# Department of Entomology Graduate Student Handbook

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## I. Introduction

This document details policies and procedures of the graduate program in the Department of Entomology and supplements *The Ohio State University Graduate School Handbook (OSU Graduate School Handbook)* (https://gradsch.osu.edu/handbook). All policies herein conform to the *OSU Graduate School Handbook* and material therein is not repeated here. This handbook is intended to answer questions about our graduate program, making this a useful guide for all graduate students and their advisors.

### Graduate Degrees Offered

The Department of Entomology has graduate programs at both the Master's and Doctoral levels. At the M.S. level, we offer Thesis and Non-Thesis M.S. degrees. The Non-Thesis M.S. is offered in Integrated Pest Management (IPM) and other specialized areas of study designed to meet the student's professional objectives. The Non-Thesis M.S. is a terminal degree and is not intended as preparation for a Ph.D. program in Entomology. The Department of Entomology also offers a joint Master's in Plant Health Management (MPHM) degree with the Department of Plant Pathology. Please refer to the MPHM handbook, https://mphm.osu.edu/graduate-handbook, for questions about this program.

### Graduate Faculty

Members of the Department of Entomology Graduate Faculty are located on both the Columbus and Wooster campuses. Students may be advised by one graduate faculty member or co-advised by two graduate faculty members within the department. A list of our faculty can be found on the Department of Entomology website, https://entomology.osu.edu/our-people/faculty. Faculty in other departments may serve as co-advisors, subject to the approval of the Graduate Studies Committee and holding of appropriate graduate faculty status (M or P) as graduate advisors with the Graduate School.

## II. Graduate Studies Committee (GSC)

Members of the GSC in the Department of Entomology are appointed by the Department Chair and consist of Graduate Faculty from both Columbus and Wooster campuses. The Chair of the Committee (Graduate Studies Chair) is appointed by the Department Chair and typically has served previously on the Committee. The Graduate Studies Coordinator is Sarah DeVilbiss who is based in Columbus. A student representative is elected by the Entomology Graduate Students Association (EGSA) (see section XVIII) to serve on this committee. Members of the GSC, and its Chairperson, serve for three years commencing at the beginning of the autumn semester and may be reappointed. Members will be notified of these appointments during the summer semester.

The GSC functions as both an Admissions Committee and as a Steering Committee for implementing the policies set forth in this Handbook. Alterations in departmental policies require review by the GSC and a majority vote by a duly constituted meeting of Graduate Faculty within the Department.

The GSC meets regularly throughout the year. A simple majority constitutes a quorum for transacting business. Approval of any issue requires a simple majority of the entire Committee. The student representative will not be involved in discussion or voting

pertaining to faculty or student performance issues, incoming student applications and fellowship rankings, and other issues as deemed appropriate by the Graduate Studies Chair.

**Petitioning the Graduate Studies Committee**
Any requests by graduate students for deviations from policies and requirements set forth herein may be appealed by written petition to the GSC. Student petitions will include a letter of support from the advisor. These petitions are to be sent as an email to the Graduate Studies Chair.

## III. Application and Admission Requirements

**Application Procedures**
Applications are completed online at The Ohio State University Graduate Admissions website, http://gpadmissions.osu.edu/.

**Deadlines**
Applications for admission to graduate school are accepted by the Entomology Department at any time; however, for full fellowship consideration, applications must be complete prior to December 1. Fellowship awards are often a critical determinant of acceptance, and students are encouraged to apply by December 1 to maximize their chances of funding support. Most students start their graduate program at the beginning of the autumn semester, but students may also start at the beginning of the spring or summer semesters. The absolute deadline for applications to begin in summer, autumn or spring semesters are May 15, July 15, and December 1, respectively.

**Requirements for Admission**
Minimum academic and application requirements for admission are as follow:

1. A baccalaureate or professional degree from an accredited college or university;

2. A 3.0 or better cumulative grade point average (cGPA) (based on the A = 4.0 system) for all previous academic work, including any graduate work;

3. A minimum score of 79 on a valid internet-based Test of English as a Foreign Language (TOEFL-IBT) or 7.0 on the International English Language Testing System (IELTS). This requirement applies only to an applicant from a country where the first language is not English, unless a bachelor's degree or higher was earned in a country exempt from the English proficiency requirements (see Graduate School Handbook for details). Residents of Puerto Rico and asylees in the United States for more than one year are also exempted from providing English language proficiency test scores;

4. Prerequisite academic work that provides evidence that the applicant can effectively pursue the graduate program of this Department. For Entomology, the normal expectation for a minimum background is 27-semester hours of biology courses, mathematics through calculus, and chemistry through organic chemistry (each semester hour earned equals 1.5 quarter hours);

5. Three letters of recommendation;

6. A 1-2-page statement of purpose for graduate work that includes scholarly and professional goals and objectives, proposed area of study, how these match our graduate program, identification of a potential advisor, and scholarly activities or experiences other than formal course work that provides evidence of potential for success in a graduate program;

7. A current Curriculum Vitae (CV);

8. While not a requirement it is *highly* encouraged that potential students select a potential advisor. Students should be in communication with the advisor prior to the submission of their application packet.

Applicants that do not meet the minimum requirements specified above occasionally may be considered for admission as a regular or conditional graduate student, at the discretion of the GSC and the Dean of the Graduate School. Students admitted on a conditional basis will follow a program to correct academic deficiencies before their status can be changed to that of a regular graduate student. While in conditional status, conditional students may not be a Graduate Teaching Associate (GTA), unless a petition prepared by the student's prospective advisor is submitted and approved by the Graduate School. Students admitted on a conditional basis must maintain a 3.0 cGPA during the first 10 hours of graded graduate credit. A conditional student cannot become a candidate for a degree while on conditional status, but all graduate credit hours accumulated while in conditional status may be counted toward a degree.

Students wishing to transfer from another department into Entomology are evaluated by the same criteria as applicants from outside.

## IV. Advisor and Student Advisory Committee

Within their first two semesters on campus students should select a Student Advisory Committee (SAC). Students are encouraged to get to know faculty within, as well as outside, the Department whose expertise could support their research goals.

For the M.S. programs, the SAC is composed of at least three members, including the advisor and at least one additional authorized Graduate Faculty members from OSU. Others without OSU Graduate Faculty status, from within or outside the University, may serve on a student's M.S. SAC with GSC approval. At least one of the committee members, in addition to the advisor, must be from the Department of Entomology.

For the Ph.D. program, the SAC is composed of at least four members, including the advisor plus at least two additional authorized Graduate Faculty members from OSU. Others without OSU Graduate Faculty status, from within or outside the University, may serve on a student's Ph.D. SAC with GSC approval. At least one of the committee members, in addition to the advisor, must be from the Department of Entomology.

To include SAC members without OSU Graduate Faculty status the CV of the proposed committee member and a petition briefly explaining the expected contributions of the committee member to the student's committee must be submitted to the GSC, and a vote must be held to approve their addition to a student's committee.

