

IMPORTANT INFORMATION

When you first arrive at Iowa State University (ISU), you may find yourself overwhelmed by the number of things you must do to get started. Here is a list of some of the most important items to consider:

1. Introduce yourself to Dai, Amy, and Donna - they can help you find your way around the department, college, and university.

-**Dai Nguyen**, Graduate Program Coordinator, in 207 Science I (E: dna112@iastate.edu, P: 515.294.9052)

-**Sandee Bodholdt**, Business Administrator, 1344 ATRB (E: sandee@iastate.edu, P: 515.294.1741)

-**Donna Moore**, Administrative Assistant, 1344 ATRB (E: dmoore12@iastate.edu, P: 515.294.1160)

2. Plan to meet with the Departmental Chair and Entomology Director of Graduate Education (DOGE) - they can be helpful resources as you progress through your degree.

-**Steven Harris**, in 2213 ATRB (E: stevenh1@iastate.edu, P: 515.294.2149)

-**Matt O'Neal**, in 2001 ATRB (E: oneal@iastate.edu, P: 515.294.8622)

3. Meet with our departmental IT group in 537 Science II to help with your hardware and software support. See Appendix IV, pages 26-27, for more details.

4. Register for an ISU e-mail address and check it regularly. E-mail is our program's most common means of communication. Several e-mail listservs exist (Table 1).

-Your Network Identification, or Net-ID, is the group of characters before the "@" sign of your Iowa State email address. It is different than your University ID, which is the nine-digit number listed on the front of your ISU Card.

-Your Net-ID is important because it serves as your unique identifier at ISU. In fact, many accounts to which students have free access recognize ISU Net-IDs as login credentials.

-You may have already created your Net-ID through your ISU admissions account, but if not you can set it up now.

*Go to asw.iastate.edu

*Click on "Need to register for a Net-ID?" under the box labeled Register

*Enter the required information and click Next

*You can keep the suggested Net-ID or change it here if you'd prefer

*Set your password. Be sure to follow the password standards described on the page.

*Click Accept and then click Register

*NOTE: registration may take a few minutes to process. If you encounter an error at this point, contact the IT Solution Center (E: solution@iastate.edu, P: 515.294.4000)

Table 1. E-mail listservs @ iastate.edu

<i>Listserv address</i>	<i>Who is included</i>
entdept@	faculty, staff, postdocs, graduate students
entfaculty@	all faculty members (past and present)
entpostdocstudents@	all postdoctoral researchers
entstaff@	all P&S and merit staff
entgradstudents@	all graduate students
biologyit@	IT hardware and software support

5. You will be assigned a mailbox in the building that houses your lab (Science II or ATRB). You should regularly check for mail. The university mail service should not be used for personal mail.

6. Off campus local calls may be made on most campus phones. Please press 8 and then the local number to connect to phone service off campus.

Useful Websites:

ISU homepage: www.iastate.edu

ISU Department of Entomology Homepage: <http://www.ent.iastate.edu>

Entomology Graduate Student Organization: <https://www.ent.iastate.edu/egso>

Information Technology Services: <https://www.it.iastate.edu/>

Dean of Students Office: <https://www.dso.iastate.edu/>

Student Counseling Services: <https://www.counseling.iastate.edu/>

ISU Graduate College Homepage: <http://www.grad-college.iastate.edu/>

ISU Graduate Handbook: <http://www.grad-college.iastate.edu/common/handbook/>
General Program Catalog: <http://catalog.iastate.edu/>
Schedule of classes: <http://classes.iastate.edu/>
ISU Policy Library: <https://www.policy.iastate.edu/>.

FORMS

The majority of forms you need as a graduate student can be found through the ISU Graduate College homepage: <http://www.grad-college.iastate.edu/>. Examples include:

- Graduation and Thesis Forms
- Graduate Student Request Forms
- Concurrent Student Request Forms
- When a member of your Ph.D. committee is unable to attend on-site Prelims or Finals
- Preliminary or Final Oral Examinations with Committee Member at a Distance
- To request a final oral examination
- To graduate during the summer but “walk” at commencement during fall or spring
- Summer graduates wanting to attend Spring or Fall Commencement Ceremony
- Request for Professional Advancement Grant (PAG) to present at conferences or conduct research outside of your thesis/dissertation

The Program of Study (POS) System is located in *AccessPlus*:

<https://accessplus.iastate.edu/frontdoor/login.jsp> under the Student Tab at the Graduate Student Status link. You will form your POS Committee and list required courses and any later modifications through this site. See pages 6-8 in this Handbook on “Degree Requirements” for list of courses and information on how faculty should be represented on your POS.

AccessPlus is a great source of your information: go to AccessPlus, Student Tab, Display “Grad Stdnt Status” <https://accessplus.iastate.edu/frontdoor/login.jsp>

The Request for Preliminary Examination (PRELIM) is one form NOT available on-line; however, this can be obtained through departmental office or the Graduate College.

Making Schedule Changes -

<https://catalog.iastate.edu/registration/#schedulechangestext>. Students may make most schedule changes through the first five days of class using the AccessPlus registration system. For courses with permission requirements and/or after the first week of classes, a Schedule Change form will be needed.

The Schedule Change form can be found in AccessPlus, under the Student tab, within Registrar Forms located in the menu on the left column. Procedures for schedule changes vary by the time period of the semester. The effective date of a schedule change is the date when the change is entered into the registration system.

If you are unsure as to whether a form is required and/or where it is located, please contact Dai Nguyen, Graduate Program Coordinator, in 207 Science I (E: dna112@iastate.edu, P: 515.294.9052).

DEGREE REQUIREMENTS

Degrees offered

Entomology offers coursework and research experiences leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.). An option for an emphasis in Molecular Entomology is available. The department also offers a minor in Entomology and participates in the Emerging Global Diseases minor. See the course catalog for full details. Because entomology is a research-based discipline, non-thesis M.S. degrees are not offered.

