

GRADUATE STUDENT HANDBOOK



Honey bees (Photo by Clare Rittschof)
Dr. Rittschof and her graduate students study honey bee biology

Department of Entomology
University of Kentucky

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Awaiting approval by the faculty
The most up-to-date version is posted at <https://entomology.ca.uky.edu>

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Pink spotted lady beetles (Photo by Ric Bessin)
Graduate students in the laboratory of Dr. John Obrycki have studied this insect

INTRODUCTION

This Graduate Program Handbook for the Department of Entomology summarizes the main policies and procedures of the Graduate School and describes specific policies of the Department of Entomology Graduate Program. The Graduate School rules apply to all graduate students campus-wide and must be satisfied to obtain a graduate degree from the University of Kentucky. These Graduate School policies are summarized here as a service to our students and faculty but the current policies of the Graduate School (<http://gradschool.uky.edu/graduate-school-bulletin>) supersede those outlined here. Because Graduate School policies and procedures occasionally change **it is the responsibility of the student to be familiar with the most current policies, procedures and deadlines of the Graduate School.**

It is the responsibility of the Department to provide an atmosphere and environment conducive to learning, productive graduate research, and professional development. Resources and suitable facilities will be provided for thesis and dissertation research.

- Desk space will be provided when available and will be assigned on a seniority basis with students receiving assistantships or fellowships having priority.
- Keys to appropriate office and laboratory facilities can be obtained by asking the business office staff in S-225.
- A mailbox is provided for each student in Room S-225A. Students should check their mailbox frequently.
- A department calendar is available on the department web page: <http://entomology.ca.uky.edu/>. This calendar summarizes important Graduate School dates, departmental events, and departmental seminars.
- Announcements and much of the communication in the department are handled by e-mail. Students should contact the Brian Lauer at (brian.lauer@uky.edu) or stop by his office (S-205) to have their e-mail address added to the departmental list-servs. Students are expected to check their e-mail regularly.



Soldier of subterranean termite (Photo by Ken Haynes)
Graduate students in Dr. Xugou (Joe) Zhou's laboratory have studied regulation of the termite caste system

DESCRIPTION OF ENTOMOLOGY GRADUATE RESEARCH PROGRAMS

The Department of Entomology offers graduate work leading to a Master of Science (Plan A, requiring a thesis, and Plan B, non-thesis option) degree and a Doctor of Philosophy degree. Within the Department of Entomology itself, students can choose to conduct their research in a number of informal areas of specialization that include:

Integrated Pest Management
Biological Control
Extension Entomology
Medical Entomology
Insect Behavior
Insect Ecology
Insect Pathology
Molecular Biology
Evolution
Population Genetics
Social Insect Behavior

Insect-Plant Interactions
Insect Physiology
Urban Entomology
Veterinary Entomology
Systematics
Overwintering Biology
Forest Entomology
Acarology
Evolutionary Ecology
Pollination biology
Chemical Ecology



Bed bugs (Photo by Mike Potter)

Graduate students working with Drs. Mike Potter, Ken Haynes, and Reddy Palli have studied aspects of bed bug biology, insecticide resistance and management

APPLICATION AND ADMISSION

Application Procedure

Applications must be submitted online to the University of Kentucky Graduate School (https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=ukgrad). The following items must be **submitted electronically as part of your application**: transcripts, GRE scores, TOEFL scores (if applicable), CV, 2-page statement of research interests, unofficial copy of transcripts, three letters of recommendation, and the application fee. Your 2-page statement must discuss (a) your reason for applying to an Entomology graduate program and to our graduate program in particular (b) your proposed area(s) of specialization, including why you selected your chosen area(s) of specialization and (c) which of our faculty members most interest you as prospective mentors, and why (note that this statement may be used to nominate you for university fellowships if you are admitted to our graduate program).

Requirements for Admission

Admission to the Graduate program in Entomology is based on the recommendation of the Entomology Graduate Program Committee and support of a potential faculty mentor. Minimum admission requirements include an overall undergraduate grade point average of 3.0 and an overall graduate grade point average of 3.25.

Applicants whose native language is English must score at least 300 on the combined verbal and quantitative portions of the Graduate Record Examination (GRE) general test. Those whose native language is not English must have a Test of English as a Foreign Language (TOEFL) with a minimum score of 79 on the TOEFL-iBT. A minimum overall band score of 6.5 on the International English Language Testing System (IELTS) may be used in lieu of a TOEFL score. Applicants must also have a score of 150 on the quantitative portion of the GRE. The Program requires three letters of recommendation.

Meeting the minimum requirements does not guarantee admission. These minimum requirements may be waived in exceptional cases if sufficient additional evidence is presented regarding the ability of the student to do graduate work. Admission to the Graduate Program in Entomology does NOT automatically guarantee financial assistance to the student.



Asian tiger mosquito, *Aedes albopictus* (photo by Caitlin Stamper)
Dr. Stephen Dobson and Dr. Zain Syed and their colleagues study mosquitoes

ASSISTANTSHIPS AND FELLOWSHIPS

Options

Research Assistantships – Research assistantships are competitive and are awarded on the basis of merit. They may be funded from Departmental research funds or from grants. Research assistants will work 20 hours per week performing duties as assigned by their advisor. They are further expected to work additional hours as needed for their own research goals. See the section on Duties (on page 8) for more details.

Students awarded research assistantships do not pay tuition, provided they maintain a 3.0 Grade Point Average (GPA), but they are required to pay all other fees not covered by the Department.

Teaching Assistantships – Teaching assistantships at the University of Kentucky are awarded on a competitive basis and recipients are expected to assist in teaching, usually as laboratory instructors, discussion leaders, and/or graders. Students recruited for teaching assistantships may subsequently be awarded a research assistantship.

Fellowships – Some fellowships are awarded through the Graduate School. They are highly competitive and are normally awarded to students with outstanding test scores and grades. A list of the fellowships currently awarded by the graduate school can be found here: <https://ukygrad.academicworks.com/>. The availability, eligibility requirements, nomination and selection process and date of application vary. If the fellowship stipend is not equivalent to a research assistantship stipend, the fellowship may be supplemented within the limits established by the Graduate School.

