assistantships are determined by the Graduate Coordinator and meet the Graduate School's [minimum stipend level](#). Stipends for assistantships funded from grants are determined by faculty members who hold the grants. Students on assistantships are provided a tuition waiver and [individual health insurance](#).

## **Cancellation of Assistantships**

A Letter of Appointment, signed by the student and the advisor, is issued to the student each semester and becomes a contract. Neither the department nor a faculty member may cancel an assistantship prior to the end of the contract without cause. The cause is usually in the form of unsatisfactory progress in the degree program documented in the semester graduate student semester evaluation form (Appendix G). The student may cancel the contract prior to the end of the contract (a semester), but then becomes liable for tuition that was waived while on the assistantship. Until those financial obligations are settled, the student cannot register, cannot get a transcript, and cannot graduate.

## **Outside Employment for Students on Assistantships**

The department discourages students on assistantships from holding outside employment. Sometimes we recognize that additional employment may be necessary for financial reasons. If this becomes necessary, please obtain permission from your advisor before seeking other employment.

## **Fellowships**

There is one competitive award provided by the College of Agricultural and Life Sciences (CALs Dean's Award) available on a highly competitive basis for students seeking a Ph.D. The Graduate Committee selects outstanding students for these fellowships. Applications must be completed by January 15 for the following Fall semester. Students awarded CALs Dean's Awards must have been accepted by our department, but not yet enrolled. Fellowship-holders are considered to be 1/2-time graduate assistants and must register each semester for the number of credits that are required for 1/2-time graduate assistants (see Table 2).

## **Scholarships**

A number of scholarships, usually ranging from \$500 to \$3000, are awarded from endowment funds provided by families, clubs, professional societies, etc. Most of these, such as those awarded by the Agricultural Women's Club, are awarded on the basis of scholarship and service to the department and community. Students must apply for these scholarships, and usually a letter from the advisor must be included in the application packet. More information will accompany the annual announcement of each award.

Scholarships provided by the Entomology & Nematology Department (all due in Spring Semester) include:

- Mulrennan award – recognizes best ENY dissertation and thesis
- Nan-Yao Su scholarship –recognizes academically outstanding graduate students who represent well the science of entomology to their peers and the public
- Dr. Marjorie A. Hoy Graduate Research Endowment for Arthropod Research - Supports graduate students who are conducting research on Arthropoda in the upcoming academic year. Preference will be given to students focusing on arthropoda of the Lower Suwanee National Wildlife Refuge, or on integrated pest management
- Dr. Marjorie A. Hoy Graduate Endowment in Molecular Entomology - Supports PhD students who are working on the science of molecular entomology in the upcoming academic year. Preference will be given to projects focusing on interactions between viruses and insects or between insect toxins and insect biology
- Pauline Lawrence award in physiology – awarded to students conducting research in biochemistry, physiology, molecular biology or toxicology

## **Employee Education Program**

The Employee Education Program, or EEP, is an opportunity funded by university resources that enables full-time UF Academic Personnel, TEAMS employees, and USPS employees who have been employed in good standing for at least six months to receive tuition assistance for up to six credit hours of instruction per semester at the state university closest to their work location. TEAMS employees may also attend classes at a public community or state college closest to their work location.

EEP application process does not replace admissions or registration processes. The EEP is simply the process by which employees may obtain assistance in paying for coursework. EEP participants must review the program policy, eligibility criteria, and registration guidelines. The EEP application process does not replace the University of Florida admissions or registration process. Any employee interested in participating should review the institution's admissions policies and procedures in order to ensure proper enrollment for courses.

State Agency Employees - <https://registrar.ufl.edu/registration/employee-education.html>

Full-time state employees who have been admitted to a degree or non-degree seeking status are eligible for a fee waiver of up to six credits of UF courses per academic semester. The State Agency Employer Tuition Fee Waiver form <https://registrar.ufl.edu/assets/pdfs/feewaiver.pdf> is not an application for admission, nor is it a request for registration; it is a waiver of course fees that must be turned in to University Bursar.

Please note the deadlines for submitting your EEP paperwork: <https://learn-and-grow.hr.ufl.edu/education-programs/employee-education-program/uf-checklist/>

## **Sources of Travel Funds for Entomology & Nematology Graduate Students**

Money to help defray the costs of attending a scientific meeting is offered by various sources. Some sources require a match of funds from your advisor or the department. Most sources require that the student be presenting their research at the conference. Always be sure to submit to the Entomology & Nematology Business Office the Travel Authorization form at least one month prior to travel and the Travel Reimbursement form as soon as possible after return from the meeting.

1. Entomology & Nematology Department
2. Entomology & Nematology Student Organization (ENSO)
3. College of Agriculture and Life Sciences
4. UF Research and Graduate Programs
5. UF Graduate Student Council
6. Scientific societies

## **Entomology & Nematology Department**

The department can match CALS or UF Research and Graduate Programs travel awards with required departmental matching, up to \$250 per year per student, if funds allow. Students should approach their advisors first for matching funds and then the department. At the time of the travel authorization request, students should indicate that they are receiving funding from a source that requires a match. Linda Pedersen will take care of the details once the travel reimbursement form has been turned in after the travel has been completed.

### **ENSO Student Travel Grant**

The Entomology and Nematology Student Organization (ENSO) Student Travel Grants are provided on a competitive basis to students and students **must have participated in two departmental outreach events per semester** (coordinated by Dr. Rebecca Baldwin and the graduate student outreach coordinator). These reimbursement-based grants will be used to cover travel-related expenses for presenting research or participating in career development activities at a professional conference or meeting. Reimbursement may cover conference registration, transportation, and lodging, Reimbursement may not cover food, entertainment, or purchases made on department P-cards. Usually, one grant is awarded each semester to qualifying ENSO members. The maximum grant is \$250.

Applicants must be a graduate student in the University of Florida Entomology and Nematology Department, and therefore a member of ENSO. The ENSO faculty advisors and officers will review all applications and select grantees. If an ENSO officer applies for the ENSO Student Travel Grant, he or she will not be eligible to review applications or select grantees. The same applies to ENSO faculty advisors that have a student(s) who apply for the ENSO Student Travel Grant. The following priorities will be considered when selecting grantees:

1. Students who are giving their first oral or poster presentation.
2. Students who are presenting just prior to graduation.
3. Students who are traveling internationally or to domestic locations greater than 500 miles away (as opposed to regional or national meetings held in Florida).
4. Students who are receiving less financial support from other sources.

### **College of Agriculture and Life Sciences Travel Funds**

See [website](#) for application details and deadlines

#### **IFAS/CALS Graduate Student Travel Grant**

The IFAS/CALS Graduate Student Travel Grant Program provides matching funds up to \$200 to each graduate student applicant who is presenting a paper or poster on their original research at a regional, national, or international scientific meeting (one award per fiscal year). This travel grant must be matched 1:1 by funds provided through the student's department/program or advisor. The grants are reimbursed directly to the department, not the graduate student. **Check the application deadlines carefully as the application deadline is at least two months before the date of travel).**

#### **James Davidson Graduate Travel Scholarship**

The purpose of these scholarships is to provide funding to help defray travel expenses for graduate students presenting a paper or poster at a national or international professional meeting or conference. These scholarships are named after Dr. James M. Davidson, former Vice President for Agriculture and Natural Resources, Institute of Food and Agricultural Sciences, University of Florida, who established the endowment to fund these scholarships. Applications are due in the Graduate Coordinator's office one week before the college deadline so that requests can be ranked before submission to the college (due November 1st or May 1st, depending on travel date).

### **UF Research and Graduate Programs Travel Grant**

Travel to conferences, symposia, and special research opportunities are essential for the professional development of advanced research students. The University also benefits by being represented at such events. The Office of Research and Graduate Programs (RGP) has therefore established a program to supplement student travel when other funding sources are insufficient. RGP guidelines for travel funding cap awards at \$300 per trip and require 1:1 matching funds from the department and/or college. These funds are primarily for assistance with the cost of travel, particularly airfare. These grants are one-time awards to Graduate Students. RGP cannot provide any retroactive reimbursements. Priority is given to PhD students who have passed their qualifying exam.

PDF application <https://cals.ufl.edu/current-students/student-awards/gr-awards/>

### **Graduate Student Council**

The Graduate Student Council will award up to \$350 with no requirement for a match from the department or your advisor. See [web site](#) for details and deadlines.

### **Florida Entomological Society**

The Florida Entomological Society (FES) offers travel grants to attend the FES annual meeting each year. Occasionally there are funds left over to fund travel to the Entomological Society of America meeting. No match is required but students must be members of the Florida Entomological Society and will receive notice of availability of funds from the chair of the FES Student Activities Committee.

### **Employment**

Some domestic graduate students support themselves by working part time or even full time, usually as technicians, in the many laboratories in Gainesville. If the funds paid to these student employees can be converted into assistantships by the employing agency, the students are given tuition waivers.

### **Grants**

Some of our graduate students fund their studies, at least in part, from grants that they obtain by writing grant proposals and having them funded. We encourage students to write grant proposals. Contact your research advisor for suggestions on granting agencies and take advantage of grant writing workshops and courses (e.g., ALS 6046, Grant Writing).

### **Office of Graduate Diversity Initiatives**

The Office of Graduate Diversity Initiatives administers [several funding programs](#) for under-represented students to increase diversity in the graduate program. The OGD I may be reached at 123 Grinter Hall; email address: [ogdi@ufl.edu](mailto:ogdi@ufl.edu) and on the web at <http://graduateschool.ufl.edu/about-us/offices/dgsa/ogdi/>

- **The Florida Board of Education Summer Fellowship Program.** This program is held in Summer B semester and is designed for under-represented minority graduate students. Participants receive a stipend of \$1,500 and tuition for 4 credit hours. The student pays student activity fees. The student must enroll as a full-time graduate student the following academic year. Students must be U.S. citizens or permanent residents.
- **The FAMU Feeder Program.** This program is designed to increase the number of Florida A&M University graduate students. The University of Florida provides five fellowships annually and all graduate programs at UF may compete for them. The application deadline is February 15th each year. Students must be U.S. citizens or permanent residents.
- **McKnight Doctoral Fellowships.** These fellowships are awarded by the Florida Education Fund to African American and Hispanic students newly admitted into selected doctoral programs. The stipend is for \$26,000 and tuition and fees are paid for a period up to three years (an additional two years of support are paid by the department). The application deadline is 15 January each year, and application must be made to the Florida Education Fund, 201 East Kennedy Blvd., Suite 1525, Tampa, FL 33602 or online at <http://www.fefonline.org/mdfapply/>. The telephone number is 813-272-2772.

## INTERNATIONAL STUDENTS

International students are funded by their institutions, governments, organizations such as USAID (United States Agency for International Development), OAS (Organization of American States), or IAEA (International Atomic Energy Agency), or by faculty from grants.

International students on a faculty-sponsored assistantship will be provided a stipend, a tuition waiver and individual health insurance (<http://gatorcare.org/gatorgradcare/>). They must demonstrate financial resources of \$51,705 for the first year to be permitted to come to the United States as a student. An additional \$6,000 is required for your spouse and \$2,500 for each child. (These dollar amounts were current for 2022-2023 academic year but most likely will be increased in future years). <https://internationalcenter.ufl.edu/start-up>

## DEGREE REQUIREMENTS

**NOTE: It is the responsibility of the student to observe all regulations and procedures required by the program he/she is pursuing. The Graduate Catalog is the ultimate authority on regulations and procedures (<http://graduateschool.ufl.edu/academics/graduate-catalog>). Ignorance of a rule does not constitute a basis for waiving that rule.**

All incoming students are added to the UF Canvas Advising Hub to help them orient themselves to what is needed to succeed as they work toward the degree. We have assembled guidelines, resources, and other information to support students and their advising team. This advising hub will help students anticipate and prepare for major milestones in their degree program and will also be a repository for important documents.

### Completion of Degree Requirements

All students are expected to complete degree requirements and graduate within a reasonable time. An M.S. with thesis or M.S. non-thesis can be earned in two years (6 semesters), and a Ph.D. degree in three to four years (9 to 12 semesters) after the Master's degree. However, since research is not predictable, it often takes longer to complete the M.S. and Ph.D. degree requirements. See Table 1 for the number of semesters that a student may hold a Gahan, Steinmetz, or departmental assistantship.

### Registration

The Registrar enforces these deadlines: Students enrolled at the University of Florida must pre-register for the next semester during the regular registration period. You must be registered by 5:00 PM the day before classes, or, if classes start on a Monday, you must be registered by 5:00 the previous Friday. If you are not registered by this time, you will incur a late registration fee of \$100.00. If you do not pay your fees on time, the charge for late payment of fees is \$100.00. To avoid these charges, register on time and pay fees on time.

The Department of Entomology and Nematology encourages early registration. This is particularly important if you wish to take a popular course in another department as the course may fill before you can register. By registering early, you will have a good chance of getting a seat in a class with limited enrollment. Also, if you need special accommodations, we will need to obtain this for you. We expect students to register themselves or request registration from the academic assistant:

- For the summer semester—the last Monday in April,
- For the fall semester—the last Monday in July, and
- For the spring semester—the first Monday in December.

Gainesville students may register through ONE.UF (<https://one.ufl.edu>), or through the Departmental Student Services Office, Room 1028. REC students must register through the academic assistant.

Table 2. Minimum Number of Credits for Full-Time Registration

	Fall and Spring	A	&	B	or	C
Full-time graduate students not on assistantship	9-12	3		3		6
Assistants on 0.01-0.24	12	4		4		8
Assistants and fellows on 0.25-0.74	9	3		3		6
Assistants on 0.75-.99	6	2		2		4
Full-time assistants:						
1.00 Fall and Spring	3					
1.00 Summer A		2		or		2
1.00 Summer B		2		or		2
1.00 Summer C		1	&	1	or	2
Part-time graduate students not on assistantship	3	1	&	1	or	2
Graduate students not on assistantship during final term	3	1	&	1	or	2

**Note:** Registration requirements listed here do not apply to eligibility for financial aid programs administered by the Office for Student Financial Affairs. Check with Student Financial Affairs in S-107 Criser Hall for financial aid registration requirements (<http://www.sfa.ufl.edu/>).

Students who do not register properly (according to Table 2) for each semester that they hold graduate assistantships will not be permitted to remain on assistantships. For students on assistantships for the full summer, minimum registration must total that specified for C term. Registration may be in any combination of A, B, or C terms. However, courses must be distributed so that the student is registered during each term that he/she is on appointment. Students on assistantships registering for any summer term must register before the beginning of A/C term.