Admission to a graduate degree program

The degree which a student may pursue in Entomology (that is, M.S. or Ph.D.) is normally determined and specified at the time of the student's admission to the program. Although a prior M.S. is not required for admission to the Ph.D. program, criteria for admission to the Ph.D. program are more stringent than for the M.S. program and excellent performance in an M.S. program is helpful. Students wishing to enter a Ph.D. program in Entomology after completion of an M.S. in Entomology must re-apply to the Department program and submit materials to the DOGE. Again, their application for admission is judged by the same criteria as students applying for admission to the Ph.D. program from other programs or institutions.

Required prerequisite courses

Completion of at least two years of zoological courses is required for students wishing to major or minor in entomology. Courses in closely allied biological sciences may be substituted. Specific course requirements for advanced degrees depend partly upon previous training and experience in the major field of specialization. If a student enters

without a course in Entomology then they must take Insect Biology (ENT 370) or Fundamentals of Entomology and Pest Management (ENT 376).

Required graduate courses

To assure that all our students are trained in key areas of entomology, all students are required to take certain courses and participate in certain activities. A cumulative 3.0 (B) grade point average must be maintained by the student to remain in good standing. For core courses, students must attain a grade of B or higher. Any student receiving the M.S. in Entomology shall have at least one course in insect physiology, one course in insect systematics, two courses of ENT 590 (selected from topics A through D, F through I, M and N, inclusive), and at least one credit of ENT 600. Students seeking an M.S. degree must have at least 32 credits, including the core curriculum, and research credits. M.S. students are strongly encouraged to attend departmental seminars.

Any student receiving the Ph.D. in Entomology shall have at least one course in insect physiology, one course in insect systematics, four additional courses of ENT 590 (selected from topics A through D and F through I, M through N inclusive), and at least one credit of ENT 600 (Table 2). At least one 590 must be taken from each of these subgroups: Population, Organismal, Sub-organismal (Table 3). In addition, Ph.D. students majoring in Entomology must have two semesters of teaching experience, taken as ENT 590K both semesters or ENT 590K one semester and ENT 590L the other semester.

Ph.D. candidates must take at least 72 credits, including the core curriculum, at least three research credits, and are expected to attend seminars. Additional course work may be selected to satisfy research interests, and expectations of your Program of Study (POS) Committee. (See page 11 for information on your POS Committee)

Table 2. Course requirements by degree

Course Number	Course Name	Ph.D.	M.S.
ENT 555	Insect Physiology	x	x
ENT 576	Systematic Entomology	x	x
ENT 590	Special Topics (See Table 3)	4x	2x

Course Number	Course Name	Ph.D.	M.S.
ENT 600	Research Seminar	x	x
ENT 699	Research	Required	Required
Minimum number of credits		72	32

Table 3. Ent 590 Special Topics, ranging from 1-3 credits for each section

Population	Organismal	Sub-Organismal	Other
C. Ecology and Pest Management	A. Biological Control and Pathology	G. Molecular	E. Special Research Topics
D. Evolution and Systematics	B. Chemical Ecology and Behavior	H. Physiology and Biochemistry	K. Teaching Experience
N. Population Genetics	F. Medical and Veterinary	I. Toxicology	L. Extension Experience
	M. Immature Insects		

Requirements for an emphasis in molecular entomology

Any student receiving an M.S. in Entomology with an emphasis in Molecular Entomology is required to take ENT 555, ENT 590G, plus one other course of ENT 590 (selected from topics A through D, F, H, I, M, N), one additional course in molecular entomology, ENT 600 Seminar, BBMB 404, BBMB 542A, and one course from the following: ENT 576, ENT 525, or ENT 568. Any student receiving the Ph.D. in Entomology with an emphasis in Molecular Entomology is required to take ENT 555, ENT 590G, plus three other courses of ENT 590 (selected from topics A through D, F, H, I, M, N), one additional course in Molecular Entomology, ENT 600 Seminar, BBMB 542A, plus two other workshops selected from BBMB 542 B through E, an additional course with a molecular component, and one from each of the following two categories: Systematics (ENT 576, ENT 525, ENT 568), Biochemistry (BBMB 404, BBMB 405, BBMB 501). Go to <https://www.ent.iastate.edu/gradstudents> for more information.

Requirements for a minor in entomology

A student can receive a Ph.D. minor in Entomology by taking three entomology courses 500 and above for a total of nine credits as determined by the student's Program of Study (POS) Committee and approved by the Entomology Director of Graduate Education (DOGE). One member of the student's POS Committee (see page 11) must be in entomology.

"Testing out" of required courses

If you feel that you already know the material covered in one or more of the required courses, you may petition to be excused from the requirement. To do this, first discuss the idea with your major professor, POS Committee, and the course instructor. If they all agree you know the material, prepare a memo signed by your major professor and course instructor, and submit at the same time you submit your POS form to the DOGE. A word of caution: if you are excused from an entomology course requirement, do NOT forget to review the topics covered by the course prior to your preliminary (Ph.D. students) and/or final exam (M.S./Ph.D. students)! You will be expected to be as knowledgeable on this topic.

Transferability of credits from other institutions

The transferability of credits from other institutions will be determined on a case-by-case basis by the student's POS Committee and the entomology chair. To waive a course requirement, the student must send a memo signed by his or her major professor (on behalf of the POS Committee) and the instructor of the course the student wishes to waive, to the Entomology chair. The memo must state that the student has already received satisfactory instruction in the subject matter covered by the required course. Credits for seminars, workshops, and colloquia are not transferable.

REQUIRED ACTIVITIES

As a part of your training, graduate students majoring in Entomology are required to participate in certain, non-course activities. Failure to fulfill these requirements may result in delay of graduation.

Graduate English examination

If your native language is not English and you did not receive your undergraduate degree from a U.S. institution, or do not meet the TOEFL or IELTS exemption score range, you must take the English Placement Test during your first semester of enrollment. The test is

administered by the Department of English and must be taken in addition to TOEFL which is taken as part of the admissions process. Nonnative speakers of English who will have teaching responsibilities are required to take the Oral English Certification Test (OECT).