It is expected that the SAC functions throughout the student's career. The SAC must

approve the student's Plan of Study Form (ENT-6), M.S. bypass (ENT-2, for students seeking to transition to the Ph.D. program), provide ongoing research guidance, and participate in thesis or dissertation examinations. For Ph.D. students, the Candidacy Examination is conducted by four authorized Graduate Faculty members from OSU and will include members of a student's SAC that hold this status. If a Ph.D. student's SAC only includes three OSU Graduate Faculty members, a fourth Graduate Faculty member will be assigned by the GSC Chair, in consultation with the student and the student's advisor, to participate in the Candidacy Examination.

Students have the option to remove and/or replace a SAC member. A petition must be submitted to the Graduate Studies Committee, see section II.

## V. Student SAC Meetings

All graduate students are required to meet at least annually with their SAC. It is advisable that students conduct an online poll to determine a date and time for each SAC meeting. Schedule two hours for this meeting. Once the student has a date/time selected they should contact Erin Parker (Wooster) or Sarah DeVilbiss (Columbus) to reserve a room. Next, students should send an Outlook calendar invite to all SAC members and their advisor with this date, time, and room information. Students should also send a meeting reminder to the SAC the day before the meeting by email and include an agenda for the meeting. Students can elect to hold their SAC by videoconference, with permission of their advisor.

### First Committee Meeting

The first SAC meeting should be held during the first or second semester of a student's graduate program. At this meeting, the Designation of Graduate Advisory Committee ENT-5 form is to be completed. The student should then provide a brief introduction about themselves and their goals. The student should prepare a PowerPoint presentation (approximately 20-30 minutes) outlining their selected thesis or dissertation topic area with relevant background explaining why this topic is novel and important to study. If possible, this presentation should also include proposed objectives, the methods to be employed, and a timeline. The more information the student can provide, the more in-depth feedback the SAC will be able to provide.

The SAC should also discuss the academic background, strengths and weaknesses of the student in entomology and other relevant areas of study. The student should present a study plan that has been previously reviewed and approved by their advisor. The SAC may make additional course recommendations and a consensus should be reached at the meeting. Following this meeting, the student should complete and then circulate the Plan of Study ENT-6 form to their SAC for signatures. This form is then signed by the Graduate Studies Chair and emailed by the student to the Graduate Studies Coordinator.

### Subsequent Committee Meetings

The yearly timing of SAC meetings is at the discretion of the student and their advisor. For these meetings, the student should prepare a PowerPoint update of their thesis or dissertation progress. Remember that SAC members may not recall the details of the graduate student's research from the previous meeting. Thus, it is important to re-introduce the study system, principal questions, hypotheses, and methods before highlighting findings or discussing any challenges that have been faced since the last meeting. Students are also encouraged to set up one-on-one meetings with individual

members when additional guidance is needed between yearly meetings.

**Changing Advisor and/or Student Advisory Committee Members**
If for any reason (e.g., student dissatisfaction with advisor, or vice versa) a student wishes to change advisors or members of the SAC, this is done by petitioning the GSC by submitting the ENT-4 form. If a student does not have a permanent advisor after two semesters, the student must petition the GSC to continue enrollment. Students unable to find an advisor within three semesters must transfer out of the program, for in no case will a student or faculty member be forced to accept each other.

## VI. Student Research Proposal, Transition Proposal Update, and Accompanying Seminars

Students are expected to write a research proposal that includes an introduction, background and significance, objectives and hypotheses, proposed methods, and timeline.

The background and significance section should thoroughly cover the important and relevant previous work in the student's intended area of study. It should identify gaps in the body of scientific knowledge in this area that the student intends to fill with their original research. Be certain to avoid superfluous information. It should also discuss the motivation behind the overarching question driving the student's research, *i.e.* important biological questions it will answer, valuable applications it will inform and/or improve, etc. This section can easily develop into an introductory chapter (optional but suggested) to the thesis or dissertation or may even be published as a review article.

The remaining sections will outline the specific plans for completing the research project. Students should state each aim clearly, and outline experiments they plan to complete to address each aim. Students should explain their methodology, giving enough detail for the SAC to understand the experimental design, experimental approaches, and planned analyses. Things like sampling design, sample sizes, replication structure, major procedures, specimen processing, and analysis approach are good to include. This will vary substantially by research area and students should adjust it accordingly. Acquiring sample proposals from other students can be helpful when beginning to write. Students should expect to receive several rounds of feedback from their advisor to complete their proposal. Upon approval from their advisor, students should distribute the proposal to their SAC for review. Once suggestions from the SAC are incorporated, the proposal is to be sent as a PDF document by email to the Graduate Studies Chair and Graduate Studies Coordinator. The student should copy their advisor and SAC on this email. The proposal must be submitted within the first two (M.S.) or first three (Ph.D.) academic semesters (not including summer semester).

**Proposal Seminar**
Students must present a proposal seminar to the Department during the first year and a half. Students can present this seminar before or after submitting their proposal to the Graduate Studies Chair and Coordinator. This seminar should be presented as part of the Department's Seminar Series. Prior to the start of each semester, the Seminar Committee Chair will send out a list of available dates for proposal seminars. Students must watch for this email and reply promptly to select a time to present. Students should send their advisor and SAC an Outlook calendar invite with the date, time, and location of their Proposal Seminar. The seminar should be 20 minutes in length (15 min presentation; 5 min for questions) and highlight the importance of the research area and the hypotheses

and predictions to be tested along with proposed methods, and any preliminary findings.

**Proposal Update for Transition Students**
Students who elect to transition to the Ph.D. program should update their research proposal to include any additional studies they plan to include in their dissertation that were not included in the original proposal. This updated proposal must be approved by their advisor and SAC and submitted to the Graduate Studies Chair and Coordinator within one semester of completing their Ph.D. transition. See section IX for additional details regarding the transition process.

**Transition or Pre-candidacy Seminar**
Pre-candidacy students in the Ph.D. program and those who wish to transition from the Master's to Ph.D. program (see requirements below) should prepare and present a seminar to the department. This seminar should be approximately 20 minutes in length (15 min presentation, 5 min for questions) and focus on the findings of research completed up to that point in their degree program.

To be considered for transition, students must submit an original research paper to a peer reviewed scientific journal, and discussion of this work should be included in the transition seminar. The student should also provide an outline of how their current M.S. project will develop into a Ph.D. project at the end of their seminar. These presentations are to be made during the Department's Seminar Series and must be scheduled by the student in coordination with their academic advisor

## VII. Entomology Graduate Student Orientation (Research and Training Seminar), ENTMLGY 8800

Entomology 8800 is offered every autumn semester and led by the Graduate Studies Chair. The seminar is an opportunity for new students to become acquainted with Department resources and policies, meet the graduate faulty, and gain the tools needed to navigate their new role as a graduate student. Topics covered include preparation of a CV, effective use of the primary literature, plagiarism and academic misconduct, applying for grants and fellowships, the preparation of a research proposal, and time and stress management. Students will also have an opportunity to propose topics to be included in this course at the beginning of the term. All new graduate students are required to enroll in ENTMLGY 8800 during their first autumn semester of their program.

