

# **GRADUATE STUDENT POLICIES AND PROCEDURES**

**Department of Entomology  
Kansas State University**

(Revised, based on faculty vote: March 5, 2004)

## ACADEMIC HONESTY

All students at Kansas State University are bound by the Kansas State University Honor Pledge: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." As such, entomology graduate students are expected to maintain academic honesty in all of their coursework. In the conduct of their research, students are also expected to maintain high standards of ethical behavior. To fulfill these standards, students are expected to develop several traits. These include the use of "searching skepticism" and an open mind when analyzing data; the use of scientific objectivity in developing scientific values; knowing and disclosing conflicts of interest; sharing research materials in a collegial way; and giving credit to others where credit is due. Students are strongly recommended to read *On Being A Scientist: Responsible Conduct In Research*, published by the U. S. National Academy of Science, and available at: <http://www.nap.edu/readingroom/books/obas/index.html>

## GRADUATE STUDENT SELECTION AND ADMISSION PROCESS

- A. Potential applicants are encouraged to contact the Department of Entomology via email ([entomology@ksu.edu](mailto:entomology@ksu.edu)) or via telephone (785-532-6154) for opportunities in the graduate program. If the potential applicant is deemed to have the necessary credentials, the Department Head will provide information on the individual to a potential advisor who may initiate contact with the applicant about graduate opportunities. Concurrently, the Department will send an application packet to the applicant. Alternatively, the applicant can submit an online application. Information about the faculty and graduate program opportunities are made available on the department's website (<http://www.oznet.ksu.edu/entomology>).
- B. All applicants are automatically considered for graduate research assistantships, which are available on a competitive basis.
- C. Application packets are handled by the office staff under the direction of the Head of the Department of Entomology.
- D. Once complete, applications are channeled to members of the Graduate Affairs Committee for review and recommendations. Each committee member acts independently, and the following criteria are used as general guidelines for admission:
1. Students are expected to have a background in biology in addition to a minimum of two years of chemistry, one year of mathematics, and one semester of physics.
  2. An overall 3.0 GPA (B average) is expected in the undergraduate program. Successful completion of the M.S. degree at another university does not automatically result in acceptance to the Ph. D. program; the student's B.S. program background will be considered along with that of the M.S. program, as applicable (see F).
  3. Although not required by the Department of Entomology, submission of Graduate Record Examination (GRE) scores will aid in the evaluation of applications for graduate study.
  4. The KSU Graduate School requires that international students present evidence of satisfactory knowledge of English (**as of 1999, requirements are a minimum score of 550 in the standard TOEFL or 213 in the computerized TOEFL version**).
- E. The Graduate Affairs Committee will then direct the reviewed application to the Department Head for review.

F. Each applicant's folder, containing comments from the Graduate Affairs Committee and Department Head, is made available to interested faculty willing to serve as an advisor.

G. Acceptance into the department is based upon recommendation of acceptance by the Graduate Affairs Committee to the Department Head, availability of a faculty member willing to serve as the student's advisor, and admission by the Graduate School.

H. A student is specifically accepted into either a Ph.D. or an M.S. program based on the recommendation of the Graduate Affairs Committee, Department Head, and proposed advisor. Any change in the student's status (e.g. switching from an M.S. to a Ph.D. program or from a research M.S. to the Master's Report option) must be approved by the Graduate Affairs Committee, the Department Head, the major advisor, and the Graduate School.

I. If the department elects not to recommend the applicant for admission, the Department Head informs the applicant of this decision.

J. Upon admission by the Graduate School, the Department Head corresponds with each applicant on the following items: 1. name of advisor, 2. general area of research (when appropriate), 3. funding status, if any, 4. expected date of arrival, and 5. other information as deemed appropriate by the Department Head and faculty.

