



*Junonia coenia*

# Department of Entomology Graduate Program Handbook



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**DEPARTMENT OF ENTOMOLOGY, THE OHIO STATE UNIVERSITY/  
GRADUATE PROGRAM HANDBOOK**

## **I. Introduction**

This document details policies and procedures of the graduate program in Entomology and supplements the *Graduate School Handbook* (<http://www.gradsch.ohio-state.edu/Depo/PDF/Handbook.pdf>). All policies herein conform to the *Graduate School Handbook* and material therein is not repeated here. It is intended that answers to nearly all questions about our graduate program be found herein, 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. The entry-level degree is the M.S. with a thesis (Plan A) or a non-thesis (Plan B) program available. Plan B is offered in Integrated Pest Management (IPM) and other specialized areas of study designed to meet the student's professional objectives. The Plan B M.S. is not considered to be adequate preparation for a Ph.D. program in Entomology. The Department of Entomology also offers a joint Master in Plant Health with the Department of Plant Pathology.

**FIELDS OF SPECIALIZATION:** Our Graduate Faculty offer training and experience in the following fields of specialization: Acarology, Aquatic Entomology, Apiculture, Biological Control, Chemical Ecology, Economic Entomology, Environmental Toxicology, Insect Behavior, Insect Biochemistry, Insect Ecology, Insect Genetics, Insect Morphology, Insect Pest Management, Insect Physiology, Insect Toxicology, Insect Virology, Insect Vectors, Insect-plant Interactions, Medical and Veterinary Entomology, Molecular Biology, Soil Ecology, Urban Entomology, and Systematic Entomology.

**GRADUATE FACULTY:** Members of the Entomology Graduate Faculty are based on the Columbus main campus of The Ohio State University and the Wooster campus of the Ohio Agricultural Research and Development Center (OARDC). Faculty in other departments may serve as co-advisors, subject to the approval of the Graduate Studies Committee and holding of appropriate status (M or P) as graduate advisors with the Graduate School.

### **Entomology Graduate Faculty**

(M indicates eligibility to advise M.S. students, P indicates eligibility to advise M.S. and Ph.D. students.)

EEOB indicates primary appointment in the department of Evolution, Ecology and Organismal biology.

Richard Bradley (M), Adjunct Associate Professor, Marion Campus. Population biology and habitat preferences of arthropod predators, primarily spiders and scorpions; biogeography of spiders.

Luis Cañas (P), Associate Professor and Graduate Studies Chair, Wooster. Insect ecology in controlled environments; ornamentals and vegetables in greenhouses; population ecology and biological control of pests in controlled environments.

Donald H. Dean (P), Professor, Columbus. Molecular biology of insect pathogens.

David L. Denlinger (P), Professor, Columbus. Insect physiology, regulation of diapause and reproduction.

Susan W. Fisher (P), Professor and Associate Chairperson, Columbus. Toxicology, mode of action of insecticides, environmental fate, toxicokinetics.

Woodbridge A. Foster (P), Professor (EEOB), Columbus. Medical entomology, mosquito behavior.

Mary Gardiner (P), Assistant Professor, Wooster. Landscape ecology.

Richard W. Hall (M), Associate Professor and Associate Dean of the College of Biological Sciences, Columbus. Urban entomology, biological control, insect-plant interactions.

Ronald B. Hammond (P), Professor, Wooster. Biology and control of insects and diseases of soybeans.

Daniel A. Herms (P), Professor and Chairperson, Wooster. Insect-plant interactions; IPM programs for insect pests of trees and shrubs in nurseries, landscapes, urban, and natural forests.

Casey W. Hoy (P), Professor, Wooster. Systems analysis and quantitative ecology; agroecosystems management; integrated management of vegetable insect pests.

Norman F. Johnson (P), Professor (EEOB), Columbus. Systematics, especially of parasitic Hymenoptera, comparative morphology, parasitoid biology.

Reed M. Johnson (P), Assistant Professor, Wooster. Apiculture, pollinator toxicology and genomics.

Susan C. Jones (P), Associate Professor, Columbus. Urban entomology; termite biology and control; bed bug behavior and control strategies.

Hans Klompen (P), Associate Professor (EEOB), Columbus. Systematics of mites; evolution of parasites.

Roman P. Lanno (P), Associate Professor (EEOB), Columbus. Environmental toxicology, ranging from the subcellular distribution of metals to applications of basic toxicological principles in ecological risk assessment.

Bruce McPherson (M), Professor, VP for Agricultural Administration and Dean College of Food, Agricultural, and Environmental Sciences.

Andrew Michel (P), Assistant Professor, Wooster. Molecular population genetics, genetics of adaptation, insect pest evolution using modern and traditional population genetic techniques.

Omprakash Mittapalli (P), Assistant Professor, Wooster. Applications of “omic” tools to insect-plant interactions

Glen R. Needham (P), Associate Professor, Columbus. Physiology of salt and water balance mechanisms in ticks and mites, role of ticks in disease transmission.

P. Larry Phelan (P), Professor, Wooster. Chemical ecology and insect behavior.

Peter Piermarini (P), Assistant Professor, Wooster. Medical and veterinary Entomology. Cellular and molecular mechanisms that mediate the excretory processes of blood-feeding arthropods

F. William Ravlin (M), Professor and Associate Director of OARDC, Wooster. Forest entomology.

David Shetlar (M), Professor, Columbus. Ecology and management of pests of turfgrass and ornamentals.

Celeste Welty (M), Associate Professor, Columbus. Biology and management of pests of vegetable and fruit crops.

## II. Graduate Studies Committee

The Graduate Studies Committee in the Department of Entomology is appointed by the Department Chairperson and consists of Graduate Faculty from both Columbus and Wooster campuses. The Chairperson of the Committee (Graduate Studies Chair) is appointed by the Department Chairperson and typically has served previously on the Committee. A student representative and an alternate are elected by the graduate students in the Department. Members of the Graduate Studies Committee, and its chairperson, serve for three years commencing October 1 and may be reappointed.

The Graduate Studies Committee 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 Graduate Studies Committee and a majority vote by a duly constituted meeting of Graduate Faculty within the Department.

The Graduate Studies Committee 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 performance issues.

**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 Graduate Studies Committee. Student petitions will include a letter of support from the advisor.

## III. Application and Admission Requirements

**APPLICATION PROCEDURE:** Applications are completed online at The Ohio State University Graduate Admissions website: <http://gradadmissions.osu.edu/>.

**APPLICATION DEADLINES:** Applications for admission to graduate school are accepted by the Entomology Department at any time. However, applications should be complete prior to November 15 to be considered for University Fellowships, or prior to March 1 to be considered for appointment as a Graduate Teaching Associate (GTA), although GTA positions may become available throughout the academic year. Most students begin their graduate program at the beginning of autumn semester in August. However, students may also start at the beginning of spring, or summer Semesters.