## VIII. Department Seminar, ENTMLGY 8000

The Department Seminar is held during each autumn and spring semester at a regularly scheduled time, with coffee and snacks available 30 minutes prior to the start of the seminar. The seminar may be virtual or in person. This is an important opportunity for the department to interact with one another as well as the visiting speaker. When presented in person, a graduate student lunch is usually held at the location of the speaker (either Wooster or Columbus), and students at that location are expected to attend.

Seminar is one of our most important departmental activities for students, staff, and faculty, as meeting outside speakers provides new perspectives on current research topics and provides new points of contact/networking opportunities that could prove pivotal to future success. **Thus, graduate students are expected to attend all seminars whether**

**or not they are registered for ENTMLGY 8000.**

## IX. Continuing from the M.S. to the Ph.D. Degree

Students may apply and enter directly into the Ph.D. program. Students who wish to obtain a Ph.D. may also begin their studies in the M.S. degree track and transition to Ph.D. track after completing most or all the requirements for an M.S. There are two options to transition:

**Transition Option - Bypassing the M.S. degree to obtain Ph.D.**

Students may wish to bypass the final requirements of the M.S. program (thesis, Final Examination), to pursue a Ph.D. degree. Students wanting to pursue this option should discuss it as early as possible with their adviser and SAC. To proceed to the Ph.D. track, students must petition the GSC in writing. The petition should be accompanied by the ENT-2 form signed by all SAC members and a letter of support from the student's advisor. It is expected that students petitioning to bypass the M.S. have acquired all the necessary skills to perform well during their Ph.D. program. At a minimum, students must have submitted an original research paper to a peer reviewed scientific journal and presented such work as a transition seminar to the department. Note that this seminar should be approximately 20 minutes in length (15 min presentation, 5 min for questions) and focus on the findings of their transition study. The student should also provide an outline of how their current M.S. project will develop into a Ph.D. project at the end of their seminar. These presentations are to be made during the Department's Seminar Series. The Graduate Studies Committee will evaluate the petition on a case-by-case basis and will inform the student with its decision. Students whose petitions are not accepted will have the option to submit a bypass request at a later time or to finish with an M.S. degree.

Ph.D. students that need to leave the program may be approved by the Graduate Studies Committee to receive the M.S. with Thesis Degree if they have successfully completed the Ph.D. Candidacy Examination and their candidacy has not expired. For this, students must submit a petition in writing to the Graduate Studies Committee. The petition must be accompanied by a letter of support from the advisor, which is also signed by all SAC members. If the petition is not accepted, students may request in writing that a Non-Thesis M.S. is awarded instead. A letter of support from the advisor is needed and majority support from the SAC for the Non-Thesis M.S.

Students that need to leave the program but have not successfully completed the Ph.D. Candidacy Examination may petition in writing to receive a Non-Thesis M.S. For this, students must submit a petition in writing to the GSC. The petition must be accompanied by a letter of support from the advisor, which is also signed by all SAC members.

**Continuing to Ph.D. program after graduating from M.S. with Thesis**

Students who complete all requirements for an M.S. with a Thesis in Entomology at OSU and wish to continue for the Ph.D. after receiving their degree must be recommended to do so by their advisor and SAC. They must complete and submit Form Ent-1 to the Graduate Studies Coordinator. In addition, the request to continue to the Ph.D. program requires a petition to the GSC consisting of a statement of purpose from the student and a letter of support from the proposed Ph.D. advisor, along with a funding plan.

The GSC evaluates these requests based on 1) the student's M.S. program application materials; 2) Form Ent-1; 3) transcripts or advising reports of coursework for the M.S. program; and 4) the student's petition. The student may not continue for a Ph.D. without the approval of the GSC.

## X. Evaluation of Student Progress Using Form Ent-7

Students report their progress annually to their SAC and the GSC using Form Ent-7 Report on Graduate Student Progress. The form includes a self-evaluation of progress by the student, as well as a written assessment of the student's progress by the advisor, awards received and other relevant information. **The completed Form Ent-7 is due each year on March 1**. Students should submit the completed, signed form to the Graduate Studies Coordinator. The GSC typically reviews the Form Ent-7 at their April meeting, and the results of the review are communicated in writing by members of the GSC to the student and advisor. It is vitally important that Form Ent-7 is completed accurately, completely, and on time, as this form is used by the GSC to make decisions regarding appointments and support.

## XI. Course Loads, Credit Limits, Re-Enrollment, and Student Records

### Course Loads

Department policies conform to those set forth in the *OSU Graduate School Handbook*. Graduate Teaching Associates (GTAs) and Graduate Research Associates (GRAs) holding a 50% or greater appointment must register with the Graduate School for at least eight (8) credit hours each semester, except during the summer semester, when the minimum is four (4). GRAs and GTAs holding a 25% appointment must register in the Graduate School for at least four (4) credit hours each semester, except during the summer semester, when the minimum is two (2). Graduate Fellows must register for a minimum of 12 credit hours each semester, except during the summer semester, when the minimum is six (6). Doctoral students who have passed the Candidacy Examination must register for three (3) credit hours each semester that a 50% or greater appointment is held, including summer semester. The Department of Entomology recommends that students register for up to 16 credit hours each autumn and spring semester and eight (8) credits each summer semester prior to their candidacy examination. Students should check with their advisors as the type of support they are receiving (e.g. support from an external federal grant vs. an internal grant or teaching associateship) might influence how many credit hours should be taken.

### Credit Limits

The University Board of Regents has stated that students should not accumulate more than 174 credit hours during their graduate program at OSU (M.S. and Ph.D. combined). It is recognized that extenuating circumstances can complicate compliance with these limits, and the GSC will consider petitions to waive this limit in special cases. However, it should be emphasized that waivers are not the normal course and exceeding these limits can be grounds for loss of financial support and/or dismissal from the Entomology Graduate Program.

### Re-Enrollment

Former graduate students who wish to re-enroll after an absence of two (2) terms or more must petition the GSC, including a letter of support from their advisor.

**Graduate Student Records**
The Department maintains a permanent record for each student in electronic form. This record contains the student's application materials, copies of appropriate departmental forms, a copy of the student's research proposal, and any petitions or other correspondence concerning the student. These records are kept in OneDrive with folder permissions granted only to the GSC members, the Department Chairperson and Associate Chairperson, and a student's advisor (or potential advisor). A student may request to view these materials from the Department Chairperson or Graduate Studies Chair who will remove, in advance, confidential material (e.g., letters of recommendation with signed waiver).