Teaching requirement

The intent of this requirement is to strengthen graduate student communication skills, reinforce subject matter learning, and form a sound base for achieving departmental teaching objectives. All Ph.D. students are required to teach for two semesters during their Ph.D. enrollment, and M.S. students are also encouraged to participate (Table 4). Students having had TA experience at another university, or as an M.S. student at ISU, may petition to waive all or part of this rule. This teaching experience can either be in a classroom or a non-classroom situation that requires presenting information to an audience (e.g., extension, elementary schools, etc.). Preparation of teaching materials (e.g., insect specimens) may satisfy part of the requirement, but each of the two semesters must include actual teaching. Credit may be obtained through enrollment in either ENT 590K or once only for ENT 590L.

Each teaching experience will be assigned one or two credit hours to be determined in consultation with the instructor. At least one of the semesters of teaching must be at the undergraduate level (100-300 level courses). Courses selected and proposed semesters for satisfying the requirement should appear on the student’s Graduate College Program of Study form. Students will receive a higher stipend during the semesters when they teach if the funds are available.

Formal training in teaching may be required for specific courses. The additional requirement most likely is enrollment in the two-day college teaching seminar/workshop offered each August by the Center for Excellence in Learning and Teaching (CELT; <http://www.celt.iastate.edu/>), which would be taken prior to enrollment in ENT 590K.

Table 4. Entomology courses that require or desire a teaching assistant (ENT 590K)

Course Number	Course Name	Semester	Instructor
ENT 370	Insect Biology ¹	Fall	Jurenka
ENT 376	Fundamentals of Entomology and Pest Management	Fall/Spring	Gassmann and O’Neal

Course Number	Course Name	Semester	Instructor
ENT 374/574	Insects and Our Health	Spring	TBA
ENT 675	Insecticide Toxicology	Fall, odd years	Coats
ENT 425/525	Aquatic Insects	Spring, odd years	Courtney
ENT 555	Insect Physiology	Spring	Jurenka
ENT 576	Systematic Entomology	Fall, odd years	Courtney

¹ multiple sections; ² Teaching Assistant is desirable, but not required.

Teaching performance of students enrolled in ENT590K and ENT590L will be evaluated by the faculty member in charge of the course taught or the extension activity planned. An S/U grading system has been encouraged for these courses, but individual faculty may choose to assign a letter grade.

Scientific ethics

All students majoring in Entomology are required to attend the Scientific Ethics Workshop during Orientation (August or early September). You will be introduced to the concepts of ethical behavior and good practice in science. Included in the presentation will be a discussion of proper research methods, ways to avoid self-deception in the practice of science, and scientific misconduct. Other courses that address scientific and bioethics include:

- GDCB 565A, Responsible Conduct of Research
- GENET 565B, Working with Industry
- PHIL 336, Bioethics and Biotechnology
- GENET 539, Ethics and Biological Sciences
- Additional resource: "On Being A Scientist: Responsible Conduct in Research" National Academy Press, Washington D.C. 1995.

OPTIONAL ACTIVITIES

Entomology seminars

Students are encouraged to attend the Entomology seminars held on Mondays at 4:10 pm and are required to enroll in ENT 600 and present their research results as part of the departmental seminar series. Attendance of these seminars will increase awareness of entomological research conducted both at ISU and at other institutions. Graduate students generally have the opportunity to meet with visiting speakers informally over lunch. Guidelines for preparation and presentation of your seminar will be provided as part of the ENT 600 course.

Prospective student recruitments

Occasionally, you may get asked to meet for lunch or evening meals in an informal atmosphere with prospective graduate students. This is an opportunity for the prospective student to get the “real scoop” on graduate training at ISU. Entomology pays for the meals. Notices of meeting opportunities are made through e-mail to all of our graduate students.

Service on departmental committees

A graduate student representative serves on each committee within the department. Graduate students are encouraged to serve on departmental committees.

Membership and service in professional societies

Membership in professional societies, such as the Entomological Society of America (ESA, <http://www.entsoc.org>), is recommended. There are many other professional societies. Consult with your major professor for societies relevant to your research area. See Appendix IV for student awards available through ESA.

Training and grant writing and publishing

The following are courses that offer training and experience in grant writing and publishing in research journals. Contact instructors prior to enrollment.

Grant Proposal Writing (including proposal critique and budget planning)

- English 509, Writing Proposals and Grant Applications (3 cr)
- FSHN 695, Grant Proposal Writing (1-0 cr) Fall
- GR ST 569, Grant Writing (1-0 cr) Odd Fall
- GENET 565F, Grant Writing (1 cr) Odd Fall

Publishing in Plant Science Journals Process of preparing a manuscript for submission to a refereed journal in the plant sciences. Emphasis on publishing self-generated data from thesis or dissertation research.

- HORT/AGRON/NREM 529, Publishing in Biological Science Journals (3 cr) Spring
- GR ST 566, Communications in Science (0.5-0 cr) Odd spring
- GENET 565C, Communications in Science (0.5 cr) Odd spring

Professional development

The ISU Graduate College offers many opportunities for professional development in teaching, research, communication, career and wellness. <https://www.grad-college.iastate.edu/professional-development/>

Preparing Future Faculty (PFF) is a national program for M.S. and Ph.D. students, and postdoctoral fellows designed to supplement your departmental preparation (<http://www.celt.iastate.edu/grad-students-postdocs/preparing-future-faculty/>). It will help you better prepare for a faculty career through a combination of seminars, mentoring, and practical classroom and service experiences. As a result, PFF can help you increase your competitive edge in the academic market.

- GR ST 585, Preparing Future Faculty Introductory Seminar (1cr) Fall
- GR ST 587, Preparing Future Faculty Intermediate Seminar (1-3 cr) Spring
- GR ST 588, Preparing Future Faculty Special Topics (1-3 cr) Fall and Spring

PROGRESSING THROUGH YOUR DEGREE PROGRAM

Committee appointment and Program of Study

You will, in consultation with your major professor(s), decide on a suitable program for completion of your graduate course work. It is then necessary to appoint a graduate Program of Study (POS) Committee. The composition and responsibilities of the POS Committee will be in accordance with the Graduate College guidelines.