**ADMISSION REQUIREMENTS:** Minimum academic and application requirements for admission include:

1. A baccalaureate or professional degree from an accredited college or university.
2. A 3.0 or better cumulative grade point average (GPA) (based on the A = 4.0 system) for all previous academic work, including any graduate work.
3. Prerequisite academic work that provides evidence that the applicant can pursue effectively 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 and biochemistry (each semester hour earned equals 1.5 quarter hours).
4. The Graduate Record Examination (GRE), including Verbal, Quantitative, and Analytical Writing.
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*.
8. It is highly encouraged that the potential student selects and be in communication with a potential 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 Department Graduate Studies Committee 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) or a Graduate Research Associate (GRA), unless approved by the Graduate School. A student admitted as a conditional student must fulfill the conditions and be recommended for change from conditional to regular no later than the end of the student's second semester in residence. 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**

Each entering student is encouraged to select an advisor before his or her arrival. The advisor helps the student select a Student Advisory Committee (SAC). The advisor and student inform the Graduate Studies Committee of their mutual acceptance by using Form Ent-5, which is submitted to the Graduate Studies Chair. For the M.S. programs, the SAC is composed of the advisor plus at least two additional faculty members from Ohio State University, while the SAC for the Ph.D. program comprises the advisor plus at least three additional faculty members from Ohio State University. It is expected that the SAC functions throughout the student's career to conduct the proficiency conference, the candidacy examination (for Ph.D. students), and the thesis or dissertation examination. At least one of the committee members in addition to the advisor must be from the Department.

If needed, a temporary advisor will be assigned who will help the student select a temporary SAC. This committee will assist the student in course selection and other matters until a permanent advisor is selected. The permanent advisor should be selected no later than the end of the student's second semester in residence, and must be a member of the Graduate Faculty willing to serve as the student's advisor.

All graduate students are required to meet at least annually with their SAC.

If for any reason (e.g., student dissatisfaction with advisor, or vice versa) a student wishes to change advisors or other members of the advisory committee, this is done by petitioning the Graduate Studies Committee. If a student does not have a permanent advisor after two semesters, the student must petition the Graduate Studies Committee 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.

#### **V. Student Orientation, ENT 8800**

Entomology 8800 (Research and Training Seminar) is offered every Autumn Semester to provide new students with an overview of Department resources and policies, and to assist the new student in choosing a field of specialization within the Department, in the selection of a permanent advisor, and the preparation of the required research proposal. All new graduate students are required to enroll in ENT 8800 during their first Autumn Semester of their program, even if they have already selected an advisor

and even if they initiated their program during a previous semester. This program includes visits to the Rothenbuhler Bee Laboratory, Insectary, and the Ohio Agricultural Research and Development Center at Wooster.

## **VI. Proficiency Conference**

During the student's first semester in residence the student will meet with their SAC for a "proficiency conference", with the advisor acting as chairperson. If a permanent advisor (and SAC) is not selected before the end of the student's first semester in residence, this conference will be conducted by the temporary advisor and committee. The proficiency conference will be in the form of an open discussion, with free exchange of thoughts and ideas between student and faculty. The objective is to ascertain strengths and weaknesses of the student in entomology and other relevant areas of study. Once this objective is satisfied, the advisory committee and the student will plan a course of study, using Department Form Ent-6 (Ent-6MA, Ent-6MB, or Ent-6P for candidates for Masters' Plan A, Master's Plan B, or Ph.D., respectively). One copy of this form will be retained by the student, one by the advisor, and one will be submitted to the Graduate Studies Chair.

Students entering the program with a Master's degree from another institution to work toward the Ph.D. degree should confer with their advisor and SAC in a proficiency conference to determine how much of their Master's study will be counted toward the Ph.D. at OSU. The request for transfer credit is made through the Department Graduate Studies Committee, after the student has been here at least one semester.

The receipt of Form Ent-6 by the Graduate Studies Chair indicates that the proficiency conference has been conducted. The Graduate Studies Committee reviews Form Ent-6 to ensure that the proposed course of study is consistent with Departmental requirements and guidelines. If the Graduate Studies Committee judges that the proposed course of study would leave serious gaps in a student's graduate training, the student and advisor will be notified in writing of the specific deficiencies. The student and advisory committee must then revise Form Ent-6 to address the deficiencies and submit the revised Form Ent-6 to the Graduate Studies Committee for approval. The Graduate Studies Committee must have approved Form Ent-6P before Ph.D. students can proceed with the Candidacy Exam.

If the temporary advisor and committee conduct the proficiency conference, the Graduate Studies Committee will give the proposed course of study to the permanent advisor. The permanent advisor and committee will review the recommendations of the temporary committee and advisor, amend the plan of study if necessary, and submit the amended course of study to the Graduate Studies Committee for approval.

## **VII. Continuing from the M.S. to the Ph.D. Degree**

### **CONTINUING TO PH.D. AFTER GRADUATING FROM M.S.**

Students who receive their Master's degree at Entomology at Ohio State and wish to continue for the Ph.D. must be recommended to do so by the Master's Examining Committee, which is recorded on Form Ent-1 and submitted to the Graduate Studies Chair. In addition, the request to continue to the Ph.D. program requires a petition to the Graduate Studies Committee consisting of a statement of purpose from the student and a letter of support from the proposed Ph.D. advisor.

The Graduate Studies Committee 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 Graduate Studies Committee.



### BYPASSING THE M.S. TO OBTAIN PH.D.

In the department of Entomology, it is possible to bypass the M.S. program to pursue a Ph.D. degree. Students wanting to pursue this option should discuss it as early as possible with their main adviser and their SAC. To bypass the M.S., students must petition the Graduate Studies Committee in writing. The petition should be accompanied by form ENT 2 and a letter of support from the student adviser. 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 should have published a recent research paper and presented such work at a departmental seminar. In addition, students must have majority SAC support, shown on form ENT 2. The Graduate Studies Committee will evaluate the petition on a case by case basis and will inform students about its decision. Students whose petition is not accepted will have the option to submit a bypass request at a later time or to finish the M.S. before entering the Ph.D. program.

Students permitted to bypass the M.S. that have successfully completed the Ph.D. Candidacy Examination and whose candidacy has not expired may be approved by the Graduate Studies Committee to receive the M.S. plan A degree if they need to leave the program. 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. In the letter, the advisor must show that he/she consulted with the student's SAC and that there is majority support for the petition. If the petition is not accepted, students may request in writing that a M.S. plan B is awarded instead. A letter of support from the advisor is needed and majority support from the SAC.

Students that do not successfully complete the Ph.D. Candidacy Examination and need to leave the program may petition in writing to receive a M.S. plan B. 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. In the letter, the advisor must show that he/she consulted with the student's SAC and that there is majority support for the petition.

### ENTERING PH.D. STRAIGHT FROM BACHELOR

Under special circumstances, students with Bachelor's degrees can be admitted directly to the Ph.D. program; the Graduate Studies Committee will evaluate these requests on a case by case. It is expected that students entering the Ph.D. program straight from the Bachelor have achieved high levels of scholarship that would allow them to function as Ph.D. students. High levels of scholarship means they have published as main authors in peer reviewed journals. Also they have presented their work at national or international meetings and have acquired enough experience to become successful Ph.D. students.

Students permitted to enter directly into the Ph.D. program that have completed the Ph.D. Candidacy Examination may be approved by the Graduate Studies Committee to receive the M.S. plan A degree if they need to leave the program. 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. In the letter, the advisor must show that he/she consulted with the student's SAC and that there is majority support for the petition. If the petition is not accepted, students may request in writing that a M.S. plan B is awarded instead.