## XII. Course Credit, Marks, and Point Hour Ratio (PHR)

Plus and minus grades are given by most faculty; the point value of each grade is as follows:

| Letter Grade | Point Value |
|---|---|
| A | 4.0 |
| A- | 3.7 |
| B+ | 3.3 |
| B | 3.0 |
| B- | 2.7 |
| C+ | 2.3 |
| C | 2.0 |
| C- | 1.7 |
| D | 1.0 |

The grade of D- is not given, and the point value of E is zero.

The point values of plus and minus grades given by other institutions may in some cases be slightly different from those at OSU. In all cases, the GSC accepts the Cumulative Point Hour Ratio (CPHR) from other institutions as that calculated by OSU Admissions.

ENTMLGY 7999, 8000, 8800, 8998 and 8999 are graded "S/U" (satisfactory/unsatisfactory).

Graduate students in Entomology may not earn "EM" (Examination) credit for graduate-level courses deemed as necessary by the advisor or advisory committee. Students may not officially audit a required course unless they have already achieved a passing grade in the same or a comparable course at OSU or another institution. However, students may be allowed to sit in, without registering to audit, with permission of instructor.

## XIII. Academic and Professional Standards

**A graduate student must maintain a 3.0 or better cumulative grade point average (cGPA) and maintain reasonable progress toward their degree requirements (evaluated annually with ENT-7 form) to be considered in good standing.**

A student with a cGPA below 3.0 after nine earned credit hours will receive a warning letter from the Graduate School urging consultation with their advisors and SAC. The student must work with their advisor and the Graduate Studies Chair to develop a remediation plan aimed at

increasing the student's cGPA to 3.0 or better. Students will have one term (autumn, spring, or summer) to execute this plan and raise their cGPA. Students who do not raise their cGPA to a 3.0 after a remediation plan has been implemented will be placed on academic probation for one semester.

Students on probation cannot be appointed or reappointed as a Graduate Teaching Associate or Graduate Fellow or trainee (see Sections 9 and 10 in Graduate School Handbook). A student who raises the graduate cGPA to 3.0 or better is removed from probation by the Graduate School. Coursework used in raising the cGPA must be a part of normal degree requirements and approved by the GSC. An international student who is on probation upon admission to an International Cooperative Graduate Degree Agreement (ICGDA) program is removed from probation upon meeting the conditions stated in the ICGDA. A student on a remediation plan or on academic probation whose record continues to deteriorate will be warned that academic dismissal is likely if their record does not improve. Warnings include performance criteria tailored to the individual student, usually in consultation with the Graduate Studies Chair and the Graduate School.

## XIV. Grievance Procedures

Concerns and all points of grievance related to graduate examinations and graduate student appointments should be raised with the major advisor and the SAC. If the student does not feel that their concerns are addressed appropriately, the next step is to contact the Graduate Studies Chair, who will submit your grievance to the Graduate Studies Committee for a formal review. Grievances that cannot be resolved by the Entomology GSC will be submitted for review by the Graduate School.

Other grievances (e.g., poor advisor-student working relationships, hostile working conditions, harassment of any kind, discrimination, and academic or other misconduct) should be raised with your advisor, the Graduate Studies Chair, or Department Chair. These individuals will hear your concerns, determine the appropriate steps to address the grievance, and connect you with the resources and support you need.

See Appendix D, Graduate Student Grievance Review Guidelines, in the Graduate School Handbook for details (https://gradsch.osu.edu/handbook/all#D-1).

## XV. Master's Degree Programs

The Department offers a Master's Degree with Thesis as well as a Non-Thesis Master's Degree.

**Master's Degree with Thesis**

**Requirements**:

1) Completion of at least 30 hours of graduate credit (including ENT 7999) at this university, of which 19 credits must be from Entomology courses

2) Course requirements include:
   **Two** courses from the Entomology Fundamental group:
   ENTMLGY 5600, Principles and Applications of Integrated Pest Management
   ENTMLGY 6310, Insect Physiology and Molecular Biology
   ENTMLGY 6410, Insect Ecology and Evolutionary Processes

ENTMLGY 6210, Evolution and Diversity of Insects

**One** course in Professional Development Skills:
ENTMLGY 7920, Presentation Skills for Scientists

**All four** of the supplementary training courses:
ENTMLGY 8800, Entomology Graduate Orientation (1st Fall semester)
ENTMLGY 8000, Entomology Seminar (Minimum of one credit)
ENTMLGY 7999, (As needed to complete degree requirements)
One course in statistics or data analysis or experimental design (4xxx or higher)

Any other courses required by the SAC and included in the study plan; there are several elective courses that can be taken for credit within and outside the department. See department website for list of current elective courses.

3) Achievement of a cGPA of at least 3.0 in all courses taken for graduate credit (failure to maintain the 3.0 minimum at any time results in probation)

4) Research Proposal (see section VI of this handbook)

5) Proposal Seminar (see section VI of this handbook)

6) Completion of an approved thesis

7) Presentation of a Defense Seminar on the topic of the student's M.S. research

8) Successful completion of a comprehensive oral Final Examination

**Defense Seminar and Final Exam**

Students must present their Defense Seminar during the semester they expect to graduate, and before the Final Examination. The seminar should be ~30 minutes in length (~20 min presentation; ~10 min for questions). This is a public seminar, meaning that all members of the University as well as others interested in attending, such as family and friends of the student are welcome. If possible, the seminar should be presented immediately before the Final Exam, but this is not required.

The Final Exam is a 1-hour oral exam for M.S. candidates that is conducted by the student's advisory committee (SAC) with the advisor acting as chairperson. Only the student's SAC and advisor are present for the Final Exam and may be conducted in an on-campus, hybrid or remote format. This examination is concerned primarily with the student's research but may be as broad in scope as the committee wishes. Remote and hybrid exams should be conducted over Zoom or Microsoft Teams to allow all exam participants to see and hear each other during the entire exam. The report of the committee must be unanimous to be considered satisfactory.

It is advisable to poll the availability of SAC members and select a date for the Defense Seminar and Final Exam 3 months or more in advance. Once a date is selected, students taking an on-campus or hybrid exam should contact either Erin Parker (Wooster) or Sarah DeVilbiss (Columbus) to reserve a room for their seminar and exam. These may be different rooms. Next, the student should send an Outlook Calendar invite to their advisor, SAC, and the Graduate Studies Chair and Coordinator with this information.

Two weeks prior to the Defense Seminar and Exam students should send the Graduate Studies Coordinator an email with their title, names of advisor and SAC members, and a photo that in some way highlights their research topic. The Graduate Studies Coordinator will send an email to the department to advertise the Defense Seminar.