Application

Applicants are considered for assistantships/fellowships when applications for admission are reviewed. Applications can be submitted at any time, but later applicants will have a reduced chance of receiving a fellowship or assistantship. Ideally, applications should be submitted prior to February 1 for students planning to enroll for the Fall Semester and prior to October 1 for those planning to enroll for Spring Semester.

Criteria for Assistantship Awards

Evaluation for assistantships and fellowships is based on academic record, GRE scores, letters of recommendation, academic honors and awards, publications, and any other available information relevant to evaluating the academic potential of the student. Since the number of available assistantships is usually less than the number of qualified applicants, the requirements for assistantships normally exceed the requirements for admission. Students having the best academic record and greatest potential for successfully completing graduate work are given highest priority for assistantship support. However, exceptions can be made for the following reasons:

1. Need for additional students in an area of specialization.
2. Availability of funds, particularly for assistantships supported by research grants.

Duties

Graduate Research Assistantships are awarded for financial support of the student while he/she is conducting research toward a Master's thesis or Doctoral dissertation. The thesis or dissertation is the student's own work, however, the research is almost always consistent with the long-range objective of the Major Professor's research program.

Research Assistants are part-time employees of the Department. This means that a MINIMUM of 20 hours per week of work is required of those holding assistantships. In addition to this minimum, students will find they need to devote additional time to the completion of their own research and course work.

Research Assistants perform those duties assigned by their advisor to fulfill the 20 hours per week work requirement. These duties shall be related to the research needs of the advisor but will often relate to the research goals of the student as well. The advisor may request assistance in non-thesis research (related to the advisor's program) or participation in activities that enhance the student's educational experience. Students are strongly encouraged to discuss the requirements and expectations related to their assistantship with their advisor prior to accepting the award.

Successful research will almost always require more time than this 20 hour minimum, thus it is expected that students will devote themselves to classes (during the Fall and Spring semesters) and to their research IN ADDITION TO the duties required as a Research Assistant. The departmental philosophy is that commitment and dedication are essential characteristics of a good graduate student, that an assistantship should provide the student the opportunity to devote his/her full attention to study and graduate research, and that successful graduate work often requires working on evenings and weekends.

Fellowships are awarded to individuals to pursue full-time study toward an advanced degree. There are no specific duties associated with fellowships nor are specific duties to be assigned to individuals holding fellowships. However, all graduate students are expected to devote a major portion of their time toward the requirements of their degree. Fellowships should be viewed as an opportunity to devote oneself full-time to research and course work.

With the exception of University approved holidays, graduate students are expected to be engaged in research and/or coursework throughout the year. There is no schedule for accumulation of vacation days for graduate students. A reasonable amount of leave time may be negotiated between the student and Major Advisor.

Enrollment Requirements

Master's students receiving Assistantships or Fellowships must be enrolled as full-time students (9 graduate credit hours) each Fall and Spring semester until all required courses are completed. **After all required courses are completed**, Master's students should enroll in ENT 748 for zero credit (only the DGS can enroll students in ENT 748). Enrollment in ENT 748 for zero credit **does** maintain a student's full-time status but requires no payment of tuition.

Ph.D. students receiving Assistantships or Fellowships must be enrolled as full-time students (9 credit hours) each Fall and Spring semester until all required courses are completed and the pre-qualifying residency requirement is satisfied (2 years, i.e., 36 credit hours). Students that have obtained a M.S. degree before enrolling in our Ph.D. program can request that their M.S. degree count towards the first year of the residency requirement thus allowing them to finish their pre-qualifying residency requirements in just one year. After passing their qualifying examination, they must register for 2 credits of ENT 767 each Fall and Spring semester until the dissertation is completed and successfully defended.

The Graduate School does not require recipients of Assistantships or Fellowships to register during the summer unless specific courses are taken. Further details on enrollment and residency requirements can be found in the online Graduate School Bulletin:
<http://gradschool.uky.edu/graduate-school-bulletin>.

Duration

Fellowships are usually awarded for the academic year, the duration being established by the Graduate School, although most are annual competitive renewals.

Graduate Research Assistantships are awarded on a 12-month basis with renewal dependent on the student making satisfactory progress. The following rules apply for Graduate Research Assistantships.

1. M.S. degree – Assistantships normally will terminate at the end of two years.
2. Ph.D. degree
 - a. From a baccalaureate degree without a Masters degree – Assistantships will normally terminate at the end of the fifth year.
 - b. From a Master's degree – Assistantships will normally terminate at the end of the fourth year.

Extension of Assistantships beyond the normal termination date can be granted on a semester-by-semester basis if extenuating circumstances occur. The extension must be requested by the student, recommended by the M.S. or the Ph.D. Advisory Committee, and approved by the DGS. The request must be accompanied by a report of progress and justification for extension.

Review of Progress and Termination of Assistantships

Academic and research progress will be reviewed at least once per year by the Advisory