Students that do not successfully complete the Ph.D. Candidacy Examination and need to leave the program may petition in writing to receive a M.S. plan B. 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. In the letter, the advisor must show that he/she consulted with the student's SAC and that there is majority support for the petition.

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

Students report their progress annually to their SAC and the Graduate Studies Committee using Form Ent-7. The form includes a brief self-evaluation (two paragraphs maximum) 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 January 31, when they are submitted to the Graduate Studies Chair. The Graduate Studies Committee reviews the Form Ent-7 and the results of the review are communicated in writing by the Graduate Studies Chair 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 Graduate Studies Committee to make decisions regarding appointments and support.

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

**COURSE LOADS:** Department policies conform to those set forth in the *Graduate School Handbook*. Graduate Teaching (GTs) and Research Associates (GAs) holding a 50% or greater appointment must register in the Graduate School for at least eight (8) credit hours each semester, except during the summer semester, when the minimum is four (4). GAs 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 credit hours (3) each semester that a 50% or greater appointment is held, including summer semester. The Entomology Department recommends that students register for up to 16 credit hours each semester before taking their candidacy examination.

**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 Graduate Studies Committee will consider petitions to waive them 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 Graduate Studies Committee, including a letter of support from the advisor.

**GRADUATE STUDENT RECORDS:** The Department maintains a permanent record for each student both in physical and electronic form. This record contains the student's application materials, record of courses taken and grades earned, 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 under lock, and are normally available only to the Graduate Studies Committee members, the Department Chairperson and Associate Chairperson, and a student's advisor (or potential advisor). Electronic records are maintained in a secure site. A student may request to view these materials from the Department Chairperson or Chairperson of the Graduate Studies Committee who will remove, in advance, confidential material (e.g., letters of recommendation with signed waiver).

### X. 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:

A = 4.0	C+ = 2.3	The grade of D- is not given, and the point value of E is zero.
A- = 3.7	C = 2.0	
B+ = 3.3	C- = 1.7	
B = 3.0	D+ = 1.3	
B- = 2.7	D = 1.0	

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 Graduate Studies Committee accepts the Cumulative Point Hour Ratio (CPHR) from other institutions as that calculated by OSU Admissions.

Entomology 6193, 8000, 8800, 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 audit a required course unless they have already achieved a passing grade in the same or a comparable course at OSU or another institution.*

## **XI. Academic Standards**

A graduate student must maintain a 3.0 or better Cumulative Point Hour Ratio (CPHR) in all work included in the course of study outlined for the degree, with no more than one-third of the credit hours with a grade of C or lower. A student whose CPHR falls below 3.0 after 15 credit hours have been attempted is placed on probation by the Dean of the Graduate School.

A student who is on probation and who does not raise the graduate CPHR to 3.0 or better at the end of the next term of enrollment in the Graduate School may be dismissed from the University at the discretion of the Graduate School following consultation with Graduate Studies Chair. Coursework used in raising the CPHR must be part of normal degree requirements and approved by the Graduate Studies Committee.

At the end of three (3) consecutive terms on probation, the student is automatically dismissed from the University unless good standing is achieved. If there are extenuating circumstances, the Graduate Studies Committee may petition the Graduate School for an exception to this policy.

A student on probation is not considered for appointment (or reappointment) as a Graduate Teaching or Research Associate.

## **XII. Grievance Procedures**

Concerns and all points of grievance should be resolved through discussion with the major advisor, the SAC, the Graduate Studies Chair, and Department Chair, in this order of priority. When resolution of a problem is not possible through this normal pathway, further recourse may be obtained using grievance procedures established by the Graduate Council. Copies of the procedures are available from the Graduate School.

### **XIII. Master's Degree Programs**

The Department offers the M.S. degree under Plan A, which requires a thesis, and a non-thesis Plan B.

#### **Master's Degree Plan A**

REQUIREMENTS: The requirements for the Master's Degree Plan A are as follows:

- 1) Completion of at least 30 hours of graduate credit (including ENT 8999) at this university; 19 credits must be from entomology courses
- 2) Course requirements include:

**All three** courses from the Entomology Fundamental group:

ENTMLGY 6310, Insect Physiology and Molecular Biology  
 ENTMLGY 6410, Insect Ecology and Evolutionary Processes  
 ENTMLGY 5130, Field Insect Taxonomy

**At least two** courses from the Hands-on Research Methods in Entomology group:

ENTMLGY 6701, Biodiversity Analysis for Ecosystem Sustainability and Resilience  
 ENTMLGY 6702, Entomological Techniques and Data Analysis  
 ENTMLGY 6703, Molecular Techniques and Data Analysis  
 ENTMLGY 6704, System Analysis from Molecules to Ecosystems

**At least two** 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  
 ENTMLGY 7940, Interdisciplinary Research, Leadership and Team Work

ENTMLGY 8800, Research and Training Seminar (during first Autumn Semester of enrollment)

ENTMLGY 8000, Entomology Seminar course, at least one credit.

ENTMLGY 8999, Research hours as needed to complete degree requirements or maintain active status.

Any other courses required by the SAC and included in the study plan; there are a number of elective courses that can be taken for credit and they include:

ENTMLGY 5110, Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments.

ENTMLGY 5120, Aquatic Insect Biology and Ecology.

ENTMLGY 5420, Insect Behavior.

ENTMLGY 5500, Biological Control of Arthropod Pests.

ENTMLGY 5600, Principles and Applications of Integrated Pest Management.

ENTMLGY 5605, Human Health Entomology.

ENTMLGY 5623, Insect Morphology.

ENTMLGY 5800, Pesticide Science.

ENTMLGY 6193, Individual Studies.

ENTMLGY 6194, Group Studies.

ENTMLGY 7890, Special Topics.

- 3) Achievement of a CPHR 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) A research proposal that outlines the student's research objectives and study plan which must be completed during the first year of enrollment, with copies provided to the student's SAC and the Graduate Studies Chair;
- 5) A proposal seminar (10-15 minutes) on the subject of the student's research, which must be presented to the department during the first year;
- 6) Completion of an approved thesis;
- 7) Presentation of a final seminar on the topic of the student's M.S. research. The seminar must be presented during the semester in which the student expects to graduate, and before the Final Examination. If possible, it should be presented immediately before the Final Examination but this is not required. We recommend that the student advertises the date of the final seminar at least two weeks in advance.
- 8) Successful completion of a comprehensive oral Final Examination.

All requirements for the M.S. shall normally be 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 four (4) years must petition the Graduate Studies Committee.

A student expecting to finish the M.S. in a given semester must file an "Application to Graduate" form with the Graduate School no later than the second Friday of the semester in which they plan to graduate. The application is valid for that semester only. The student must submit to his/her advisor and SAC the completed draft of the thesis two weeks before the final examination; and a finish thesis must be submitted by the published deadline; the deadline for submitting the Thesis Approval form to the Graduate School is approximately one week before commencement (the exact date is announced each semester by the Graduate School). Instructions concerning formatting and submission of the thesis or dissertation are available from the Graduate School.

Any special costs involved in the completion of a thesis or dissertation (typing, photographic work, and the like) are normally paid by the student, but in some cases funds may be available to pay a part or all of these costs. The advisor should be consulted on this matter.