K. Non-degree students: Students admitted on a non-degree basis must meet the same departmental entrance requirements as regular status students. Non-degree students may be considered for regular status if their performance meets the departmental standards (including overall GPA of 3.0 on work completed at Kansas State University). The request for change of status is forwarded to the Graduate Affairs Committee and should be supported by the student's advisor.

L. Direct Admission to Ph.D. Program of Study: The department generally does not encourage students with a B. S. degree to apply for direct admission into the Ph.D. program of study. Truly exceptional applicants with extensive coursework, research experience, and/or research publications may be admitted on a probationary basis. Final decisions on whether a student is eventually offered official admission into the Ph.D. program will be based on performance in coursework, relative class standing, and research progress in the probationary first year of study.

## **STUDENT LEARNING OUTCOMES**

### **Ph.D. Degree**

The departmental academic goals, as set out in our Mission Statement, include training undergraduate and graduate students for professions in education, government, business, and industry. Specifically, by providing a base of knowledge relevant to our discipline, to science, and to society, we strive to instill in all of our students the desire to accomplish the vision set out by the College of Agriculture and K-State Research and Extension: "Knowledge for Life". To achieve these goals, entomology students pursuing the Ph.D. degree will be:

#### **Required to demonstrate:**

- core knowledge of entomology – including ecology, taxonomy, physiology, and pest management

- the ability to conduct original research, including the analysis and interpretation of data
- in-depth knowledge in area of specialization
- general knowledge of current issues and methods in science and technology and develop lifelong habits for maintaining this currency
- the ability to write scientifically sound research proposals and manuscripts
- the ability to orally present scientific information and research ideas
- the ability to teach by developing and delivering materials

**Expected to:\***

- develop critical thinking skills and the ability to apply the scientific method
- synthesize and transfer fundamental knowledge to achieve practical solutions
- practice ethical and professional behavior and demonstrate social responsibility
- work collaboratively and with individuals of diverse backgrounds
- exhibit safe practices in the laboratory and field to protect human and environmental welfare

**\*Experiences will be provided to achieve these outcomes but they will not be assessed as SLOs**

**M.S. Degree**

The departmental academic goals, as set out in our Mission Statement, include training undergraduate and graduate students for professions in education, government, business, and industry. Specifically, by providing a base of knowledge relevant to our discipline, to science, and to society, we strive to instill in all of our students the desire to accomplish the vision set out by the College of Agriculture and K-State Research and Extension: “Knowledge for Life”. To achieve these goals, entomology students pursuing the M.S. degree will be:

**Required to demonstrate:**

- core knowledge of entomology – including ecology, taxonomy, physiology, and pest management
- the ability to conduct original research, including the analysis and interpretation of data
- in-depth knowledge in area of specialization
- general knowledge of current issues and methods in science and technology and develop lifelong habits for maintaining this currency
- the ability to write scientifically sound research proposals and manuscripts
- the ability to orally present scientific information and research ideas

**Expected to:\***

- develop critical thinking skills and the ability to apply the scientific method
- synthesize and transfer fundamental knowledge to achieve practical solutions
- practice ethical and professional behavior and demonstrate social responsibility
- work collaboratively and with individuals of diverse backgrounds

- exhibit safe practices in the laboratory and field to protect human and environmental welfare

**\*Experiences will be provided to achieve these outcomes but they will not be assessed as SLOs**

## **CONDUCT OF GRADUATE PROGRAM**

The student's advisor and the student are responsible for the selection of an Advisory Committee to be presented to the Head of the Department. The advisory committee for M.S. students must have a minimum of three members and that of Ph.D. students must have a minimum of four members, one of whom must be from outside the department. For the purpose of the latter, adjunct faculty members cannot be counted as being from outside the department. Ancillary or adjunct faculty members can only serve as co-major professors.