The POS Committee should include faculty whose research interests can aid and complement your research interests, as well as faculty whose expertise will ensure that you graduate with a breadth of knowledge. The POS Committee for a doctoral program must consist of at least five members of the Graduate Faculty. The committee must include at least three faculty, including the major professor, from within the Entomology department. At least one faculty member must be outside the Entomology department. This member of the POS Committee should be someone who can provide relevant specialized knowledge, a different perspective helpful to the planning, execution, and reporting of research, or some aspect of intellectual diversity deemed important by the committee.

The POS Committee for a master's student must consist of at least three members of the Graduate Faculty. It must include two members, including the major professor, from inside the Entomology department. One member of the committee must be outside the department. Once the chosen members of the POS Committee have agreed to serve, you should complete the Graduate College form "Recommendation for Committee Appointment" and submit it to the Entomology DOGE for approval. On the committee form, under major, print or type: Entomology. After official appointment of the committee, copies of the form will be returned to you and your major professor. A third copy is placed in your file in the department office.

The next step is to convene a POS Committee meeting (all committee members must be present), inform them of your research plans, and ask for their evaluation of your plans. This is also the time to complete your POS. The Graduate College Program of Study is one of the more important documents you will encounter while in graduate school. In essence, it is a contract between you and the graduate school indicating the minimum course work which must be taken to complete a Ph.D. or M.S. degree. No changes can be made in it without the mutual approval of yourself, your committee, and the Graduate College. No changes can be made to it without the approval of your committee, and the Graduate College. List the required courses for the Entomology major at the top of the form.

Considerations for scheduling a POS meeting

Scheduling POS meeting with faculty can be facilitated by 1) checking Outlook calendars, 2) using a on-line tool to assess availability (e.g., Doodle, WhenIsGood), or 3) asking the POS Committee members in person to list their free times during that interval. E-mail is the preferred method of communication. Be sure to choose a sufficient interval (2-3 weeks is recommended) to allow scheduling flexibility. Following the advice of the major professor, the student should determine the amount of time required for the planned meeting (for initial and updating meetings usually 2 hours is scheduled). After the faculty respond, the student can select one time when everyone is free, and confirm the time slot by e-mail with POS Committee members. This whole process needs to be completed in one or two days so slots that were free during the initial inquiry remain free. For Preliminary and Final exams, a minimum of 3 hours will be required. This value should be indicated in the initial message to the POS Committee members.

Yearly POS meeting

Each year after the formation of your POS Committee, you should set up a time to meet with the members of your POS Committee. At least three committee members must be present. M.S. students are encouraged to meet yearly until the final defense; at least two committee members must be present. Students are required to give a research presentation at these meetings to facilitate discussion of research progress and feedback. Once a time has been determined, the student should reserve a room for the appropriate amount of time.

Dissertation research proposal

By the end of their first year in their major professor's laboratory, Ph.D. candidates majoring in entomology must present a description of their proposed dissertation research to their POS Committees at or before the time they submit their proposed Program of Study to their committee. The proposal must include a written component submitted to the POS Committee at least one week prior to the oral presentation. The length and formality of the written and oral components will be determined by the major professor. However, the written component must be self-contained and understandable independently of the oral presentation. All members of the POS Committee must be present during the oral component.

After this initial proposal, a POS Committee may require, if it so desires, a longer or more formal proposal. For example, a detailed written proposal as part of the Ph.D. preliminary exam. Research proposal requirements, if any, for master's degree candidates are determined by their POS Committee.

Preliminary examination

All graduate students must pass certain examinations before obtaining their advanced degrees. For a Ph.D. candidate, the first of these examinations is the preliminary examination (master's degree candidates are not required to take a preliminary examination). This examination should be completed by the end of the first semester of the third year of graduate training.

To initiate your preliminary exam, a Request-for-Preliminary-Examination form should be turned into the Graduate College at least two weeks prior to the date of your preliminary examination. Request-for-Preliminary-Examination forms are available in the departmental office and at the Graduate College. After processing your request, the Graduate College will forward the Preliminary-Examination form to Kelly Kyle who will

give this form to your major professor. The results of the preliminary examination will be recorded on this form, signed by all committee members and returned to the Graduate College. All committee members must be present at this examination.

The purpose of the preliminary examination is to test breadth of knowledge in entomology; depth of knowledge in a student's particular research area; and critical thinking skills, especially as they pertain to the scientific method and hypothesis-based research. For this purpose, the preliminary exam must contain both a written and an oral component. The written component is to be administered before the oral exam and must include questions testing your knowledge of entomology. Every committee member must be given the opportunity to present written questions to be answered by the candidate in a manner determined by the committee member (e.g., take home exam, open book, time limit, length limit, etc.). Ideally, each committee member will respond to this invitation by providing his/her questions in a timely fashion. One of the written examination tasks, frequently asked for by the major professor, may be the preparation of an updated research proposal about the candidate's dissertation research plans. If applicable, this proposal should be shared with the whole committee before the oral component of the exam.

The oral component of the preliminary examination should cover additional areas of entomology as well as test the candidate's ability to solve problems and address scientific questions in an appropriate manner. For example, the oral section could be structured as follows: 1) a short summary of research progress and proposed experiments given by the candidate; 2) questions directly interrogating an understanding of the dissertation research project; and 3) questions targeting an understanding of entomology in its widest concept. This is a non-binding suggestion, and we very strongly recommend each Ph.D. student speak with all of his/her committee members well in advance of the preliminary examination to obtain a good understanding of what will be expected.

Guidelines for preparing for your preliminary examination

Do not underestimate the importance of this examination. Your committee will be particularly interested in your ability to communicate (i) experimental design and interpretation of data, (ii) knowledge of facts that are directly or only indirectly related to your presentation that may pertain to entomology or other fields related to your research, and (iii) depth of understanding of material presented and associated information.

Your goal will be to demonstrate proficiency of knowledge and critical thinking skills at the level of a Ph.D. student. To prepare for this exam, you should systematically go through your research presentation and revise material related to it from the literature, textbooks and class notes. You should think about results (achieved or expected), interpretation of those results and subsequent experiments that you might carry out. You should understand the strengths and limitations of the experiments. What will the experiments tell you specifically about your hypotheses? You should understand what positive and negative controls are needed for interpretation of results. Understand the broad picture as well as the specifics. You will be tested on your knowledge and research irrespective of what you ultimately intend to do (teaching, extension, research, other).