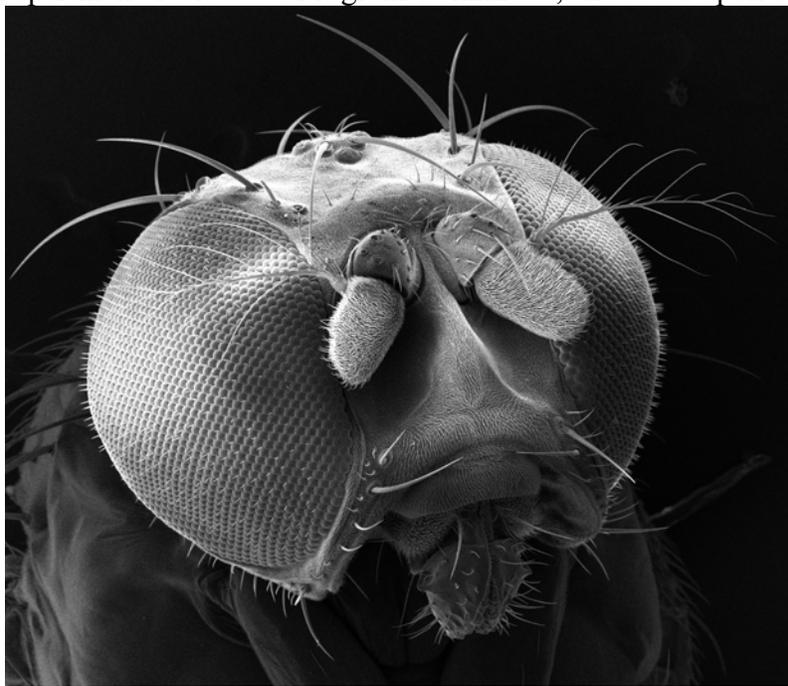
Committee. In addition, Major advisors are required to assess student progress annually using the departmental Annual Review of Progress of Graduate Students in Entomology form (http://entomology.ca.uky.edu/files/annual_review_grad_students2018form.pdf). Students who are placed on academic probation because of failure to meet the required 3.0 GPA will automatically be placed on probation with respect to their Assistantship. The Assistantship will be terminated if the student is not removed from academic probation after one semester unless extenuating circumstances can be identified by the Major Professor and approved by the DGS.

Students on academic probation and who are not official residents of Kentucky will forfeit their eligibility for out-of-state tuition scholarships. Full out-of-state tuition will be payable by the student until the student is removed from academic probation.

Other reasons for terminating an Assistantship prior to completion of degree requirements or prior to the normal termination date identified under "Duration" (see page 9) are:

1. Failure to make satisfactory research progress as determined by the Advisory Committee.
2. Failure of the Ph.D. Qualifying Examination.
3. Failure of the Final Examination for the M.S. degree or the Ph.D. Degree.

Normally, termination of an Assistantship is recommended by the Advisory Committee, reviewed by the Departmental Graduate Program Committee, and acted upon by the DGS.



Drosophila suzukii (SEM by Zain Sayed)
Dr. Zain Sayed and Dr. Nick Teets have projects with *Drosophila suzukii*

ORGANIZATION AND ADMINISTRATION

Graduate Faculty

The Graduate Faculty consists of the Dean of the Graduate School, Associate Deans of the Graduate School, and Full and Associate Graduate Faculty Members.

Graduate Dean

The Dean of the Graduate School is charged with the administration of the policies adopted by the Graduate Faculty and the University Senate relating to graduate studies.

Director of Graduate Studies (DGS)

The DGS is appointed by the Graduate Dean. He/she administers the rules of the Graduate School as they pertain to the graduate program of the department and serves as liaison between the Graduate Dean and the faculty and students of the program.

Major Professor

A Major Professor is appointed by the DGS for each M.S. student, usually at the time of admission. The Major Professor advises the student on course work, chairs the M.S. Advisory Committee, and serves as the Thesis Director. The DGS or a designee serves as advisor until a Major Professor is appointed.

A Major Professor for each Ph.D. student is appointed by the Graduate Dean on recommendation by the DGS. He/she assumes primary advisory functions for the student, chairs the Advisory Committee, and serves as Dissertation Director. The DGS or a designee serves as advisor until a Major Professor is appointed.

Occasionally, conflicts arise between student and Major Professor. The Department Chair and the DGS are responsible for mediating such situations. They will also provide guidance to the student about his or her options. In rare situations, these options may include a mutually agreed upon relocation to a different program within the Department if the conflict cannot be resolved.

Advisory Committee

Each student's program is guided by a Major Professor and an Advisory Committee. The Advisory Committee is selected by the graduate student, in consultation with their Major Professor and the DGS. This should be done by the end of the first semester of the student's tenure in the department. The student will present their proposed course work and their research proposal to the Committee for review and approval. The Advisory Committee will meet at least once a year with the student.

For Ph.D. students, the Advisory Committee administers the Qualifying Examination, supervises the preparation of the dissertation, and administers the Final Examination. For M.S. students, the advisory committee supervises the preparation of the thesis and administers the Final Examination.

The student must meet at least once a year with the Advisory Committee.



Eastern tent caterpillar (Photo by Ric Bessin)

Drs. Bruce Webb, Lynne Rieske-Kinney, Ken Haynes, Lee Townsend, and Dan Potter and their laboratory groups have studied ETC. Dr Webb and his colleagues found that the hairs on the caterpillar play a role in Mare Reproductive Loss Syndrome.

REQUIREMENTS FOR ADVANCED DEGREES

Requirements for an advanced degree shall be no less than the minimum established by the Graduate School: <http://gradschool.uky.edu/graduate-school-bulletin>

General

During their first year (M.S. Plan A) or second year (Ph.D. students) of graduate work, students are required to prepare a formal written research proposal encompassing a thorough literature review, clear statement of objectives, and materials and methods of the project. A research proposal seminar will be presented to the Department upon completion of the written research proposal, in either the first year (M.S. students) or second year (Ph.D. students). An exit seminar, usually presented during the last semester of the student's tenure, is required for all students. August graduates will typically present their seminar in the preceding spring. M.S. students using the Plan B option will be required to provide a detailed outline of their practicum to their Advisory Committee. The practicum must be a minimum of 3 credit hours (of ENT 780 and 790) and maximum of 6 credit hours. It may consist of library research, special problems, internships,

etc., as agreed upon by the student and Major Professor, and approved by the Advisory Committee.

All graduate students will be required to place designated and appropriately preserved voucher specimens in a proper collection.

