

**Course Title:** Insect Biology

**Course Number/Level:** ENTOM2021

**Academic year:** 2022-2023

**Semester:** Fall 2022

**Enrollment:** 34 students (undergraduate students from varied class standings and graduate students)

**Instructor:** Dr. John Phillip Sanderson

**Graduate TA:** Augusto Santos Rampasso

**Undergraduate TAs:** Brendan Lan, Jaz Anderson, Max Cantelmo, Natalie Sacco, and Nick Rocha.

**Course description:** Why study insects? For starters, insects are the dominant multicellular life forms on earth. Over half of the more than 2 million described species of multicellular living creatures on earth are insects. Their diversity of body forms is astounding. Most of them are smaller than 2 centimeters and weigh less than a gram. Why have they been so successful? Though they are largely terrestrial in distribution, there is no region on earth where insects do not exist. Insects are critical to food webs and perform irreplaceable ecological services to life on earth. A few thousand species (a very small fraction of the total number of described species) have become pestiferous and destroy our crops or imperil our health and need to be studied for pest management. But the vast majority of the insects simply carry out their lives beyond our scrutiny as integral parts of ecological webs in the environments that we also inhabit.

This tiny yet astonishing “world” of insects is all around you, wherever you go, yet most people are only occasionally aware that it even exists. By the end of this course, you will have refocused your intellectual understanding, and perhaps more importantly, your perceptual awareness, of these creatures in the habitats through which you move. You will learn to see them and interpret their signs everywhere you go. You will discover this hidden-in-plain-sight “world”. And there is biological generality to studying insects. The general rules we learn together about insects apply to most animals. But there is also plenty that is unique about insects.

In this course we will explore the broad, basic biology of insects: their anatomy, their phylogenetic diversity and relationships, their physiology, their behavior, their ecology, their ecological roles, and a little about how they affect us (and vice versa). Lab work will be designed to get you up close and hands-on with the biology, behavior, and diversity of real insects, how they “work”, and doing what they do in nature and in the laboratory. Ultimately, however, this course can only begin to give you a small taste of all that is fascinating about insects. It is simply not possible to cover much of the details about these animals in a single semester. We’ll just hit the high points, and we’ll have fun doing it.

**Responsibilities:** For the course as a whole, I attended weekly teaching meetings, proctored exams, responded to students’ messages, contributed to classroom management, and managed the undergraduate TAs. As part of my responsibilities for the lab portion of the course, I became a certified driver of 9-12 passenger vans, and drove students on field trips using vans from the Cornell fleet. I helped to teach students how to collect and preserve terrestrial and aquatic insects. Over the semester, I would set up the lab for practical activities, introduce and run two 3-hours long lab sections per week. I designed a new format for the lab activities that should be expanded in the next edition of this course. I prepared and graded two lab practical exams, in addition to preparing materials and organizing the lab space for the exams. I provided guidance to students as they worked on their final insect collections with 60-70 species, representing 51 ecological/behavioral categories, with 3 partial collections throughout the semester. I was largely involved in grading and providing feedback on those collections.

**Student evaluations – quantitative** (1 = completely disagree, 5 = completely agree). The grades are from the sections 401 and 402, respectively:

Seems knowledgeable in the subject matter:	4.75 ± 0.45;	5.00 ± 0.00
Is well prepared for class:	4.67 ± 0.49;	5.00 ± 0.00
Uses class time efficiently:	4.42 ± 1.00;	5.00 ± 0.00
Stimulates deeper thinking about the subject:	4.08 ± 0.90;	5.00 ± 0.00
Makes me feel free to ask questions:	4.67 ± 0.65;	5.00 ± 0.00
Provides clear and comprehensive explanations:	4.58 ± 0.67;	5.00 ± 0.00
Communicates interest in helping students learn:	4.82 ± 0.40;	5.00 ± 0.00

Is willing to help students outside of class:	4.50 ± 0.85;	5.00 ± 0.00
Conveys enthusiasm in teaching the material:	4.67 ± 0.49;	5.00 ± 0.00
Involves everyone in class:	4.67 ± 0.49;	5.00 ± 0.00
Is organized in presenting the material:	4.27 ± 0.90;	5.00 ± 0.00
Grades equitably:	4.45 ± 0.82;	5.00 ± 0.00
Comments on my work in ways that help me learn:	4.36 ± 1.03;	5.00 ± 0.00
Realizes when students do not understand:	4.36 ± 1.03;	5.00 ± 0.00
Overall the quality of my TA's teaching is:	4.73 ± 0.65;	5.00 ± 0.00

**Student evaluations – comments sample:**

“Augusto really helped in my engagement with the lab part. He was always there to help, very kind, and extremely patient with everyone. He’s amazing at teaching and would be a great professor one day.”

“I really liked Augusto as a TA! He was really friendly and I felt comfortable around him. I think he did a great job teaching the course and I could tell he really cares about the subject. He also didn’t make me feel bad or dumb if I didn’t know anything and would check in with me if I was missing anything. All in all, a pleasant experience.”

“My lab sections TA, Augusto, prioritized us learning and understanding the lab material and was sure to answer any questions. He showed up prepared in every section and always gave a small lecture regarding the day’s lab material prior to the assignment, which helped a lot with digesting the material and breaking down the work into manageable portions. Lab exams were comfortably challenging. You can tell he cares about teaching and enjoys it.”