

ENVS 131: INSECT ECOLOGY – Summer Session 1 2022:
M & W – 9am-12:30pm
Room: ISB 431

Instructor: Dr. Andy J. Kulikowski II
Email: akulikow@ucsc.edu
Office hrs: Tues and Thurs: 4-5pm or by appointment via Zoom

COURSE DESCRIPTION

This is an advanced course in insect ecology for undergraduate students in Environmental Studies and in related disciplines. We will examine 1) major theories in ecology as they apply to insects, 2) how ecologists empirically study insects, and 3) how insects interact with human-modified systems. We will also explore important ecological interactions that center around insects at local to global scales. The course structure will follow biological organization from the individual, to populations, to communities to food webs. The diversity of insects is far too great to cover in five weeks. Thus, the course will focus on terrestrial insects and the key concepts that contribute to insect ecology. The course will include varied activities including lectures, discussions, in-class activities, local field trips, and independent study/research.

The three main learning objectives for this course are:

1. Gain an understanding of ecological principles as they pertain to insects
2. Gain appreciation and knowledge of the natural history of insects and the organisms they interact with
3. Gain an understanding of scientific inquiry associated with insect ecology

COURSE COMPONENTS

Lectures:

Class will consist of lectures by Dr. Kulikowski mixed with discussions, group work, assignments, and “field trips” to various spots on campus. See the schedule below for a breakdown of topics by date. Student participation will be evaluated based on active participation in class as well as completion of several short assignments and discussions throughout the quarter.

Attendance:

Attendance is required for all class meetings (10% of grade). Since the course is incredibly short, missing a day will put you behind the equivalent of a week in normal-quarter terms. Therefore, there will be no unexcused absences allowed. Any unexcused absence will result in loss of participation points for the day and an additional 0.25% off your grade. Absences may be excused due to illness, death in your immediate family, UC research activities, or participation in a significant religious holiday. Trips out of town for family events or extracurricular activities, including university-sponsored athletic events, are generally not considered excused absences. If you have an

excusable reason to miss class, contact Dr. Kulikowski **before class begins**. You will still be responsible for making up missed material and alternative assignments if needed.

Required reading:

There is no textbook required for the course but there will be daily readings posted in Canvas modules. Readings will consist of textbook excerpts and scientific papers relevant to the topic for the day. Approximately 15 minutes of each class will be devoted to discussing the readings as a group.

Readings for the day should be completed before class starts. Many readings will be excerpts or only certain sections of papers. See Canvas for exact page numbers for required readings.

Insect journals:

You will have one field journal assignment per week due on Fridays (four total). The topics will vary (see weekly Canvas modules for specific assignments) from freeform to specific based on the learning objectives. You will be required to draw diagrams and graphical hypotheses along with key written portions. **By class on Friday, June 24 (the holiday make up class), please purchase a small journal you can take into the field.** You will upload a scan of your journal entries to Canvas assignments. **Please do not upload photos of your journal. I will only accept clear scans of your journals in PDF format** (there are a variety of scanning apps you can download and use but please let me know if you have trouble meeting this requirement).

Insect of the day:

During most class periods, we will take ~10 minutes at the start of class for two to three students to present their “insect of the day.” Students will sign up for their insect of the day on the first day of class. You will present an on an insect you encountered through the field excursions, research projects, or on your own. Each presentation should last ~5 minutes and be in Powerpoint/Google slides format. Please email the file or link to Dr. Kulikowski the night before class, and arrive to class by at least 8:55 AM to set up your presentation. Each presentation should include:

- (a) Introduction to your insect including order, family, scientific and common names
- (b) Information about the geographic range / distribution if known
- (c) Description of the life cycle of the organism
- (d) Information about the diet or feeding mode of the insect
- (e) One interesting piece of information about the ecology of the insect
- (f) Explanation of why you chose this insect
- (g) Any pics that help explain the material

Research paper:

Each student is required to write a research paper based on data collected by everyone in the class. We will manage, manipulate, and analyze the data in class on **July 6**. You will then have until the last official day of class to write a research paper that 1) introduces the impetus for the study based on the recent literature 2) describes the methods succinctly 3) presents and interprets results of the study and

4) draws on a diverse set of literature to discuss your conclusions. The format is thus exactly like a real scientific paper. We will discuss details of the research project on the first day of class.