The Head of the Department can request the Graduate Affairs Committee to review the composition of the Advisory Committee and recommend an additional member (the intent of this action would be to broaden the scope of the student's experience where desired). Final approval at the departmental level is given by the Head of the Department. The Graduate School has the responsibility for the formal appointment of the Advisory Committee. The committee for Master's candidates is to be formed prior to the completion of the first semester (Spring or Fall) of study. For Ph.D. students, the committee is to be formed prior to the end of the second semester of residence.

An approved program of study is to be filed by the end of the second semester of residence. **Students and major professors are advised to consult the Graduate School Guidelines before preparing a Program of Study** (<http://www.ksu.edu/grad/guidelines/gdeline.htm>).

### A. Core Curriculum:

All masters and doctoral students in the Department of Entomology must demonstrate, through prior academic experience and/or enrollment in graduate coursework in our department, proficiency in the following core areas:

- Insect Taxonomy
- Insect Ecology
- Insect Physiology
- Integrated Pest Management

If similar courses have been taken previously, students must have received a grade of B or better and must meet with a designated faculty member in each core area for a written and/or oral assessment of knowledge. If the student is unable to demonstrate the required knowledge, he/she is required to enroll in such courses and obtain a grade of B or better.

### B. Prior to the first Advisory Committee meeting, the student will prepare:

1. A summary of his or her academic background and results of core curriculum knowledge assessment, if needed.
2. A proposed course of study, in consultation with the major professor.

3. A proposed outline for a thesis, report, or dissertation, again in consultation with the major professor.

These materials will be provided to committee members and the Department Head one week prior to the initial committee meeting.

C. At the initial Advisory Committee meeting to which the Department Head must be invited, the members will:

1. Evaluate the student's academic background.
2. Approve a course of study.

The proposed course of study will then be submitted through the Department Head to the Dean of the Graduate School in accordance with university regulations. For Ph. D. students, approval of a course of study and proposed dissertation outline may require more than one meeting.

3. Approve tentative dates for preliminary and final examinations, and for doctoral students, topics to be covered in the preliminary exam.

4. Review and make recommendations for the thesis or dissertation proposal.

D. At the initial or a subsequent committee meeting, a detailed research proposal will be approved. The approved research proposal, with literature review, objectives, and procedures, will be filed in the student's folder in the department office by the end of the third semester of residency.

E. Extramural Grant Proposal Requirement for Ph.D. Students: Ph.D. students are required to prepare their dissertation research proposals in the format of an extramural grant proposal, using the most current formats for USDA, NSF, NIH, EPA, or other appropriate U. S. federal extramural funding agencies. Research proposals must include any needed institutional approvals for use of animals, research on human subjects, use of radioactive and other hazardous chemicals, recombinant DNA methods, etc. Proposal formats are available from the KSU Office of Sponsored Programs and/or the Entomology Department Business Office. During the third academic semester of their course of study, Ph.D. students are required to submit the proposal to their advisory committee and the department head for review and comment. Students are encouraged to submit their research proposals to various dissertation improvement grants programs or other programs. The department recognizes that while such opportunities are generally available to US students, there may be restrictions on international students. However, international students can have their advisors submit the proposals for funding, and the same can be specified in the student's résumé and letters of recommendation. Students intending to actually submitting grant proposals must work with the grants manager in the department, and should have the approval of their major advisor

F. Proficiency in entomology plus any support areas required by the student's research should be adequately covered within the broader framework of basic and applied scientific, educational, and philosophical aspects. Proficiency is demonstrated through satisfactory completion of written and oral preliminary exams (see Section M).

The program of study for all students should prepare them to demonstrate proficiency to the Advisory Committee and department graduate faculty in at least five of the following areas:

1. Morphology
2. Systematics & Evolution
3. Anatomy & Physiology

4. Behavior
5. Genetics
6. Ecology
7. Principles of Pest Management (no more than two of the following can be counted towards the minimum):
  - a. Integrated Pest Management
  - b. Biological control
  - c. Toxicology
  - d. Host Resistance

In addition, the student must demonstrate proficiency in at least one area of specialization outside the department (i.e., statistics, biochemistry, plant or animal physiology, etc.).

