

ENTO 8820, Biological Control

Instructors:
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Objectives --

1. The student will understand theory and application of biological control principles
2. The student will gain a deeper understanding for the history of biological control and entomology
3. The student will acquire a fundamental knowledge of the life histories of natural enemies and their use in biological control

Grading – Grades will be determined by the following criteria and scale:

- 20% from each of 3 exams which will cover both laboratory and lecture material (60% total)
- 20% from a required collection (details below)
- 20% from a grant writing exercise

Exam 1	100
Exam 2	100
Final exam	100
Collection	100
Grant proposal	<u>100</u>
Total	500 points

Collection requirements:

A collection will be required. Your collection must consist of at least 60 specimens, and be composed minimally as follows (all adults specimens):

1. Parasitoids: 30 specimens representing 10 families (≥ 5 with host remains)
2. Predators: 30 specimens representing 10 families (≥ 5 with prey remains)
3. Lab specimens can account for no more than 10% of either group
4. Trading is permitted for up to 20% of each group

Grant Proposal:

An abbreviated grant proposal will be required. This should focus on some aspect of biological control related to your research interests or projects.

1. Select project and develop research ideas
2. Develop proposal using USDA-NRICGP guidelines (attached)
3. Modify requirements – Only 5 pages of text, disregard compliance forms
4. Develop budget request and budget justification – be realistic

Biological Control Course (ENTO 8820) Outline:

No.	Topic
1	Course introduction, overview, context; History and philosophy of biological control; Video
2	Collection trip; identification and biology
3	Biology of predators
4	Biology of predators; ID lab
5	Biology of entomopathogens
6	Biology of entomopathogens
7	Biology of parasitoids
8	Biology of parasitoids; ID lab
9	Ecological basis of biological control; Lab
10	Ecological basis of biological control
11	Ecological basis of biological control; Lab
12	Ecological basis of biological control: Life histories
13	EXAM 1 (20% of grade)
14	Classical biological control; Paper discussion
15	Classical biological control
16	Biological control in protected culture
17	Augmentation biological control
18	Conservation biological control; Lab pesticides
19	Biological control of weeds
20	Biological control of plant pathogens
21	Evaluation of natural enemies
22	Case histories: Perennial systems
23	Biological control in annual crops
24	EXAM 2 (20% of grade)
25	Biocontrol and IPM: pesticides
26	Biocontrol and IPM: Host plant resistance

27	Case histories: Household/ Structural (Urban)
28	Med-Vet biological control
29	Collection clean-up
30	Landscape and Nursery biological control
	FINAL EXAM (20% of grade)

Collection requirements (20% of grade; only adult specimens will be accepted)

- A. Parasitoids: Collect 30 specimens, representing 10 families (≥ 5 with host remains)
- B. Predators: Collect 30 specimens, representing 10 families (≥ 5 with host remains)

Research Proposal (20% of grade)

- A. Select project pertinent to current project or interests (*turn in topic, title and summary on 14 September*)
- B. Develop project into research proposal, using USDA-NRICGP guidelines (*draft due on 7 October*)
- C. Abbreviate requirements (e.g., 5 page maximum for proposal text; disregard compliance forms)
- D. Require budget and budget justification