Final and quizzes: The final will consist of short answer, short essay, and long essay questions. The final exam is comprehensive and will take place during the last class meetings. Online quizzes (four total) will open on Thursday evenings and are due on Sundays by 11:59pm (see schedule for due dates).

Grading:

Class participation 20% total – 2% per class meeting

Insect journals: 10% total – 2.5% per entry

Quizzes: 10% total – 2.5% per quiz

Insect of the day: 10%

Research paper: 30%

Final 20%.

Note: all points given in the class relate 1:1 to the percentage of your total grade for the course. For example, if an assignment is worth 2 points, it counts for 2% of your final grade.

Grading scale: The grading scale for final grades is as follows: A+ = (> 97%), A = (93-96.4%), A- = (90-92.4%), B+ = (87-89.4%), B = (83-86.4%), B-=(80-82.4%), C+ = (77-79.4%), C = (73-76.4%), C-=(70-72.4%), D+ = (67-69.4%), D = (63-66.4%), D- = (60-62.4%), and F is 59.4 or below. I will round up to the next letter grade **ONLY** when a student is within 0.5% of the next grade (e.g. 69.5-69.9% will round to a C-).

Accessing online content: All course content will be organized by weekly modules accessed through the “Home” tab in Canvas. Some future content not yet assigned to a module (readings, assignments, etc.) will be accessible through their respective folders (e.g. files -> readings).

Deadline policy: The exam date and the due dates for the various assignments are absolute. Assignments submitted late will be subjected to a 25% deduction in grade for each day late. No credit will be given beyond 4 days of the due date. If extenuating circumstances occur, contact Dr. Kulikowski **BEFORE** the due date or beginning of the exam.

Class schedule:

Note- only major assignments (i.e. essays) and most readings are listed in the schedule. Please refer to the weekly Canvas modules and lectures for all assignment due dates, required readings, and extra materials (e.g. links to videos). The schedule is subject to change as needed. Class meeting days are denoted with “Lecture:” before the date. Assignments are in bold. Readings are not in bold.

Date	Readings and major assignments	Class Content
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June 20	No class: Juneteenth	No class: Juneteenth
Lecture: June 22	Read syllabus	Introductions; entomology and insect diversity; insect ID crash course in Norris Center (NS2 229)
Field excursion: June 24	Field journal guidelines; How to keep a field journal; “Why ecology needs natural history” Field journal #1: Sampling insect populations due on Canvas by 11:59pm	Holiday make up: meet at North Perimeter Lot @ 9:30am sharp
June 26	Quiz #1 due on Canvas by 11:59pm	
Lecture: June 27	Excerpts from Price et al. Ch. 2 Nature: Intro to Eusociality	Behavioral ecology; eusociality; Field observations in Great Meadow
Lecture: June 29	Ehrlich and Raven, 1964 Janzen, 1970 Excerpts from Price et al. Ch. 4	Plant-insect interactions; Herbivory field excursion
July 1	Field journal #2: Herbivory due on Canvas by 11:59pm	
July 3	Quiz #2 due on Canvas by 11:59pm	
July 4		No class: 4th of July
Lecture: July 6	All data for research project needs to be uploaded before class meets!!! Kulikowski, 2020 Download and install R then Rstudio	Data manipulation and analyses
July 10	Field journal #3: Free from Natural History on Canvas by 11:59pm Quiz #3 due on Canvas by 11:59pm	

Lecture: July 11	Hairston, Smith, and Slobodkin, 1960 Dyer and Letourneau, 1999	Mutualisms Predator/parasitoid-prey interactions; Trophic cascades
Lecture: July 13	Excerpts from Price et al. Ch. 9 & 11	Population ecology; Sampling populations field excursion
July 17	Field journal #4: sampling a population due on Canvas by 11:59pm	
July 17	Quiz #4 due on Canvas by 11:59pm	
Lecture: July 18	Wagner, 2020 “Silence of the Bugs” Stager 2018	Community ecology and conservation; Exam review
Lecture: July 20	Prep for final	Final exam
July 22	Research paper due by 11:59pm on Canvas	