### Drop/Add

During the drop/add period the student may drop and add courses with no penalty but must have prior approval of their faculty advisor. After the regular drop/add period, the student will be held fee liable for any dropped course. **To be clear, you will be charged tuition and fees for the course(s) that you drop after the drop/add period. Reducing the number of credits within a section is considered by the Registrar's office to be the same thing as dropping a course (as the old section must be "dropped" and the new section "added"). It is the student's responsibility to make sure that their registration is correct before the end of the drop/add period.** Drop/Add forms must be initiated by the Graduate Coordinator's Office. If a student on assistantship drops to less than the minimum number of required credits per semester, he/she will lose the assistantship, and, in addition, must reimburse the University for fees waived and may be liable for the stipend paid that semester.

### Satisfactory/Unsatisfactory (S/U) Grading

In our department, grades of S and U are the only grades awarded for 6932 (Special Topics), 6940 (Supervised Teaching), 6971 (Master's Research), 7979 (Advanced Research), and 7980 (Doctoral Research).



## **Program of Study**

The Program of Study (Appendix F) lists the courses to be taken and the semesters in which the student plans to take them. To help the Supervisory Committee plan for completing the Program of Study, please provide each committee member a photocopy of B.S. (and M.S.) transcripts. Also, coordinate a time when you and all committee members can meet together to complete a mutually agreeable schedule of courses to fit your particular needs.

The student may take courses not listed on the Program of Study with their supervisor's permission. If, for any reason, the student fails to take a course listed on the Program of Study, his/her advisor must petition the Graduate Coordinator to have the course(s) deleted from the Program. Otherwise, the student will be unable to graduate for failure to complete the Program of Study.

## **Letter of Appointment**

Each Gainesville student on an assistantship or fellowship, must have a Letter of Appointment each semester. This form, along with the Evaluation Form (Appendix G), is sent to the student's advisor before the end of each semester and must be signed by the student and the advisor and returned to the business office.

## **Evaluation**

Each student in this department, regardless of their physical location, is required to have an evaluation of progress at the end of each semester (Appendix G). The evaluation must be made by the student's advisor (but could include input from the entire Supervisory Committee) and should name specific achievements for the past semester and goals for the coming semester. The evaluation form must be signed by the student and the advisor and returned to the academic assistant.

## **MINIMUM COURSE REQUIREMENTS**

### **Entomology Students**

**Master's Degree Students** shall take, or shall have taken the equivalent of, the following courses:

- A beginning course in general entomology
- A course in insect physiology
- A course in insect classification
- A graduate course in ecology (suggest ENY 6203/L or ENY 6206)
- Entomology Seminar (ENY 6934) (must register for at least one semester at UF). Must be graded.
- A beginning course in statistics
- At least one other ENY/NEM elective course

**Doctoral Degree Students** shall take, or shall have taken the equivalent of, the following courses:

- Graduate Survey of Entomology and lab, ENY 5006/5006L
- Insect Classification, ENY 6166
- At least one graduate statistics class (suggest STA 6093)
- Seminar, ENY 6934 (2 times; to increase breadth, suggest taking seminars in topics not related to the student's research area)

In addition, take at least two more courses, one each from two of the three subject areas below. Students must earn at least 12 credits of graded ENY credit during their PhD program. Take more courses to round out knowledge requirements, as directed by the supervisory committee.



Sub-organismal subject area:

- Insect Physiology
- Insect Toxicology
- Molecular Biology of Insects and Nematodes
- Molecular Biology Techniques
- Insect Microbiology

Organismal subject area:

- Social Insects
- Insect Ecology
- Ecology of Vector-borne Disease
- Insect Behavior
- Behavioral Ecology and Systematics
- Immature Insects
- Techniques in Insect Systematics
- Advanced Mosquito Biology
- Tropical Entomology
- Advanced Apiculture
- Insects and Wildlife

Applied subject area:

- Ecology and Conservation of Pollinators
- Insect Pest and Vector Management
- Field Techniques in Integrated Pest Management
- Insect Diagnostics
- Biology and ID of Urban Pests
- Principles of Urban Pest Management
- Advanced Medical and Veterinary Entomology
- Graduate Survey of Urban Vertebrate Pest Management
- Turf and Ornamental Entomology
- Biological Control
- Insects as Vectors of Plant Pathogens
- Mosquito Identification
- Plant Nematology
- Entomopathogenic Nematodes
- Citrus Pest Management
- Experiments in Agriculture and Ecology

## Nematology Students

**Master's Degree Students** shall take, or shall have taken the equivalent of, the following courses

- A beginning course in nematology
- Nematode Morphology and Anatomy and the lab
- Nematode Taxonomy and Molecular Phylogeny
- A graduate course in ecology
- Nematology Seminar (must register for at least one semester at UF)
- A beginning course in statistics
- At least one other NEM or ENY elective course

**Doctoral Degree Students** shall take, or shall have taken the equivalent of, the following courses

- Graduate Survey of Nematology
- Plant Nematology
- Nematology Seminar (must register for at least two semesters at UF)
- Statistics (at least one – STA6083 or AGR6932 recommended)

In addition, take at least two more courses, one from each of the two categories below. Students must earn at least 12 credits of graded NEM or ENY credit during their PhD program. Take more courses to round out knowledge requirements, as directed by the supervisory committee.

Nematology Electives (at least one)

- Nematode Morphology and Anatomy
- Nematode Taxonomy and Molecular Phylogeny
- Insect Parasitic Nematodes
- Field Plant Nematology
- Nematode Diagnostics
- Other ENY/NEM Electives (at least one)

## Some Courses at the University of Florida that Satisfy the Statistics Requirement

STA 6166 Statistical Methods in Research I (Statistics Department)

STA 6093 Introduction to Applied Statistics (taught by College of Agricultural and Life Sciences faculty)

For a listing of all non-Statistics Department courses, visit [https://ufstatscourses.shinyapps.io/shiny\\_tutorial/](https://ufstatscourses.shinyapps.io/shiny_tutorial/)

Our program requires a solid understanding of statistics. The University of Florida offers several introductory graduate-level classes by distance technology: STA 6093 (Introduction to Applied Statistics for Agricultural and Life Sciences) is recommended. In order to meet the prerequisites for those courses, students should have the equivalent of STA 2023 (Introductory Statistics) during their undergraduate program. If not, the Statistics department recommends the student work through this free online course, STATISTICAL REASONING, offered through Carnegie Mellon University to prepare for taking STA 6166 or STA 6093: <http://oli.cmu.edu/learn-with-oli/see-our-free-open-courses/>.

Taking statistics in semester 1 is not recommended unless students are confident in their abilities.

In addition, students who are not confident of their statistical skills may want to review this online handbook of statistics before attempting STA 6166 (<http://www.biostathandbook.com/>). It is also available for download as a free PDF (<http://www.biostathandbook.com/HandbookBioStatThird.pdf>).

If your statistics background is not strong, and you and your committee truly feel that you do not need a strong knowledge of statistics for your career, you can take PHA 6935 Applied Statistics for Data Analysis. This is a basic course, similar in content to an undergraduate statistics, but be aware though that this is a course designed for public health and forensics students and will not use entomological or agricultural examples.

For students that desire more advanced statistical courses beyond STA 6093, there are many great options at UF. ALS 6502C (Linear Models in Agricultural and Natural Resources), taught by ENY faculty, builds upon STA 6093 to cover generalized and mixed models (<https://entnemdept.ufl.edu/Hahn/>). AGR 5266C Field Plot Techniques ([https://agronomy.ifas.ufl.edu/media/agronomyifasufledu/documents/AGR5266C\\_0877\\_Fall2022.pdf](https://agronomy.ifas.ufl.edu/media/agronomyifasufledu/documents/AGR5266C_0877_Fall2022.pdf)) provides a deeper dive into experimental design both through field visits and analytically. ALS 6500 Multivariate Analysis for the Life Sciences is a great option for learning multivariate skills. For students interesting in building their R coding skills, ALS 6501 Data Carpentry for Biologists (<https://datacarpentry.org/semester-biology/syllabus/>) is an excellent course. For a listing of all non-Statistics Department courses, visit [https://ufstatscourses.shinyapps.io/shiny\\_tutorial/](https://ufstatscourses.shinyapps.io/shiny_tutorial/)

## **Master of Science with Thesis**

### **Role of the Committee Chair/Faculty Supervisor**

The chair of the graduate student's committee guides the student in their choice of elective classes, suggests members for their supervisory committee, encourages the student to meet all published departmental and university deadlines, completes an evaluation of the student's academic progress every semester, guides the student's research planning process, and oversees and facilitates completion of the research. The supervisor reviews the research proposal and thesis extensively before allowing the student to send them out for review by committee members. The supervisor chairs committee meetings and the final exam/defense. Given the department-specific knowledge required to effectively supervise graduate students in Entomology & Nematology, courtesy faculty members with Graduate Faculty status in Entomology & Nematology may serve as chairs but a salaried Entomology & Nematology faculty member must serve as co-chair. Courtesy faculty members are those employed by agencies other than the University of Florida.

### **Supervisory Committee**

The Supervisory Committee should be appointed as soon as possible but no later than the end of the second semester of study. If the Supervisory Committee is not appointed before the end of the second semester of study, the Graduate Coordinator will place a hold on the student's record preventing further registration. The department requires that the Supervisory Committee be comprised of at least two Graduate Faculty members and at least one member must be salaried Entomology & Nematology faculty. If the student declares a minor (not required), one of the committee members must be from the minor department. The Supervisory Committee chair and one member must have been appointed to the Graduate Faculty. Special member status may be granted to PhD scientists who are not employed by the University of Florida but can contribute valuable expertise to the student's committee. A Special member may NOT serve as the committee chair and cannot be counted as one of the two required committee members.

### **Program of Study**

The student must meet with his/her major professor to complete a preliminary Program of Study during the first semester. As soon as the Advisory Committee is formed, and by the end of the second semester, the committee should approve the Program of Study and the final Program of Study with signatures of committee members should be filed with the Graduate Coordinator's office at that time.

### **Research Proposal**

Students are required to prepare a written research proposal to include a review of the literature, hypotheses, and a detailed description of their planned experimental design and statistical analysis and to give an oral presentation of it (see Appendix D and I for outline of expected format and evaluation form). The written proposal and announcement of the oral presentation must be emailed to Elena Alyanaya at least 10 days prior to the oral presentation so that she can distribute these to all departmental graduate faculty. The research proposal must be presented by the end of the second semester. The proposed date for the oral presentation should be cleared with the student's supervisory committee early in the "deadline semester" so they can all attend and so the student will have a target date to aim for. The student's advisor should invite several specific faculty members external to the student's committee but in the same general subject area (Behavior/Ecology/ Systematics, Biological Control/IPM, Med./Vet./Urban, Nematology, or Physiology/Biochemistry/Genetics) to review the written proposal and attend the oral presentation. All committee members will complete the Research Proposal Assessment (Appendix H) and return it to the Student Services office.

## **Number of Credits Required**

A minimum of 30 credit hours is required. Total registration for 6971 (Research for Master's Thesis) is unlimited, but only 6 credits will count toward the 30 required. The student must register for a minimum of 3 credits of 6971 in the term of graduation (2 if graduating in the summer semester), regardless of the number of previous credits taken. Students on assistantships during the term of graduation must register for 9 credits for the fall or spring semester and 6 credits for the summer semester. Students on fellowships must register for 12 credits for the fall or spring semester and 8 credits for the summer semester.

At least 15 credits (not including 6971) must be courses in the major, numbered 5000 or above. A minimum GPA of 3.0 is required in the major, the minor (if chosen), and overall, in order to graduate. If a minor is chosen, the minor representative will determine the requirement for his/her department. For work outside the major, six credits in courses numbered 3000 and 4000 may count for graduate credit provided they are listed on the Program of Study. Unless otherwise approved in writing by the Graduate School, minor work must be in a department other than the major.

## **Transfer of Credit**

A maximum of 9 credit hours of graduate courses with grades of A, A-, B+, or B, may be transferred into an M.S. program from other institutions, if approved by the Graduate School. A maximum of 15 credit hours of graduate courses with grades of A, A-, B+, or B, taken as post-baccalaureate or non-degree seeking student at the University of Florida may be transferred to the M.S. program. Petitions for transfer of credit must be made during the first semester of enrollment in the graduate program.

## **Electronic Submission of the Thesis**

All students must submit their theses electronically. The thesis must be approved by all members of the Supervisory Committee. Information on format of the thesis may be obtained from the web at <http://helpdesk.ufl.edu/application-support-center/graduate-editorial-office/>. The Entomology & Nematology Department requires a paper copy of the complete thesis that must be submitted to the Office of the Graduate Coordinator for binding and deposit in the departmental library. Usually, the Supervisory Committee chairperson will want a paper copy of the dissertation, as may other members of the committee. Usually the student pays for these copies, although the chairperson may offer to do so, at their discretion. The Entomology & Nematology Department will pay for the copy that will be kept in our departmental library. For each additional copy that a student would like, they must give one paper copy and a check (made out to the University of Florida) for \$15 to the academic assistant.

## **Exit Seminar and Final Examination**

The student must give an exit seminar and pass a final examination administered by the supervisory committee. Students must give their committee members a supervisor-approved version of their thesis at least two weeks before the exam date. All committee members must be present with the candidate for the exit seminar and final examination (electronic presence by Zoom or Skype is acceptable for a committee member, however the student and the chair must be in the same room) The examination will be oral and cannot be taken earlier than the term before the degree is to be awarded. Before taking the final examination, the student's thesis should be in final form. The Final Exam form, Publishing Agreement form, and Official ETD Signature page must be prepared by the Graduate Coordinator's office. The forms must be requested 10 working days in advance of the Exit seminar and Defense date. The exit seminar is usually given immediately before the final examination. All committee members must evaluate the student's performance in the final exam using the M.S. Final Exam Assessment (Appendix I). The written thesis and its oral defense will be evaluated by all members of the committee using the Written Thesis/Dissertation and Oral Defense assessment (Appendix I). Completed assessments are to be turned in to the Student Services office.

## **Publication of the Thesis**

If a student is not making good progress toward publishing the thesis one year after graduation, the student's major advisor has the option of publishing it. The student will be the first author. "Making good progress" will be defined as at least a first draft of one or more manuscripts having been received by the advisor.