**Structure of Thesis Document**

Students should review the thesis preparation guidelines section of the OSU Graduate School website, https://gradsch.osu.edu/document-preparation, for detailed instructions as well as a thesis template. All Ohio State theses must contain the following elements: title page, copyright, overall abstract, vita, table of contents, list of figures, bibliography, list of tables (if applicable), list of illustrations (if applicable) and appendices (if applicable). Students in the Department are encouraged to format their thesis as individual manuscripts wherein each chapter includes Introduction, Methods, Results, and Discussion sections along with relevant Tables and Figures as appropriate. A student's advisor may also require the student to include an introduction or literature review chapter and/or an overall conclusion. Students should meet well in advance with their advisor and SAC to outline the structure of their thesis. **Students must send their completed thesis to their SAC at least 2 weeks before their defense date.**

**Timeline and Final Semester Checklist**

All requirements for the M.S. degree are normally completed within 2-3 years of the date of first enrollment as a regular graduate student in the Department of Entomology. Students who anticipate continuing beyond three years must petition the GSC.

Prior to their final semester, students should review the Final Semester Procedures and Timelines document on the OSU Graduate School website, https://gradsch.osu.edu/final-semester-procedures-and-timelines. This includes a checklist of all forms to submit and deadlines to meet in order to graduate. In brief, M.S. students are required to submit an "Application to Graduate" form by the third Friday of the semester they intend to graduate using GRADFORMS, https://gradforms.osu.edu/, and present and defend their thesis by the published deadline for that semester. Students must verify that their SAC has approved and submitted the "Report on Final Examination" via GRADFORMS following their exam. Students must plan to undergo a Thesis Format Check by sending an electronic copy of their thesis to the Graduate School (grad-schoolformatreview@osu.edu) no later than the posted examination deadline for the semester. Following completion of their thesis students must ensure that their advisor and SAC approve and submit a "Report on Final Document" via GRADFORMS by the posted deadline. A PDF version of the final thesis should be submitted to OhioLink no later than 8 a.m. on the deadline day. Students should also complete and submit the ENT-9 form upon completion and submission of their thesis. Note that an End-of-Semester option is available and detailed in the Final Semester Procedures and Timelines document linked above.

## Non-Thesis Master's Degree

**Requirements**:

1) Completion of at least 30 hours of graduate credit, of which 28 must be from Entomology courses

2) Course requirements include:

**Two** courses from the Entomology Fundamental group:
ENTMLGY 5600, Principles and Applications of Integrated Pest Management
ENTMLGY 6310, Insect Physiology and Molecular Biology
ENTMLGY 6410, Insect Ecology and Evolutionary Processes
ENTMLGY 6210, Evolution and Diversity of Insects

**One** course in Professional Development Skills:
ENTMLGY 7920, Presentation Skills for Scientists

**All four** of the supplementary training courses:
ENTMLGY 8800, Entomology Graduate Orientation (1st Fall semester)
ENTMLGY 8000, Entomology Seminar (Minimum of one credit)
ENTMLGY 7999, (As needed to complete degree requirements)
One course in statistics or data analysis or experimental design (4xxx or higher)

Any other courses required by the SAC and included in the study plan; in addition to the above requirements, Non-Thesis M.S. students may choose any number of elective courses based on their interest or recommendations by their advisory committee. These electives may include ENTMLGY 7890 (Special Topics), ENTMLGY 6194 (Group Studies), any of the other ENT 5xxx series courses, or courses offered in other units.

3) Achievement of a cGPA of at least 3.0 in all courses taken for graduate credit

4) Successful completion of a comprehensive Final Exam

Non-Thesis M.S. students can tailor their program to a professional interest, such as integrated pest management (IPM). Non-Thesis IPM students are expected to take Entomology 5600 (or equivalent) in addition to the core requirements listed above. The IPM M.S. student must demonstrate competency in the following areas: a) general entomology (including morphology, physiology, behavior and ecology); b) classification (sight identification to family of adult arthropods and immatures of economic importance); c) economic entomology (identification, life history, control, sampling, data analysis); and d) pesticides (classification, modes of action, application, regulation, etc.).

**Defense Seminar and Final Exam**

The Non-Thesis M.S. Final Exam is conducted by the SAC with the student's advisor acting as Chairperson. The exam must have a minimum 4-hour written portion and may include an oral portion conducted in an on-campus, hybrid or remote format. The examination will be as broad in scope as the committee wishes but will generally cover those areas in which the student has taken coursework. Non-Thesis M.S. students are expected to exhibit competency in the following areas: a) general entomology (including morphology, physiology, behavior and ecology); b) classification (sight identification to family of adult arthropods and immatures of economic importance); and c) their area of professional interest.

The report of the committee on the Final Exam must be unanimous to be considered satisfactory. A Non-Thesis Master's Degree from the Department of Entomology is not considered adequate preparation for the Ph.D. in this Department and is therefore a terminal degree.

It is advisable to poll the availability of SAC members and select a date for the Final Exam 3 months or more in advance. Once a date is selected, students should contact either Erin Parker (Wooster) or Sarah DeVilbiss (Columbus) to reserve a room to take on-campus or hybrid exams. The student should send an Outlook Calendar invite to their advisor, SAC, and the Graduate Studies Committee Chair and Coordinator with the date and time of their Final Exam.

**Timeline and Final Semester Checklist**

All requirements for the Non-Thesis M.S. degree are normally completed within 2-3 years of the date of first enrollment as a regular graduate student in the Department of Entomology. Students who anticipate continuing beyond three years must petition the Graduate Studies Committee.

Prior to their final semester, students should review the Final Semester Procedures and Timelines document on the OSU Graduate School website, https://gradsch.osu.edu/final-semester-procedures-and-timelines. This includes a checklist of all forms to submit and deadlines to meet in order graduate. In brief, Non-Thesis M.S. students are required to submit an "Application to Graduate" form on the third Friday of the semester they intend to graduate using GRADFORMS, https://gradforms.osu.edu/, and complete their Final Examination by the published deadline for that semester. Students must verify that their SAC has approved and submitted the "Report on Final Examination" via GRADFORMS following their exam. Note that an End-of-Semester option is available and detailed in the Final Semester Procedures and Timelines document linked above.

## XVI. Doctoral Degree Program

In addition to the requirements set forth in the *OSU Graduate School Handbook*, the requirements for the Ph.D. degree are as follows:

1) Teaching: A minimum of one semester of teaching experience, or equivalent, in Entomology or Introductory Biology either as a paid Teaching Associate or by enrolling in the ENTMLGY 6501 (Mentored Teaching) course.

2) Completion of at least 80 hours of graduate credit (including ENTMLGY 8998 and 8999) at this university, of which 23 credits must be from Entomology courses and 57 credits must be from elective and Entomology research credits.

