## Ecology Lab (BIEB 121) - Fall quarter 2022

**ECOLOGY LAB.** 4 units. BIEB 121 is designed to familiarize students with ecological methods, problem solving, critical thinking, data presentation, data analysis, and scientific communication (in the form of both presentations and writing). Students perform fieldwork and analyze data collected on the UCSD campus (including the UCSD Ecological Reserve and Scripps Coastal Reserve). The natural history of organisms in our local ecosystems provides the context and inspiration for a majority of the assignments. Students should provide and use their own computer.

**Prerequisites:** BIEB 100, MATH 11 or SIO 187 and BILD 3

Course times: 9-1250 W & F in York Hall 4124 or in the field (see schedule below)

**Professor:** David Holway (dholway@ucsd.edu); **Instructional assistants:** Megan Demmel (mdemmel@ucsd.edu) & Nikki Mercer (nmercer@ucsd.edu)

- Assignments and grading. There are eight assignments in this course and a total of 200 possible points. Assignments include the following: (i) plant trait data analysis and presentation exercise (15 pts), (ii) critical reading exercise (15 pts), (iii) rare organism class presentation (30 pts), (iv) invasive species fact sheet (20 pts), and (v) four lab reports based on field data projects (30 pts x 4). Note that of the six field data projects scheduled, you will pick four to write up for credit. You are expected to participate in the field portion of all data projects even if you don't plan to write up that exercise for credit. There is no final exam, and the class will not meet during finals week.
- Field instruction. Lab reports will be based on field data projects. For each field data project, the class will be divided into subgroups of students who will each collect their own data. Data sets will then be combined across the entire class for analysis. During class sessions that involve campus fieldwork, please bring a notebook, pen/pencil, phone, and water. Please wear sturdy shoes; a hat and sunscreen are recommended. On campus fieldwork will usually be conducted on Wednesdays (see schedule below). Please follow all safety instructions in the field.
- Lab instruction. We will meet in the lab to discuss data organization, analysis, and presentation. Attending lab meetings will be essential for understanding how to write up lab reports. Lab meetings will typically be held on Fridays after each Wednesday field data project (see schedule below). During lab meetings, we will also present an overview for the fieldwork planned for that next week. These sessions will be recorded. Given ongoing public health challenges imposed by the pandemic, some lab sessions may be conducted remotely, but at this time please plan to meet in person.
- Remote instruction. Class presentations (9 & 23 Nov) will be conducted on Zoom.
- **Readings.** There is no assigned textbook for this class. Each week's activities will involve supplementary readings (articles from the primary literature) that will be placed on Canvas prior to when readings are discussed.

## **Ecology lab schedule for Fall Quarter 2022**

Date	Lab meeting (F = field; L = lab; R = remote)	Due dates
23 Sep (F)	F: Course overview & introduction + campus ecosystem tour I	
28 Sep (W)	F: Campus tree tour + plant trait data (PTD) collection	
30 Sep (F)	L: Introduction to R + plant trait data analysis	
5 Oct (W)	F: Campus ecosystem tour II	PTD write up
7 Oct (F)	L: Critical reading exercise (CRE) + Lab 1 intro	
12 Oct (W)	F: Lab 1 - Predation risk experiment	CRE write up
14 Oct (F)	L: Lab 1 - Predation risk experiment: analysis + Lab 2 intro	
19 Oct (W)	F: Lab 2 - Ant mediated seed dispersal	Lab 1 report
21 Oct (F)	L: Lab 2 - Ant mediated seed dispersal: analysis + Lab 3 intro	
26 Oct (W)	F: Lab 3 - Abundance vs range size in native perennial plants	Lab 2 report
28 Oct (F)	L: Lab 3 - Abundance vs range size: analysis + Lab 4 intro	
2 Nov (W)	F: Lab 4 - Ants in trees	Lab 3 report
4 Nov (F)	L: Lab 4 - Ants in trees: analysis + Lab 5 intro	
9 Nov (W)	R: Presentations on rare organisms I	Lab 4 report
11 Nov (Th)	Veteran's Day (no class)	
16 Nov (W)	F: Lab 5 - Ecology of marine wrack	
18 Nov (F)	L: Lab 5 - Ecology of marine wrack: analysis + Lab 6 intro	
23 Nov (W)	R: Presentations on rare organisms II	Lab 5 report
25 Nov (F)	Thanksgiving (no class)	
30 Nov (W)	F: Lab 6 - Bird behavior lab	
2 Dec (F)	L: Lab 6 - Bird behavior lab: analysis (Lab 6 report due 7 Dec)	ISFS

<sup>•</sup> **Software & smart phone apps**. We will be using R, which can be downloaded for free onto your computer. The free smart phone apps 'Seek' will also be used in this class.