A final examination for M.S. candidates is conducted by the student's advisory committee (SAC) with the advisor acting as chairperson. It is the responsibility of the student to contact the committee members, check their schedules, and set the time and place of the examination. M.S. Plan A examinations in the Entomology Department are oral. This examination is concerned primarily with the student's research, 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 the responsibility of the advisor to certify the results of the examination to the Graduate School and to the Graduate Studies Committee. The report going to the Graduate Studies Committee will include an assessment by the examining committee of the student's potential as a doctoral candidate (see Form Ent-1).

**APPROVAL OF CHECKLIST FOR GRADUATION (Form Ent-9):** Upon completion of all degree requirements, the student must submit Form Ent-9, Checklist for Graduation, along with the Graduate School's Application to Graduate Form to the Graduate Studies Chair for approval.

**Master's Degree Plan B**

REQUIREMENTS: The requirements for the Master's Degree Plan B are as follows:

1) Completion of at least 30 hours of graduate credit of which 28 must be in Entomology with:

**All three** courses from the Entomology Fundamental group:

ENTMLGY 6310, Insect Physiology and Molecular Biology  
 ENTMLGY 6410, Insect Ecology and Evolutionary Processes  
 ENTMLGY 5130, Field Insect Taxonomy

**At least two** courses from the Hands-on Research Methods in Entomology group:

ENTMLGY 6701, Biodiversity Analysis for Ecosystem Sustainability and Resilience  
 ENTMLGY 6702, Entomological Techniques and Data Analysis  
 ENTMLGY 6703, Molecular Techniques and Data Analysis  
 ENTMLGY 6704, System Analysis from Molecules to Ecosystems

**At least two** 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  
 ENTMLGY 7940, Interdisciplinary Research, Leadership and Team Work

**At least three** courses from the following elective courses:

ENTMLGY 5110, Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments.

ENTMLGY 5120, Aquatic Insect Biology and Ecology.

ENTMLGY 5420, Insect Behavior.

ENTMLGY 5500, Biological Control of Arthropod Pests.

ENTMLGY 5600, Principles and Applications of Integrated Pest Management.

ENTMLGY 5605, Human Health Entomology.

ENTMLGY 5623, Insect Morphology.

ENTMLGY 5800, Pesticide Science.

ENTMLGY 8800, Research and Training Seminar (during first Autumn Semester of enrollment)

ENTMLGY 8000, Entomology Seminar course, at least one credit.

ENTMLGY 6193, Individual Studies course in which he or she will submit a comprehensive literature review of an entomological subject (minimum 1 credit)

Any other courses required by the SAC and included in the study plan; in addition to the above requirements, students in the M.S. Plan B 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.

2) Achievement of a CPHR of at least 3.0 in all courses taken for graduate credit;

3) Successful completion of a comprehensive Master's exam in which the 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) their area of professional interest.

Following is an example of a program tailored to a particular professional interest in integrated pest management (IPM). Students working toward the Plan B M.S. in IPM 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); d) pesticides (classification, modes of action, application, regulation, etc.).

An advisory committee (SAC), consisting of the advisor and specialists in the student's area of professional interest selected by the advisor and student together, will be convened for each student in the Plan B Master's program. The committee will rigorously examine incoming students to assess their mastery of material from introductory courses required for admission. To this end, the SAC, at its option, may require a written diagnostic exam in addition to the Proficiency Conference. The results of this meeting will be summarized by completing form Ent 6MB. If a temporary advisor was assigned, the permanent advisory committee will review the Ent 6MB document and revise the plan of study if necessary. A student wishing to change advisors or members of the SAC must petition the Graduate Studies Committee to do so.

A Master's examination 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. 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. The report of the committee must be unanimous to be considered satisfactory. The Plan B Master's degree from the Department of Entomology is not considered adequate preparation for the Ph.D. in this Department.

**APPROVAL OF CHECKLIST FOR GRADUATION (Form Ent-9):** Upon completion of all degree requirements, the student must submit Form Ent-9, Checklist for Graduation, along with the Application to Graduate Form from the Graduate School to the Graduate Studies Chair for approval.

#### XIV. Doctoral Degree Programs

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

- 1) Teaching: For all students a minimum of one semester of Teaching Associate experience, or equivalent, in Entomology or Introductory Biology. Teaching experience gained during work on the M.S. degree will count toward this requirement. If the student has previous teaching experience at another college or university, the teaching requirement may be waived through petition to the Graduate Studies Committee;
- 2) Completion of at least 80 hours of graduate credit (including ENT 8999) at this university; 23 credits coming from Entomology courses, and 57 coming from elective and Entomology research credits.

Required Courses:

**All three** courses from the Entomology Fundamental group:

ENTMLGY 6310, Insect Physiology and Molecular Biology  
 ENTMLGY 6410, Insect Ecology and Evolutionary Processes  
 ENTMLGY 5130, Field Insect Taxonomy

**All four** courses from the Hands-on Research Methods in Entomology group:

ENTMLGY 6701, Biodiversity Analysis for Ecosystem Sustainability and Resilience  
 ENTMLGY 6702, Entomological Techniques and Data Analysis  
 ENTMLGY 6703, Molecular Techniques and Data Analysis  
 ENTMLGY 6704, System Analysis from Molecules to Ecosystems

**At least two** 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  
 ENTMLGY 7940, Interdisciplinary Research, Leadership and Team Work

ENTMLGY 8800, Research and Training Seminar (during first Autumn Semester of enrollment)

ENTMLGY 8000, Entomology Seminar course, at least one credit.

ENTMLGY 8999, Research hours as needed to complete degree requirements or maintain active status.

Any other courses required by the SAC and included in the study plan; there are a number of elective courses that can be taken for credit and they include:

ENTMLGY 5110, Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments.

ENTMLGY 5120, Aquatic Insect Biology and Ecology.

ENTMLGY 5420, Insect Behavior.

ENTMLGY 5500, Biological Control of Arthropod Pests.

ENTMLGY 5600, Principles and Applications of Integrated Pest Management.

ENTMLGY 5605, Human Health Entomology.

ENTMLGY 5623, Insect Morphology.

ENTMLGY 5800, Pesticide Science.

ENTMLGY 6193, Individual Studies.



ENTMLGY 6194, Group Studies.

ENTMLGY 7890, Special Topics.

- 3) Achievement of a CPHR of at least 3.0 in all courses taken for graduate credit;
- 4) A research proposal that outlines the student's research objectives and study plan must be completed during the first year of enrollment, with a copy provided to the student's advisory committee and to the chair of the Graduate Studies Committee.
- 5) A proposal seminar (10-15 minutes) on the subject of the student's research, which must be presented to the department during the first year.
- 6) A progress seminar (10-15 minutes) midway through the Ph.D. program, in which the student reports initial research results and plans for further study to the department. Presentations on their Ph.D. research made during the DeLong Competition and/or national ESA meeting may count towards fulfillment of this requirement with approval of the SAC.
- 7) A final seminar on the topic of the student's Ph.D. research. The seminar must be presented to the department during the semester in which the student expects to graduate, and before the Final Examination. If possible, it should be presented immediately before the Final Examination but this is not required. We recommend that the student advertises the date of the final seminar at least two weeks in advance.

