

Assessment Plan for Undergraduate Major in Entomology

Department, Program, or Major: Entomology

Degree: Bachelor of Science

College or School Agriculture and Life Science

Date: January 18, 2011

1. What are the department's goals for student learning in the undergraduate major or program?

The overall goal of the Entomology major is for students to emerge educated to approach the world in analytical and critical ways. Upon completion of the Entomology major, students will be able to:

- **To have a working knowledge of mathematics, chemistry and physics.**
- **To have a working knowledge of statistical methods.**
- **To have hands-on experience with biological research methods and tools.**
- **To be conversant with scientific literature, especially the literature related to insect biology.**
- **To know and use fundamental concepts and information in several core areas of biology.**
- **To understand basic arthropod biology, as well as natural history and evolutionary relationships of arthropod orders and families.**
- **To have a deeper understanding of several aspects of the biology of arthropods.**
- **To appreciate the impact that insects have (both positive and negative) on human society, including human health, agriculture, and the environment.**
- **To explain, critically evaluate, and effectively interpret claims, theories, and assumptions in biology**
- **Communicate scientific arguments and ideas clearly and explicitly through writing, speech, and graphical media.**

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2. Through which courses are these goals achieved? How do the courses that comprise the major contribute to the achievement of the learning goals? AND
3. By what methods does the department evaluate the quality of student learning in the undergraduate major? (What sources of data will provide evidence that the stated learning goals have been achieved?)

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Goals	Learning Outcomes	Assessment
To have a working knowledge of mathematics, chemistry and physics	Be able to critically think and use principles, and modes of analysis in chemistry, physics, and mathematics.	Grades in calculus, general and organic chemistry, and introductory physics
To have a working knowledge of statistical methods	Be able to design basic statistical analyses and evaluate basic statistical information.	Grade in an introductory statistics course; Quantitative projects in Entom 4550, 4630, 4700, 4830
To have hands-on experience with biological research methods and tools	Be able to apply and judge the scientific method in conducting inquiry-based research in the laboratory and in the field.	Laboratory and field experiments and reports in BioG 1500, BioMG 2810; General Chemistry; Entom 2120, 3310/3311, 3150, 3330, 3521[?] 4440, 4700, 4550, 4630, 4830; Problem sets in 4700[?]
To be conversant with scientific literature, especially the literature related to insect biology	Be able to <i>critically evaluate</i> information in primary research articles in entomology.	Final papers and projects in Entom 2120, 3150, 3250, 3311, 4630, 4830; Discussion of primary

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		literature in Entom 3070, 3150, 3520, 3310/3311, 4630, 4700, 4710, 4830, 4900
To know and use fundamental concepts and information in several core areas of biology	Be able to apply concepts and analytical approaches in evolutionary biology, genetics and two other areas of biology of the student's choice.	Grades and performance in core biology classes (e.g., BioG 1500, BioGD 2810, BioEE 2780, BioG 1610).
To understand basic arthropod biology, as well as natural history and evolutionary relationships of arthropod orders and families	Demonstrate phylogenetic "tree thinking" and be able to categorize insects based on basic ecological, behavioral, morphological, physiological, or developmental attributes.	Insect collections in Entom 2120, 3150, 3311, 3330; Laboratory exercises in Entom 2120, 3150, 3310/3311, 3330; Final project in Entom 3310/3311, 3250
To have a deeper understanding of several aspects of the biology of arthropods	Be able to examine insects and other arthropods deeply within a biological level of analysis and compare strategies used by different groups	Final papers and projects in Entom 3310/3311, 3330, 4440, 4550, 4630, 4830 (Group A classes)
To appreciate the impact that insects have (both positive and negative) on human society, including human health, agriculture, and the environment	Be able to identify the potential impact of different insect species on agriculture, human health, and society in general; to be knowledgeable about potential control strategies	Final papers, projects, and/or grades in Entom 3520/3521, 4440, 4630, 3070
To explain, critically evaluate, and effectively interpret claims,	Be able to locate, comprehend and synthesize information important for informed	Term papers and writing projects in Entom 3150, 3250, 4630; In-class

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theories, and assumptions in biology	decisions about <i>broader issues in our society</i>	discussions in Entom 3150, 3520, 3070, 4900; Debates in 3330, 4630
Communicate scientific arguments and ideas clearly and explicitly through writing, speech, and graphical media	Effectively communicate in written, oral, and graphical form	Term papers and writing projects in Entom 3150, 3250, 3350, 4630; In-class discussions in Entom 3150, 3520, 3070; Debates in 2410, 3330, 4630; Classroom presentations in 3350

4. Additional, indirect assessment methods that cut across entire curriculum

Indirect Assessment Measures
Course Evaluations
Grad school admissions
Periodic exchange of course syllabi among teaching faculty
Job placements
Grad school applications
Professional school applications
% of students going into pro-social positions
Internships
Job interviews

Plan for ongoing review of the assessment process

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The Department of Entomology, on an annual basis, will review 2-3 of the 10 learning outcomes. We will conduct our reviews in two ways. First, we will hold meetings of the teaching faculty to evaluate the results of the assessment indicators identified for each learning outcome. Second, as part of our annual departmental retreat, we will discuss the overall curriculum and the level of achievement for each of the ten learning outcomes. These retreats will be the occasion for review of and input into the organization of our curriculum and classes, and will allow the entire faculty to have input into changes to the curriculum that may be called for by the results of the assessment process.