

*This syllabus is a general representation of the course as previously offered and is subject to change.*

## **BIOL 406 – Plant Ecology I**

General Course Syllabus (as of September 2019)

### **About the Course:**

**Course Description:** This course will introduce students to the principles and methods of plant ecology, including major approaches to sampling, analyzing and interpreting vegetation patterns. It will address general, contemporary ecological questions using plants as a focal system. Topics include how individual plants extract resources from their environments; population dynamics and plant life histories; species interactions in communities; and ecosystem and landscape processes. The course will emphasize distinctive ways that plant natural history affects their ecology (e.g., resource and mate acquisition) while also illustrating how plants can be ideal systems for studying general ecological problems.

Students will gain hands-on ecological experience by gathering and analyzing real data through lab and field activities. The labs will begin with skill-building exercises and culminate in a group research project of their own choosing and design, developed with guidance and input from the instructor and TAs.

**Course Format:** Lecture and Laboratory

**Credits:** 4

**Prerequisites:** BIOL 230 (BIOL 324 is recommended).

### **Course Learning Outcomes:**

By the end of this course, students will be able to:

- **Evaluate scientific evidence** by thinking critically, applying and synthesizing ecological concepts, interpreting data and the primary literature, being skeptical (but not cynical!) about scientific claims, becoming an educated consumer of ecological and other scientific news.
- **Manage and analyze real data** using efficient, reproducible pipelines for data handling and statistical analysis.
- **Communicate scientific concepts** verbally, graphically, and in writing.
- **Articulate current challenges** and open questions in ecology plus ways to solve them using observations and experiments.
- **Appreciate plants** by understanding their important ecological roles, how some fascinating quirks of their natural history affect their ecology, and why they are powerful systems for testing general ecological questions.

Throughout the course, students will practice:

- **Reading** primary literature in plant ecology.

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- **Engaging** with each other and material through frequent class discussions and group projects.
- **Working with real data** by collecting it, analyzing it in R, and interpreting it (examples in class plus their own results).
- **Writing regularly**, both informally in class and formally for lab assignments.

## **Textbooks and Additional Resources:**

**Textbook (optional):** There is no required textbook for the course, but a general text will be available on reserve at the library as a background resource: *The Ecology of Plants*, 2nd ed., by Fox, Scheiner, & Gurevitch.

**Canvas:** All material (study guides, lecture slides, required readings, lab handouts) will be posted on the course website on Canvas.

## **Grading Scheme:**

<b>Assessment</b>	<b>Weight</b>
Midterms (2)	40%
Lab Reports (8)	40%
Participation	20%

**Midterm Mark:** There will be two midterm exams based on lecture content.

**Lab Reports:** Written lab assignments for each of 8 mini projects are due at the start of the following week's lab. Students will also submit a final research report and presentation on their group project of their own choosing and design.

**Participation:** This mark includes in-class activities, paper discussions, and contributions to the course discussion forum on Piazza. On a regular basis, some class time will be devoted to discussing an article from the primary literature that illustrates and applies concepts from the week's lectures. By the day prior to each of these paper discussions, everyone must submit questions for discussion on Piazza.

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## **Schedule of Topics:**

Sample schedule from 2018W2 (subject to change):

<b>Week</b>	<b>Lecture</b>	<b>Lab</b>
1	Kick-off activities	<i>No lab</i>
2	Functional ecology	Hypotheses
3	Functional ecology & Paper discussion 1	Data handling
4	Population ecology & Paper discussion 2	Sampling
5	Population ecology	Brainstorm projects
6	Paper discussion 3 <b>Midterm 1</b>	Refine projects
7	Community ecology & Paper discussion 4	Literature review
8	Community ecology	Data collection
9	Community ecology & Paper discussion 5	Data collection
10	Global change & Paper discussion 6	Data collection
11	Global change <b>Midterm 2</b>	Data analysis
12	Global change & Paper discussion 7	Data analysis
13	Presentations	<i>No lab</i>

## **University Policies:**

*UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence.*

*UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom.*

*UBC provides appropriate accommodation for students with disabilities and for religious, spiritual and cultural observances.*

*UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.*

*Details of the policies and how to access support are available on [the UBC Senate website](#).*