**RESIDENCY REQUIREMENT:** Work completed at OARDC Wooster and at the Franz Theodore Stone Laboratory is considered on-campus for purposes of satisfying residence requirements (for more information see the *Graduate School Handbook*).

**THE CANDIDACY EXAMINATION:** The committee conducting this examination consists of the student's advisory committee (SAC), with the advisor acting as chairperson. It is the responsibility of the student to contact the committee members, check their schedules, and set the time and place of the examination. It is also the responsibility of the student to notify the Graduate School (through the Department Graduate Studies Committee and use of "Doctoral Notification of General Examination") of the examining committee members, and the time and place of the examination.

The candidacy examination is both written and oral. The written part usually begins about three weeks before the oral and must be completed at least one week before the oral examination so that members of the Examination Committee can review the student's performance. The scope of the examination is entirely at the discretion of the Examination Committee, but generally includes all areas of entomology as well as ancillary disciplines. The result of the Candidacy Examination is to be reported to the Graduate School on the appropriate form (Notification of Doctoral Candidacy Examination, <http://www.gradsch.ohio-state.edu/forms-library.html>). For the student to successfully complete the Candidacy Examination, the decision of the Candidacy Examination Committee must be unanimously affirmative.

**DISSERTATION APPROVAL:** The advisory committee approves (on the Graduate School form Doctoral Draft Approval/Notification of Final Oral Examination) both the preliminary draft and the final version of the dissertation. The preliminary draft must be presented at the Graduate School no later than two weeks before the date of the final oral examination; deadlines for this are set each semester by the Graduate School.

**FINAL EXAMINATION:** The Final Examination is conducted by the SAC with a Graduate School Representative. The exam should immediately follow a public seminar on the dissertation research, although the only requirement is that the seminar be presented in the same semester and before the Final Examination. The examination should be advertised at least two weeks in advance. This is an oral

examination, and deals chiefly with the student's defense of the dissertation. The student is responsible for arranging the examination, ensuring that all necessary forms are filled out, and deadlines are met, deadlines for this are set each semester by the Graduate School.

The Department of Entomology's criterion for passing the final examination is identical to that of the Graduate School; a student will pass when there is a unanimous affirmative decision. The results of the examination are reported to the Graduate Studies Committee and the Graduate School on the appropriate form, "Doctoral Draft Approval/Notification of Final Oral Examination."

Any member of the Graduate Faculty may attend the Final Examination, by mutual consent of the candidate and the chairperson of the Examining Committee. Other visitors may attend if approved in advance by the Examination Committee and the candidate. Visitors may question the candidate. The chairperson is responsible for limiting visitors' questioning, if necessary, so that the Examining Committee may thoroughly evaluate the candidate's performance. At the conclusion of questioning, visitors must be excused; they may not participate in either discussion or voting on the Candidate's performance.

CHECKLIST FOR GRADUATION (Form Ent-9): Upon completion of all degree requirements, the student must submit Form Ent-9, Checklist for Graduation, along with the Application to Graduate Form from the Graduate School to the Graduate Studies Chair for approval.

## **XV. Special Programs**

Most graduate students in Entomology pursue studies leading to the M.S. or Ph.D. alone. It is possible, however, to undertake a combined degree (such as B.S.-M.S. or M.B.A.-Ph.D.). Details of such programs may be determined on a case-by-case basis in consultation with the advisor and SAC. The Graduate Studies Committee must approve a written proposal. Combined degree programs must fulfill all usual Entomology Department requirements for the M.S. or Ph.D. degree sought within the Department.

## **XVI. Graduate Teaching Associates (GTA) and Graduate Research Associates (GRA)**

GRADUATE TEACHING ASSOCIATES: The Graduate Studies Committee reviews each application for a new appointment or a reappointment as a Graduate Teaching Associate (GTA) during the Spring Semester, with recommendation made to the Department Chairperson. Evaluations are based on the following: overall CPHR; CPHR and number of credit hours in biology, chemistry, and mathematics; GRE scores; and letters of recommendation. Students are notified of their appointments and are asked to respond promptly. The Department will assume that students who do not respond are not accepting the appointment. Appointments are normally made for two terms: autumn, and spring. Summer Semester appointments are made for a single semester. Appointments may be made for fewer semesters if a vacancy occurs during the regular school year. If an appointment is declined, replacements are selected from the ranked list. Applicants not offered an appointment in the spring selection are informed of their position in the current ranked list. Normally, only regular graduate students (not conditional, special, probationary, or those on restricted status) are eligible for appointment as a GTA. Exceptions to this policy require that the Dean of the Graduate School approve a petition from the Graduate Studies Committee. GTA appointments must conform to all requirements set forth by the Graduate School.

GTAs are assigned to work in the Introductory Biology Program of the Center for Life Science Education (CLSE) or in the Department of Entomology; first year GTAs are normally assigned to the Introductory Biology Program. The duties of GTAs are determined by the supervisor to whom the student is assigned. GTAs (50% FTE) are expected to work 20 hours per week, and are expected to be available several days prior to the beginning of classes, in order to make preparations as assigned by the instructor. They have legal holidays off, and time-off between semesters. GTAs do not accrue vacation or sick leave. GTAs are

not required to work on legal holidays but if they need to work during holidays they will be given an alternate day off.

**GRADUATE RESEARCH ASSOCIATES:** Students appointed as Graduate Research Associates (GRAs) and paid from research grants are selected by the faculty member in charge of that particular research program. Only regular graduate students (not conditional, special, probationary, or those on restricted status) are eligible for appointment as a GRA. Exceptions to this policy require that the Dean of the Graduate School approve a petition from the Graduate Studies Committee. GRAs supported by extramural funds are recommended for appointment by the project leader, and are bound by the University guidelines regarding appointment, reappointment, and termination.

GRAs (50% FTE) are expected to work 20 hours per week on duties assigned by their supervisor that may or may not include thesis/dissertation research. They are given legal holidays off, but are expected to continue their duties during the periods between semesters. Those on 12-month appointments are eligible for two (2) weeks paid vacation, which can be taken after making arrangements with their supervisor and faculty advisor. Those GRAs located at Wooster are usually on annual appointments where they work full-time half the year and the remaining half year is for classes until formal coursework is completed. GRAs supported on Departmental funds are expected to engage in Departmental outreach activities. Examples of recent outreach activities include the Bug Zoo, BugsWorld, Insect Fair, Insect Night Walk, Insect Fear Film Festival, OARDC fair, and seminar activities.

**STIPENDS FOR GRADUATE ASSOCIATES:** Minimum stipends for Graduate Associates are, in general, determined by University policy and the availability of funds. All GTAs employed by the Department of Entomology shall receive identical stipends, the amount of which is comparable to that offered by other Entomology Departments. The amounts of stipends for GRAs shall use the Teaching Associate as a guideline but the Principal Investigator or Supervisor shall have some flexibility in determining the exact amount.

Salary 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. Information on Fellowships is sent to all students applying for admission to the Graduate program. Even if a student isn't employed by the Department or a research project during a summer semester, tuition and fees will be paid if that student served as a GTA or GRA (50% FTE) the previous two semesters.