Teaching and/or extension opportunities may be added to these minimum requirements by the student's Advisory Committee (see Section P).

It is recommended that all entomology students have as a minimum the 15 hours of basic entomology courses for the Ph.D. (morphology, taxonomy, ecology, and physiology). Some of these courses may be taken at the undergraduate level, therefore, allowing for more time in the graduate program for supporting courses. Other courses— toxicology, evolution, genetics, and pest management—are recommended to graduate faculty committees as being essential for the Ph.D. candidate. Teaching is required of all doctoral students (see Q.2.), however, it is strongly recommended that graduate advisors encourage master's students as well to seek teaching experience.

G. Minimum requirements for the various study options are:

1. Master of Science — 30 credits including a thesis of 6 credits.
2. Master's Report — 32 credits including a report of 2 credits. This degree is no less rigorous than the Master of Science, but is intended for students desiring less emphasis on research. Therefore, this option is normally considered a terminal degree in the Department of Entomology.
3. Ph.D. — 90 credits including a dissertation of at least 30 credits.

H. Students are strongly encouraged to have advisory committee meetings at least once a year, if not once a semester.

I. Annual progress reports from all graduate students are due November 30<sup>th</sup> or the Monday following Thanksgiving (whichever is later). The Head of the department will notify all students by October 1<sup>st</sup> of the due date for the report.

J. The final oral examination at the Master's level will be both comprehensive and a defense of the candidate's thesis or report. In case of failure, a second examination may be scheduled in accordance with university regulations.

K. Students who have received the M.S. degree in Entomology at Kansas State University are required to apply for admission if they wish to continue towards the Ph.D. within the Department.

1. The student must submit to the Graduate Affairs Committee a request, including a current KSU transcript, a description of future professional goals, and a supporting statement of purpose. The student's Advisory Committee and the proposed Ph.D. advisor also are expected to submit

letters of support. The Graduate Affairs Committee is responsible for forwarding the request through the Department Head to the Dean of the Graduate School along with their written recommendations, whether the committee supports the request or not.

2. If either the Graduate Affairs Committee or the Department Head does not support the request, the student must be notified in writing of the reasons for denial of the request. The student then has the opportunity to reply in writing to the Graduate Affairs Committee and the Department Head. Copies of the communications will be kept in the student's personnel file and will be made available to the Graduate School at the student's request.

L. Students in the Entomology Program will not be permitted to take more than two degrees at Kansas State University unless the B.S. degree was in an area other than the Entomological Science or Pest Management options of the Crop Protection Curriculum.

M. Departmental Policy on Ph.D. Preliminary Examinations:

1. Written and oral preliminary examinations will be taken no later than the semester following completion of the second year of the student's program. Upon approval of the Department Head, the committee may grant an extension if important course work, relevant to the exam, cannot be scheduled prior to this time limit. In all cases, however, both exams must be successfully completed no later than seven months before the final Ph. D. examination. The oral preliminary exam will be scheduled two to three weeks after successful completion of the written portion.

2. The primary intent of the written exam is to verify that the student has achieved adequate mastery of, and competence in, applying core areas of entomology and relevant complementary knowledge. In addition, written exams are designed to assess critical thinking, communication skills, and knowledge of research approaches. In consonance with its verbal format, the oral exam also tests the student's ability to reason, to synthesize facts and concepts, and to interact professionally.

3. The written exams are to be based on the proficiency areas selected by the student and the student's committee (Section F). Members of the student's advisory committee will represent each selected proficiency area and provide the exams to determine proficiency. One committee member may represent more than one proficiency area. In case the student chooses an area of emphasis that is not represented on the advisory committee, the student in consultation with the advisor will choose a graduate faculty member in entomology to provide this expertise.