Outcomes of a preliminary exam

There are two possible outcomes of a preliminary exam; satisfactory or unsatisfactory. If the committee awards a satisfactory score then the student is not recongnized as a PhD candidate. The POS committee can elect to assign the students one of the following outcomes if the outcome is unsatisfactory; re-take the exam, take additional course work in an area of weakness identified by the examination (possibly training from a POS committee member for additional training), or expulsion from the graduate program. The conditions for re-taking an exam should be shared with the DOGE and the graduate college.

Completion deadlines

Students approaching graduation should check appropriate deadlines. Applicable dates that apply for completion of your degree requirements and graduation can be found at: <http://www.grad-college.iastate.edu/calendar/>.

Writing your thesis or dissertation

All students whose POS require a thesis or dissertation must comply with all ISU requirements in order to graduate. ISU requires all theses and dissertations to be electronically submitted. Students completing research chapters should be in the Journal Paper Format; that is, they must include one or more papers designed for submission to a journal. Writing in Journal Paper Format will help you learn to write papers, and at the same time, shorten the time it takes for your research to be published. If you are including research data from other students or researchers, follow the instructions in the ISU Thesis Manual describing co-authors roles in the research and/or preparation of the manuscript.

Seminars are offered every semester to clarify ISU's publishing requirements, submission procedures, and common problems for graduate theses and dissertations. Faculty and others involved in thesis preparation are also welcome to attend. Visit <https://www.grad-college.iastate.edu/thesis/> to learn more about the thesis requirements, checklist, formatting, and electronic submission.

Manuscript requirements

Before being awarded their degree, all graduate students majoring in entomology must have submitted to the major professor one or more manuscripts for publication in scholarly journals based on their thesis or dissertation research, prior to graduation.

Following are some useful resources to assist you in this endeavor:

- Guidelines for writing a scientific paper:
<http://www.sci.sdsu.edu/~smaloy/MicrobialGenetics/topics/scientific-writing.pdf>
- Writing a scientific research article:
<http://www.columbia.edu/cu/biology/ug/research/paper.html>
- Robert S. Day. 1998. *How to Write and Publish a Scientific Paper*, 5th edition, Oryx Press, Phoenix. ISBN: 1573561657.
- William Strunk, Jr. and E. B. White. 1987. *The Elements of Style*, 3rd ed. Macmillan, New York. ISBN: 1721650393.
- Victoria E. McMillan. 2006. *Writing Papers in the Biological Sciences*. Bedford Books, NY. ISBN: 0312440839.

Final examination

The Final Examination for the Ph.D. dissertation and M.S. thesis is an oral defense. All members of your POS Committee must be present. This examination will review the dissertation or thesis and the candidate's knowledge of relevant subjects. You are required to give a formal seminar presentation of your research to the entomology faculty and students and other members of the Iowa State academic community (ENT600) some time prior to the final defense.

After the dissertation or thesis has been completed and all the other requirements have been met, you should fill out and submit to the Graduate College a "Request for Final

Oral Examination.” When the Graduate College receives this request they will send a “Report of Final Examination” for reporting the examination result to your departmental secretary. The departmental secretary will provide the form to your major professor.

By midterm of the semester proceeding the semester of graduation, you must submit to the Graduate College a diploma slip which shows the expected date of graduation, exact thesis or dissertation title and other data. If you do not graduate at the expected time, a new diploma slip must be submitted at a later time. Diploma slips are available by going Graduate College forms page: <https://www.grad-college.iastate.edu/student/forms/>.

Outcomes of a Final Exam.

There are four possible outcomes for a final exam.

1. Complete pass- student makes minor revisions before submitting the final draft to the Grad College.
2. Pass after revisions, advisor approves- student makes revisions and submits after the advisor or co-advisor approves them. The revisions are not reviewed by the POS committee.
3. Pass after revisions, advisor and POS committee approves- Both the advisor and POS committee approve of revisions before submission to the Graduate College.
4. Fail- the thesis or dissertation is not approved by the advisor and committee and the student is not allowed to submit their document to the Graduate College.

Letters of recommendation

When you get to the point of needing letters of recommendation, make sure to give the faculty from whom you are requesting the letter: 1) plenty of advance warning, 2) a copy of the job/ad description, and 3) a copy of your C.V.

Staying for a Ph.D.

If you have completed an M.S. in entomology and wish to continue on to the Ph.D. program, you will need to re-apply to the department program. If you would like to continue taking classes at ISU, you will need to apply for admission to another major, or apply for admission to a non-degree program through the Graduate College.

Exit interviews

When you receive the “Graduate Student Approval Slip for Graduation” form from the Graduate College, schedule at least a 15 minute exit interview with the entomology chair.

You will need the signature of the entomology chair/DOGE on the Graduate Student Approval Slip.

FINANCES

Almost all students in Entomology receive some form of financial support. The source of the support, however, and the responsibilities associated with it, vary. Students entering entomology usually receive a research assistantship (RA) funded by grant funding obtained by their major professor. The responsibilities associated with your stipends depend on whether you have an RA or a teaching assistantship (TA). Information about these forms of support is available in the Graduate College Handbook. The stipend for Ph.D. students in entomology increases on successful completion of the preliminary examination.

All graduate students on assistantships have signed a Graduate Assistantship Letter of Intent that lists the terms and conditions of their appointment. Generally, graduate assistantship appointments are on a “one-half time” basis. Appointments may be terminated by mutual consent or for cause as described in the Graduate College Handbook. If you have any questions regarding your appointment, see Dai Nguyen, Graduate Program Coordinator, in 207 Science I (E: dna112@iastate.edu, P: 515.294.9052).

Payday at the university is the last working day of each month. Your paycheck will be deposited directly into a bank of your choice. You will need to complete an authorization form available at the Human Resources Office for this. If applicable, deductions are made for Federal and State income taxes.