## **Exit Interview with Department Chairperson**

All students should try to meet with the Department Chairperson to discuss the quality of her/his experience as a student in the Department and inform the chair of their plans for the immediate future regarding employment (Academic or Industry) or continued education. A request to complete two Qualtrics surveys will be emailed to the student during their anticipated graduation semester (evaluation of your graduate experience and questionnaire about future plans). Students at RECs or other distant sites may call (352-273-3970) or email the Chairperson ([andrew.short@ufl.edu](mailto:andrew.short@ufl.edu)) if they can't meet with him in person.

## **Master of Science Non-Thesis**

### **Supervisory Committee**

The Supervisory Committee should be appointed as soon as possible but no later than the end of the second semester of study. If the Supervisory Committee is not appointed before the end of the second semester of study, the Graduate Coordinator will place a hold on the student's record preventing further registration. The department requires that the Supervisory Committee be comprised of at least two Graduate Faculty members and at least one member must be salaried Entomology & Nematology faculty. If the student declares a minor (not required), one of the committee members must be from the minor department. The Supervisory Committee chair and one member must have been appointed to the Graduate Faculty. Special member status may be granted to PhD scientists who are not employed by the University of Florida but can contribute valuable expertise to the student's committee. A Special member may not serve as the committee chair and cannot be counted as one of the two required committee members.

### **Program of Study**

The student must meet with his/her major professor to complete a preliminary Program of Study during the first semester. As soon as the Advisory Committee is formed, and by the end of the second semester, the committee should approve the Program of Study and the final Program of Study with signatures of committee members should be filed in the Graduate Coordinator's office at that time.

### **Number of Credits Required**

Minimum requirements are 30 credit hours. Six of these 30 credits may be S/U graded. At least 15 of the 30 credits must be graded courses in the major at the 5000 level. No grade below a C will count towards a student's degree. One or two minors of at least 6 credits each may be chosen [minor(s) not required]. Six credits outside the major may be courses numbered 3000 and 4000. A minimum GPA of 3.0 is required in the major, the minor, and to graduate.

### **Change from a Thesis to Non-Thesis Option**

Students who wish to change from a thesis to a non-thesis option must obtain the permission of the Supervisory Committee and Graduate Coordinator. The request to change to the non-thesis option must be made to the Graduate Coordinator before the midpoint of the anticipated semester of graduation. The student must meet all requirements of the non-thesis option. At the discretion of the Supervisory Committee, and with the approval of the Graduate School, 3 retroactive semester credits of 6971 (Master's Research) may be converted to 6905 (Special Problems) or 6934 (Selected Studies) with a letter grade of B or above. To do so, a petition written by the Chairperson of the Supervisory Committee must certify that the 6971 work was productive in and of itself and warrants credit as a Special Problem or Selected Study. The petition is initiated by the Graduate Coordinator's office and will be sent to the Associate Dean, CALS and then on to the Dean of the Graduate School.

### **Final Examination**

The final examination, given during the final semester, must be both written and oral with written questions from all Supervisory Committee members. All committee members must be present with the candidate for the oral examination (electronic presence by Zoom or Skype is acceptable for a committee member, however the student and the chair must be in the same room). All committee members must evaluate the student's performance in the final exam using the M.S. Final Exam Assessment (Appendix I). Assessments are turned into the Student Services office.

### **Exit Interview with Department Chairperson**

All students should try to meet with the Department Chairperson to discuss the quality of her/his experience as a student in the Department and inform the chair of their plans for the immediate future regarding employment (Academic or Industry) or continued education. An Exit Interview PDF form will be emailed to the student during their anticipated graduation semester to be filled out and returned to the Graduate Coordinator's office, copied to the Department Chairperson. Students at RECs or other distant sites may call (352-273-3970) or email the Chairperson ([andrew.short@ufl.edu](mailto:andrew.short@ufl.edu)) if they cannot meet with him in person.

### **Distance Master of Science Non-Thesis**

Students completing the M.S. non-thesis by distance are held to the same requirements as campus-based non-thesis students. A separate graduate handbook is emailed to distance students.

### **Doctor of Philosophy in Entomology and Nematology**

Admission to the Ph.D. program after completing an M.S. program at UF is not automatically granted. The student must notify the Graduate Coordinator requesting continuation and submit a new Statement of Purpose. Also, the student's former advisor must write a letter to the Graduate Coordinator evaluating the academic ability of the student to complete the Ph.D. program successfully (i.e., provide a letter of recommendation). The new advisor must write a letter stating that he/she will supervise the student and mention what funding will be offered to the student. Two additional letters of recommendation are required (three letters in total). These letters, along with the original application documents for the M.S. degree, will be circulated to the Graduate Committee for a vote on acceptance. (If the former and new advisors are the same, all information may be in one letter but two additional letters are still required).

### **Role of the Committee Chair/Faculty Supervisor**

The chair of the graduate student's committee guides the student in their choice of elective classes, suggests members for their supervisory committee, encourages the student to meet all published departmental and university deadlines, completes an evaluation of the student's academic progress every semester, guides the student's research planning process, oversees and facilitates completion of the research, and facilitates the student's professional development through the process of developing and annually revising the student's Individual Development Plan ([IDP](#)). The supervisor reviews the research proposal and dissertation extensively before allowing the student to send them out for review by committee members. The supervisor chairs committee meetings, the qualifying exam, and the final exam/defense. Given the department-specific knowledge required to supervise effectively graduate students in Entomology & Nematology, courtesy faculty members with Graduate Faculty status in Entomology & Nematology may serve as chairs but a salaried Entomology & Nematology faculty member must serve as co-chair. Courtesy faculty members are those employed by agencies other than the University of Florida.

### **Supervisory Committee**

The Graduate School and the Entomology and Nematology Department require that all Ph.D. Supervisory Committees be comprised of at least four faculty members, all with Graduate Faculty status. At least two members must be salaried Entomology & Nematology faculty and one must be from a different department within the University (the "external" member). Special member status may be granted to non-University of Florida PhD scientists who can contribute significant expertise to the student's committee, but a Special member cannot count as one of the four required members. If the student declares a minor (not required), at least one committee member must be from the minor department. The Supervisory Committee must approve the dissertation topic and the plans for carrying out the research. In addition, the committee should meet with the student at about the mid-point of the research to review procedures, progress, and expected results, and to make suggestions for completion of the program. Students are encouraged to meet with individual committee members for advice outside of regular committee meetings.



## **Graduate School Policy on Ph.D. Supervisory Committees:**

### **Roles and Responsibilities of the Doctoral Supervisory Committee**

Supervisory committees for graduate degree programs are nominated by the respective academic units, approved by the college dean, and appointed by the Dean of the Graduate School. Staff entering supervisory committee data into GIMS ([Graduate Information Management System](#)) do so with the approval of the student's committee chair, the chair/director of the academic unit, and the college dean.

At least four members of the Graduate faculty are required for all doctoral supervisory committees. A Special member will not count as one of four required committee members but must be an additional member. More members may be added by agreement of the chair and candidate. It is acceptable for departments to require more than four members on supervisory committees. All members must participate in the examinations, but electronic presence (Skype, Zoom, phone) is allowed. The student and the chair must be physically in the same room during exams.

#### **1. Chair**

- a. Must have graduate faculty status in the student's department/major.
- b. Cannot be a Special Appointment.
- c. Serves as the candidate's mentor.
- d. Assists the candidate with all committee appointments and has primary responsibility for the conduct of all examinations.
- e. Must escort the candidate at commencement or find an appropriate substitute.

#### **Co-chair**

- a. Is not required to have Graduate faculty status in the student's department/major.
- b. May substitute for the chair at any examination, but only if the co-chair is in the same department/major as the student.

#### **Members**

- a. Must include at least one other member from the student's degree program, in addition to the chair.
- b. Other members can be from the program recommending the degree or from a different educational discipline.
- c. Serve to assist the student and chair with the research/scholarship of the dissertation and all examinations.

#### **External Member**

- a. Must be outside the student's major.
- b. Has the primary responsibility to represent the interests of the student, and the policies and practices established by the Graduate School.
- c. Must verify that the student successfully defends the dissertation, that all members are present in person or via electronic technologies including teleconferencing, videoconferences, computer interfaces, etc, and that the defense is conducted properly.
- d. Cannot be a Special Appointment.
- e. May represent minor areas of study as long as they do not have Graduate Faculty status in the student's major.

## **Responsibilities of Off-campus Chair and Campus Co-chair**

Graduate students whose faculty supervisor (i.e., chair of their graduate committee) is off-campus should select a Gainesville faculty member as a co-chair if they plan to spend any or all of their time on the Gainesville campus. Typically, the co-chair will provide supervision of and assistance to the student while on campus. For those students who will perform their research off-campus, the co-chair should guide the student in choosing classes and should provide feedback during the development of the research proposal in collaboration with the chair. For those students who will conduct their research on campus (a less common situation), the co-chair may help with research planning and implementation by providing the student laboratory space, supplies and equipment necessary to perform his/her research. In this situation, because the co-chair may be more familiar with the research done by the student in his/her lab, the co-chair will also take substantial responsibility for assisting the student in the process of writing the thesis/dissertation and manuscripts. Whether the student conducts his/her research on-campus or off, the co-chair and chair will communicate regularly about the student's progress. Co-chair and chair should both assume responsibility for the success of the student's graduate experience.

## **Individual Development Plan (IDP)**

All PhD students must develop an Individual Development Plan (IDP) with input from their major professor. Instructions will be provided by the Graduate Coordinator during the new student orientation and in the Graduate Professional Development seminar (ENY 6932) offered each fall semester. The plan template and resources to help students develop professional skills are on a [College of Agricultural and Life Sciences website](#) and on a [Graduate School website](#). Additional extensive opportunities for professional development are found on the [Office of Graduate Professional Development website](#). Evidence of a plan and an annual re-evaluation of the plan is due in the Graduate Coordinator's office by August 1st each year of the student's program.

## **Program of Study**

The student must meet with his/her major professor to complete a preliminary Program of Study during the first semester. As soon as the Advisory Committee is formed, and by the end of the second semester, the committee should approve the Program of Study and the final Program of Study with signatures of committee members should be filed in the Graduate Coordinator's office at that time.

## **Research Proposal**

Students are required to prepare a written research proposal to include a review of the literature, hypotheses, and a detailed description of their planned experimental design and statistical analysis and to give an oral presentation of it (see Appendix I for outline and evaluation form). The written proposal and announcement of the oral presentation must be emailed to Elena Alyanaya at least 10 working days prior to the oral presentation so that she can distribute these to all departmental graduate faculty. The research proposal must be presented and approved by the supervisory committee (with minor changes as necessary) at least by the semester immediately preceding the semester in which the Qualifying Examination is taken (third to fifth semester). The proposed date for the oral presentation should be cleared with the student's supervisory committee early in the "deadline semester" (second to fourth semester) so they can all attend and so the student will have a target date to aim for. The student's advisor should invite several specific faculty members external to the student's committee but in the same general subject area (Behavior/Ecology/ Systematics, Biological Control/IPM, Med./Vet./Urban, Nematology, or Physiology/Biochemistry/Genetics) to review the written proposal and attend the oral presentation. All committee members will complete the Research Proposal Assessment (Appendix I) and return it to the Student Services office.



## **Ph.D. Qualifying Examination**

The Ph.D. qualifying examination is comprehensive in scope with questions on details as well as principles and generalities. The student should prepare by restudying all courses in one's major and closely allied subjects as if preparing to take a final examination in each subject. This requires a few months of review for most students. The student **MUST** know his/her specific research area and organism(s) including its taxonomy (from highest taxon to the lowest), life cycle, host range, and geographic range.

The Qualifying Examination may be taken during the third semester after enrolling in the doctoral program, but must be taken by the fifth semester (including summers). It may be taken prior to completion of all courses. The student must be registered for the semester in which the Qualifying Examination is taken. Our department recommends that the Qualifying Examination be taken during the third semester of study for the Ph.D. By that time, the student should have taken most, if not all, of the required courses and be ready to devote most of his/her time to the dissertation research. The examination is both written and oral. Our department requires written examinations from at least four members of the Supervisory Committee. Many Supervisory Committees administer the written examinations one per day on consecutive days one or two weeks before the oral examination. The committee member should grade the examination and return a copy to the student so that he/she will have time to review any weak areas before the oral examination. All committee members must be present with the candidate for the qualifying examination (electronic presence by Zoom or Skype is acceptable for a committee member, however the student and the chair must be in the same room). Competence in the minor area (if chosen) may be demonstrated through a written examination conducted by the minor department or through the oral qualifying examination. All committee members must evaluate the student's performance using the PhD Qualifying Exam assessment (Appendix I). Completed assessments are to be turned in to the Student Services office.

Between the oral portion of the Qualifying Examination and graduation, at least two full semesters must elapse for full-time students and one calendar year for part-time students. The semester in which the Qualifying Examination is taken counts as one semester if the examination is taken before the mid-point of the semester.

If a student fails the Qualifying Examination, a re-examination may be requested, but it must be recommended by the Supervisory Committee. If the request is approved, at least one semester of additional preparation is considered essential before re-examination.

## **Admission to Candidacy**

A student is not a candidate for the Ph.D. degree until granted formal Admission to Candidacy. This requires approval of the Supervisory Committee, the Graduate Coordinator, the Associate Dean of CALS, and the Dean of the Graduate School. Approval is based on the student's academic record, overall fitness for candidacy as judged by the Supervisory Committee and the Graduate Coordinator, an approved dissertation topic, and passing a Qualifying Examination. Students may not register for ENY 7980 or NEM 7980, Doctoral Research, until admitted to candidacy.

## **Number of Credits Required**

A minimum of 90 credit hours beyond the bachelor's degree is required. Students must earn at least 12 credits of graded ENY credit during their PhD program. A maximum of 30 credits with a grade of B or better may be transferred into the Ph.D. program from an M.S. degree from other colleges or universities approved by the Graduate School. All credits earned in an M.S. program at the University of Florida are carried on to the Ph.D. program.

A minimum GPA of 3.0 is required in the major, the minor (if chosen), and to graduate. If a minor is taken, at least 12 credits in the minor subject are required. If two minors are taken, at least 8 credits in each are required. Students must register for a minimum of 3 credits (fall or spring) or 2 credits (summer) of ENY 7980 or NEM 7980 Research for Doctoral Research during the term of graduation. Students on assistantships during the semester of graduation must take 9 credits in the fall or spring semester and 6 in the summer semester. Fellowship holders (other than UF Graduate School Fellows) must register for 12 credits in the fall or spring semester and 8 credits in the summer semester.