Core Requirements

All M.S. students and Ph.D. students must satisfy the following core course requirements:

1. An undergraduate course in general Entomology. Students who have not had such a course must take ENT 300 (this does *not* count toward the 9 credit hours required to be a full-time graduate student).
2. STA 570 Basic Statistical Analysis or an equivalent level course approved by the Advisory Committee.
3. Each M.S. student must take two semesters of ENT 770, Entomological Seminar, or approved equivalent seminars offered by other Departments. Ph.D. students must take four semesters of approved seminars. Seminars in other departments can be substituted for ENT 770 upon approval of the Advisory Committee. Ph.D. students who received their M.S. degree in Entomology from the University of Kentucky will also be required to take four semesters of ENT 770 in addition to the two semesters taken while an M.S. student. Semesters of ENT 770 beyond the two required for the M.S. degree can be used toward the Ph.D. requirement.
4. Ph.D. students as well as M.S. students using the Plan A option must take a minimum of one course from two of the following core areas. M.S. students using the Plan B option must take a minimum of one course from all three core areas:

Core area 1: Insect Behavior, Ecology, Evolution and Systematics

ENT 564 Insect Taxonomy
ENT 568 Insect Behavior
ENT 607 Advanced Evolution
ENT 625 Insect-Plant Relationships
ENT 660 Immature Insects
ENT 665 Insect Ecology
ENT 667 Invasive Species Biology

Core area 2: Insect Molecular Biology, Physiology and Genetics

ENT 635 Insect Physiology
ENT 636 Insect Molecular Biology

Core Area 3: Pest Management and Applied Ecology

ENT 530 Integrated Pest Management
ENT 561 Insects Affecting Human and Animal Health
ENT 574 Advanced Applied Entomology
ENT 680 Biological Control

In all cases, an equivalent graduate level course from another institution is acceptable upon approval of the student's Advisory Committee. Such approval will not decrease the minimum number of credits required but will instead permit the student to take other courses.

All students are expected to attend weekly Department of Entomology seminars (different from ENT 770) and are encouraged to attend seminars related to their subject matter interests given by other departments.

Master of Science (Plan A)

In addition to meeting all general requirements for Master's degrees as identified in the Graduate School Bulletin, the candidate must complete at least 24 semester credit hours of graduate course work with a GPA of 3.0 or higher and write a thesis. Credit hours obtained from the core courses listed above are included as part of the minimum number. One half of the minimum course work must be in the major area. At least 16 credit hours must be in regular courses. At least half the minimum required courses must be 600 or 700 level courses.

A candidate for the M.S. degree may transfer up to 6 credit hours from another University toward the satisfaction of the minimum requirements of the Graduate School for that degree.

Note: Any research credits (ENT 790) taken for work done on the thesis do NOT count toward the minimum of 24 credits required for the degree.

Master of Science (Plan B)

In addition to meeting all general requirements for Master's degrees as identified in the Graduate School Bulletin, the candidate must complete at least 36 semester credit hours of graduate course work with a GPA of 3.0 or higher and present a written report on his/her Practicum. One half of the minimum course work must be in the major area. At least 24 credit hours must be in regular courses. At least half the minimum required courses must be 600 or 700 level courses. A candidate for the M.S. degree may transfer up to 6 credit hours from another University towards the satisfaction of the minimum requirements of the Graduate School for that degree.

Ph.D. Degree

For the Ph.D. degree, additional specific course requirements (beyond the core requirements) are determined by the Advisory Committee appointed for each student by the Dean of the Graduate School.

The Degree of Doctor of Philosophy is conferred upon a candidate who normally after

completing at least three years of graduate work devoted to study of a special field of knowledge passes a comprehensive examination on his/her dissertation subject and chosen field, presents a satisfactory dissertation, and shows evidence of scholarly attainment.

All Ph.D. students in Entomology are expected to have scientific knowledge in general biology, general entomology, statistics, and general mathematics.

Each student will be evaluated on his/her general knowledge of entomology, with specific areas of emphasis defined by the student's Advisory Committee.

The student will be expected to have general knowledge of entomology as well as the broad areas of general biology, and statistics (particularly statistical or bioinformatics approaches appropriate to the student's research). The Advisory Committee has the responsibility of verifying that the student has general knowledge in areas not identified for particular expertise. This evaluation can be achieved in Advisory Committee meetings with the student, the written qualifying examination, or the oral qualifying examination.

Some specific requirements for the Ph.D. degree granted through the Department of Entomology are:

1. Residence - Requirements for the Ph.D. degree may be completed in three years of full-time graduate work or the equivalent in combined full-time and part-time study (see the Graduate School Bulletin for specific residence requirements: <http://gradschool.uky.edu/graduate-school-bulletin>).
 - a. Two consecutive semesters of full time residence at the University of Kentucky are required prior to the qualifying examination.
 - b. Students must complete a second year of residency in one or a combination of the following ways:
 - i. Transfer residence credit from an awarded Master's degree from another school.
 - ii. Complete a minimum of eighteen hours of course work (part-time or full-time) beyond the two full-time consecutive semesters (see a. above).
 - iii. Apply hours completed while pursuing a University of Kentucky Master's degree.
 - c. Each student must register for 2 credits of ENT 767 each Fall and Spring semester after passing the Qualifying Examination. If all course work has been completed prior to the semester of the Qualifying Examination, the student may also register for 2 credits of ENT 767 during the semester that he/she takes the Qualifying Examination. Registration for 2 credits of ENT 767 (once a student is eligible to register in this course) constitutes full-time enrollment status. Please refer to the Graduate School Bulletin for details on post-Qualifying residency: <http://gradschool.uky.edu/graduate->

[school-bulletin](#).