Proficiency in an area may be determined by a written exam, a literature review, a research project, a grant proposal or some other written method that is agreed upon by the student, the examiner, and the advisory committee. The same method may be used to examine a student's proficiency in two or more areas simultaneously (e.g., a grant proposal might cover both physiology and IPM). Students are encouraged to write proposals in their area of interest so that the proposal can be submitted to funding agencies. Course work in entomology may not be substituted to evaluate proficiency for the purposes of the written preliminary exam.

Non-entomology members of the student's advisory committee may use any of several methods to determine a student's proficiency in the non-entomology specialization, including satisfactory completion of a body of course work in that outside area.

The time limit for completion of the exams will be left to the discretion of the examiner with the agreement of the advisory committee. However, it is expected that the student does not extend the proficiency exam over many months.



The decision as to whether a student passes or fails the written examination rests with the committee, after it has received evaluations of all examiners. The major professor shall consult with and present the views of all non-committee graduate faculty members who were asked to contribute to written exams.

4. The student's performance on the exam, plus any comments or recommendations, will be communicated to the student as soon as they are available. This may be done either by the major professor or in the form of a committee meeting with the student. This meeting can also serve as a planning session for the oral examination to follow. If no committee meeting is held, it is recommended that the student consult individually with the authors of all exam questions.

5. An announcement will be sent by the major professor to the entomology graduate faculty not less than one week prior to the scheduled oral examination date. In accordance with departmental policy, attendance is restricted to KSU graduate faculty except by written permission of both the major professor and the Department Head. The exam will be administered primarily by the committee, but with supplementary questions from faculty in attendance as time permits. It is the responsibility of the major professor to solicit and to regulate questions.

6. At the conclusion of the oral examination, the student will leave the room, and the major professor will invite input from faculty in attendance regarding the student's performance. All faculty, particularly those leaving early, are encouraged to leave written comments with the major professor. As an entomologist, it is expected that the major professor will take cognizance of the comments in his/her own deliberations and, as in the written examinations, present them to the committee. Non-committee members will then leave the room, and the committee will make the final decision as to whether or not the student passes or fails.

7. Pass/Fail. Although the preliminary examination may consist of written and oral parts, it is considered as a single examination. For programs requiring a written and an oral portion, both parts must be completed successfully for the student to have met the preliminary examination requirement. If the examination contains an oral portion, the oral comes after the written portion and may be taken only if the written portion is passed. The examination is failed if the written portion is failed, and the student may not proceed to the oral portion. Such an instance constitutes one attempt. No more than one additional attempt may be permitted without approval of the Graduate Council. The circumstances under which a second attempt may involve the entire written portion or merely a repetition of failed sections are determined by the student's advisory committee in consultation with the Department Head.

8. Both written and oral portions of the examination must be passed before the student's Graduate School ballot is approved as a PASS. At this time, the student is formally admitted to candidacy for the Ph. D. degree.

N. The final oral examination for the Ph.D. degree will be a defense of the candidate's dissertation.

O. Final oral examinations (both M.S. and Ph.D. degrees) are scheduled through the Graduate School. Department policy for these exams is as follows:

1. The examination date, time, and place will be announced to all faculty and graduate students at least one week in advance.

2. The first portion of the examination session will be an oral research review presentation ("seminar") by the student. This review will be open to all faculty members, graduate students, and others who wish to attend. Questions may be asked of the student by persons attending this review.

3. Following the review, the room will be cleared except for members of the student's committee, the Department Head, and other graduate faculty wishing to remain, any of whom is entitled to ask further questions.

4. At the conclusion of the examination, the committee members will meet alone to vote on whether to pass the student.

P. All examinations for all degrees follow the rules prescribed by the Graduate Faculty Handbook and departmental policy.