### **Exit Seminar and Final Examination**

The Final Examination may be taken no earlier than the semester preceding the semester in which the degree is conferred. Students must give their committee members a supervisor-approved version of their dissertation at least two weeks prior to the exam date. The Final Examination usually is oral and constitutes a defense of the dissertation. However, it may be oral, or written and oral at the discretion of the Supervisory Committee and may be used to re-examine the student on any areas in which he/she was weak in the Qualifying Examination. All committee members must be present with the candidate for the final examination (electronic presence by Zoom or Skype is acceptable for a committee member, however the student and the chair must be in the same room). The written dissertation and its oral defense will be evaluated by all members of the committee using the Written Thesis/Dissertation and Oral Defense assessment (Appendix H. Completed assessments are to be turned in to the Student Services office.

The student must present an exit seminar based on the dissertation. The exit seminar should be given immediately preceding the Final Examination and the date, time, and room to be used should be scheduled in the Student Services Office with two weeks' notice.

### **Electronic Submission of the Dissertation**

All students must submit their dissertations electronically. Information on format may be obtained from the web at <http://helpdesk.ufl.edu/application-support-center/graduate-editorial-office/>

The Entomology and Nematology Department requires a paper copy of the complete dissertation that must be submitted to the Office of the Graduate Coordinator for binding and deposit in the Reading Room. Usually, the Supervisory Committee chairperson will want a paper copy of the dissertation, as may other members of the committee. The Entomology & Nematology Department will pay for the copy that will be kept in our departmental library. For each additional copy that a student would like, he must give one paper copy and a check (made out to the University of Florida) for \$15 to the academic assistant.

The dissertation must be approved unanimously and signed by all members of the Supervisory Committee at the defense.

### **Publication of the Dissertation by ProQuest**

Since all dissertations may be published by ProQuest/UMI, it is necessary that the work is of publishable quality and that it be in a form suitable for publication. The dissertation must contain an abstract and be accompanied by all doctoral forms and a letter of transmittal from the Supervisory Committee chairperson.

Candidates for the Ph.D. degree can pay \$65 to University Financial Services, S113 Criser Hall for processing, and may sign an agreement authorizing publication by ProQuest/UMI. If a student chooses not to have his dissertation distributed by ProQuest/UMI, he may complete the appropriate form and submit it to the University of Florida Editorial Office.

### **Publication of the Dissertation in Scientific Journals**

If a student is not making good progress toward publishing the dissertation results one year after graduation, the student's major advisor has the option of publishing it. The student will be the first author. "Making good progress" will be defined as at least a first draft of one or more manuscripts having been received by the advisor. We encourage doctoral students to publish at least one paper from their research before graduation.

### **Exit Interview with Department Chairperson**

All students should try to meet with the Department Chairperson to discuss the quality of her/his experience as a student in the Department and inform the chair of their plans for the immediate future regarding employment (Academic or Industry) or continued education. An Exit Interview PDF form will be emailed to the student during their anticipated graduation semester to be filled out and returned to the Graduate Coordinator's office, copied to the Department Chairperson. Students at RECs or other distant sites may call (352-273-3970) or email the Chairperson ([andrew.short@ufl.edu](mailto:andrew.short@ufl.edu)) if they can't meet with him in person.

## **Time Limitations**

All work for the doctorate must be completed within 5 calendar years after the Qualifying Examination, or this examination must be repeated. All master's degrees counted in the minimum must be earned in the last 7 years.

## **Certification**

Doctoral candidates who have completed all requirements for the degree may request certification to that effect prior to receipt of the degree. The certification request form (available on the web at: <http://graduateschool.ufl.edu/media/graduate-school/pdf-files/verification-letter.pdf>) should be filled out by the candidate, signed by the Supervisory Committee Chair and the CALS Associate Dean, then returned to the Graduate School for verification and processing. Certification forms will not be processed one week before or one week after graduation.

## **Laboratory or Online Course Teaching Assistants**

Graduate students, whether or not on assistantships, are encouraged to serve as Teaching Assistants in the various courses taught in the department, especially ENY3005L/ENY5006L. Graduate students on Gahan assistantships are required to serve as Teaching Assistants each semester as part of their duties for holding the assistantship, and those on Steinmetz assistantships may be required to do so. Students on CALS Dean's Awards and those funded with matching funds from the CALS Dean or departmental endowment funds will also have teaching responsibilities. The Graduate Coordinator will arrange the time when these students will serve as Teaching Assistants.

The Teaching Assistants are in charge of their laboratory section but are usually supervised by the course instructor or a senior Teaching Assistant. Duties include arranging for supplies, equipment, class materials, demonstrating use of equipment, explaining laboratory procedures, straightening up the lab afterward, storing equipment, conducting field trips, creating, administering, and grading laboratory examinations, and grading the insect collections.

Enrollment in ENY or NEM 6940, Supervised Teaching, is encouraged if students are actively testing out new teaching methodologies or engaging in some other scholarly teaching activity. Registration in this course is not appropriate for routine teaching assistance.

## **SERVICES**

### **Libraries**

Scientific literature is housed in the George A. Smathers Libraries (Marston Science Library and the Health Sciences Library, (<http://www.uflib.ufl.edu/>) and the Division of Plant Industry (DPI) library located in the Doyle Conner Building on the University of Florida campus. Much of the holdings of the Smathers Libraries can be accessed from off-campus by any student with a Gatorlink account using the UF VPN Service (<http://www.uflib.ufl.edu/login/vpn.html>). The DPI library emphasizes systematic and taxonomic works.

### **Bibliographic Searches**

Finding relevant literature is vastly aided by computer searches of electronic databases (<https://cms.uflib.ufl.edu/>). Web of Science is particularly useful. Librarians in the Marston Science Library teach courses that will help students devise a search program and provide advice on the use of databases.

### **Computer Laboratory**

The department has a small computer laboratory in Room 1025 providing access to word processing, databases, spreadsheets, graphics, and statistical analysis software. All students are required to obtain a Gatorlink email account before arriving on campus (<http://identity.it.ufl.edu/process/gatorlink/create-account/>).

### **Statistical Consultation**

Statistical services are available to our students. The student should consult a statistician for help in designing experiments in order to make sure that the experimental results can be analyzed properly. The consulting team provides assistance with experimental design and data analysis for faculty, and their graduate students, with an active CRIS project (REEport numbered project). Use the web-based system for requesting statistical consulting services. The link to this system is: <https://researchtools.ifas.ufl.edu/statisticsConsulting/index.php>

### **Graphics and Scientific Posters**

The department has Graphics Specialists available for consultation and assistance with various types of graphics and presentations. You may print scientific posters in Room 1023 at no charge if you are enrolled in courses in our department. Arrangements for using the facility must be coordinated with the Graphics Specialists.

### **Bulletin Boards**

Bulletin boards displaying various bits of information are located throughout the building. A mobile white board in the administrative wing of the building is for posting current seminars and other current events. Other boards are assigned to ENSO for posting its activities. Three bulletin boards display photographs of all graduate students, on-campus faculty members, and support staff. There are numerous boards in the hallways that contain scientific posters describing research conducted by various laboratories.

### **Student Mailboxes**

Each Gainesville campus graduate student in the Entomology and Nematology department is assigned a mailbox, located in room 1025, in which to receive regular business mail as well as departmental announcements and special notices. Please check your mailbox regularly. Each student is responsible for giving Cheryl Johns (Administrative Assistant) her/his forwarding address. Please do not use your departmental address for delivery of personal mail.

### **Stockroom**

The department maintains a well-equipped stockroom (Room 3226) containing various items, especially those needed for classes. A few microscopes and projectors are available. Students (and faculty) may check out items needed for special projects. If you need a microscope or projector, please check with the stockroom attendant.

**Never take microscopes, microscopes light, projectors, or TVs from the teaching laboratories!**

## **ORGANIZATIONS**

### **Entomology-Nematology Student Organization (ENSO)**

The Entomology and Nematology Student Organization (ENSO) and the Urban Entomology Society (UES) are the department's university-registered student organizations. ENSO is concerned with all areas of student involvement in the department, the university, and the community. For example, ENSO: (a) sponsors the departmental seminar series; (b) conducts community outreach programs to schools, etc.; (c) assists incoming students with orientation to Gainesville and the university; (d) keeps members informed of special campus events; (e) conveys student concerns and opinions to faculty and administrators; and (f) organizes social events. All graduate and undergraduate students upon enrollment in the department are members of ENSO.

Facebook page - <https://www.facebook.com/groups/ENSOatUF/>

### **Urban Entomology Society**

The Urban Entomology Society (UES) was started by students in the urban entomology program to unite and support students with an interest in urban entomology. Membership is offered to all graduate and undergraduate students in the department. UES is involved in many of the same activities as ENSO. Some of the activities are: (a) outreach programs to local schools using insects as teaching tools; (b) constructing insect teaching collections for sale to the pest control industry; (c) sponsoring competitive student research presentations in the department; (d) exhibiting UF/IFAS programs, publications, and software at industry trade shows; and (e) sponsoring social events that allow industry representatives to interact with urban entomology students.

### **Florida Entomological Society**

The Florida Entomological Society is a strong force in entomology in Florida, and its journal, the Florida Entomologist, has national and international distribution. At the society's annual meetings, awards are given for the best student presentations, and student members are eligible for mini grants, travel grants and scholarships. The greatly reduced annual dues for student membership include a subscription to the Florida Entomologist. Membership application forms are available online at <http://www.flaentsoc.org/>.

### **Entomological Society of America**

Membership in the Entomological Society of America (ESA) is recommended for all entomologists. Student membership dues include a subscription to the American Entomologist and the online ESA newsletter. Subscriptions to the society's other journals are additional if one chooses to subscribe to them. The most recent journals are available on the web for subscribers. Membership application forms are available on the web at <http://www.entsoc.org>. Some awards sponsored by the ESA (such as the John Henry Comstock Award) are available only to members.

### **Florida Nematology Forum**

Students in nematology should attend the annual meetings of the Florida Nematology Forum (FNF). Its meetings are held jointly with the Soil and Crop Science Society of Florida (SCSSF) at various locations in Florida. The FNF has no dues and no publications but plans an annual program and business meeting. Students who have completed sufficient research should participate in the Best Student Paper competition of the joint SCSSF/FNF meetings. Monetary awards are given for the first three places in the "soils" division and in the "crops" division. Nematology students have won several of these awards.

### **Society of Nematologists**

All nematology graduate students should become members of the Society of Nematologists (SON - <http://www.nematologists.org/>), a national organization. Students may apply for associate membership at a reduced rate. Membership forms are available on the society's web site. Membership includes a subscription to the society's official publications, The Journal of Nematology, Annals of Applied Nematology, and Nematology Newsletter. The SON provides monetary awards for the first three places in the Best Student Paper competition held annually. DowElanco, through SON, provides needs-based travel grants for a limited number of students to attend the SON annual meetings. Ask nematology faculty how to apply for these awards.

## APPENDIX A

### FACULTY OF THE ENTOMOLOGY AND NEMATOLOGY DEPARTMENT

#### Abbreviations

IFAS:	Institute of Food and Agricultural Sciences, University of Florida. Includes the College of Agricultural and Life Sciences, Experiment Station, and Extension Service.
REC:	Research and Education Center. A branch research and education unit of IFAS.
FDACS/DPI:	Florida Department of Agriculture and Consumer Services, Division of Plant Industry.
CMAVE/USDA:	Center for Medical, Agricultural, and Veterinary Entomology, United States Department of Agriculture.

#### Numbers

1. Affiliate faculty. University of Florida faculty in units outside the Entomology and Nematology Department who have joint appointments in the department.
2. Courtesy faculty. Entomologists and nematologists in administrative units outside the University of Florida who are appointed to the Entomology and Nematology Department.
3. Graduate Faculty. Faculty who have appointments to serve as full members of the Supervisory Committees of graduate students.

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- Agunbiade, Tolulope, Ph.D., University of Illinois at Urbana-Champaign, 2014. Entomology and Nematology Dept., PO Box 110620, Gainesville, FL 32611-0620. Biosecurity and IPM. Email: [agunbiade@ufl.edu](mailto:agunbiade@ufl.edu)
- 2,3 Alborn, Hans T., Ph.D., Goteborg University, Sweden, 1988. USDA/ARS/CMAVE, PO Box 110970, Gainesville, FL 32611-0970. Chemical ecology, biology. Email: [hans.alborn@usda.gov](mailto:hans.alborn@usda.gov)
- 2,3 Allan, Sandra A., Ph.D., University of Massachusetts. 1984. USDA/ARS/CMAVE, PO Box 110970, Gainesville, FL 32611-0970. Mosquito and fly research. Email: [sandy.allen@usda.gov](mailto:sandy.allen@usda.gov)
- 3 Alto, Barry, Ph.D., University of Florida, 2006. UF/IFAS, Florida Medical Entomology Laboratory, 200 9th Street SE, Vero Beach, FL 32962-4657. Arbovirology. Email: [bwalto@ufl.edu](mailto:bwalto@ufl.edu)
- Auletta, Anthony, Ph.D., University of Minnesota, 2019. Entomology and Nematology Dept., PO Box 110620, Gainesville, FL 32611-0620. Lecturer. Email: [anthonyauletta@ufl.edu](mailto:anthonyauletta@ufl.edu)
- 3 Bahder, Brian, Ph.D., Washington State University, 2013. UF/IFAS, Ft. Lauderdale REC, 3205 SW College Avenue, Ft. Lauderdale, FL 33314-7799. Insect vector biology. Email: [bbahder@ufl.edu](mailto:bbahder@ufl.edu)
- 3 Baldwin, Rebecca, Ph.D., University of Florida, 2005. UF/IFAS, Entomology and Nematology Dept., PO Box 110620, Gainesville, FL 32611-0620. Urban extension/informal education. Email: [baldwinr@ufl.edu](mailto:baldwinr@ufl.edu)
- 3 Beuzelin, Julien, Ph.D., Louisiana State University, Everglades REC, 3200 E. Palm Beach Road, Belle Glade, FL 33430-4702, Insect pest management. Email: [jbeuzelin@ufl.edu](mailto:jbeuzelin@ufl.edu)
- 3 Bloomquist, Jeffrey R., Ph.D., University of California, Riverside, 1984. UF/IFAS, Entomology and Nematology Dept., PO Box 100009, Gainesville, FL 32610. Insect toxicology. Email: [jbquist@epi.ufl.edu](mailto:jbquist@epi.ufl.edu)



- 3 Bonning, Bryony, Ph.D., London School of Hygiene and Tropical Medicine, UF/IFAS, Entomology and Nematology Dept., PO Box 100009, Gainesville, FL 32610. Pest management. E-mail: [bbonning@ufl.edu](mailto:bbonning@ufl.edu)
- 3 Branham, Marc A., Ph.D., The Ohio State University, 2002. UF/IFAS, Entomology and Nematology Dept., PO Box 110620, Gainesville, FL 32611-0620. Insect mating systems and phylogenetics. E-mail: [marcbran@ufl.edu](mailto:marcbran@ufl.edu)
- 2,3 Brito, Janete, Ph.D., University of Florida, 2002. UF/IFAS, Entomology and Nematology Dept., PO Box 110620, Gainesville, FL 32611-0620. Nematology. Email: [Janete.Brito@freshfromflorida.com](mailto:Janete.Brito@freshfromflorida.com)
- 3 Buckner, Eva, Ph.D., University of Florida, 2014. UF/IFAS, Florida Medical Entomology Laboratory, 200 9th Street SE, Vero Beach, FL 32962-4657. Medical Entomology Extension. E-mail: [eva.buckner@ufl.edu](mailto:eva.buckner@ufl.edu)
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## APPENDIX B GRADUATE COURSES

Courses may be cancelled and/or scheduled at the discretion of the instructor:

Day and time subject to change

Check Registrar's [Schedule of Courses](#) for up-to-date course offerings.