2. Annual Progress Report – All graduate students will meet once per year with their advisor for a discussion of the student’s progress. The advisor will complete the Annual Review of Progress of Graduate Students in Entomology form, which is submitted to the student's file.
3. Qualifying Examination – The qualifying examination must be both written and oral and is normally taken during or after the student's fourth semester of full-time graduate work or the equivalent. The format of the written qualifying examination will be determined by the major advisor and committee in consultation with the student. Students will be tested on their knowledge of general biology, general entomology, statistics, and general mathematics, and in-depth knowledge in the areas of specific expertise identified at the student’s first Advisory Committee meeting. Members of the Advisory Committee from within the Department of Entomology will evaluate entomological areas of particular expertise.
 - a. The Written Examination. A written examination that precedes the oral examination is required by the Graduate School. The form of the written qualifying examination is determined by the Advisory Committee. Two common formats for the written exam include: 1. written questions submitted by each member of the advisory committee to the major advisor, or 2. a grant proposal. In the case of *written question format*, the examination is monitored by the major professor over the course of five days. The requirements for the *grant proposal format* are set by the advisory committee.
 - b. The Oral Examination. The oral examination is scheduled through the Graduate School, with approval of the DGS (<http://gradschool.uky.edu/studentforms>). The request to schedule the exam must be submitted to the Graduate School at least two weeks prior to the date of the exam. However, students are advised to schedule their exam with their advisory committee at least three months prior to the exam date, to avoid scheduling difficulties.

If the examination is failed, a student may repeat his/her qualifying examination only with the permission of their Advisory Committee, the DGS and the Graduate Dean, and only after a minimum of four months has passed. A student has no more than two chances to pass a qualifying examination.

4. Dissertation – Each student must present a dissertation that is the result of original research. It must conform to instructions provided by the Graduate School. <http://gradschool.uky.edu/thesis-dissertation-preparation>
5. Presenting the Dissertation and Final Examination. Procedures for presenting the dissertation to the Advisory Committee and the Graduate School are as follows:
 - a. **AT LEAST EIGHT WEEKS** prior to the final examination, the student will submit

- a Notification of the Intent to Schedule a Final Examination (Notif) form to the Graduate School. The Major Professor must verify with the DGS that the dissertation is sufficiently prepared to merit this action and the DGS must approve the Notif.
- b. The Graduate Dean will appoint an Outside Examiner as a core member of the Advisory Committee. See below regarding copy for Outside Examiner.
 - c. Distribute a complete copy of the dissertation to members of the Advisory Committee **AT LEAST TWO WEEKS** prior to the final examination.
 - d. The Final Examination involves primarily a defense of the dissertation including knowledge of the literature, methods, results, statistics, and conclusions. Additional broad, conceptual, or philosophical questions arising from discussion of the dissertation research and the student's future also are appropriate. Exceptions to this would be further examination of any deficiencies identified during the qualifying examination that may be re-examined here. The Final Examination is conducted by the Advisory Committee plus an Outside Examiner appointed by the Graduate School. The examination is a public event. Any member of the University may attend.
 - e. The final copy of the dissertation is prepared after the Final Examination is passed. Dissertations must be submitted to the Graduate School within 60 days of the Final Exam. A degree will not be conferred until the Graduate School has received the final dissertation.

PUBLICATION SCHOLARSHIPS

Any graduate student in the Department of Entomology is eligible for a Publication Scholarship. The goal of the Publication Scholarship is to encourage and reward excellence and efficiency. We want to increase the number of graduate student publications that are submitted to and accepted by quality journals before students leave the University of Kentucky. Such timely publication benefits the student in terms of competition for jobs. In addition, graduate student publications are a criterion upon which our graduate program is assessed. The intent of this scholarship is to reward students, not to cover the costs of publication.

1. The student's **major professor** must nominate the student and a specific paper for a scholarship
2. Research reported in the manuscript is part of an ongoing research project conducted by the graduate student at the University of Kentucky.
3. The student must be the first author on the paper.
4. The scholarships are not available to students who have completed their degrees, or to M.S. students who have been at the University of Kentucky for more than three years, or to Ph.D. students who have been here for more than five years.

Two types of scholarships are available:

a. **Submission scholarship:** To receive this scholarship a student's manuscript must be submitted to a **refereed scientific** journal. The journal must have a Science Citation Impact Factor equal to or greater than the median Impact Factor for a journal in the field (the median value for Entomology was about 0.63 in 2004, all of the ESA journals have impact factors > 0.75). The nomination of a substantial research publication submitted to an outlet not covered by Science Citation will be considered on a case by case basis by the Awards' committee based on a brief justification provided by the major professor. This justification should be based on the impact of the journal. Please include a copy of a note indicating that the manuscript has been received by the journal editor. **A student may receive only one submission scholarship per degree.** Award \$250.

b. **Acceptance scholarship:** To receive this scholarship a student's manuscript must be **accepted by a refereed scientific** journal. A note from an editor indicating that the manuscript is accepted is adequate evidence. A note indicating that the manuscript is accepted pending revisions is not adequate. The journal must meet the same standard that is indicated above for a submission award. A student may receive more than one acceptance scholarship, if adequate funds are available. Award \$250.

Submit nomination to the **Awards Committee Chair**.

ACADEMIC PERFORMANCE, PROBATION, AND TERMINATION

A student's cumulative GPA must be at or above a 3.0 as established by the Graduate School. If a student's GPA drops below 3.0 he/she is placed on probation. Following placement on probation, a student is allowed one semester to achieve a cumulative 3.0 GPA. Enrollment of a graduate student in the Entomology graduate program may be terminated for the following reasons (these are not the same rules used for assistantship termination):

1. Academic probation for three enrolled semesters.
2. Having failed the final examination for the Master's degree or the Ph.D. qualifying examination.
3. Unsatisfactory progress prior to the qualifying examination: Prior to the qualifying examination, the Ph.D. student will meet annually with their Advisory Committee for review of his/her progress, course work, dissertation research, and other areas of professional development. The student will be informed by the Major Professor in writing of specific weaknesses requiring improvement. Those weaknesses considered sufficient for possible termination will be reported to the Graduate School and a time period established for correction and for another evaluation of the student. If a majority of the Graduate Faculty of the Program feel the weaknesses have not been corrected by the established time, a recommendation will be made to the Graduate

School for termination of the student's enrollment.

4. Unsatisfactory progress after the qualifying examination: After passing the qualifying examination the candidate will meet annually with her/his Advisory Committee or more often if deemed necessary. In a case where the Advisory Committee recommends termination after the qualifying examination has been passed, the student may appeal to the Graduate Program Committee.