It is expected that M.S. students will complete their degrees within a period of 3 years, and Ph.D. students within a period of 5 years. The major professor (not the student) is responsible for negotiating any extension of departmental funding beyond these time limits. Extension of a research assistantship under these circumstances is not guaranteed.

Student awards and scholarships

- ISU Entomology: <https://www.ent.iastate.edu/scholarships/gradstudents>
- ISU Graduate and Professional Student Senate: <https://www-gpss.sws.iastate.edu/awards>

- ESA: <https://www.entsoc.org/about/awards-honors>
- NCB ESA: <https://www.entsoc.org/northcentral/awards>

BENEFITS

A health fee is paid by each student but is not an insurance plan; it complements a student's individual insurance coverage. A Group Health Insurance plan is available. Health insurance information and enrollment can be found here: <https://www.grad-college.iastate.edu/resources/health/>. Information about student insurance should be mailed to you through campus mail as soon as you are entered on the payroll system. The program information details open enrollment schedule, options, dental insurance and has links to on-line forms. Students enroll for Health Insurance by using AccessPlus <https://accessplus.iastate.edu/frontdoor/login.jsp>, click on the Student Tab, click on the health Insurance, and then follow the instructions provided for registration.

Newly-employed personnel should not drop any other insurance they may have until they know the beginning date of the ISU insurance. For details and enrollment cutoff dates on the ISU Student and Scholar Health Insurance Program, please check the on-line site for Student & Scholar Insurance Program, and Medical and dental insurance: <https://www.hr.iastate.edu/>.

All international students, whether on assistantship or not, are required to carry the ISU Student Health Insurance or to be covered by another health insurance policy. For more information, contact the International Students and Scholars Office (ISSO) 3241 Memorial Union (294-1120).

Health services

As a student, you are eligible to use the ISU Student Health Service: <https://www.cyclonehealth.iastate.edu/>. The health fee pays for some services offered at the Student Health Center. Thielen Student Health Center is a complete outpatient medical clinic located west of Beyer Hall. The health fee covers consultations with medical staff and subsidizes charges for services, such as laboratory tests, immunizations, x-rays, and pharmaceuticals. A range of services is offered, including medical exams (physicals), women's health care, sports medicine, physical therapy, STD testing and treatment, travel immunizations, and a full-service pharmacy.

For students enrolled for under five credits, the health fee is optional. The Thielen Student Health Center is located across from State Gym at Sheldon and Union Drive on the northwest side of campus.

Vacation and sick leave

Graduate research assistants are considered C-base employees and do not earn vacation or sick leave. You can take vacation with the approval of your academic advisor and by notifying department support staff. Please refer to the ISU's webpage for information about University holidays, especially with regard to access to buildings.

HR training modules for Workday - <https://training.ehs.iastate.edu/iowaSU/site/>

1. Employee Self Service for Students and Graduate Assistants – online
2. Introduction to Workday for Employees – online
3. Absence Management for Employees – online

Teaching assistants are subject to the academic calendar and do not accumulate vacation time. However, they are not required by the university to work when classes are not in session. Graduate assistants on teaching assistantships should, nevertheless, get permission from their major professor before taking a vacation from their research responsibilities.

Injuries and injury reports

All accidents and injuries occurring at work must be reported to the employee's supervisor, even if no medical attention is required. The supervisor and/or employee are responsible for completing a First Report of Injury (FROI) in the ISU Incident Portal. ISU Net-ID is required. If you do not have an ISU Net-ID, contact Office of Risk Management (E: claims@iastate.edu, P: 294-7711). Contact University Human Resources (UHR) for workers' compensation information and questions. ISU students who sustain an injury or illness at work or in the course of university employment are typically covered under workers' compensation and should follow the reporting instructions. All accidents and injuries sustained by ISU students while in academic classes or university-sponsored events must be reported to the Office of Risk Management (ORM) by the student and a university representative.

DISMISSAL CRITERIA

Continuing registration as a graduate student at ISU is contingent on maintaining good standing in a graduate major. Entomology expects students will complete their degrees in a satisfactory and timely manner. However, there are several situations that may require dismissal of a student.

1. Failure to progress satisfactorily in his/her degree program. This may be evidenced by a lack of research progress, a lack of aptitude for entomology, or a failure to maintain a satisfactory academic standing, as defined by the ISU Graduate College Handbook.

2. Lack of a major professor. Because graduate degrees in entomology at ISU are centered about a mentored research project, it is impossible to complete a degree without a research mentor [major professor]. To maintain good standing and earn a degree in entomology, a student must have an entomology faculty member serving as his or her major professor. Occasionally, faculty who have previously agreed to serve as a major professor become unable or unwilling to serve. Faculty desiring to terminate their service as major professor may do so by notifying the student and the entomology chair in writing. A student who has lost his or her major professor has up to three months after the date the entomology chair is notified to identify another entomology faculty member willing to serve. The entomology chair will help the student search for a new major professor, if the student desires.

3. Academic dishonesty. The proper conduct of science requires the highest standards of personal integrity. Because of this, dishonesty in the classroom or in the conduct of research is considered a serious offense by entomology and by the University. Students accused of academic dishonesty will be dealt with according to the procedures outlined in the University Catalog, Faculty Handbook, and the Graduate College Handbook. Possible punishments can include dismissal from the program and expulsion from the University, depending on the severity of the offense.

Dismissal procedures

Procedures for dismissal are as described in the ISU Graduate College Handbook. A student's POS Committee, or if the student has no POS committee, the student's major professor, can recommend the dismissal of a student for any of the reasons listed above. Recommendations for dismissal are made to the entomology chair. Before a dismissal is decided, the entomology chair must give the student a written justification for why dismissal is being considered. The entomology chair must also discuss the situation with

the student, as well as his or her POS Committee, and major professor, in an attempt to find a satisfactory resolution. This discussion constitutes the “informal conference” as described in the Graduate College Handbook. If a satisfactory resolution cannot be reached and the chair decides to dismiss the student, either party may bring the issue to the attention of the Associate Dean of the Graduate College for a decision. The student may appeal the decision of the Associate Dean, as described in the Graduate College Handbook: <https://www.grad-college.iastate.edu/handbook/>.