For [descriptions of courses](#), see the syllabi posted on our web site.

COURSE #	TITLE	METHOD	CREDIT	TERM	PROFESSOR
ALS 5156	Agricultural Ecology	Web	3	F, S	Weeks
ALS 6046	Grant Writing	Web	2	S	Daniels
ALS 6166	Exotic Species & Biosecurity	Web	3	F	Agunbiade
ALS 6502C	Models in Agriculture and Natural Resources	Live	3	S	Hahn, P
ALS 6935	Topics in Biol. Invasions	Web	3	S	Agunbiade
ALS 6942	Risk Assess. & Manag.	Live	3	F	Hodges
ENY 5006	Graduate Survey of Entomology	Live Web	2 2	F, S F, S, SS C	C. Miller/Auletta Baldwin
ENY 5006L	Graduate Survey of Entomology Laboratory	Live Web	1 1	F, S, SS C F, S, SS C	Staff Baldwin
ENY 5160C	Survey of Science with Insects	Web	3	S, SS C	Weeks (not for majors)
ENY 5212	Insects & Wildlife	Web	3	F	Martin
ENY 5223C	Biology and ID of Urban Pests	Web	3	F	Scharf
ENY 5226C	Princ Urban Pest Mgt	Web	3	S	Scharf
ENY 5241	Biological Control	Web	4	S (even)	Quinn
ENY 5332	Urban Vert Pest Management	Web	2	S	Kern
ENY 5405	Insect Vect Plant Path	Web	3	S (odd)	Pelz-Stelinski
ENY 5516	Turf & Ornamental Entomology	Web	3	F	Dale
ENY 5566	Tropical Entomology	Live	3	SS A (odd)	Quinn
ENY 5611	Immature Insects	Live	4	SS C (odd)	Branham
ENY 6166	Insect Classification	Live	3	F S	Lucky/Branham
ENY 6166	Insect Classification	Web	3	F, SS C	Kluiters
ENY 6203	Insect Ecology	Live / Web	3	F	P. Hahn
ENY 6203L	Insect Ecology Lab	Live / Web	1	F	P. Hahn
ENY 6206	Ecology of Vector-borne Disease	Web	2	F	Burkett-Cadena
ENY 6207	Eco Cons Pollinator	Live / Web	3	F, SSC	Mallinger
ENY 6401	Insect Physiology	Live / Web	3	S	D. Hahn
ENY 6401L	Insect Physiology Lab	Live	1	S	D. Hahn
ENY6406	Molecular Biology of Insects and Nematodes	Live		F	Wong

ENY 6454	Behavioral Ecology and Systematics	Live	3	S	Branham
ENY 6456C	Social Insects	Live	3	F	Auletta
ENY 6572	Apiculture 1	Web	3	F/S/SS	Jack
ENY 6575	Apiculture 2	Web	3	F/S/SS	Jack
ENY 6591C	Adv. Mosquito Iden.	Live	3	S	Burkett-Cadena/ Mathias
ENY 6593	Adv. Mosquito Biol.	Web	3	S	Alto/Smartt
ENY 6651C	Insect Toxicology	Live/Web	3	F	Scharf
ENY 6665	Adv Medical and Veterinary Entomology	Web: Spring Live: Fall	3	F S	Burgess
ENY 6665L	Adv Medical and Veterinary Entomology Lab	Live	1	F	Burgess
ENY 6706	Adv Forensic Entomol	Web	3	F	Byrd
ENY 6821	Insect Microbiology	Web	3	S (even)	Pelz-Stelinski
ENY 6905	Problems in Entomology		1-4; max 12	F, S, SS	Staff
ENY 6910	Supervised Research		1-5; max 5	F, S, SS	Staff
ENY 6932	Special Topics in Entomology		1-2; max 4	F, S, SS	Staff
ENY 6932	Graduate Professional Development Seminar	Live/Web	1	F	Staff
ENY 6934	Selected Studies in Entomology		1-4; max 8	F, S, SS	Staff
ENY 6940	Supervised Teaching		1-5; max 5	F, S, SS	Staff
ENY 6942	Insect Diagnostics	Live	2	F	L. Buss
ENY 6943	Entomology Internship		1-3; max 6	F, S, SS	Staff (not for majors)
ENY 6944	Entomology Extension Internship		1-3; max 6	F, S, SS	Staff (not for majors)
ENY 6971	Masters Research		1-9 per semester	F, S, SS	Staff
ENY 7979	Advanced Research		1-9 per semester	F, S, SS	Staff
ENY 7980	Doctoral Research		1-9 per semester	F, S, SS	Staff
IPM 6021	Insect Pest and Vector Mgt	Web	3	SS C	Agunbiade
NEM 5004C	Grad Survey Nematol.	Web	3	S	DiGennaro
NEM 5707C	Plant Nematology	Web	3	F (even)	Hajihassani
NEM 6101	Nematode Morphology and Anatomy	Web	2	F (even)	Porazinska
NEM6101L	Nematode Morphology and Anatomy Lab	Live	2	F (even)	Porazinska

NEM 6102	Nematode Taxonomy and Molecular Phylogeny	Live	2	S (odd)	Porazinska
NEM6102L	Nematode Taxonomy and Molecular Phylogeny Lab	Live	2	S (odd)	Porazinska
NEM 6708	Field Plant Nematology	Live	2; max 4	S (even)	Crow
NEM 6905	Problems in Nematology		1-4; max 8	F, S, SS	Staff
NEM 6931	Nematology Seminar	Live	1; max 6	S	Staff
NEM 6932	Special Topics in Nematology		1-4; max 4	F, S, SS	Staff
NEM 6934	Selected Studies		1-4; max 4	F, S, SS	Staff
NEM 6940	Supervised Teaching		1-5; max 5	F, S, SS	Staff
NEM 6942	Nematode Diagnostics	Live	2	F even	Crow
NEM 6943	Nematode Internship		1-3; max 6	F, S, SS	Staff (not for majors)
NEM 6971	Masters Research		1-9 per semester	F, S, SS	Staff
NEM 7979	Advanced Research		1-9 per semester	F, S, SS	Staff
NEM 7980	Doctoral Research		1-9 per semester	F, S, SS	Staff
PMA 5205	Citrus Pest Mgmt.	Live/Zoom	3	F	Duncan
PMA 6228	Field Tech. in IPM	Live	2	SS B	Liburd



## APPENDIX C

### TENTATIVE TOPICS FOR GRADUATE STUDENT SEMINAR TOPICS FOR CALENDAR YEARS 2021-2024

Other topics may come available and the ones listed may not necessarily be offered. Please check with the professor named a semester or two before you plan to take the seminar to make sure it is still being offered.

#### **Fall 2021**

Duncan – Entomopathogenic Nematodes

Hulcr – Insect Symbioses

Paula-Moraes - Insect Resistance Management (every 2 years)

Carrillo and Revynthi- Phytophagous and Predacious Mites (every 2 years)

#### **Spring 2022**

Desaeger - Integrated Nematode Management

P. Hahn and Campbell - Insect Community Ecology with examples in R

Miller – Evolutionary Theory

#### **Summer 2022**

Lord - Quantitative arthropod ecology and vector-borne disease

#### **Fall 2022**

Pelz-Stelinski – Insect Biotechnology (every 2 years)

Diepenbrock – Invasion Ecology

#### **Spring 2023**

McAuslane – Insect Chemical Ecology (every 2 years)

Porazinska - Nematology

Caragata and Lee – Genetically Modified Vectors of Human Diseases (every 2 years)

#### **Summer 2023**

Wong - Omics in Entomology/Nematology Research (every 2 years)

#### **Fall 2023**

Paula-Moraes - Insect Resistance Management (every 2 years)

Carrillo and Revynthi - Phytophagous and Predacious Mites (every 2 years)

Smith and Lahiri - Crop Diversity and Pest Management

#### **Spring 2024**

Minteer - Risk and Ethics in Classical Biological Control

#### **Summer 2024**

Mallinger and Campbell – Spatial Ecology

#### **Fall 2024**

None scheduled yet

## APPENDIX D

### ENTOMOLOGY AND NEMATOLOGY DEPARTMENT PH.D. AND M.S. GRADUATE STUDENT RESEARCH PROPOSAL EVALUATION FORM

Student's Name \_\_\_\_\_ Major Professor \_\_\_\_\_

Semester: Fall Spring Summer (Circle One) Date \_\_\_\_\_

Evaluator's Name \_\_\_\_\_ Signature \_\_\_\_\_

<b>Proposal</b>	Introduction:	Review of relevant literature, importance of proposed research, clear hypotheses and research objectives?
	Research Design:	Clearly explained, variables measured (and how), experiments replicated, appropriate statistical methods indicated?
	Expected Results:	Preliminary data presented (if available)? Will proposed research lead to new insights, tools, or approaches for research topic?
	Potential Problems:	Problem areas identified and alternative strategies considered.
	Research Schedule:	Timetable for experiments, qualifying exam and draft of dissertation presented.
	Funding:	Resources provided by advisor adequate and/or student has identified other potential funding sources to support the research.
	Collaborations:	Other collaborating faculty in the Department, University, industry, government or foreign scientists acknowledged.
<b>Presentation</b>		
<b>Organization</b>	Sequence:	Proposal elements presented in logical and efficient manner.
	Time:	Allotted time used effectively.
<b>Visual Aids</b>	Content:	Suitable for subject matter.
	Readability:	Appropriate font size and amount of text per slide.
<b>Delivery</b>	Physical:	Good eye contact, vocal clarity, and expression.
	Verbal:	Proper grammar, clear explanation of proposal information.
	Preparation:	Relevant answers to questions and responds to constructive criticism.

**Comments: (Continue on back of page)**



**APPENDIX F  
PROGRAM OF STUDY**

NAME: \_\_\_\_\_ UFID: \_\_\_\_\_

DEGREE: \_\_\_\_\_ CERTIFICATE: \_\_\_\_\_

MAJOR COURSEWORK (ENY-NEM ONLY):

Course #	Course Title	Hours	Grade	Term (To Be) Completed	Institution

FOUNDATION AND SUPPORTING (ALS-BCH-STA-Etc...)

Course #	Course Title	Hours	Grade	Term (To Be) Completed	Institution

We recommend the above program be approved:

\_\_\_\_\_  
Graduate Student

\_\_\_\_\_  
Graduate Coordinator

Student's Supervisory Committee Signatures and Date:

\_\_\_\_\_  
Committee Chair

\_\_\_\_\_  
Committee Member

\_\_\_\_\_  
Committee Member

\_\_\_\_\_  
Committee Member

\_\_\_\_\_  
Committee Member

**Appendix G**  
**GRADUATE STUDENT SEMESTER EVALUATION**  
**ENTOMOLOGY AND NEMATOLOGY DEPARTMENT**  
**Semester: \_\_\_\_\_**

**SUPERVISORY COMMITTEE CHAIR:** \_\_\_\_\_

**GRADUATE STUDENT:** \_\_\_\_\_

**ASSISTANTSHIP DUTIES:** \_\_\_\_\_

	<b>Poor</b> Needs improvement	<b>Average</b> Meets expectations	<b>Excellent</b> Exceeds expectations	N/A
<b>Professionalism</b>				
• Exhibits ethical behavior at all times				
• Works collegially and cooperatively with others in the lab				
• Respects common use departmental space and equipment				
• Respects departmental staff, policies, and procedures				
<b>Academic/Research</b>				
• Making progress with required and elective courses				
• Shows initiative in exploring appropriate literature				
• Making expected progress in research				
• On-track with Dept. and UF requirements (e.g., Committee Formation, Plan of Study, Proposal, Qualifying Exams)				
<b>Assistantship/Work duties</b>				
• Performs teaching responsibilities timely and competently				
• Completes other assigned responsibilities on time				
• Complies with work schedule established by student and supervisor				
<b>Service</b>				
• Service to the discipline (department/REC, university, state, regional or national societies)				
• Service to the community (outreach, school tours, Extension)				

- Most students are likely to be average in many categories – you are pleased with their progress and they are on par with your previous and current students.
- Some students will be excellent in many categories – going above and beyond what you have come to expect from graduate students. Perhaps they are in the top 10% of students you have mentored.
- Some students will have poor evaluations in several categories. These students have specific deficiencies that you have catalogued and will need to show some improvement over the next semester. Perhaps they fall in the lowest 10% of students you have mentored.

**Graduate Student Self-evaluation** (Mandatory):

**Assistantship/Work responsibilities:**

What assistantship duties did you perform this semester? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Academic and research progress (your graduate degree)**

Has your Supervisory Committee been appointed? \_\_\_\_\_ (Y/N)

Date (if this semester, otherwise leave blank): \_\_\_\_\_

Has your Program of Study been approved? \_\_\_\_\_ (Y/N)

Date (if this semester, otherwise leave blank): \_\_\_\_\_

Has the Committee approved your thesis/dissertation research proposal and have you presented it?