Brown marmorated stink bug (photo by Ric Bessin).
Dr. Ric Bessin and his graduate students have studied this insect.

FACILITIES

The Department of Entomology has excellent facilities and equipment for graduate research. In general, equipment is under the control of individual faculty members, however, most such equipment is readily shared among faculty members and students. Consideration for the time and property of others and knowledge of operation are essential for fostering cooperative use of facilities and equipment. Use of equipment may be denied to individuals who do not properly care for equipment and space.

PLACEMENT

Part of the faculty member's responsibility in accepting a graduate student advisee is to assist in placing the student in a position at the completion of the degree program. This assistance is given primarily in the form of recommendations. A student can expect a faculty member reference to give an honest appraisal of the student's academic performance, attitude, work habits, communication skills, grasp of subject matter, capability to conduct independent research, and potential future performance. It is very important for a student to develop positive professional relationships and to establish credibility with the Major Professor and members of the Advisory Committee.



Japanese beetles eating milkweed (Photo by Adam Baker)

Dr. Dan Potter and his students have studied interactions between Japanese beetles and various plants and insects.

CHECK SHEET

Master's Degree, Plan A

Year 1

- Selection of Advisory Committee, preferably by the end of the first semester of tenure
- Research proposal submitted to Advisory Committee
- Presentation of research proposal at Departmental Seminar

Correct number of hours/requirements for program (total \geq 24 graduate credits)

- 1/2 of minimum requirements of credit hours must be at 600/700 level (12)
- 1/2 of minimum course work must be in the major area (12) and $\frac{3}{4}$ of those must be at the 600 or 700 level (9)
- 2/3 of minimum requirements of credit hours must be in regular courses (16)
- Completion of core courses and seminar requirements listed earlier in this document
- Registration for 2 credits of ENT 748 each Fall and Spring semester *after* completing required coursework. Registration in ENT 748 counts as full-time enrollment.

Preparation for graduation

- Obtain thesis guidelines from the Graduate School (available online).
<http://gradschool.uky.edu/electronic-thesis-preparation>
- Presentation of exit seminar (during final semester; Spring Semester if graduating in August)
- Apply for graduation within 30 days after beginning of semester of expected graduation; 15 days in Summer School – Submit Form online (myuk.uky.edu) to Registrar
- Submit copy of thesis to Advisory Committee at least two weeks prior to Final Examination.
- Formal request to schedule Final Examination at least two weeks prior to examination – Submit Form online to Graduate School: <http://gradschool.uky.edu/studentforms>; Examining Committee consists of Advisory Committee
- MS Final Examination

After successfully defending thesis

- Archived research data on CD submitted to the DGS prior to request for DGS's signature on final copy of thesis
- Final copies of thesis to Graduate School and Department within 60 days after the Final Examination

CHECK SHEET

Master's Degree, Plan B

Year 1

- Selection of Advisory Committee, preferably by the end of the first semester of tenure
- Practicum proposal submitted to Advisory Committee

Correct number of hours/requirements for program (total \geq 36 graduate credits)

- 1/2 of minimum requirements of credit hours must be at 600/700 level (18)
- 1/2 of minimum course work must be in the major area (ENT) (18) and $\frac{3}{4}$ of those must be at the 600 or 700 level (14)
- 2/3 of minimum requirements of credit hours must be in regular courses (24)
- Completion of core courses and seminar requirements listed earlier in this document

Preparation for graduation

- Obtain thesis guidelines from the Graduate School. <http://gradschool.uky.edu/thesis-dissertation-preparation>
- Presentation of exit seminar (during final semester; Spring Semester if graduating in August)
- Apply for graduation within 30 days after beginning of semester of expected graduation; 15 days in Summer School – Submit Form online (myuk.uky.edu) to Registrar
- Submit copy of Practicum report to Advisory Committee at least two weeks prior to the Final Examination.
- Formal request to schedule final examination – Submit Form online to Graduate School <http://gradschool.uky.edu/studentforms>; Examining Committee consists of Advisory Committee
- MS Final Examination



Dr. Jen White and her group have studied the relationship between insects such as *Aphis craccivora*, the cowpea aphid and endosymbiotic bacteria (photo by Paul Lenhart)

CHECK SHEET

Ph. D. Degree

Year 1

- Form Advisory Committee- First meeting with Advisory Committee
- Written request to DGS for use of Master's degree for 1 year of pre-qualifying residence (if applicable)

Year 2

- Presentation of research proposal at Departmental seminar
- Completion of course and seminar requirements listed earlier in this document
- Two years residence, pre-qualifying requirement (i.e., physical presence and enrolled full time, not a “residence course”)
- Schedule qualifying examination at least two weeks prior to exam date (<http://gradschool.uky.edu/studentforms>)
- Notification of results of qualifying examination to Graduate School by DGS

After passing qualifying exam

- Register for 2 credits of ENT 767 each Fall and Spring semester *after the Qualifying Examination is successfully completed* up to and including the semester in which you defend your dissertation. You may enroll in ENT 767 the same semester in which you take your qualifying examination but then you MUST take and pass your examination that semester; if you do not, then you must drop ENT 767 and enroll in a full-time course load. You do *not* need to enroll in ENT 767 during the summer, even if you defend your dissertation in the summer.

Preparation for graduation

- Obtain dissertation guidelines from the Graduate School (available online). <http://gradschool.uky.edu/electronic-dissertation-preparation>
- Presentation of exit seminar (during final semester; Spring Semester if graduating in August)
- Application for graduation (via myuk.uky.edu) within 30 days of beginning of semester of expected graduation; 15 days during Summer School
- Notification to Graduate School of intent to schedule Final Examination (8 weeks prior) – Submit Form online to Graduate School via <http://gradschool.uky.edu/studentforms>.
- Formal request to schedule final oral examination to Graduate School at least two weeks prior to examination date – Submit Form online to Graduate School via <http://gradschool.uky.edu/studentforms>.