Responsibilities of entomology and the major professor

It is the responsibility of entomology to counsel students who are having academic difficulties, or if students are unable to overcome these difficulties, to help the students identify and apply to other appropriate degree programs. It is the responsibility of the major professor and his/her department to seek funds for a student’s assistantship and for the conduct of research.

Status in entomology and termination of financial support

Although students in entomology are normally supported on graduate assistantships, this is not a requirement for continued participation in entomology. Students not on assistantship will continue to have regular status in the major so long as they remain in good standing and are registered. However, because assistantship support at Iowa State requires that a student be a member of a graduate program, dismissal from entomology requires that assistantship support be terminated. Students with any doubt about their assistantship status should discuss their situation with their major professor, the DOGE, and the department chair. For further information on termination of assistantship appointments, see the Graduate College Handbook.

Appeal process

The university has established appeal processes for student grievances. These vary depending on the nature of the grievance and are described in the Graduate Handbook. Generally, these procedures begin with the department chair. It is usually best for all parties if a satisfactory resolution can be reached without initiating a formal appeal process. The Associate Dean of the Graduate College is available to informally consult with students and faculty.

APPENDIX I: ENTOMOLOGY GRADUATE STUDENT ORGANIZATION

The members of the Entomology Graduate Student Organization (EGSO) would like to cordially invite you to join their organization. Learn more about the group here: <http://www.ent.iastate.edu/egso/>. This is an organization formed and governed by entomology graduate students. The purpose of this organization is: 1) to formally voice the interests and concerns of the graduate students in the department of entomology, 2) to promote the professional development and educational enhancement of graduate students in the department through formal and informal seminars, meetings, discussions, and dissemination of literature, and 3) to serve as a peer group for information for incoming and currently enrolled graduate students with respect to academic and non-academic requirements.

In addition to these three objectives, the EGSO also functions as a vehicle for social interactions between students and faculty. The EGSO sponsors events such as spring and fall picnics, bowling tournaments, and intramural sports teams. We also do fundraising to support these activities and for charitable work such as assembling and donating insect reference collections for local schools, supporting a spring speaker, and volunteering with the Insect Zoo.

Another important function of the EGSO is to mentor new students. When you arrive at ISU, you should be assigned a mentor by the EGSO vice-president. If you are not, please bring this to the attention of one of the EGSO officers or the departmental secretary, Donna Moore, and a mentor will be assigned to you immediately. Check the entomology student handbook for a check list of items that your mentor should go through with you.

EGSO meetings are typically held on the first Friday of every month at 4:00 PM (location). However, the meeting time is subject to change depending on the schedules of the current members. Therefore, contact one of the following officers to check on the next scheduled meeting and feel free to ask them any questions you have about the EGSO.

Please feel free to come to a meeting or two and see what the organization is all about. If you think it will benefit you and would like to officially join, dues are \$5 per year. We hope you will join and help keep the EGSO a great student run organization!

APPENDIX II: MENTOR CHECKLIST

The Entomology Graduate Student Organization (EGSO) mentor should cover the following items within the first few weeks that the student arrives and be available for the student at any point during their tenure to answer questions and give advice.

1. Take the student on a tour of the entomology buildings (Science II and ATRB).

Introduce them to any professors or students that are present. Show the student around the Union (e.g., bookstore, food, post office, etc.) and off-campus bookstore options.

2. Make sure the student knows where to go or is aware of:

- Office of Payroll, Benefits & Tax is located in the Administrative Services Building, 2221 Wanda Daley Drive, Ames, Iowa 50011. (P: 515.294.7662)

- Registering for classes-

- *Students enter the system via AccessPlus by using university ID and password. A registration access number (RAN) also is needed, if required by their college.

- *The registration system provides messages after each entry indicating whether each request has been processed. Students also may review their current schedules at any time during registration. Students are held accountable for all changes made to their schedules.

- *All students are encouraged to register for courses through the AccessPlus registration system.

- University ID Card – ISU Card Office (E: idcard@iastate.edu, P: 515-294-0747, 0530 Beardshear Hall)

- Online Photo Submittal ISU Card Pick-up

- If you have submitted a photo online on or before 7/1/2021 it is ready for pick up in the ISUCard Office 0530 Beardshear Hall during the office hours listed. You will need to bring a valid state or federal issued photo ID such as a passport or driver's license with you. Incoming students will be sent a link for their online orientation where they will be able to upload a photo for their ISUCard. To ensure the ID will be ready for pick up please follow the guidelines listed as closely as possible.

- *Do NOT Store your ISUCard on the back of your phone!!

- *We have seen an influx of ISUCards deactivated due to storage on mobile devices. The main source of deactivation comes from wireless phone chargers however, ISUCards have been deactivated in the absence of wireless phone chargers as well. The best place to store your ISUCard is in a wallet when not in use. There is a \$25 fee for replacement if damage to the ISUCard has been caused by improper storage or non normal wear.

- Email Registration – Net ID –

- Students can create Net-ID online – no need to go to Durham Hall

- o Your Network Identification, or Net-ID, is the group of characters before the “@” sign of your Iowa State email address. It is different than your University ID, which is the nine-digit number listed on the front of your ISUCard.

- o Your Net-ID is important because it serves as your unique identifier during your adventure at Iowa State. In fact, many Iowa State accounts to which students have free access automatically recognize Iowa State Net-IDs as login credentials.
 - Physical Keys and Card Access – Donna Moore, Administrative Assistant, (E: dmoore12@iastate.edu, P: 515.294.1160)
 - Copy machine codes -
- How to register for classes using *AccessPlus*, phone, or in person at the Registrar's Office at 214 Alumni Hall
- University ID (0530 Beardshear Hall – 8:00 AM – 4:30 PM) make sure the student has a photo ID with them)
- Email registration (Solution Center, 195 Durham Center)
- Keys (Room 339 Science II) and copy machine (get copy code from Dai)
- Health care enrollment form (Thielen Student Health Center, Sheldon and Union Drive)
- Pay bills (on-line via *AccessPlus* or Treasurer's Office, 122 Beardshear Hall)
- Orientation day
- EGSO, and take them to at least one meeting
- Parking options – Commuter parking at Iowa State Center and Lot 29 and bus system
- The Lied Recreation Center Group fitness card – must acquire this card at 2220 State Gym each year if you want to participate in group fitness activities
- Resources in the department like: IT for student laptops and projectors, 433 Science II teaching lab computer
- Other campus organizations, like Graduate and Professional Student Senate (GPSS)
- Library resources
- Entomological Society of America (<https://www.entsoc.org/>) and other societies
- How to sign up for research credits with their professor's research credit code (see Dai for appropriate code)
- Reimbursements for travel, food and supplies through *AccessPlus*
- Talk to the student about course requirements, especially 590s (they can be confusing)
- Answer any additional questions the mentee may have about the department, the university, or the community at large.