\_\_\_\_\_ (Y/N)

Date (if this semester, otherwise leave blank): \_\_\_\_\_

Have you completed your teaching responsibilities? \_\_\_\_\_ (Y/N)

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

List courses and grades for this semester. \_\_\_\_\_

\_\_\_\_\_

What thesis/dissertation work did you do this term? \_\_\_\_\_

\_\_\_\_\_

List scientific presentations, publications submitted, and meetings attended this semester. \_\_\_\_\_

\_\_\_\_\_

What outreach or service did you do this semester to meet the departmental requirement (2 per semester)?

\_\_\_\_\_

\_\_\_\_\_

What are your future career goals? What skills did you learn this semester and what do you want to learn to meet this goal? \_\_\_\_\_

\_\_\_\_\_

Are there any impediments to your success in your program that you would like to disclose? If you are not comfortable disclosing them here, please reach out to Dr. Lucky or Ms. Alyanaya.

**Comments by Supervisory Committee Chair** (Mandatory):

Assistantship/Work responsibilities: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Academic and research progress (your graduate degree) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Progress towards previous semester goals \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Areas for improvement \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Research and academic goals for next semester \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Professional development activities/skills to acquire \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Student: \_\_\_\_\_ Date: \_\_\_\_\_ Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_



## APPENDIX H

### Assessments

To be filled out by all committee members, discussed with the student, and returned to the Student Services office.

Research Proposal Assessment for Committee Members

PhD Qualifying Exam Assessment

M.S. Final Exam Assessment

M.S. Final Defense and Written Thesis Assessment

PhD Final Defense and Dissertation Assessment

### Research Proposal Presentation (Oral and Written) (rev. 10/18)

Student \_\_\_\_\_ Date \_\_\_\_\_ Committee Member \_\_\_\_\_

Student Learning Outcome		SCORE	SCALE
SLO 3  Written skills <sup>1</sup>	Context and purpose		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Content development		
	Conventions		
	Sources and evidence		
	Syntax and mechanics		
	<b>SLO 3 Written skills <sup>1</sup></b>	<b>SUM</b>	
Student Learning Outcome		SCORE	SCALE
SLO 3  Oral presentation skills <sup>2</sup>	Organization		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Language		
	Delivery		
	Supporting material		
	Central message		
	<b>SLO 3 Oral presentation skills<sup>2</sup></b>	<b>SUM</b>	
Student Learning Outcome		SCORE	SCALE
SLO 4 –M.S. SLO 5 – PhD Critical thinking and application of inquiry and analysis <sup>3</sup>	Clear statement of research problem and motivation		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Value of research demonstrated		
	Knowledge of literature		
	Well-defined hypotheses or objectives		
	Sound methods/tools		
	<b>SLO 4 –M.S. SLO 5 – PhD Critical thinking</b>	<b>SUM</b>	

SLO 3 (oral communication skills) = \_\_\_\_\_ (maximum 20, minimum 5)

SLO 3 (written communication skills) = \_\_\_\_\_ (maximum 20, minimum 5)

SLO 4 (M.S.) or 5 (PhD) (critical thinking ability) = \_\_\_\_\_ (maximum 20, minimum 5)

<sup>1</sup> Taken from Written Communication VALUE Rubric – Association of American Colleges and Universities

<sup>2</sup> Taken from Oral Communication VALUE Rubric - Association of American Colleges and Universities

<sup>3</sup> Taken from Inquiry and Analysis VALUE Rubric - Association of American Colleges and Universities

**Additional comments:** \_\_\_\_\_

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\_\_\_\_\_

**SLO Achievement:** These scores do not determine whether the student passes or fails the research proposal presentation. They are for the student and supervisor’s information to determine areas of strength and weakness that can be remedied before the conduct of the research and completion of the thesis or dissertation. All committee members should fill out a form and copies should be delivered to the Graduate Coordinator’s office for deposit in the student’s file. Supervisory committee chair - please share the results of this evaluation with your student, either summarizing their strengths/weaknesses or showing the individual score sheets.

**Rubric for scoring**

Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 3</b>  Written skills <sup>1</sup>  (max. 20 points, min. 5 points)	<b>Context and purpose</b>	<input type="checkbox"/> Demonstrates a thorough understanding of context, audience, and purpose that focuses all elements of the work.	<input type="checkbox"/> Demonstrates adequate consideration of context, audience and purpose, and a clear focus of the work.	<input type="checkbox"/> Demonstrates awareness of context, audience, and purpose of the work.	<input type="checkbox"/> Does not demonstrate attention to context, audience, and purpose of the work.
	<b>Content development</b>	<input type="checkbox"/> Consistently uses appropriate, relevant and compelling content to illustrate mastery of the subject, conveying the writer's understanding.	<input type="checkbox"/> Consistently uses appropriate, relevant, and compelling content to explore ideas within the subject.	<input type="checkbox"/> Use appropriate and relevant content to develop and explore ideas throughout most of the work.	<input type="checkbox"/> Does not use appropriate and relevant content to develop simple ideas in some parts of the work.
	<b>Conventions</b>	<input type="checkbox"/> Detailed attention to and successful execution of all conventions specific to the discipline (organization, content, presentation, formatting, style)	<input type="checkbox"/> Consistent use of important conventions specific to the discipline.	<input type="checkbox"/> Follows expectations appropriate for specific discipline for organization, content and presentation.	<input type="checkbox"/> Does not use a consistent system for basic organization and presentation.
	<b>Sources and evidence</b>	<input type="checkbox"/> Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate.	<input type="checkbox"/> Demonstrates consistent use of credible, relevant sources to support ideas.	<input type="checkbox"/> Demonstrates an attempt to use credible and/or relevant sources to support ideas.	<input type="checkbox"/> Does not use sources to support ideas.
	<b>Syntax and mechanics</b>	<input type="checkbox"/> Uses language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	<input type="checkbox"/> Uses straightforward language that generally conveys meaning to readers and has few errors.	<input type="checkbox"/> Uses language that generally conveys meaning to readers with clarity but may include errors.	<input type="checkbox"/> Uses language that sometimes impedes meaning because of errors in usage.
Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 3</b>  Oral presentation skills <sup>2</sup>  (max. 20 points, min. 5 points)	<b>Organization</b> (specific introduction and conclusion, sequence of material in body, and transitions)	<input type="checkbox"/> Organizational pattern is clearly and consistently observable, is skillful, and makes the content of the presentation cohesive	<input type="checkbox"/> Organizational pattern is clearly and consistently observable	<input type="checkbox"/> Organizational pattern is intermittently observable	<input type="checkbox"/> No organizational pattern observable
	<b>Language</b>	<input type="checkbox"/> Language choices enhance the effectiveness of the presentation and are appropriate for the audience.	<input type="checkbox"/> Language choices generally support the effectiveness of the presentation and are appropriate for the audience.	<input type="checkbox"/> Language choices partially support the effectiveness of the presentation and are appropriate for the audience.	<input type="checkbox"/> Language choices are unclear and minimally support the effectiveness of the presentation and are not appropriate for the audience.
	<b>Delivery</b> (posture, use of pointer, eye contact, vocal expressiveness)	<input type="checkbox"/> Delivery techniques make the presentation compelling, and speaker appears polished and confident.	<input type="checkbox"/> Delivery techniques make the presentation interesting and speaker appears comfortable.	<input type="checkbox"/> Delivery techniques make the presentation understandable, and speaker appears tentative.	<input type="checkbox"/> Delivery techniques detract from the understandability of the presentation and speaker appears uncomfortable.
	<b>Supporting material</b> (explanations, examples, illustrations, figures, photos, diagrams, statistics)	<input type="checkbox"/> A variety of supporting materials makes appropriate reference to information or analysis that significantly supports the presentation.	<input type="checkbox"/> Supporting materials make appropriate reference to information or analysis that generally supports the presentation.	<input type="checkbox"/> Supporting materials make appropriate reference to information or analysis that partially supports the presentation.	<input type="checkbox"/> Insufficient supporting materials make reference to information or analysis that minimally supports the presentation.
	<b>Central message</b>	<input type="checkbox"/> Central message is compelling (strongly stated, appropriately repeated, memorable and strongly supported)	<input type="checkbox"/> Central message is clear and consistent with the supporting material.	<input type="checkbox"/> Central message is basically understandable but is not often repeated or is not memorable.	<input type="checkbox"/> Central message can be deduced, but is not explicitly stated in the presentation.

Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 4 –M.S. SLO 5 – PhD</b>  Critical thinking and application of inquiry and analysis <sup>3</sup>  (max. 20 points, min. 5 points)	Has stated the research problem clearly, providing motivation for undertaking the research	<input type="checkbox"/> Clear statement of the research problem with well stated associated rationale	<input type="checkbox"/> Statement of research problem with associated rationale	<input type="checkbox"/> Unclear statement of research problem OR rationale for undertaking the research is not well developed	<input type="checkbox"/> Unclear statement of research problem AND rationale for undertaking the research is not well developed
	Demonstrated the potential value of solution to the research problem in advancing knowledge within the area of study	<input type="checkbox"/> Clearly states the value of the proposed research	<input type="checkbox"/> States the value of proposed research	<input type="checkbox"/> Recognizes the value of the research but didn't state explicitly	<input type="checkbox"/> Doesn't recognize the potential value of the proposed research
	Demonstrates sound knowledge of literature in the area, and of prior work on the specific research problem	<input type="checkbox"/> Synthesizes in-depth information from relevant sources representing various points of view/approaches	<input type="checkbox"/> Presents in-depth information from relevant sources presenting various points of view/approaches	<input type="checkbox"/> Presents information from relevant sources representing limited points of view/approaches	<input type="checkbox"/> Presents information from irrelevant sources representing limited points of view/approaches
	Planned research is creative and original with well-defined hypotheses or objectives	<input type="checkbox"/> Highly creative and original with well-defined hypotheses or objectives	<input type="checkbox"/> Somewhat creative and original with well-defined hypotheses or objectives	<input type="checkbox"/> Research not very creative and original OR hypotheses or objectives not well-defined	<input type="checkbox"/> Research neither creative nor original AND hypotheses or objectives not well-defined
	Has proposed sound state-of-the field research methods/tools to solve the defined problem and has described the methods/tools effectively	<input type="checkbox"/> All elements of the methodology are skillfully developed. Appropriate methodology may be synthesized from across disciplines or from relevant sub-disciplines	<input type="checkbox"/> Critical elements of the methodology are appropriately developed, however, more subtle elements are ignored or unaccounted for	<input type="checkbox"/> Critical elements of the methodology are missing, incorrectly developed, or unfocused	<input type="checkbox"/> Design of experiments demonstrates a misunderstanding of the methodology

# Entomology and Nematology PhD Qualifying Exam – rev. 10/18

Student \_\_\_\_\_ Date \_\_\_\_\_ Committee member \_\_\_\_\_

Student Learning Outcome		SCORE	SCALE
<b>SLO 1 (biology)</b>	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Biology SUM</b>		
<b>SLO 1 (entomology/nematology)</b>	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Entomology/Nematology SUM</b>		
<b>SLO 1 (research area)</b>	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Research area SUM</b>		
Student Learning Outcome		SCORE	SCALE
<b>SLO 2</b>  Experimental design, research methodology and statistics	Statistical understanding		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Experimental design understanding		
	<b>SLO 2 Experimental design and statistics SUM</b>		
Student Learning Outcome		SCORE	SCALE
<b>SLO 3</b>  Oral presentation skills <sup>1</sup>	Clarity - logical		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Clarity - eloquent		
	Confidence		
	<b>SLO 3 Oral presentation skills <sup>1</sup> SUM</b>		
<b>SLO 3</b>  Written skills <sup>2</sup>	Content and organization		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Syntax and mechanics – fluid and clear		
	Syntax and mechanics – error free		
	<b>SLO 3 Written skills<sup>2</sup> SUM</b>		
Student Learning Outcome		SCORE	SCALE
<b>SLO 5</b> Critical thinking and application of inquiry and analysis <sup>3</sup>	Judgment		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Analysis of material		
	Synthesis of content		
	Reflection and evaluation		
	Advanced thinking and conceptualization		
	Logical flow		
	<b>SLO 5 – PhD Critical thinking SUM</b>		

These scores do not determine whether the student passes or fails the PhD qualifying exam. You can use the scores in your decision but there is no cut-off score below which the student fails the exam. All committee members should fill out a form and copies should be delivered to the Graduate Coordinator's office for deposit in the student's file. Supervisory committee chair - please share the results of this evaluation with your student, either summarizing their strengths/weaknesses or showing the individual score sheets.