After successfully defending dissertation

- Archived research data on CD submitted to the DGS prior to request for DGS’s signature on final copy of dissertation.
- Final copies of dissertation submitted to Graduate School and Department no later than 60 days after the Final Examination.

THE GRADUATE FACULTY OF THE DEPARTMENT OF ENTOMOLOGY

<https://entomology.ca.uky.edu/people/faculty>

Ricardo T. Bessin
Stephen Dobson
Charles W. Fox
David Gonthier
Kenneth F. Haynes
John J. Obrycki
Subba Reddy Palli
Daniel A. Potter
Michael F. Potter
Lynne K. Rieske-Kinney
Clare C. Rittschof
Zainulabeuddin (Zain) Syed
Nicholas M. Teets
Lee H. Townsend, Jr
Raul T. Villanueva
Bruce A. Webb
Jennifer A. White
Xuguo Zhou



Colorado potato beetle (photo by Ken Haynes)

Dr. Reddy Palli and his students have studied insecticide resistance in the CPB

PREREQUISITE COURSE

ENT 300 General Entomology. (3)

Fundamentals of insect biology and relationships among insects, plants, and other organisms; identification of commonly encountered insects. Beneficial and detrimental effects of insects are discussed. Offered in fall only.

GRADUATE COURSES

ENT 502 Forest Entomology. (3)

Lectures primarily address principles and concepts. Laboratories use a hands-on approach to demonstrate insect collecting and identification techniques, ecological concepts and management approaches, and use of reference materials. Offered in fall only.

ENT 509 Brains & Buds: Neuroscience of Pollination. (3)

ENT 505 Evolution in Agriculture, Medicine and Conservation Biology. (3) An introduction to modern evolutionary theory with emphasis on its application to current problems in agriculture, the biomedical sciences, and conservation biology.

ENT 530 Integrated Pest Management. (3) Principles of insect damage, populations and distributions. Various types of natural and applied control, including problems of insecticide toxicity, resistance and residues.

ENT 550 Spider Ecology And Behavior. (3) Spiders are fascinating in their own right, and also are major predators in terrestrial food webs. This course examines the ecology and behavior of spiders as model predators in systems ranging from undisturbed forests and meadows to agroecosystems and the urban landscape. While focusing on spiders, the course also intertwines two general sub-themes: (1) the advantages of employing diverse approaches (e.g. field and laboratory experiments, non-manipulative observations, and meta-analyses) in ecological and behavioral research; and (2) the strengths, and limitations, of using model organisms to develop and test theory.

ENT 561 Insects Affecting Human And Animal Health. Discussion of arthropod parasites and disease vectors. Topics include an overview of disease transmission and public health, epidemiology, vector biology, important arthropod groups and their control. Prerequisite: 3 credits of basic biology (BIO 103 or BIO 148 or equivalent) or permission of instructor. (Same as BIO/CPH 561.) Offered in fall – odd years.

ENT 563 Parasitology. (4) Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures, and life histories. Techniques for host examination and preparation of material for study. Prerequisite: BIO 148, BIO 152, BIO 155 or BIO 198, or consent of instructor. (Same as BIO 563.) Offered by the Department of Biology.

ENT 564 Insect Taxonomy. (4) A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Offered in fall – even years.

ENT 568 Insect Behavior. (3) The principles of animal behavior will be stressed using insects as examples. Physiology, mechanisms, behavioral ecology and evolution of insect behavior will be covered. Offered in spring – odd years.

ENT 574 Advanced Applied Entomology. (4) The objective of this course is to present the student with advanced concepts of applied entomology in a system-specific context. Each week, the insect problems associated with a different commodity/production system will be presented so as to illustrate a different broadly-based theme. Prerequisite: An introductory entomology course and consent of instructor. Not offered recently.

ENT 595 Entomology Special Topics. (1-4) Special and new courses may be offered under this number.

ENT 606 Conceptual Methods in Ecology And Evolution. (3) This course provides students with hands-on experience in a diverse array of conceptual research techniques used by ecologists and evolutionary biologists. Offered by Department of Biology.

ENT 607 Advanced Evolution. (2) This course covers advanced topics in evolution, concentrating on questions central to the understanding of general evolutionary processes. Phenomena occurring both within populations (e.g., selection, inheritance, population subdivision) and between populations (e.g., gene flow, competition) will be addressed. Offered by Department of Biology.

ENT 608 Behavioral Ecology and Life Histories. (2) This course uses an evolutionary approach to examine behavior and life histories. Topics addressed include: the optimality approach, constraints on optimality, kin and group selection, predator and prey behaviors, social and mating behaviors, and life history evolution. Offered by Department of Biology.

ENT 609 Population And Community Ecology. (3) This course discusses the processes that determine population distributions and dynamics and community structure for both plants and animals. Topics addressed include: population regulation and population stability, community diversity and stability, ecological succession, population interactions (competition, predation, mutualism), coevolution, and the effects of spatial and temporal heterogeneity on population and community patterns. Offered by Department of Biology.

ENT 625 Insect-Plant Relationships. (3) This course examines the natural history, ecology, and evolution of insect/plant relationships. Topics include mechanisms and theory of plant defense, behavioral and physiological adaptations of herbivorous insects, pollination biology, multitrophic-level interactions, causes of insect outbreaks, and applications to managed ecosystems. Critical reading and discussion of current literature is emphasized. Offered in spring – odd years.

ENT 635 Insect Physiology. (4) Study of insect physiological processes including development, digestion, reproduction, respiration, excretion, hormones and immunity. Opportunity to learn techniques used in insect physiology and molecular biology. Prerequisite: Consent of instructor. Offered in spring – even years.

ENT 636 Insect Molecular Biology. (4) Principles of insect molecular biology. Analysis of insect development, reproduction, behavior, immunity, transgenic insects and insecticide resistance at the molecular level. Hands-on experience with molecular biology techniques. Offered in spring – odd years.

ENT 660 Immature Insects. (3) Bionomics, structure and classification of immature stages of insects; practice in their identification. Lecture, one hour; laboratory, six hours.