APPENDIX III: VOUCHER SPECIMEN POLICY

Graduate students should be aware of their responsibility to deposit in the ISU Insect Museum (or another institution) voucher specimens of the insects they research [Yoshimoto, C.M. 1978. Voucher specimens for entomology in North America. Bulletin of the Entomological Society of America, DOI: 141–142, DOI: 10.1093/besa/24.2.141.]

Individuals embarking on studies that call for voucher specimens should plan carefully before the work is initiated. Such planning should involve direct consultation with entomologists knowledgeable in collection, identification, preservation, and storage of such specimens. When in doubt if vouchers are needed, individuals should check with the Curator of the ISU Insect Collection.

For each species studied a short series of specimens, perhaps 10 of each sex; is preferable to a single specimen or to hundreds of duplicate specimens which take up valuable space in a collection. Each specimen must be correctly prepared and bear a special voucher label (available from the Curator, ISU Insect Collection) clearly linking it to a specific research project, as well as an identification label and all the standard collection data (country and locality, date, collector or researcher, and such information as the host, etc.).

Once a year persons maintaining laboratory cultures used for research must preserve a few vouchers of all cultures in the ISU Insect Collection.

Theses and research manuscripts for publication must indicate where vouchers have been deposited and the names of specialists who have identified material. Referees and Graduate Advisory Committees should insist that authors include such statements in their works, except in the case of very well-known species which are unlikely to be misidentified. Even in the latter case, however, voucher specimens must be preserved so that future entomologists can substantiate results.

APPENDIX IV: COMPUTING AND INFORMATION TECHNOLOGY RESOURCES

Computer support for the department is provided by Biology IT (537 Science II/4301 ATRB).

A. Access to Computers: Your major professor should provide you with a computer for use during your studies. Using a university-provided computer gives you access to a large number of software packages that are licensed for use on university computers only. Computers must be purchased through Biology IT on the existing university contract with approved vendors; a catalog of current models is available. In the unusual case where your major professor is unable to provide you with a computer, older “gently used” computers may be available by contacting Biology IT.

The department maintains an inventory of computing peripherals for checkout to be used in support of the departmental mission. This includes laptops, portable projectors,

cordless presenters/laser pointers, GoPro cameras, external CD/DVD drives, portable microphone, and miscellaneous adapters. For a current inventory and policies regarding the use of these items, see the Biology IT Laptop and Equipment Checkout page.

B. Access to Software and Power Settings: When using a university-owned computer supported by Biology IT, you are able to install many software packages yourself by using Self-Service Software Installation. No administrative account is needed to install software using self-service. Software updates and security patches are automatically pushed to university-owned computers by a central service. If your computer requests that you restart to install security patches, please attend to this promptly.

If you have need of specialized software that is not available in Self-Service/Software Center, please contact Biology IT for licensing information and installation. Please do not purchase software without checking with Biology IT as there may already be a software license agreement in place that gives you access to software without charge.

If you are assigned a desktop computer for your graduate work or do work in a computer lab, please log out but do not turn the computer off. Backups and security updates can take place overnight and turning off a computer prevents these from happening.

C. Acceptable Computer Use and Policies: Computers and workstations are for graduate students, faculty, and staff use only in support of the departmental mission. This includes undergraduates who are working for graduate students or faculty on departmental research. You must comply with all university policies including those regarding acceptable computer use, software licensing, and data classification. Please take the time to read and understand Iowa State University's information and technology policies.

D. Access to Storage: Check with your major professor to learn about how data should be stored. The college provides 2 TB of storage on ISU's Large Scale Storage System for each faculty member. Faculty with active research laboratories often use this space as a repository for their research data. Some labs also use Box cloud storage, which is branded "CyBox" at ISU. For data that is meant to be shared with your major professor, a best practice is to have them create the Box share and add you as a co-owner. Otherwise your data will not be available post-graduation and your major professor will be sad.

Speaking of sadness, flash drives and external hard drives should be used for data transfer only, not for permanent storage of data. These devices tend to fail suddenly and permanently.

E. Data Backup and Computer Security: It is critical that your data be backed up. The department provides data backup for university-owned computers. If you have had a hardware failure and need data restored, or are nervous and want to check that your data is being backed up, please contact Biology IT. While an excellent line of defense against data loss, this backup is best-effort, not a guarantee, and you are ultimately responsible for the safety and integrity of your data.

Biology IT provides computer virus detection software as a standard part of a computer build. There is no need for additional software. The university security team uses tools to detect potentially dangerous internet traffic on the university network. If you have any concern that your computer has contracted a virus, please contact Biology IT.

G. Research Computing: The College of Agriculture and Life Sciences collaborates with the College of Liberal Arts and Sciences to make high-memory, high-speed and clustered computing available to researchers. If you have need for high-performance computing for bioinformatics or other work that exceeds the capacity of your computer, please contact Research IT for a consultation.

I. Website Profile: As part of the department you should have a web profile on the department website at <https://www.ent.iastate.edu/people> to describe your research and make you findable by potential employers. Instructions for completing your profile are here.

Your major professor may have a lab website or research project website already. By federal law all websites must be accessibility-compliant. Additionally, ISU websites are subject to legal and marketing requirements. The department provides websites which meet these requirements at no cost through the CALS/LAS web team. For help with websites please contact websupport@iastate.edu.