SLO 1 (knowledge of discipline) = \_\_\_\_\_ (maximum 48, minimum 12)  
 SLO 2 (knowledge of statistical and research methodology) = \_\_\_\_\_ (maximum 8, minimum 2)  
 SLO 3 (oral communication skills) = \_\_\_\_\_ (maximum 12, minimum 3)  
 SLO 3 (written communication skills) = \_\_\_\_\_ (maximum 12, minimum 3)  
 SLO 5 (critical thinking ability) = \_\_\_\_\_ (maximum 24, minimum 6)

Additional comments

		<b>Exemplary (4)</b>	<b>Proficient (3)</b>	<b>Marginal (2)</b>	<b>Unacceptable (1)</b>
<b>SLO 1</b> Identify insects, other arthropods and/or nematodes, and describe their relationship with the environment and humans (Max. points 48, min. 12)	General knowledge in biology	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
	General knowledge in entomology or nematology	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
	In-depth knowledge in area of research specialization	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
<b>SLO 2</b> Discuss appropriate research methodology, including aspects of statistical design and analysis, in the execution of arthropod research (Max. points 8, min. 2)	General knowledge in statistics and experimental method	<input type="checkbox"/> Answers all statistical questions correctly, in detail and logically	<input type="checkbox"/> Answers all statistical questions in some detail	<input type="checkbox"/> Attempts all statistical questions but has errors in answers	<input type="checkbox"/> Does not attempt to answer all statistical questions and/or has many errors
		<input type="checkbox"/> Answers all experimental methodology questions correctly, in detail and logically	<input type="checkbox"/> Answers all experimental methodology questions in some detail	<input type="checkbox"/> Attempts all experimental methodology questions but has errors in answers	<input type="checkbox"/> Does not attempt to answer all experimental methodology questions and/or has many errors

<b>SLO 3</b> Clearly and confidently communicate science in <b>oral</b> exam (Max. points 12, min. 3)	Clarity	<input type="checkbox"/> Provides logically developed, thoughtful answers consistently	<input type="checkbox"/> Provides logical answers most of the time	<input type="checkbox"/> Answers may not be logical all the time	<input type="checkbox"/> Answers are confusing, illogical
		<input type="checkbox"/> Language is eloquent	<input type="checkbox"/> Language is straightforward	<input type="checkbox"/> Language is awkward	<input type="checkbox"/> Language is poor
	Confidence	<input type="checkbox"/> Confident in verbal communication skills	<input type="checkbox"/> Usually confident in verbal communication skills	<input type="checkbox"/> Somewhat confident in verbal communication skills	<input type="checkbox"/> Rarely confident in verbal communication skills
<b>SLO 3</b> Clearly communicate science in <b>written</b> exam ( <i>if written exam is given</i> ) (Max. points 12, min. 3)	Content and organization	<input type="checkbox"/> Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding of the questions	<input type="checkbox"/> Uses appropriate, relevant, and compelling content to explore ideas within the context of the questions	<input type="checkbox"/> Uses appropriate and relevant content to develop and explore ideas throughout most of the exam	<input type="checkbox"/> Does not use appropriate and relevant content to develop simple ideas
	Syntax and mechanics	<input type="checkbox"/> Uses language that skillfully communicates meaning to readers with clarity and fluency	<input type="checkbox"/> Uses straightforward language that generally conveys meaning to readers	<input type="checkbox"/> Uses language that generally conveys meaning to reader with clarity	<input type="checkbox"/> Uses language that sometimes impedes meaning
		<input type="checkbox"/> Writing is virtually error-free	<input type="checkbox"/> Writing has few errors	<input type="checkbox"/> Writing may include many errors	<input type="checkbox"/> Writing has many errors
<b>SLO 5</b> Critical thinking ability – ability to synthesize and extrapolate (Max. points 24, min. 6)	Judgment	<input type="checkbox"/> Valid judgments based on evidence	<input type="checkbox"/> Nearly all judgments are valid and based on evidence	<input type="checkbox"/> Judgments are occasionally invalid	<input type="checkbox"/> Invalid judgments based on evidence provided
	Analysis of material	<input type="checkbox"/> Analysis of material is insightful and conclusions are fully defensible	<input type="checkbox"/> Analysis of material is accurate and conclusions are defensible	<input type="checkbox"/> Analysis of material is inaccurate and conclusions are rarely defensible	<input type="checkbox"/> Indefensible conclusions
	Synthesis of content	<input type="checkbox"/> Synthesis of content is clearly evident	<input type="checkbox"/> Content synthesized well for the most part	<input type="checkbox"/> Merely recalls information, lists and defines but rarely synthesizes content	<input type="checkbox"/> No synthesis evident
	Reflection and evaluation	<input type="checkbox"/> Response is deeply reflective and evaluative	<input type="checkbox"/> Response is reflective and evaluative	<input type="checkbox"/> Responses are rarely evaluative	<input type="checkbox"/> Response is not reflective or evaluative
	Advanced thinking and conceptualization	<input type="checkbox"/> Exhibits advanced thinking and conceptualization	<input type="checkbox"/> Exhibits clear thinking and conceptualization	<input type="checkbox"/> Little ability to detect patterns or conceptualize	<input type="checkbox"/> No advanced thinking or conceptualization
	Logical flow	<input type="checkbox"/> Logical flow of ideas	<input type="checkbox"/> Ideas tend to flow logically	<input type="checkbox"/> Flow of ideas is rarely logical	<input type="checkbox"/> Illogical flow of ideas



# Entomology and Nematology M.S. Final Exam – rev. 10/18

Student \_\_\_\_\_ Date \_\_\_\_\_

Committee member \_\_\_\_\_

Student Learning Outcome		SCORE	SCALE
SLO 1 (biology)	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Biology SUM</b>		
SLO 1 (entomology/nematology)	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Entomology/Nematology SUM</b>		
SLO 1 (research area)	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Research area SUM</b>		
Student Learning Outcome		SCORE	SCALE
SLO 2  Experimental design, research methodology and statistics	Statistical understanding		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Experimental design understanding		
	<b>SLO 2 Experimental design and statistics SUM</b>		

Student Learning Outcome		SCORE	SCALE
SLO 3 Oral presentation skills <sup>1</sup>	Clarity - confidence		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Clarity - eloquence		
	Confidence		
	<b>SLO 3 Oral presentation skills <sup>1</sup></b> <b>SUM</b>		
SLO 3 Written skills <sup>2</sup>	Content and organization		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Syntax and mechanics – clarity and fluidity		
	Syntax and mechanics – error free		
	<b>SLO 3 Written skills<sup>2</sup></b> <b>SUM</b>		
Student Learning Outcome		SCORE	SCALE
SLO 4 Critical thinking and application of inquiry and analysis <sup>3</sup>	Judgment		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Analysis of material		
	Synthesis of content		
	Reflection and evaluation		
	Advanced thinking and conceptualization		
	Logical flow		
	<b>SLO 4 Critical thinking</b> <b>SUM</b>		

These scores do not determine whether the student passes or fails the M.S. final exam. You can use the scores in your decision but there is no cut-off score below which the student fails the exam. All committee members should fill out a form and copies should be delivered to the Graduate Coordinator's office for deposit in the student's file. Supervisory committee chair - please share the results of this evaluation with your student, either summarizing their strengths/weaknesses or showing the individual score sheets.

SLO 1 (knowledge of discipline)	= _____ (maximum 48, minimum 12)
SLO 2 (knowledge of statistical and research methodology)	= _____ (maximum 8, minimum 2)
SLO 3 (oral communication skills)	= _____ (maximum 12, minimum 3)
SLO 3 (written communication skills)	= _____ (maximum 12, minimum 3)
SLO 4 (critical thinking ability)	= _____ (maximum 24, minimum 6)

Additional comments

		<b>Exemplary (4)</b>	<b>Proficient (3)</b>	<b>Marginal (2)</b>	<b>Unacceptable (1)</b>
<b>SLO 1</b> Identify insects, other arthropods and/or nematodes, and describe their relationship with the environment and humans (Max. points 48, min. 12)	General knowledge in biology	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
	General knowledge in entomology or nematology	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content

	In-depth knowledge in area of research specialization	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
<b>SLO 2</b> Discuss appropriate research methodology, including aspects of statistical design and analysis, in the execution of arthropod research (Max. points 8, min. 2)	General knowledge in statistics and experimental method	<input type="checkbox"/> Answers all statistical questions correctly, in detail and logically	<input type="checkbox"/> Answers all statistical questions in some detail	<input type="checkbox"/> Attempts all statistical questions but has errors in answers	<input type="checkbox"/> Does not attempt to answer all statistical questions and/or has many errors
		<input type="checkbox"/> Answers all experimental methodology questions correctly, in detail and logically	<input type="checkbox"/> Answers all experimental methodology questions in some detail	<input type="checkbox"/> Attempts all experimental methodology questions but has errors in answers	<input type="checkbox"/> Does not attempt to answer all experimental methodology questions and/or has many errors
<b>SLO 3</b> Clearly and confidently communicate science in <b>oral</b> exam (Max. points 12, min. 3)	Clarity	<input type="checkbox"/> Provides logically developed, thoughtful answers consistently	<input type="checkbox"/> Provides logical answers most of the time	<input type="checkbox"/> Answers may not be logical all the time	<input type="checkbox"/> Answers are confusing, illogical
		<input type="checkbox"/> Language is eloquent	<input type="checkbox"/> Language is straightforward	<input type="checkbox"/> Language is awkward	<input type="checkbox"/> Language is poor
	Confidence	<input type="checkbox"/> Confident in verbal communication skills	<input type="checkbox"/> Usually confident in verbal communication skills	<input type="checkbox"/> Somewhat confident in verbal communication skills	<input type="checkbox"/> Rarely confident in verbal communication skills

<b>SLO 3</b> Clearly communicate science in <b>written</b> exam <i>(if written exam is given)</i>  (Max. points 12, min. 3)	Content and organization	<input type="checkbox"/> Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding of the questions	<input type="checkbox"/> Uses appropriate, relevant, and compelling content to explore ideas within the context of the questions	<input type="checkbox"/> Uses appropriate and relevant content to develop and explore ideas throughout most of the exam	<input type="checkbox"/> Does not use appropriate and relevant content to develop simple ideas
	Syntax and mechanics	<input type="checkbox"/> Uses language that skillfully communicates meaning to readers with clarity and fluency	<input type="checkbox"/> Uses straightforward language that generally conveys meaning to readers	<input type="checkbox"/> Uses language that generally conveys meaning to reader with clarity	<input type="checkbox"/> Uses language that sometimes impedes meaning
		<input type="checkbox"/> Writing is virtually error-free	<input type="checkbox"/> Writing has few errors	<input type="checkbox"/> Writing may include many errors	<input type="checkbox"/> Writing has many errors
<b>SLO 4</b> Critical thinking ability – ability to synthesize and extrapolate  (Max. points 24, min. 6)	Judgment	<input type="checkbox"/> Valid judgments based on evidence	<input type="checkbox"/> Nearly all judgments are valid and based on evidence	<input type="checkbox"/> Judgments are occasionally invalid	<input type="checkbox"/> Invalid judgments based on evidence provided
	Analysis of material	<input type="checkbox"/> Analysis of material is insightful and conclusions are fully defensible	<input type="checkbox"/> Analysis of material is accurate and conclusions are defensible	<input type="checkbox"/> Analysis of material is inaccurate and conclusions are rarely defensible	<input type="checkbox"/> Indefensible conclusions
	Synthesis of content	<input type="checkbox"/> Synthesis of content is clearly evident	<input type="checkbox"/> Content synthesized well for the most part	<input type="checkbox"/> Merely recalls information, lists and defines but rarely synthesizes content	<input type="checkbox"/> No synthesis evident
	Reflection and evaluation	<input type="checkbox"/> Response is deeply reflective and evaluative	<input type="checkbox"/> Response is reflective and evaluative	<input type="checkbox"/> Responses are rarely evaluative	<input type="checkbox"/> Response is not reflective or evaluative
	Advanced thinking and conceptualization	<input type="checkbox"/> Exhibits advanced thinking and conceptualization	<input type="checkbox"/> Exhibits clear thinking and conceptualization	<input type="checkbox"/> Little ability to detect patterns or conceptualize	<input type="checkbox"/> No advanced thinking or conceptualization
	Logical flow	<input type="checkbox"/> Logical flow of ideas	<input type="checkbox"/> Ideas tend to flow logically	<input type="checkbox"/> Flow of ideas is rarely logical	<input type="checkbox"/> Illogical flow of ideas

**Written Thesis and Oral Defense (MS thesis) – rev. 10/18**

Student \_\_\_\_\_

Number of refereed journal articles accepted or in press by today \_\_\_\_\_

Date \_\_\_\_\_

Committee member \_\_\_\_\_

Student Learning Outcome		SCORE	SCALE
<b>SLO 3</b> Oral presentation skills	Organization		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Language		
	Delivery		
	Supporting material		
	Central message		
	<b>SLO 3 Oral presentation skills<sup>1</sup></b>	<b>SUM</b>	
<b>SLO 3</b> Written skills <sup>2</sup>	Context and purpose		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Content development		
	Conventions		
	Sources and evidence		
	Syntax and mechanics		
	<b>SLO 3 Written skills<sup>2</sup></b>	<b>SUM</b>	
Student Learning Outcome		SCORE	SCALE
<b>SLO 4</b> Critical thinking and application of inquiry and analysis <sup>3</sup>	Clear statement of research problem and motivation		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Value of research demonstrated		
	Knowledge of literature		
	Well-defined hypotheses or objectives		
	Sound methods/tools		
	Data interpretation and analysis		
	Conclusions		
	Broader impact and limitations		
	Independent research and developed expertise		
	<b>SLO 4 –Critical thinking</b>	<b>SUM</b>	

These scores do not determine whether the student passes or fails the oral defense or the written thesis/dissertation. They are for the committee to consider when deciding on whether the student passes or not. All committee members should fill out a form and copies should be delivered to the Graduate Coordinator's office for deposit in the student's file.

Supervisory committee chair - please share the results of this evaluation with your student, either summarizing their strengths/weaknesses or showing the individual score sheets.

SLO 3 (oral communication skills) = \_\_\_\_\_ (maximum 20, minimum 5)

SLO 3 (written communication skills) = \_\_\_\_\_ (maximum 20, minimum 5)

SLO 4 (critical thinking ability) = \_\_\_\_\_ (maximum 36, minimum 9)

Additional comments (strengths/weaknesses):

<sup>1</sup> Taken from Written Communication VALUE Rubric – Association of American Colleges and Universities

<sup>2</sup> Taken from Oral Communication VALUE Rubric - Association of American Colleges and Universities

<sup>3</sup> Modified from Inquiry and Analysis VALUE Rubric - Association of American Colleges and Universities

Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 3</b>  Written skills <sup>1</sup>  Max. 20 points, min. 5 points	<b>Context and purpose</b>	Demonstrates a thorough understanding of context, audience, and purpose that focuses all elements of the work.	Demonstrates adequate consideration of context, audience and purpose, and a clear focus of the work.	Demonstrates awareness of context, audience, and purpose of the work.	Does not demonstrate attention to context, audience, and purpose of the work.
	<b>Content development</b>	Consistently uses appropriate, relevant and compelling content to illustrate mastery of the subject, conveying the writer's understanding.	Consistently uses appropriate, relevant, and compelling content to explore ideas within the subject.	Use appropriate and relevant content to develop and explore ideas throughout most of the work.	Does not use appropriate and relevant content to develop simple ideas.
	<b>Conventions</b>	Detailed attention to and successful execution of all conventions specific to the discipline (organization, content, presentation, formatting, style)	Consistent use of important conventions specific to the discipline.	Follows expectations appropriate for specific discipline for organization, content and presentation.	Does not use a consistent system for basic organization and presentation.
	<b>Sources and evidence</b>	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate.	Demonstrates consistent use of credible, relevant sources to support ideas.	Demonstrates an attempt to use credible and/or relevant sources to support ideas.	Does not use sources to support ideas.
	<b>Syntax and mechanics</b>	Uses language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	Uses straightforward language that generally conveys meaning to readers and has few errors.	Uses language that generally conveys meaning to readers with clarity but may include errors.	Uses language that sometimes impedes meaning because of errors in usage.
Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 3</b>  Oral presentation skills <sup>2</sup>  Max. 20 points, min. 5 points	<b>Organization</b> (specific introduction and conclusion, sequence of material in body, and transitions)	Organizational pattern is clearly and consistently observable, is skillful, and makes the content of the presentation cohesive	Organizational pattern is clearly and consistently observable	Organizational pattern is intermittently observable	Organizational pattern is not observable
	<b>Language</b>	Language choices enhance the effectiveness of the presentation and are appropriate for the audience.	Language choices generally support the effectiveness of the presentation and are appropriate for the audience.	Language choices partially support the effectiveness of the presentation and are appropriate for the audience.	Language choices are unclear and minimally support the effectiveness of the presentation and are not appropriate for the audience.
	<b>Delivery</b> (posture, use of pointer, eye contact, vocal expressiveness)	Delivery techniques make the presentation compelling, and speaker appears polished and confident.	Delivery techniques make the presentation interesting and speaker appears comfortable.	Delivery techniques make the presentation understandable, and speaker appears tentative.	Delivery techniques detract from the understandability of the presentation and speaker appears uncomfortable.
	<b>Supporting material</b> (explanations, examples, illustrations, figures, photos, diagrams, statistics)	A variety of supporting materials makes appropriate reference to information or analysis that significantly supports the presentation.	Supporting materials make appropriate reference to information or analysis that generally supports the presentation.	Supporting materials make appropriate reference to information or analysis that partially supports the presentation.	Insufficient supporting materials make reference to information or analysis that minimally supports the presentation.
	<b>Central message</b>	Central message is compelling (strongly stated, appropriately repeated, memorable and strongly supported).	Central message is clear and consistent with the supporting material.	Central message is basically understandable but is not often repeated or is not memorable.	Central message can be deduced, but is not explicitly stated in the presentation.



Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 4 –M.S.</b>  Critical thinking and application of inquiry and analysis <sup>3</sup>  Max. 36 points, min. 9 points	Has stated the research problem clearly, providing motivation for undertaking the research	Clear statement of the research problem with well stated associated rationale	Statement of research problem with associated rationale	Unclear statement of research problem OR rationale for undertaking the research is not well developed	Unclear statement of research problem AND rationale for undertaking the research is not well developed
	Demonstrated the potential value of solution to the research problem in advancing knowledge within the area of study	Clearly states the value of the proposed research	States the value of proposed research	Recognizes the value of the research but didn't state explicitly	Doesn't recognize the potential value of the proposed research
	Demonstrates sound knowledge of literature in the area, and of prior work on the specific research problem	Synthesizes in-depth information from relevant sources representing various points of view/approaches	Presents in-depth information from relevant sources presenting various points of view/approaches	Presents information from relevant sources representing limited points of view/approaches	Presents information from irrelevant sources representing limited points of view/approaches
	Research is creative and original with well-defined hypotheses or objectives	Highly creative and original with well-defined hypotheses or objectives	Somewhat creative and original with well-defined hypotheses or objectives	Research not very creative and original OR hypotheses or objectives not well-defined	Research neither creative nor original AND hypotheses or objectives not well-defined

	Has applied sound state-of-the-field research methods/tools to solve the defined problem and has described the methods/ tools effectively	All elements of the methodology are skillfully developed. Appropriate methodology may be synthesized from across disciplines or from relevant subdisciplines	Critical elements of the methodology are appropriately developed, however, more subtle elements are ignored or unaccounted for	Critical elements of the methodology are missing, incorrectly developed, or unfocused	Design of experiments demonstrates a misunderstanding of the methodology
	Analyzed and interpreted research results/data effectively	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus	Organizes evidence to reveal important patterns, differences, or similarities related to focus	Organizes evidence, but the organization is not effective in revealing important patterns, differences, or similarities	Lists evidence, but it is not organized and/or is unrelated to focus
	Conclusions	Conclusions are logical extrapolations from the research findings	Conclusions focused solely on research findings.	Conclusions are so general that they apply beyond the scope of the research findings	Conclusions are ambiguous, illogical, or unsupportable from inquiry findings
	Demonstrated awareness of broader implications and limitations of the concluded research	Insightfully discusses in detail relevant and supported limitations and implications	Discusses relevant and supported limitations and implications	Presents relevant and supported limitations and implications	Presents limitations and implications but they are possibly irrelevant and unsupported
	Has demonstrated capability for independent research in the area of study and expertise in the area, appropriate to the degree	Research was conceived and conducted independently and candidate has demonstrated a high level of expertise in the area	Research was conceived and conducted with minimal supervision. Candidate is confident in the area of research	Research topic and methodology was conceived with much supervision. Candidate shows some competence in the area	Research topic and methodology was provided to the student and candidate shows little expertise in the area

**Written Dissertation and Oral Defense (PhD) and re-examination of content knowledge**

Student \_\_\_\_\_ Number of refereed journal articles accepted or in press by today \_\_\_\_\_

Date \_\_\_\_\_ Committee member \_\_\_\_\_

Student Learning Outcome		SCORE	SCALE
<b>SLO 1 (biology)</b>	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Biology</b> SUM		
<b>SLO 1 (entomology/nematology)</b>	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Entomology/Nematology</b> SUM		
<b>SLO 1 (research area)</b>	Information correct and relevant		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Question fully answered		
	Terminology and citations		
	Interpretation of content		
	<b>SLO 1 Research area</b> SUM		
Student Learning Outcome		SCORE	SCALE
<b>SLO 2</b>  Experimental design, research methodology and statistics	Statistical understanding		<b>4 = Exemplary</b> <b>3 = Proficient</b> <b>2 = Marginal</b> <b>1 = Unacceptable</b>
	Experimental design understanding		
	<b>SLO 2 Experimental design and statistics</b> SUM		

Student Learning Outcome		SCORE	SCALE
SLO 3 Oral presentation skills	Organization		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Language		
	Delivery		
	Supporting material		
	Central message		
	<b>SLO 3 Oral presentation skills<sup>1</sup></b>	<b>SUM</b>	
SLO 3 Written skills <sup>2</sup>	Context and purpose		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Content development		
	Conventions		
	Sources and evidence		
	Syntax and mechanics		
	<b>SLO 3 Written skills<sup>2</sup></b>	<b>SUM</b>	
Student Learning Outcome		SCORE	SCALE
SLO 5 Critical thinking and application of inquiry and analysis <sup>3</sup>	Clear statement of research problem and motivation		4 = Exemplary 3 = Proficient 2 = Marginal 1 = Unacceptable
	Value of research demonstrated		
	Knowledge of literature		
	Well-defined hypotheses or objectives		
	Sound methods/tools		
	Data interpretation and analysis		
	Conclusions		
	Broader impact and limitations		
	Independent research and developed expertise		
	<b>SLO 5 – PhD Critical thinking</b>	<b>SUM</b>	

These scores do not determine whether the student passes or fails the oral defense or the written thesis/dissertation. They are for the committee to consider when deciding on whether the student passes or not. All committee members should fill out a form and copies should be delivered to the Graduate Coordinator's office for deposit in the student's file.

Supervisory committee chair - please share the results of this evaluation with your student, either summarizing their strengths/weaknesses or showing the individual score sheets.

SLO 1 (knowledge of discipline) = \_\_\_\_\_ (maximum 48, minimum 12)

SLO 2 (knowledge of statistical and research methodology) = \_\_\_\_\_ (maximum 8, minimum 2)

SLO 3 (oral communication skills) = \_\_\_\_\_ (maximum 20, minimum 5)

SLO 3 (written communication skills) = \_\_\_\_\_ (maximum 20, minimum 5)

SLO 5 (critical thinking ability) = \_\_\_\_\_ (maximum 36, minimum 9)

Additional comments (strengths/weaknesses):

<sup>1</sup> Taken from Written Communication VALUE Rubric – Association of American Colleges and Universities

<sup>2</sup> Taken from Oral Communication VALUE Rubric - Association of American Colleges and Universities

<sup>3</sup> Modified from Inquiry and Analysis VALUE Rubric - Association of American Colleges and Universities

Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 1</b> Identify insects, other arthropods and/or nematodes, and describe their relationship with the environment and humans (Max. points 48, min. 12)	<b>General knowledge in biology</b>	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
	<b>General knowledge in entomology or nematology</b>	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
	<b>In-depth knowledge in area of research specialization</b>	<input type="checkbox"/> All information presented is both accurate and relevant	<input type="checkbox"/> Nearly all information presented is accurate and relevant	<input type="checkbox"/> Many inaccuracies and some misinterpretation of content and largely irrelevant	<input type="checkbox"/> Inaccurate or misinterpreted content and almost entirely irrelevant
		<input type="checkbox"/> Question is answered fully	<input type="checkbox"/> Question is essentially answered	<input type="checkbox"/> Multiple aspects of question unanswered	<input type="checkbox"/> Question not answered
		<input type="checkbox"/> Proper use of terminology and citations	<input type="checkbox"/> Mostly proper use of terminology and citations	<input type="checkbox"/> Improper use of terminology and citations	<input type="checkbox"/> Misuse of terminology and citations
		<input type="checkbox"/> Insightful interpretation of the content	<input type="checkbox"/> Demonstrates clear understanding of the content without misinterpretation	<input type="checkbox"/> Misinterpretation of content	<input type="checkbox"/> Gross misinterpretation of content
<b>SLO 2</b> Discuss appropriate research methodology, including aspects of statistical design and analysis, in the execution of arthropod research (Max. points 8, min. 2)	<b>General knowledge in statistics and experimental method</b>	<input type="checkbox"/> Answers all statistical questions correctly, in detail and logically	<input type="checkbox"/> Answers all statistical questions in some detail	<input type="checkbox"/> Attempts all statistical questions but has errors in answers	<input type="checkbox"/> Does not attempt to answer all statistical questions and/or has many errors
		<input type="checkbox"/> Answers all experimental methodology questions correctly, in detail and logically	<input type="checkbox"/> Answers all experimental methodology questions in some detail	<input type="checkbox"/> Attempts all experimental methodology questions but has errors in answers	<input type="checkbox"/> Does not attempt to answer all experimental methodology questions and/or has many errors
<b>SLO 3</b> Written skills <sup>1</sup> Max. 20 points, min. 5 points	<b>Context and purpose</b>	Demonstrates a thorough understanding of context, audience, and purpose that focuses all elements of the work.	Demonstrates adequate consideration of context, audience and purpose, and a clear focus of the work.	Demonstrates awareness of context, audience, and purpose of the work.	Does not demonstrate attention to context, audience, and purpose of the work.
	<b>Content development</b>	Consistently uses appropriate, relevant and compelling content to illustrate mastery of the subject, conveying the writer's understanding.	Consistently uses appropriate, relevant, and compelling content to explore ideas within the subject.	Use appropriate and relevant content to develop and explore ideas throughout most of the work.	Does not use appropriate and relevant content to develop simple ideas.
	<b>Conventions</b>	Detailed attention to and successful execution of all conventions specific to the discipline (organization, content, presentation, formatting, style)	Consistent use of important conventions specific to the discipline.	Follows expectations appropriate for specific discipline for organization, content and presentation.	Does not use a consistent system for basic organization and presentation.
	<b>Sources and evidence</b>	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate.	Demonstrates consistent use of credible, relevant sources to support ideas.	Demonstrates an attempt to use credible and/or relevant sources to support ideas.	Does not use sources to support ideas.

Student Learning Outcome		4 - Exemplary	3 - Proficient	2- Marginal	1 - Unacceptable
<b>SLO 5 – PhD</b>  Critical thinking and application of inquiry and analysis <sup>3</sup>  Max. 36 points, min. 9 points	Has stated the research problem clearly, providing motivation for undertaking the research	Clear statement of the research problem with well stated associated rationale	Statement of research problem with associated rationale	Unclear statement of research problem OR rationale for undertaking the research is not well developed	Unclear statement of research problem AND rationale for undertaking the research is not well developed
	Demonstrated the potential value of solution to the research problem in advancing knowledge within the area of study	Clearly states the value of the proposed research	States the value of proposed research	Recognizes the value of the research but didn't state explicitly	Doesn't recognize the potential value of the proposed research
	Demonstrates sound knowledge of literature in the area, and of prior work on the specific research problem	Synthesizes in-depth information from relevant sources representing various points of view/approaches	Presents in-depth information from relevant sources presenting various points of view/approaches	Presents information from relevant sources representing limited points of view/approaches	Presents information from irrelevant sources representing limited points of view/approaches
	Research is creative and original with well-defined hypotheses or objectives	Highly creative and original with well-defined hypotheses or objectives	Somewhat creative and original with well-defined hypotheses or objectives	Research not very creative and original OR hypotheses or objectives not well-defined	Research neither creative nor original AND hypotheses or objectives not well-defined
	Has applied sound state-of-the field research methods/tools to solve the defined problem and has described the methods/tools effectively	All elements of the methodology are skillfully developed. Appropriate methodology may be synthesized from across disciplines or from relevant subdisciplines	Critical elements of the methodology are appropriately developed, however, more subtle elements are ignored or unaccounted for	Critical elements of the methodology are missing, incorrectly developed, or unfocused	Design of experiments demonstrates a misunderstanding of the methodology
	Analyzed and interpreted research results/data effectively	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus	Organizes evidence to reveal important patterns, differences, or similarities related to focus	Organizes evidence, but the organization is not effective in revealing important patterns, differences, or similarities	Lists evidence, but it is not organized and/or is unrelated to focus
	Conclusions	Conclusions are logical extrapolations from the research findings	Conclusions focused solely on research findings.	Conclusions are so general that they apply beyond the scope of the research findings	Conclusions are ambiguous, illogical, or unsupportable from inquiry findings
	Demonstrated awareness of broader implications and limitations of the concluded research	Insightfully discusses in detail relevant and supported limitations and implications	Discusses relevant and supported limitations and implications	Presents relevant and supported limitations and implications	Presents limitations and implications but they are possibly irrelevant and unsupported
	Has demonstrated capability for independent research in the area of study and expertise in the area, appropriate to the degree	Research was conceived and conducted independently and candidate has demonstrated a high level of expertise in the area	Research was conceived and conducted with minimal supervision. Candidate is confident in the area of research	Research topic and methodology was conceived with much supervision. Candidate shows some competence in the area	Research topic and methodology was provided to the student and candidate shows little expertise in the area