ENY4004C: General Entomology

"Know the smaller majority"

Catalog description:
ENY 4004C COS-BIOL4(2,6). General Entomology: PR: earned a "C" (2.0) or better in both BSC 2010C and BSC 2011C, or C.I. Biology of insects: identification, taxonomy, physiology, behavior, and ecology. Occasional. M&S fee $15.00

Class Meeting Time: Monday and Wednesday **9:00am – 9:50am**, BIO 0105.
Lab Meeting Time: Monday and Wednesday 10:00am – 12:50am, BIO 0105.

Instructor:
Dr. Barbara Sharanowski
Biology 441
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Office Hours: Monday 1:00-2:00pm, Wednesday 1:00-2:00pm, and by appointment

Teaching Assistant:
Davide Dal Pos
Biology 442
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Office Hours: Tuesday 10:30-11:30am, Thursday 10.00-11.00 a.m., and by appointment.

Scope: Insects affect human lives in significant ways every day, from pollinating our crops to transmitting deadly diseases. This course provides an excellent background in general entomology, including the classification, anatomy, physiology, behavior, ecology, and evolution of insects. There is a large focus on how insects impact human life and ecological interactions between insects and other organisms across diverse ecosystems. The lab focuses on identifying common insects across all orders as well as developing skills in insect collecting, preservation, curation, and imaging. This course is useful for anyone considering a career in entomology, museum based careers, and for any student interested in taxonomy, biodiversity, systematics, evolution, insect morphology, and applied aspects of insect identification.

Course Philosophy
Students' Learning Responsibilities
Students are expected to practice personal and academic integrity and to take responsibility for one's own personal and academic commitments. Within the context of this class, regular attendance is critical to facilitate effective learning. Participation in class is expected and heavily encouraged. Students should respect others and contribute to cooperative learning by promoting a respectful atmosphere and striving to learn from differences in people, ideas, and opinions. Students are expected to be prepared for class and submit assignments on time. Students are highly encouraged to ask for help under any circumstances, but particularly if having difficulty with material or learning.

Instructor's Notes:
The instructor reserves the right to make changes to the syllabus and the management of the class at any time during the semester. These changes will be announced in lecture. If the student is in disagreement with anything contained within the syllabus (e.g. course material, structure, grading policy, etc), it is recommended that the student withdraw from the course prior to the university posted

deadline. The instructor also reserved the right to adjust grades up or down upon a request for a re-assessment by the student.

Student Learning Outcomes:
After completion of the course, students should be able to:
(*Cognitive*)

- Differentiate an insect from other life forms and know the basic anatomy of an insect.
- Understand the classification of insects, importance of taxonomy to other disciplines, and appreciate the vast diversity of insect life and form and function
- Recognize insect morphological characteristics, including external and internal anatomy
- Describe basic insect physiology, including growth and development of different types of insects
- Recognize, evaluate, and articulate the advantages and disadvantages of different management strategies in pest control of insects.

(*Behavioral*)

- Collect insects for study using a range of aquatic, aerial and terrestrial field collecting techniques
- Identify all orders and common families of insects
- Preserve specimens for museum study and appreciate the importance of museums for teaching, research, and outreach
- Research a topic of interest and be able to communicate scientific knowledge in a meaningful way to a broad audience

(*Affective*)

- Understand the value and importance of insects and understand the ecological roles insects have in different ecosystems
- Appreciate the global impact of insects on human existence with respect to disease transmission and agricultural production

Classroom Conduct: By enrolling at UCF, all students have agreed to abide by the Golden Rule. Please become familiar with this document at**: http://www.goldenrule.sdes.ucf.edu/.** Please also use common courtesy in class by arriving and departing on time, refraining from sleeping/ talking during class, and **turning off** cell phones, music devices, etc. Students are responsible for all announcements made or assignments given during class. Students who fail to abide by the above may be asked to leave the class.

Academic Integrity:
Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room, including cell phones or computational devices. Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or assignments is also subject to serious academic penalty. Plagiarism involves an attempt to pass off the work and ideas of others as one's own and is considered cheating. Citing all sources for ideas, images, or otherwise is essential. Students must cite the source of images used in their presentations, but are encouraged to take their own photographs. Students should acquaint themselves with the University's policy on plagiarism, cheating, exam impersonation, and duplicate submission (see **http://www.goldenrule.sdes.ucf.edu/.**). Electronic detection tools may be used to screen assignments in cases of suspected plagiarism.