**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 6193 or ENT 8999.

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

<u>Enter Graduate Program with:</u>	<u>Candidate for</u>	<u>Semesters of Support from College and/or Grant Funds</u>
B.S.	M.S.	9 semesters
B.S., with M.S. from OSU	Ph.D.	15 semesters
M.S., from another institution	Ph.D.	12 semesters

Students must show satisfactory progress in order 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.

**ENGLISH AS A SECOND LANGUAGE:** Students whose native language is not English are cautioned that it is usually not possible for them to secure financial assistance in the form of a GTA during their first year of residence. The Department normally does not employ them as GTAs until they have demonstrated, during their first year here, an ease of communication in spoken and written English, as well as continued academic excellence. The English as a Second Language Program must verify capabilities in English. Applications for GTAs after their first year will be in competition with other eligible applicants.

GRAs may occasionally be available to international students for whom English is a second language. The employment arrangements are made between the student and individual faculty member in charge of externally funded research projects.

**OFFICE FACILITIES:** The Department provides each Graduate Associate with space that includes a desk, chair, bookcase, file space, a telephone nearby, and a mailbox. Long-distance telephone calls must be cleared with the advisor in advance.

## **XVII. Graduate Student Representative Positions**

Most committees in the Department of Entomology include one graduate student representative. These representatives are elected by the graduate students in the Department, early in the fall semester, to serve for one year. These positions are as follows:

- a. Graduate representative in Department faculty meetings.
- b. Graduate representative on the Department Graduate Studies Committee.
- c. Graduate representative on the Department Seminar Committee.
- d. Graduate representative on the Department Curriculum Committee.
- e. Graduate representative on the Department Social Committee.
- f. Graduate representative on the Council of Graduate Students.

## **XVIII. Additional Benefits for Graduate Students**

**PUBLICATION SUPPORT:** Publication of research conducted by graduate students may receive Departmental support for publication, provided that the Department's name and address appear in the byline. To be eligible for such support, the paper must be accepted for publication within two years after the student has passed the final examination (defense of thesis or dissertation). The amount of such support should be discussed with the advisor and will depend on the availability of funds.

**LIBRARY PRIVILEGES:** Graduate Associates have the same library privileges as faculty for checking out books, placing books on reserve, etc.

**TRAVEL SUPPORT:** Graduate students may apply to the Department chairperson for funds from the Osborn Fund to help defray expenses to professional society meetings. In addition, a student competition is held bi-annually and the winner of each is awarded the Dwight DeLong Travel Award to attend the annual meeting of the Entomological Society of America or a meeting of their choice.

**DEPARTMENTAL LETTERHEAD:** Letterhead stationery may be used for official business regarding research, GTA or GRA duties, and Departmental committee assignments. The Department will pay postage with prior approval of the student's advisor. Letterhead also may be used for correspondence involving future employment, other graduate programs, and professional societies. However, since this is not Departmental business, the student must pay postage.

**THESIS AND DISSERTATION REPRODUCTION:** The Department provides the student with two photocopies of the final thesis or dissertation. Approval from the advisor must be obtained in advance.

## **XIX. Expectations for all Degree Programs (Advice from Faculty and Experienced Graduate Students)**

A graduate program differs substantially from the undergraduate experience in the degree of independent thought and responsibility required of the student. Students and advisors alike have found the following expectations to be very helpful in a successful graduate program.

New students should conduct an extensive literature review in their first semester of residence. Graduate research credit can be assigned for this activity at the discretion of the advisor. The review should thoroughly cover the important 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 hopes to fill with their original research. This literature review can easily form the introduction to the thesis or dissertation, providing an immediate start on this important document.

The core course requirements are just that, requirements. Plan to take them unless you can demonstrate mastery of a subject from previous coursework.

Seminars are a critical component of graduate education. Therefore, the expectation is that graduate students will attend departmental and student seminars.

Students are required to arrange a meeting with their entire SAC at least once per year. During the meeting, the student should review and evaluate their progress and receive feedback from the entire committee on the student's plans for completion of degree requirements.

Successful competition for careers that require advanced degrees in entomology requires evidence of productivity, usually in the form of peer-reviewed scientific publications. The expectation is that students should publish their research and plan accordingly. We encourage students to prepare their dissertation or thesis in such a way that the chapters are very similar to the manuscripts that will be submitted.

Another measure of productivity sought in graduates is evidence of ability to secure research grants. Research funding opportunities for graduate students do exist and all students are encouraged to seek them.

Finally, all faculty and students are here to help. Seek advice and you'll find that it is freely given and helpful most of the time. Furthermore, seeking advice from many different sources, faculty and other students alike, can ensure that a student navigates his or her graduate program without avoidable problems and with maximum benefit. Another good way to enrich your graduate program is to become involved in a formal or informal journal club or science discussion group. Ask around and if you can find some colleagues with similar interests, get together and discuss the literature and each other's research. It can take some effort to make this happen, but it will be well worth it.

## **XX. Departmental Facilities**

The Columbus campus includes classrooms, well-equipped laboratories, a large collection of insects and acarines (housed at the Museum of Biological Diversity through the EEOB Department), an insectary, an apiary and bee laboratory, and several field plots. There is an excellent library system at The Ohio State University, as well as all research support facilities found at major research institutions.

OARDC: Facilities at the Ohio Agricultural Research and Development Center (OARDC) in Wooster include well-equipped laboratories, computing facilities, a comprehensive library, outstanding molecular imaging and sequencing facilities, classrooms, rearing facilities, glasshouses and growth chambers, and extensive field plots. Additional field plots are available at ten other OARDC branch campuses located throughout Ohio. Excellent opportunities exist for interaction with related agricultural research programs. Subsidized housing for single and married graduate students is available on the Wooster campus on a first-come, first-served basis.

STONE LAB: The Franz Theodore Stone Laboratory is the Lake Erie teaching and research laboratory of the Ohio Sea Grant College Program. Located on Gibraltar Island in Put-in-Bay Harbor on Lake Erie, Stone Laboratory is the nation's oldest freshwater biological field station. Stone Lab operates as a summer biological field station from April to the end of October and offers unusual opportunities in aquatic and field biology.

## **XXI. Appendix**

Forms currently used by the Entomology Department Graduate Program follow this page, including Forms Ent-1, Ent-2, Ent-5, Ent-6MA, Ent-6MB, Ent-6P, Ent-7, and Ent-9. These forms are also available from the Department of Entomology Web Site, <http://entomology.osu.edu/>.

## Certification of Final Examination for the M.S. Degree and Recommendation Regarding Entry to the Ph.D. Program in Entomology

Candidate's Name: \_\_\_\_\_ Date: \_\_\_\_\_

Advisor: \_\_\_\_\_ Plan A: \_\_\_\_\_ Plan B: \_\_\_\_\_

Thesis Title: \_\_\_\_\_

**Examination Results:**

Oral Examination		Written Examination (Plan B)		Signatures of Exam Committee
Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	

**Recommendation regarding admission to the Ph.D. Program in Entomology:**

Members of the Examination Committee are requested to indicate whether or not they recommend that the above named student continue enrollment in the Graduate Program in Entomology. This information will be used by the Graduate Studies Committee in its decision on whether or not to permit the student to continue.