POLICIES AND PROCEDURES

Academic Integrity Policy:

Students are expected to adhere to the UCSC policy on academic integrity www.ue.ucsc.edu/academic_misconduct. It is the general expectation that work submitted for a grade represents a student’s independent and personal effort, produced without recourse to plagiarism, cheating, unauthorized materials, copying from other students, or data fakery. ENVS faculty have a responsibility to clearly explain academic integrity in the context of each course’s assignments and assessments, including guidelines for acceptable collaboration when group work is permitted. When writing up your final project, remember that plagiarism is the use of another’s words or ideas with improper or insufficient credit to the source--and that *using someone else’s wording* verbatim or nearly verbatim is still plagiarism, even if you credit the source material. If you are unsure how to abide by this policy, ask the instructor. Students have a responsibility to ask for clarifications pertaining to academic integrity before submitting work for a grade. The ENVS instructor will contact the student(s) involved to discuss a potential violation of academic integrity before imposing an academic sanction. If a student is found to violate academic integrity, the minimum penalty will be a zero for the assignment. More serious transgressions, such as cheating on exams, may result in an F for the course.

Disability accommodation policy:

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately during my office hours or by appointment, as soon as possible in the academic quarter, and discuss with me how we can ensure your full participation in this course.

Title IX policy:

The university cherishes the free and open exchange of ideas and enlargement of knowledge. To maintain this freedom and openness requires objectivity, mutual trust, and confidence; it requires the absence of coercion, intimidation, or exploitation. The principal responsibility for maintaining these conditions must rest upon those members of the university community who exercise most authority and leadership: faculty, managers, and supervisors.

The university has therefore instituted a number of measures designed to protect its community from sex discrimination, sexual harassment, sexual violence, and other related prohibited conduct. Information about the Title IX Office, the online reporting link, applicable campus resources, reporting responsibilities, the UC Policy on Sexual Violence and Sexual Harassment, and the UC Santa Cruz Procedures for Reporting and Responding to Reports of Sexual Violence and Sexual Harassment can be found at titleix.ucsc.edu.

The Title IX Office is actively responding to reports and requests for consultation. If you are not currently working with someone in the office and want to make a report/request a consult, you can expect the fastest response by using our online reporting link.

Land Acknowledgement:

We would like to acknowledge that the land on which we gather is the traditional and unceded territory of the Uypi Tribe of the Awaswas Nation. Today these lands are represented by the Amah Mutsun Tribal Band who are the descendants of the Awaswas and Mutsun Nations whose ancestors were taken to Mission Santa Cruz and Mission San Juan Bautista during Spanish colonization of the Central Coast.

COVID**What we can expect from each other:**

Each individual at UC Santa Cruz should act in the best interests of everyone else in our community. Please take care to comply with all university guidelines about masking, performing daily symptom and badge checks, testing as required by the campus vaccine policy, self-isolating in the event of exposure, and respecting others' comfort with distancing. Please only come to class if your badge is green or in a temporarily yellow status. If you are ill or suspect you may have been exposed to someone who is ill, or if

you have symptoms that are in any way similar to those of COVID-19, please err on the side of caution and stay home until you are well or have tested negative after an exposure. Let me know that you're not feeling well and I'll respond about how best you can keep learning.

What you can expect from me:

I have designed our course following campus guidance and with current public health guidelines in mind. However, these guidelines may change in accordance with shifting infection rates or the emergence of new variants. If updated public health recommendations and university requirements make our current course format unfeasible, or if I experience a need to self-isolate, I will alter the format. This may include moving in-person sessions onto Zoom, modifying course assignments to work in a remote format, and reconfiguring exams (if applicable). I will communicate clearly with you via email or Canvas announcement about any changes that occur. I will provide as much advance warning as possible and give you all the information you need to transition smoothly to the new format. If you have questions about the changes, please reach out to me so I can answer them.

What I expect from you:

If you experience an illness or exposure that requires you to miss class sessions or to attend remotely, please communicate with me as soon as possible and I will provide you with options to allow you to continue making progress in the class.