Disability Access Statement:
The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need accommodations in this course must contact the professor at the beginning of the

semester to discuss needed accommodations. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.

Inquiries to the Instructor:
Students are encouraged to discuss issues pertaining to assignments with the instructor well in advance of deadlines. While every effort will be made to return student inquiries via email as soon as possible, students should expect a **minimum of 24 hours** to receive a response. Students are encouraged to drop by the instructor's office for assistance (Room BIO 441), particularly during office hours.

Instructional Methods:
This course combines traditional lecture and interactive laboratories to achieve course and learning objectives. Traditional lectures are intended to introduce the major morphological features for different insect lineages and to explain the current understanding of insect evolution in a phylogenetic framework. During lab sessions students will sort, curate and identify their own collected material as well as insects provided by the instructor. Field days are scheduled but may be cancelled or delayed due to weather. Students should come prepared to hike for field days with proper shoes, a hat, sunscreen, long pants to prevent scrapes, water and snacks for sustenance, and insect repellant if needed. Items can be stored in the lab if there is available space upon approval of the instructor or T.A.

Late Assignments:
Late assignments will be deducted 10% of the final grade for that assignment for every 24-hour period it is late. Assignments must be submitted at class time on the date and time due. Late is considered past the set time noted in the due date. Thus, if an assignment is due at 8:30am and is handed in at 1pm on the same day, it is still considered 1 day late. Late assignments should be handed in to the instructor in class.

Missed Assignments:
To pass the course, all items for which a mark is allocated must be completed and submitted. Additionally, the lab component of the course must be passed to successfully complete the course. Unexcused missed assignments will result in a failure of the class. Where assignments are missed and excused through written notification such as a doctor's certification of illness, evidence of death in the family, or other circumstances that are beyond the control of the student, the student may be given the following options:
1) Complete the assignment and receive the late assignment penalty as described above,
2) Establish a new due date with the instructor and complete the assignment without penalty when handed in by the new due date, or
3) The final grade will be determined by increasing the value of the final class or lab exam (for missed lab assignments or missed class midterm) by the amount that would have been allocated to the missed assignment. **Option three is only viable under extreme circumstances.**

Missed Exams:
See above, however all students must write the both the lab and class final exams to pass the course. If the final exam has been missed for a valid, documented reason such as illness, or death in the family, another exam date will be set at the discretion of the instructor.

Course materials:
Recommended, but not mandatory.

Textbook – The Insects: An Outline of Entomology. P.J. Gullan and P.S. Cranston. 2014. 5th Edition, ISBN 978-1-118-84615-5.

Assessment and Grades:

Grade Evaluation

- Syllabus Exam 2.5%
- Lab Quiz (Orders) 5.0%
- Lab Midterm 15.0%
- Class Midterm 15.0%
- Class Presentation 10.0%
- Insect Collection 12.5%
- Lab Final 20.0%
- Class Final 20.0%

Grading Scheme: A = 100-90; B = 89-80; C=79-70; D=69-60; E/F (fail) < 60

Description of Examinations:

Syllabus Exam

This short exam tests your knowledge of the information obtained in this syllabus, rules mentioned in class, as well as descriptions of assignments handed out in class. Basic class rules and assignments are the focus. Note: My pet peeves are misuse of the word "like" and "literally" and the sound of crinkly chip bags.

Class Midterm and Final

The midterm and final exam will consist of multiple-choice, short-answer and essay questions about specific topics covered in lectures and class discussions. Questions will assess student's mastery of the content and ability to communicate and defend viewpoints on specific issues related to insects and their impact on the environment and human life. Some content is taught in both lecture and lab and will require students to integrate the knowledge learned in both sections.

Pretest

A Pretest will be given out on the first day to test student's knowledge and background information upon entering the class. There are no grades associated with this test, it is purely to assist the instructor.

Lab Exams

The lab exams will assess student's ability to identify insects by knowing key morphological characteristics that define orders and common families of insects learned within the laboratory. Students will be expected to know specific identifying characteristics of organisms to allow them to identify multiple families of insects across all orders. Questions on the exams may also come from laboratory content related to curation, identification, museum management, biodiversity, collecting, imaging, and outreach.

Description of Assignments

***Oral Presentation (10% of final grade)*:**

The purpose of this assignment is to ensure students can research an entomological topic of interest and communicate about entomological science to a broad audience. Students will be choose an insect to research but should obtain approval of the instructor. Students can also choose a mythbuster assignment (see handout). Students will present their topic to the class (5 minute oral presentation, followed by two minutes of questions), utilizing images obtained from the lab and researched sources. Power point is strongly recommended as a delivery format. See assignment handout and grading rubric for more details.