Q. Departmental seminar requirement:

1. Entomology Seminar (ENTOM 995) is a one-credit course that shall be offered only on a "Credit/No Credit" basis, with credit to be determined by the Seminar Committee. Presentation of research at the final oral examinations cannot be utilized to fulfill requirements for ENTOM 995. Enrollment in Entomology Seminar is required once in the M.S. Program of Study before the end of the second semester and once in the Ph.D. Program of Study before the end of the third semester. At this seminar, students are required to present and defend their research proposal, and should obtain feedback to improve research plans. This experience will also help the students develop public speaking skills. A student may enroll in Entomology Seminar more often but may not include this in the Program of Study. At the start of the academic year (or earlier if possible), the Seminar Committee will discuss with students the criteria by which the committee will award credit. A student may also receive credit for a seminar presentation, either related to the student's research or not, which will be evaluated as is the required non-dissertation seminar.

2. In addition, doctoral students are required to present and obtain credit for at least one non-dissertation related seminar. Students must register for ENTOM 995. This is typically done when the student is close to completion of coursework and just prior to undertaking proficiency exams. The purpose of this requirement is to broaden the student's graduate experience and expose the student to new areas that provide teaching experience. The seminar should conform to high academic standards (i.e., it should not be a workshop, demonstration, or travelogue). It should be a topic outside the student's present and past subjects of research. For example, a student who had undertaken master's work or is doing doctoral research in insect physiology should choose a topic outside of insect physiology, and a candidate in integrated pest management should choose a topic separate and apart from integrated pest management. A topic dealing with a different insect or a different area within the student's immediate research discipline is not generally considered sufficiently unrelated to meet this requirement. The student shall initiate the planning process for this seminar by obtaining a Graduate Student Seminar Requirement Request Form from the Seminar Committee chairperson. The student must suggest at least three potential topics for the seminar, and after receiving signed approval of the request by the major professor, the Seminar Committee will determine if the proposed topics are acceptable, and suggest one topic for the student to prepare the seminar on.

The topic of the non-dissertation seminar must be outside the student's general area of specialization as defined by the dissertation topic, however, it could be in areas declared by the student for demonstrating subject-matter proficiency for preliminary exams. In case of potential overlap (e.g., physiology and genetics; taxonomy and evolution), the advisor and/or seminar committee will work with the student to develop a topic to avoid overlap with or be closely related to the immediate research area. Final approval of the topic will rest with the seminar committee.

3. Presentation of research at the final oral examination is required of both M.S. and Ph. D. students.

## R. Teaching experience.

1. A student can obtain teaching experience as a Teaching Assistant (TA) appointed by the Head of the Department. This is a paid position; thus, the student does not receive credit hours for duties performed. Doctoral students involved in teaching courses as a paid GTA automatically meet the teaching requirements for Ph.D. students (see item 2 below).

2. Graduate Student Teaching Requirement: All Ph.D. students are required to teach for at least one semester during their course of study. Students should inform the Head of the Department of the course in which they wish to volunteer and the semester in which they wish to gain such experience. The Head will work with the instructor of record to ensure the assigned student has the necessary knowledge and skills to teach the course. Faculty members teaching the courses must facilitate student efforts to fulfill this requirement, and help students develop into effective teachers. M.S. students may volunteer to teach but are not required to do so. Students should register for *ENTOM 932 (Topics in General and Systematic Entomology) Entomology Teaching* under variable credit after discussion with the instructor of record. The number of credit hours would be variable, depending on the time devoted to the teaching activity. Minimum for one-credit hour would be the preparation and possible presentation under the supervision of the course professor of either 2 lectures or 2 laboratory exercises. Professors are encouraged to outline minimum requirements by which students can gain this experience in their course (development of lectures, laboratory presentations, syllabus, etc.).

3. The department will announce during the first half of the previous semester the courses for which there will be an opportunity for students to participate.

S. All students must submit voucher specimens of the arthropods utilized in their research to the KSU Museum of Entomological Prairie Arthropod Research and the voucher specimen number assigned must be cited in the thesis or dissertation and in manuscripts submitted for publication.