3) Course requirements include:

**All four** courses from the Entomology Fundamental group:
ENTMLGY 6310, Insect Physiology and Molecular Biology
ENTMLGY 6320, Experimental Insect Physiology and Molecular Biology
ENTMLGY 6410, Insect Ecology and Evolutionary Processes
ENTMLGY 6210, Evolution and Diversity of Insects

**All three** courses from the Professional Development Skills group:
ENTMLGY 7910, The Nature and Practice of Science
ENTMLGY 7920, Presentation Skills for Scientists
ENTMLGY 7930, Scientific Writing and Grant Proposal Development

**All four** of the supplementary training courses:
ENTMLGY 8800, Entomology Graduate Orientation (1st Fall semester)
ENTMLGY 8000, Entomology Seminar (Minimum of one credit)
ENTMLGY 8998 (pre-candidacy) and ENTMLGY 8999 (post-candidacy, (As needed to complete degree requirements)
One course in statistics or data analysis or experimental design (4xxx or higher)

Any other courses required by the SAC and included in the study plan; there are several elective courses that can be taken for credit within and outside the department. See the department website for a list of current elective courses.

4) Achievement of a cGPA of at least 3.0 in all courses taken for graduate credit

5) Research Proposal (see section VI of this handbook)

6) Proposal Seminar (see section VI of this handbook)

7) Submission of an original research paper to a peer-reviewed scientific journal

8) Pre-Candidacy Seminar

9) Candidacy Exam

10) Defense Seminar and Final Exam

**Written and Oral Candidacy Exam**
Candidacy is defined as that period in a doctoral student's studies when they are deemed ready to undertake independent and original research resulting in a dissertation (Ph.D.). Students are expected to have completed their coursework and enroll only in ENTMLGY 8999 after candidacy. Doctoral students who have advanced to candidacy by passing the written and oral portions of the candidacy examination will subsequently be termed "doctoral candidates." Candidacy exams may not be scheduled prior to the completion of the pre-candidacy or transition seminar and submission of an original research paper to a peer reviewed scientific journal. Candidacy exams must be completed at least one semester before the student plans to defend their dissertation. Often, candidacy takes place in the 3$^{rd}$-4$^{th}$ year of graduate studies.

This exam is conducted by the student's SAC with the advisor acting as chairperson and requires four authorized OSU Graduate Faculty members. If the student's SAC only includes three Graduate Faculty members, the Graduate Studies Chair, in consultation with the student and the student's advisor, will assign a fourth Graduate Faculty member to participate in the candidacy exam. Non-Graduate Faculty members may be appointed as additional external members to the candidacy examination committee by petition to the Graduate School.

The exam begins with a Written Exam. Students should meet with their faculty advisor one semester (at least) prior to candidacy to discuss how this exam will be structured, and subsequently with each SAC member to determine if there are specific books, notes, or topics that should be reviewed. The exact structure of the Written Exam is decided upon

jointly by the advisor and SAC. Typically, students complete one written exam per committee member and are given an eight-hour time limit to complete each exam. Thus, one exam is taken per day. The exam may include open or closed book questions or some combination. The written exams should be taken three weeks before the oral exam so the SAC members can provide written feedback to the student but must be completed at least one week prior.

The Oral Exam is 2-hours in length and may be conducted in an on-campus, hybrid or remote format. This exam will include the SAC and advisor. Students are encouraged to review challenging areas of their Written Exam, as examiners often return to these in the Oral Exam. However, the Oral Exam can address any aspects of Entomology and the student's research area. For the student to successfully complete Candidacy, a decision of satisfactory performance on both the Written and Oral Exams must be reached by the full SAC and advisor. If a student's performance is considered unsatisfactory after their first Oral Exam, a Second Candidacy Exam can be scheduled. If this exam is also deemed unsatisfactory the student will not be permitted to be a Ph.D. candidate. For details on evaluation of the candidacy exam please see the Graduate School Handbook section 7.6.

It is advisable to poll the availability of SAC members and select a date for the Oral Exam 3 months or more in advance. Once a date is selected, students should contact either Erin Parker (Wooster) or Sarah DeVilbiss (Columbus) to reserve a room for their exam. The student may also wish to reserve a quiet conference room to complete their written exams. The student should send an Outlook Calendar invite to their advisor and SAC with the time and place of the Oral Exam. The student should also submit an "Application for Candidacy" form in GRADFORMS that must be approved by the student's advisor, SAC and the Graduate Studies Chair a minimum of two weeks prior to the exam.

**Defense Seminar and Final Exam**

Students must present their Defense Seminar during the semester they expect to graduate, and before the Final Examination. The seminar should be approximately 55 minutes in length (~40 min presentation, ~15 min for questions). This is a public seminar, meaning that all members of the University as well as others interested in attending, such as family and friends of the student are welcome. If possible, the seminar should be presented immediately before the Final Exam, but this is not required.

The Final Exam is a 2-hour oral exam for the Ph.D. candidate that is conducted by the student's advisory committee (SAC) with the advisor acting as chairperson. It may be conducted in an on-campus, hybrid or remote format. Remote and hybrid exams should be conducted over Zoom or Microsoft Teams to allow all exam participants to see and hear each other during the entire exam. The Final Exam is also attended by a Graduate School Representative. This examination is concerned primarily with the student's dissertation but may be as broad in scope as the committee wishes. The report of the committee must be unanimous to be considered satisfactory.

It is advisable to poll the availability of SAC members and select a date for the Defense Seminar and Final Exam 3 months or more in advance. Once a date is selected, students taking an on-campus or hybrid exam should contact either Erin Parker (Wooster) or Sarah DeVilbiss (Columbus) to reserve a room for their seminar and exam. These may be different rooms. Next, the student should send an Outlook Calendar invite to their

advisor, SAC, and the Graduate Studies Committee Chair and Coordinator with this information. Two weeks prior to the Defense Seminar and Exam students should send the Graduate Studies Coordinator an email with their title, names of advisor and SAC members, and a photo that in some way highlights their research topic. The Graduate Studies Coordinator will send an email to the department to advertise the Defense Seminar.

**Structure of Dissertation Document**

Students should review the dissertation preparation guidelines section on the OSU Graduate School website, https://gradsch.osu.edu/document-preparation, for detailed instructions as well as a dissertation template. All Ohio State dissertations must contain the following elements: title page, copyright, overall abstract, vita, table of contents, list of figures, bibliography, list of tables (if applicable), list of illustrations (if applicable) and appendices (if applicable). Students in the Department are encouraged to format their thesis as individual manuscripts wherein each chapter includes Introduction, Methods, Results, and Discussion sections along with relevant Tables and Figures as appropriate. A student's advisor may also require the student to include an introduction or literature review chapter and, or an overall conclusion. Students should meet well in advance with their advisor and SAC to outline the structure of their thesis. **Students must send a complete and final draft of their dissertation to their SAC at least two weeks before their defense date.**

**Timeline and Final Semester Checklist**

All requirements for the Ph.D. are normally completed within 3-6 years of the date of first enrollment as a regular graduate student in the Department of Entomology. If a doctoral student fails to submit a copy of their final dissertation to the Graduate School within 5 years of being admitted to candidacy, their candidacy is canceled. The doctoral candidate may petition for one extra semester after the conclusion of candidacy to complete all outstanding requirements.

Prior to their final semester, students should review the Final Semester Procedures and Timelines document on the Graduate School Website. This includes a checklist of all forms to submit and deadlines to meet in order graduate. In brief, Ph.D. students are required to submit an "Application to Graduate" form by the third Friday of the semester they intend to graduate and an "Application for Final Examination" at least two weeks before their defense date using GRADFORMS, https://gradforms.osu.edu/. Students must present and defend their dissertation by the published deadline for that semester. Students must verify that their SAC has approved and submitted the "Report on Final Examination" via GRADFORMS following their exam. Students must plan to undergo a Dissertation Format Check by sending an electronic copy of their dissertation to the Graduate School (grad-schoolformatreview@osu.edu) at least two weeks before their defense. Students are expected to email a copy of their dissertation to their SAC, advisor, and Graduate Faculty Representative a minimum of two weeks prior to their defense. Following completion of their dissertation students must ensure that their advisor and SAC approve and submit a "Report on Final Document" via GRADFORMS by the posted deadline. A PDF version of the final dissertation should be submitted to OhioLink no later than 8 a.m. on the deadline day. Note that an End-of-Semester option is available and detailed in the Final Semester Procedures and Timelines document linked above.

## XVII. Types of Graduate Appointments (Funding Sources) and Expectations

When a student is accepted into the department, the advisor will guarantee funding support within an offer letter for three or five years for M.S. and Ph.D. students, respectively. Students may complete their degree in fewer years, but funding support for additional years cannot be ensured by the department. This funding is awarded through multiple different mechanisms. Graduate students may be appointed as a Graduate Fellow, Graduate Teaching Associate (GTA), or Graduate Research Associate (GRA). These appointments often change on a semester-to-semester basis throughout a student's graduate program. Graduate students do not accrue sick or vacation days as part of their appointment. However, all students are entitled to take sick days and vacations, which are included in their stipend. Approval from the student's advisor is required. The Department of Entomology will follow the guidelines established by the Graduate School Handbook.

**Sick/Bereavement Leave** A period of one to three consecutive days at a time for up to a maximum of three times each spring and autumn semester and two times each summer semester may be taken. Sick days do not accrue beyond a semester.

**Personal Leave** A period of up to 10 business days per year (two weeks per year) for vacation and/or personal reasons may be taken. Personal leave does not accrue.

**Professional Development Leave** Five business days per year are allotted for professional development activities such as attending workshops or attending and presenting scholarly work at national and international meetings.

**Parental Leave** Up to three weeks of leave may be granted for childbirth or adoption. Up to three additional weeks for health recovery of the birth mother may be granted through the use of sick-leave and personal leave.

### Graduate Fellows (GF)

Graduate students receiving a fellowship from the University or College will receive details of their stipend amount prior to accepting an offer of admission. Students may also be funded by federal agencies, such as the National Science Foundation Graduate Research Fellowship Program. If the amount of the student's fellowship is less than the department minimum, the student's advisor will supplement their funding to meet this standard.

### Graduate Teaching Associates (GTA)

GTA positions are assigned by the Department Chair and Graduate Studies Chair, with input from Entomology course instructors. GTAs may be assigned to work in the Introductory Biology Program of the Center for Life Science Education (CLSE) or in the Department of Entomology. In general, new GTAs are assigned to the CLSE Program. Those with at least two semesters of experience and excellent SEIs have the opportunity to move into Department of Entomology GTA positions. The duties of GTAs are determined by the instructor to whom the student is assigned. GTAs (50% FTE) are expected to work 20 hours per week on their teaching-related duties and are expected to be available several days prior to the beginning of classes in order to make preparations as assigned by the instructor. GTAs will observe OSU holidays and time-off between semesters from teaching-related duties.

**Graduate Research Associates (GRA)**
GRA positions are paid from research grants obtained by their faculty advisor, or rarely, with departmental funding. Funded GRAs (50% FTE) are expected to work 20 hours per week on research activities assigned by their supervisor, in addition to other time devoted to coursework and their own research. The majority of these 20 hours will also be spent on the student's thesis/dissertation research, but the advisor may also ask the student to help with other research projects, rearing, or outreach activities as well. GRAs will observe OSU holidays but are expected to continue their duties during the periods between semesters.

**English as Second Language (ESL) Requirement**
Upon arrival, an international student who is not a citizen of or who has not received a bachelor's degree or higher from a country exempt from the English proficiency requirement, https://gpadmissions.osu.edu/intl/additional-requirements-to-apply.html, is required to sit for an ESL Composition Placement Essay. Based on the essay result, students requiring English writing instruction will be placed in EDUTL 5901 or 5902. The student is expected to complete EDUTL 5902 within one calendar year after beginning graduate school. The GSC may request an extension of the time limit from the OSU Graduate School. Exemption from sitting for the ESL Composition Placement Essay may be granted to students who either have a total score of 114 on the IBT TOEFL, or a total score of 101 with a score of 28 on the writing section. Alternatively, students with a score of 9.0 on the IELTS, or an overall score of 8.0 and a score of 8.0 on the writing module are also eligible for exemption.

**Spoken English Requirement for International GTA**
International or permanent resident graduate students for whom English is not the first language must certify their proficiency in spoken English before assuming any Graduate Teaching Associate (GTA) instructional duties. They may become certified by scoring 28 or higher on the spoken portion of the TOEFL IBT, 8.5 on the IELTS, or by scoring at the appropriate level on the Oral Proficiency Assessment (OPA) administered by the ESL Spoken English Program. A score of 4 or higher on the ESL is required to serve as a GTA who holds lab or recitation sessions independent of their faculty course supervisor, however, students with lower scores can be appointed to GTA positions as graders or supervised instructors.

**GTA and GRA Stipends**
Minimum stipends for Graduate Associates are, in general, determined by University policy and augmented by the department pending the availability of funds. All GTA and GRA's employed by the Department of Entomology shall receive stipends at a standard MS or PhD level, the amount of which is comparable to that offered by other Entomology Departments within the Big Ten Conference.

Stipend increases for students may be provided annually according to University policies and the availability of funds. In addition to the stipend provided by these appointments, tuition and fees are paid for Graduate Teaching and Research Associates and for most Fellows.

**Reappointments**
Reappointments are based on the same criteria used in making the original appointments, plus three others: the quality of the student's work as a Graduate Associate; progress toward a graduate degree as documented on Form Ent-7; and satisfactory completion of all courses including ENT 8999.

LIMITS ON SEMESTERS OF SUPPORT: Maximum periods of support are as follows:

| Enter Graduate Program With: | Candidate For: | Semesters of Support: |
|---|---|---|
| B.S. | M.S. | 9 |
| B.S. | Ph.D. | 15 |
| M.S. from other institution | Ph.D. | 12 |

Students must show satisfactory progress to be considered for reappointment to GTA and GRA positions. In exceptional cases, support beyond these limits may be obtained by petition to the Graduate Studies Committee.

**Graduate Student Office**
The Department provides each GF, GTA, and GRA with workspace on campus that includes a desk, chair, book and file space, and a mailbox.

## XVIII. Entomology Graduate Student Association (EGSA)
Graduate students are strongly encouraged to participate in the Entomology Graduate Student Association (EGSA), which provides students with an important voice in department decision making. Additionally, participating in EGSA provides students with leadership opportunities as well as other invaluable experiences to enhance their professional development. The President of EGSA attends the faculty meetings. EGSA members appoint student representatives for several committees in the Department of Entomology, including the Graduate Studies Committee, Seminar Committee, Curriculum Committee, and Social Committee. EGSA also appoints a member to serve on the Council of Graduate Students.

## XIX. Additional Benefits for Graduate Students
**Library**
Graduate Associates have the same library privileges as faculty for checking out books, placing books on reserve, etc. This includes not only access to journals to which OSU has a subscription and books that OSU owns, but also any book within any university in the state of Ohio through the Inter-Library program (ILLiad). Using this service, students can access most articles and literature by requesting librarians to scan and upload pdfs to their personal ILLiad account. Therefore, students should never have to pay to access any piece of scientific literature. Please see the OSU library website, https://library.osu.edu/ill, for more details.

**Computer Hardware and Software**
The Department of Entomology is not able to provide laptops to all graduate students, however, some advisors may be able to support computer resources (laptops, second screens, etc.) for their students. Students should speak to their advisor before purchasing a computer to use for your graduate studies. The Office of the Chief Information Officer (OCIO) offers a variety of public domain, bulk purchase, and site-licensed software to the

Ohio State community. The way these programs are distributed varies according to the program, the student's role (GTAs and GRAs are considered employees whereas fellows sometimes are not), and the student's operating system. For a complete list of programs offered by OCIO please visit the OCIO website, https://ocio.osu.edu/software.

**Travel Support**
All travel should be approved by your advisor prior to scheduling a trip. Research travel, travel to meetings, or other travel on official OSU business should be discussed with your advisor, including how the travel will be funded, as the first step in any trip. Graduate students may apply to the Department Chair for funds from the Osborn Fund once per year to help defray expenses to professional society meetings where they are presenting their research. Two allocations of Osborn Fund support will occur annually in the Fall and Spring semesters. Deadlines will be announced by the Department Chair at the beginning of each semester. Students interested in applying for this support should prepare a 1-page document including their name, advisor, conference to be attended, estimated cost of the trip, and the title and abstract for their oral or poster presentation. The amount of funding provided by the Department Chair will vary depending on the conference, number of students who request funds within a given year, and other factors. In addition, pending availability of funding, a student competition is held bi-annually. As part of this competition, we award a Dwight DeLong Travel Award (open to all students), as well as a Root Award (to students working in agricultural or urban entomology). Funds from these awards can support attendance at the annual meeting of the Entomological Society of America or a meeting of their choice. Other specific funding opportunities for travel exist and should be discussed with your advisor and the Department Chair well in advance of the planned travel.

**Department Letterhead**
A Word document with Department Letterhead is available within the Department's graduate student buckeye box for Wooster and Columbus. Letterhead envelopes are also available in the Department Offices for letters that are printed and mailed though the USPS.

## XX. Expectations for Publishing and Funding
Students should work with their advisor to develop manuscripts for publication, grant proposals, and fellowship applications during their degree program.

Valuable fellowship and research grant opportunities students should consider are:
CFAES Graduate Student SEEDs Program, https://www.oardc.ohio-state.edu/seeds/t08_pageview3/Graduate_Students.htm;
National Science Foundation Graduate Research Fellowship Program, https://www.nsfgrfp.org/;
NCSARE Graduate Student Grant Program, https://www.northcentralsare.org/Grants/Our-Grant-Programs/Graduate-Student-Grant-Program;
Sigma Xi Grants-in-aid-of-Research, https://www.sigmaxi.org/programs/grants-in-aid;
NIH F31 Fellowships, https://researchtraining.nih.gov/programs/fellowships/F31;
NIFA National Needs Fellowship;
NIFA Agriculture and Food Research Initiative's (AFRI) Pre-doctoral and Postdoctoral Fellowship Program, https://nifa.usda.gov/resource/fellowships-and-scholarships;

and NIFA's Higher Education Multicultural Scholars Program (MSP).

Additionally, the OSU Graduate School, https://gradsch.osu.edu/funding/fellowships, offers several fellowships to exceptional graduate students, including the Presidential Fellowship to fund students during their final year of research. Please note that students cannot directly apply for these fellowships and must be nominated by members of the Department.

## XXI. Departmental Facilities

### Columbus

On the Columbus Campus our Department resides in Kottman Hall and Howlett Hall, and the Rothenbuhler Bee Lab. We have access to video-linked classroom space, well-equipped laboratories, a large collection of insects and acarines (housed at the Museum of Biological Diversity through the EEOB Department), an insectary, ACL-2 insect rearing space and a BSL-2 lab, greenhouse and growth chambers space, apiary and bee laboratory, and access to space at the Waterman Farm to conduct field experiments. Additionally, several core facilities specializing in genomics (https://cancer.osu.edu/for-cancer-researchers/resources-for-cancer-researchers/shared-resources/genomics), microscopy and cellular imaging (Campus Microscopy and Imaging Facility [CMIF], https://www.cmif.osu.edu/), mass spec and proteomics (https://www.ccic.osu.edu/msp-proteomics), and NMR spectroscopy (https://www.ccic.osu.edu/nmr) are available on the Columbus campus.

### Wooster

Entomology facilities on the Wooster campus include the state-of-the-art Wooster Science Building with video-linked classrooms, growth chambers, and the Insect Molecular Physiology and Ecology Laboratory (IMPEL). Near to the Wooster Science Building, Entomology also has access to greenhouses, field plots, and the OSU Honeybee Laboratory. The Wooster campus is also home to the Molecular and Cellular Imaging Center (MCIC, https://mcic.osu.edu/home), which provides equipment and consultation for bioinformatics, genomics, microscopy, and molecular biology, and the Plant and Animal Agrosecurity Research (PAAR, https://paar.cfaes.ohio-state.edu/home) facility, which is a novel facility for conducting biosafety level 3 (BSL3) research on plants and animals.

## XXII. Appendix

Forms currently used by the Department of Entomology Graduate Program follow this page. These include forms: Ent-1, Ent-2, Ent-5, Ent-6MT, Ent-6MNT, Ent-6P, Ent-7, and Ent-9. These forms are also available from the Department of Entomology website, http://entomology.osu.edu/.