ENT 665 Insect Ecology. (3) The biotic and physical factors influencing the distribution and abundance of insects and insect populations. Prerequisite: Consent of instructor. (Same as BIO 665.) Offered in fall – even years.

ENT 667 Invasive Species Biology. (3) This course will examine circumstances that allow introduced species to become invasive, how invasive species threaten our resources, and approaches to minimizing the incidence and impact of invasions. Prerequisite: Graduate standing or consent of instructor. (Same as BIO/ FOR 667.)

ENT 670 Scientific Publishing: Process and Ethics. (2) An introduction to scientific publishing, including types of scientific journals, choosing where to publish, the structure of scientific papers, the peer review process, data management and archiving, post-publication promotion of research, metrics of scientific impact such as impact factors and altmetrics, and publication ethics.

ENT 680 Biological Control. (3) Principles related to the use of arthropods to suppress populations of arthropod pests and weeds. Includes historical perspective, ecological relationships, and contemporary issues related to the conservation and manipulation of arthropod predators, parasitoids, and herbivores.

ENT 684 Phylogenetic Systematics. (3) Theory and methods of phylogenetic analysis and cladistics will be explained. Applications of phylogenetic analysis, such as historical biogeography, biological classification, and testing of ecological hypotheses will be explored.

ENT 695 Special Topics in Entomology. (1-4) Special and new courses may be offered under this number.

ENT 748 Master's Thesis Research. (0) Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prerequisite: All course work toward the degree must be completed. The Director of Graduate Studies needs to register students for ENT 748.

ENT 749 Dissertation Research. (0) Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prerequisite: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ENT 767 Dissertation Residency Credit. (2) Residency credit for dissertation research after the qualifying examination. Students may register for this course in the semester of the qualifying examination. **A minimum of two semesters are required as well as continuous enrollment (Fall and Spring) until the dissertation is completed and defended.**

ENT 770 Entomological Seminar. (0-1) Discussion of current research problems in entomology. May be repeated to a maximum of six hours. Offered in fall and spring. Doctoral students take ENT 770 at least four times. M.S. students take ENT 770 at least 2 times. A special section of ENT 770 is available for students who have a robust teaching experience in an ENT course (see DGS for details). Seminars for credit from other departments may be substituted with Advisory Committee Recommendation. After passing the qualifying examination a student may take ENT 770 for 0 credit hours.

ENT 780 Special Problems in Entomology and Acarology. (2-3) Investigations of chosen insect problems, including original work. Discussion and assignment of current insect subjects. **May be repeated to a maximum of six credits.** Prerequisite: Consent of instructor. Offered in fall and spring.

ENT 790 Research in Entomology and Acarology. (1-6) Independent research in entomology or acarology. **May be repeated to a maximum of 12 hours.** Prerequisite: Consent of instructor.



Seed-feeding beetle, *Stator beali* (Photo by C. Fox)
Dr. Chuck Fox and his students study the evolution of life history traits in seed beetles.

POST-DOCTORAL SCHOLARS AND FELLOWS

Post-doctoral Scholar:

A Post-doctoral Scholar is an individual who has earned a doctoral degree and is pursuing an individualized program of advanced training in research, teaching, and any important aspects of academic work, or in any combination of these activities for which the University has assumed a measure of responsibility. Although participation in the program provides advanced training, an academic assignment is required as a condition of appointment with salary. A Post-doctoral has status both as a temporary academic staff employee and as a Post-doctoral student.

Post-doctoral Fellow:

A Post-doctoral Fellow is an individual who has earned a doctoral degree and is a recipient of a fellowship or training award. Through such an award a fellow receives a stipend of living allowance (neither of which are considered salary) from grant funds provided specifically for a particular field of study.

Post-Doctoral Scholars & Fellows appointment paperwork will be completed by Departmental HR Administrator. Additional information is available in the Administrative Regulations (<https://www.uky.edu/regs/ar5-1>.)

LEAVE

Vacation Allowances – Post-doctoral Scholars

15 days of vacation leave shall be credited annually to the Post-doctoral Scholar on the first day of the fiscal year. If a Post-doctoral Scholar starts in the middle of the fiscal year, the days will be prorated. With prior administrative approval, Post-doctoral Scholars can only take vacation leave during the period in which they are eligible to take such leave. Vacation leave, if used, shall be taken in the assignment period in which it is credited, or the vacation leave shall be forfeited.

Temporary Disability Leave

Temporary Disability Leave (TDL) is available for regular staff with a full-time equivalent (FTE) of 0.5 or greater, and Post-doctoral Scholars. The intent of this policy is to provide leave for employees who have an illness or injury which prevents them from performing their jobs on a temporary basis, or to care for eligible family members within the guidelines of HR TDL Policy 82.0 <http://www.uky.edu/hr/policies/temporary-disability-leave>.

Temporary Disability Leave (TDL) or sick leave often cannot be approved in advance if it is directly related to the employee's health. However, it should still be documented.

Note: Post-doctoral Scholar leave is not currently entered into SAP. It is the responsibility of the Faculty member sponsoring the Post-doctoral Scholar to keep track of time used and communicate with Department HR Administrator when leave request are submitted for tracking purposes. Post-doctoral Scholars are to fill out IRIS/Absence Record for any type leave request.

Contact your Department HR Administrator for a copy of the IRIS/Absence Record form.

Department Chair
Dr. S. Reddy Palli
rpalli@uky.edu

Director of Graduate Studies
Dr. Ken Haynes
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859-257-1618

Front Office Support
Jessica Van Erden
jessica.vanerden@uky.edu
859-257-7450

Weekly Seminars
Attendance expected
<https://docs.google.com/document/d/1DajtgSILmm8qAOq5FqHuNvZTkoKCECYkLBIBXs5KGs/edit>

The Graduate School
<http://gradschool.uky.edu/>

Building Maintenance Emergency (e.g. broken water lines)
859-257-3844

Institutional Equity and Equal Opportunity Office (Sexual Harassment)
859-257-8927

All Emergencies
911