**We recommend admission to the Ph.D. Program:**

Comments on the student's strengths and weaknesses	Committee Member's Initials:

**We recommend that the student not continue to the Ph.D. Program:**

Rationale for suggested denial of permission to continue:	Committee Member's Initials:

If necessary, comments may continue on the back of this form or in an attached letter. This form is to be completed at the conclusion of the oral examination and submitted to the Graduate Studies Chair.

## Recommendation to bypass the M.S. Degree and for Entry to the Ph.D. Program in Entomology

Candidate's Name: \_\_\_\_\_ Date: \_\_\_\_\_

Advisor: \_\_\_\_\_ Date program started: \_\_\_\_\_

Publication Title: \_\_\_\_\_

**Evaluation:**

Paper		Paper Presentation		Signatures of SAC
Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	

**Recommendation regarding admission to the Ph.D. Program in Entomology:**

Members of the SAC are requested to indicate whether or not they recommend that the above named student bypasses the M.S. degree and continues towards the Ph.D. in Entomology. This information will be used by the Graduate Studies Committee in its decision on whether or not to permit the student to continue to the Ph. D. program.

**We recommend admission to the Ph.D. Program:**

Comments on the student's strengths and weaknesses	Committee Member's Initials:

**We recommend that the student not continue to the Ph.D. Program:**

Rationale for suggested denial of permission to continue:	Committee Member's Initials:

If necessary, comments may continue on the back of this form or in an attached letter. This form is to be completed at the conclusion of the oral examination and submitted to the Graduate Studies Chair.



### Designation of Graduate Student Advisory Committee

We agree to the formation of a Student Advisory Committee (SAC) to assist the following student:

\_\_\_\_\_ in pursuance of the \_\_\_\_\_ degree, in accordance with the following policies set forth in the Department of Entomology Graduate Program Handbook:

The Student Advisory Committee (SAC) is composed of the advisor plus at least two (M.S. program) or three (Ph.D. program) additional OSU Graduate Faculty members. At least one of the committee members in addition to the advisor must be from the Department. If for any reason a student wishes to change advisors or other members of the SAC, this is done by petitioning the Graduate Studies Committee. The SAC is expected to function throughout the student's career, to conduct the proficiency conference, the candidacy examination (for Ph.D. students), and the thesis or dissertation examination.

Committee membership (please print and sign):

\_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_  
(student)

Signed \_\_\_\_\_ Date \_\_\_\_\_  
(advisor)

Signed \_\_\_\_\_ Date \_\_\_\_\_  
(co-advisor, if applicable )

Signed \_\_\_\_\_ Date \_\_\_\_\_

Signed \_\_\_\_\_ Dept \_\_\_\_\_ Date \_\_\_\_\_

Signed \_\_\_\_\_ Dept \_\_\_\_\_ Date \_\_\_\_\_

Signed \_\_\_\_\_ Dept \_\_\_\_\_ Date \_\_\_\_\_

Signed Graduate Studies Chair: \_\_\_\_\_ Date \_\_\_\_\_

### Plan of Study, Master's Plan A

Name \_\_\_\_\_ Date \_\_\_\_\_

Advisor/Temporary Advisor \_\_\_\_\_ Expected Date of Degree \_\_\_\_\_

**A. Required Courses for Graduate Credit (Must be  $\geq$  19 Entomology course credits; Minimum total credits to graduate  $\geq$  30; 80% classes taken at OSU):**

			<u>Credit Hours</u>	<u>Sem/Yr. To be taken</u>	<u>Sem/Yr. completed</u>	<u>Grade</u>
<b>All three</b> must be taken:						
Insect Physiology and Molecular Biology	ENT	6310	3	_____	_____	_____
Insect Ecology and Evolutionary Processes	ENT	6410	3	_____	_____	_____
Field Insect Taxonomy	ENT	5130	3	_____	_____	_____
<b>Two of the following</b> four must be taken:						
Biodiversity Analysis for Ecosystem Sustainability & Resilience	ENT	6701	2	_____	_____	_____
Entomological Techniques and Data Analysis	ENT	6702	2	_____	_____	_____
Molecular Techniques and Data Analysis	ENT	6703	2	_____	_____	_____
Systems Analysis from Molecules to Ecosystems	ENT	6704	2	_____	_____	_____
<b>Two of the following</b> four must be taken:						
The Nature and Practice of Science	ENT	7910	2	_____	_____	_____
Presentation Skills for Scientists	ENT	7920	2	_____	_____	_____
Scientific Writing and Grant Proposal Development	ENT	7930	2	_____	_____	_____
Interdisciplinary Research, Leadership and Team Work	ENT	7940	2	_____	_____	_____
and Research and Training Seminar	ENT	8800	1	_____	_____	_____
and Seminar	ENT	8000	1	_____	_____	_____

**B. Additional Courses for Graduate Credit**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**C. Essential Non-Credit Courses**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**D. Other Non-Credit Requirements**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**E. Signatures of Student and Advisory Committee. Print or Type Name of Student and Committee Member Under Signatures.**

Student \_\_\_\_\_ Advisor \_\_\_\_\_  
 (typed) \_\_\_\_\_ (typed) \_\_\_\_\_

Advisory Committee Signatures:

\_\_\_\_\_

Graduate Studies Chair Signature:

Date:

\_\_\_\_\_

### Plan of Study, Master's Plan B

Name \_\_\_\_\_ Date \_\_\_\_\_

Advisor/Temporary Advisor \_\_\_\_\_ Expected Date of Degree \_\_\_\_\_

**A. Required Courses for Graduate Credit (Must be  $\geq 28$  Entomology course credits; Minimum total credits to graduate  $\geq 30$ ; 80% classes taken at OSU):**

			<u>Credit Hours</u>	<u>Sem/Yr. To be taken</u>	<u>Sem/Yr. completed</u>	<u>Grade</u>
<b>All three</b> must be taken:						
Insect Physiology and Molecular Biology	ENT	6310	3	_____	_____	_____
Insect Ecology and Evolutionary Processes	ENT	6410	3	_____	_____	_____
Field Insect Taxonomy	ENT	5130	3	_____	_____	_____
<b>Two of the following</b> four must be taken:						
Biodiversity Analysis for Ecosystem Sustainability & Resilience	ENT	6701	2	_____	_____	_____
Entomological Techniques and Data Analysis	ENT	6702	2	_____	_____	_____
Molecular Techniques and Data Analysis	ENT	6703	2	_____	_____	_____
Systems Analysis from Molecules to Ecosystems	ENT	6704	2	_____	_____	_____
<b>Two of the following</b> four must be taken:						
The Nature and Practice of Science	ENT	7910	2	_____	_____	_____
Presentation Skills for Scientists	ENT	7920	2	_____	_____	_____
Scientific Writing and Grant Proposal Development	ENT	7930	2	_____	_____	_____
Interdisciplinary Research, Leadership and Team Work	ENT	7940	2	_____	_____	_____
<b>Three of the following</b> four must be taken:						
Ecology and Management of Pathogens & Insects Affecting Trees in Forest & Urban Environments	ENT	5110	3	_____	_____	_____
Aquatic Insect Biology and Ecology	ENT	5120	3	_____	_____	_____
Insect Behavior	ENT	5420	3	_____	_____	_____
Biological Control of Arthropod Pests	ENT	5500	3	_____	_____	_____
Principles and Applications of Integrated Pest Management	ENT	5600	3	_____	_____	_____
Human Health Entomology	ENT	5605	2	_____	_____	_____
Insect Morphology	ENT	5623	2	_____	_____	_____
Pesticide Science	ENT	5800	2	_____	_____	_____
and Research and Training Seminar	ENT	8800	1	_____	_____	_____
and Seminar	ENT	8000	1	_____	_____	_____
and Individual Studies	ENT	6193	1	_____	_____	_____