Insect Collection (12.5% of final grade)
The purpose of the collection is to teach students how to collect, sort, and identify insects – with a focus on adult insects. Students will also learn how to properly curate and preserve insect specimens, including proper mounting, labeling, and storage. Students must hand in 25 curated and identified specimens. See assignment handout and grading rubric for more details.

Specimen Check
Students are heavily encouraged to have a minimum of 5, but preferably 10 specimens checked by the T.A. for proper labeling and curation.

Assignment and Exam Due Dates

- Monday, August 20, 2018: Pretest
- Wednesday August 22, 2018: Mandatory Syllabus Test
- Monday, September 17, 2018: Lab Quiz (Orders)
- Monday October 1, 2018: Class Midterm
- Monday October 8, 2018: Specimen Check
- Wednesday October 10, 2018: Lab Midterm
- Monday October 22, 2018: Imaging Lab (Attendance is Critical)
- Monday, October 29, 2018: Class Presentations
- Wednesday, November 21, 2018: Insect Collection Due (before Thanksgiving!)
- Wednesday, November 28, 2018: Lab Final

Course Schedule:

See Handout and next page

Schedule is subject to change by the Instructor. Exam dates and assignment due dates will remain static unless there is a university cancellation.

Date	Day	Topic	Tests and Assignments	Opt. Readings	Lab
20-Aug	M	Overview, Intro to insects	Pretest	Ch: 1	No Lab
22-Aug	W	External Anatomy	Syllabus Test* Mandatory	Ch: 2,3	**Lecture**: Internal Anatomy & Physiology
27-Aug	M	Insect Growth and Development		Ch: 6	External Anatomy, Internal Anatomy
29-Aug	W	Field Day - Collecting Methods			Field Day - Collecting Methods
3-Sep	M	Labor Day			Labor Day No Lab
5-Sep	W	Insect Classification: The Orders		Ch:7, Taxoboxes	Field Day - Collecting terrestrial
10-Sep	M	Insect Classification: The Orders		Ch:7, Taxoboxes	Curation, Labeling
12-Sep	W	Taxonomy, ID, Museums		Ch: 7, Ch: 18	The Orders
17-Sep	M	Phylogenetics and Evolution	Lab Quiz	Ch: 8	Lab Quiz (Orders); Hymenoptera
19-Sep	W	Six-legged Sex: Reproduction		Ch: 5	Field Day - Collecting terrestrial
24-Sep	M	Insect Communication/Behaviour		Ch: 4	Coleoptera
26-Sep	W	Defense and Mimicry		Ch: 1	Neuroptera, Megaloptera, Siphonaptera, Mecoptera
1-Oct	M	Midterm	Class Midterm	Midterm	Field Day - Collecting aquatic
3-Oct	W	Social Insects		Ch: 12	Diptera 1
8-Oct	M	Social Insects		Ch: 12	specimen check, Self Lab, work on collections
10-Oct	W	Ground-Dwelling insects	Lab Midterm	Ch: 9	Lab Midterm
15-Oct	M	Aquatic Insects		Ch: 10	Diptera 2
17-Oct	W	Insects and Plants		Ch: 11	Field Day
22-Oct	M	Co-evolution and Mutualism		Ch: 11, 14	Imaging Lab - work on presentations
24-Oct	W	Predators	Withdraw Date (Oct 26)	Ch: 13	Lepidoptera
29-Oct	M	Class Presentations	Class Presentations		Class Presentations
31-Oct	W	Parasitoids		CH:13	Hemiptera
5-Nov	M	Parasites		Ch: 13	Self Lab, work on collections
7-Nov	W	Forensic Entomology		Ch: 15	Psocodea, Orthopteroid Orders
12-Nov	M	No class - Veteran's Day			Veteran's Day
14-Nov	W	Med/Vet Entomology		Ch: 15	Odonata, Ephemeroptera, Hexapod Orders
19-Nov	M	Pest Management - Ag and Urban		Ch: 16	Self Lab, Work on Collections
21-Nov	W	Thanksgiving - No class	Collections Due		Collections Due - Can study for final
26-Nov	M	Biocontrol		Ch: 16	Outreach, Live insects and Rearing, Lab study
28-Nov	W	Art, Careers, Class Wrap Up	Lab Final	Ch: 17	Lab final