**F. Additional Courses for Graduate Credit**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**G. Essential Non-Credit Courses**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**H. Other Non-Credit Requirements**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**I. Signatures of Student and Advisory Committee. Print or Type Name of Student and Committee Member Under Signatures.**

Student \_\_\_\_\_ Advisor \_\_\_\_\_  
(typed) \_\_\_\_\_ (typed) \_\_\_\_\_

Advisory Committee Signatures:

\_\_\_\_\_

\_\_\_\_\_

Graduate Studies Chair Signature:

Date:

\_\_\_\_\_

### Plan of Study, Doctorate

Name \_\_\_\_\_ Date \_\_\_\_\_

Advisor/Temporary Advisor \_\_\_\_\_ Expected Date of Degree \_\_\_\_\_

**A. Required Courses for Graduate Credit (Must be  $\geq 23$  Entomology course credits; Minimum total credits to graduate  $\geq 80$ .** Must be 80 credit hours beyond B.S.; 50 credit hours beyond M.S. at OSU, a minimum of 24 completed at this university after M.S.):

				<u>Credit Hours</u>		<u>Sem/Yr. To be taken</u>	<u>Sem/Yr. completed</u>	<u>Grade</u>
<b>All three</b> must be taken:								
Insect Physiology and Molecular Biology	ENT	6310	3	_____	_____	_____	_____	_____
Insect Ecology and Evolutionary Processes	ENT	6410	3	_____	_____	_____	_____	_____
Field Insect Taxonomy	ENT	5130	3	_____	_____	_____	_____	_____
<b>All four</b> must be taken:								
Biodiversity Analysis for Ecosystem Sustainability & Resilience	ENT	6701	2	_____	_____	_____	_____	_____
Entomological Techniques and Data Analysis	ENT	6702	2	_____	_____	_____	_____	_____
Molecular Techniques and Data Analysis	ENT	6703	2	_____	_____	_____	_____	_____
Systems Analysis from Molecules to Ecosystems	ENT	6704	2	_____	_____	_____	_____	_____
<b>Two of the following</b> four must be taken:								
The Nature and Practice of Science	ENT	7910	2	_____	_____	_____	_____	_____
Presentation Skills for Scientists	ENT	7920	2	_____	_____	_____	_____	_____
Scientific Writing and Grant Proposal Development	ENT	7930	2	_____	_____	_____	_____	_____
Interdisciplinary Research, Leadership and Team Work	ENT	7940	2	_____	_____	_____	_____	_____
and Research and Training Seminar	ENT	8800	1	_____	_____	_____	_____	_____
and Seminar	ENT	8000	1	_____	_____	_____	_____	_____

**J. Additional Courses for Graduate Credit**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**K. Essential Non-Credit Courses**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**L. Other Non-Credit Requirements**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**M. Signatures of Student and Advisory Committee. Print or Type Name of Student and Committee Member Under Signatures.**

Student \_\_\_\_\_ Advisor \_\_\_\_\_  
(typed) \_\_\_\_\_ (typed) \_\_\_\_\_

Advisory Committee Signatures:

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Graduate Studies Chair Signature:

Date:

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### Annual Report on Graduate Student Progress

A completed copy of this form must be submitted to the Graduate Studies Chair by January 31<sup>st</sup> each year. PLEASE PROVIDE ALL INFORMATION REQUESTED.

#### **Section 1: Academic Progress**

Name of Graduate Student: \_\_\_\_\_ Date: \_\_\_\_\_

Name of advisor or co-advisers: \_\_\_\_\_

Degree sought: M.S.  Ph.D.

Highest Degree held: B.S./B.A.  M.S./M.A.  Is this degree from OSU: Y  or N

Date of last advisory committee meeting? \_\_\_\_\_

Number of semesters of graduate work at OSU at the end of present semester: \_\_\_\_\_

Number of semesters of graduate work at OSU on this degree at the end of present term: \_\_\_\_\_

Number of semesters on Fellowship, TA or RA support at the end of the present semester?

F: \_\_\_\_\_ TA: \_\_\_\_\_ RA: \_\_\_\_\_

Number graduate credit hours earned at OSU at the end of present semester? \_\_\_\_\_

Check each of the following that apply to this student:

1.  An advisor has been selected.
2.  A student advisory committee (SAC) has been formed and Form Ent-5 filed.
3.  Proficiency conference has been completed and Form Ent-6 (Plan of Study) filed.
4.  A research project has been selected.
5.  A research proposal approved by the SAC has been submitted to Graduate Studies Chair.
6.  The proposal seminar was presented on \_\_\_\_\_
7.  The student is currently working on a research project for this degree.
8.  If a Ph.D. Candidate:
  - a.  The student passed the Candidacy Examination on \_\_\_\_\_
  - b.  The student presented the progress seminar on \_\_\_\_\_
  - c.  The student has fulfilled the teaching requirement by: \_\_\_\_\_
9.  Participation in outreach activity, i.e. Bug's World, Night Walk, Museum Day (name and date): \_\_\_\_\_

Indicate briefly the nature of this student's research \_\_\_\_\_

Indicate the approximate semester the student expects to:

1. Take the Candidacy Exam (if a Ph.D. Candidate) \_\_\_\_\_
2. Complete the work for this degree. \_\_\_\_\_



**Section 2: Student self-evaluation of progress (please mention any awards received, grants, papers published).**

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

Graduate Student

**Section 3:** Advisor evaluation of student progress. Mark one of the following that best describes the student's progress:

1.  Progress is satisfactory.
2.  Progress is unsatisfactory.

**Comments for justification of above mark (required):**

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

Advisor or Co-Advisor

### Checklist for Graduation

(To be submitted to the Graduate Studies Chair with Application to Graduate)

M.S. Requirement	Date Completed	Ph.D Requirement	Date Completed
Required coursework (From Form Ent-6MA or -B)		Required coursework (From Form Ent-6P)	
Other Coursework (From Form Ent-6MA or -B)		Other Coursework (From Form Ent-6P)	
Research Proposal (Plan A Only)		Research Proposal	
Proposal Seminar (Plan A Only)		Proposal Seminar	
		Progress Seminar	
Exit Seminar (Plan A Only)		Exit Seminar	
		Teaching Requirement	
		Candidacy Exam	
Additional Requirements (From Form Ent-6MA or -B)		Additional Requirements (From Form Ent-6P)	

I hereby certify that \_\_\_\_\_ has completed all  
(Student's Name)

Departmental requirements for the degree of \_\_\_\_\_ in Entomology.  
M.S. / Ph.D.

\_\_\_\_\_  
Signature of Advisor Date:

\_\_\_\_\_  
Signature of Graduate Studies Chair Date: