This course is designed to provide hands-on experience designing and conducting plant ecological research. Weekly lab sessions, including both field and greenhouse components, will expose you to a variety of sampling methodologies and equipment. You will also learn how to generate testable hypotheses, design and conduct ecological experiments, use statistics to analyze data, and present results in a written form.

We have the unique opportunity this semester to collaborate with campus Environmental Scientists who are beginning to restore native vegetation in the Grinnell Natural Area of Strawberry Creek near Oxford St. They are planning to replace exotic species with appropriate native species in riparian (i.e. creekside) and upland oak woodland habitats. We will provide a valuable service by helping them understand the vegetation composition of these sites, and the appropriate native vegetation to plant. Unfortunately, planting will not begin this semester, but we will have a major hand in choosing what will go there! I hope you see this as an exciting opportunity to influence the restoration of one of the most visible areas on campus.

The main assignment for the class will be a habitat restoration plan for Strawberry Creek. It will include analysis of hydrology patterns, current vegetation based on surveys and seedbank analysis, and a plan for future vegetation composition. Though you will be responsible for your own report, data collection and some of the design will be done as a class.

Besides the ability to communicate your ideas in writing, it is important to be able to succinctly present scientific ideas orally. On the last day of class, you will present your habitat restoration plan in the form of a 10-minute presentation. This will also give you the chance to hear what the rest of the class recommended.

Course requirements and evaluation

Attendance of all lab sessions is mandatory. Field trips will leave promptly at 2:00, unless otherwise noted, regardless of weather. Having appropriate hiking shoes, clothing, and rain gear is essential. In addition, you will need to bring water, a hat, and sunscreen. Besides specific exercises involving data sampling, you will be required to keep a lab journal in which you will record observations, document sampling procedures, and record data.
Evaluation in this course will be based on a number of assignments designed to develop your skills in analyzing ecological data and writing a habitat restoration plan. More complete descriptions of the assignments and how they will be evaluated will be handed out later in the semester. The Habitat Restoration Plan assignment is due the last day of class, May 4.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percent of grade:</th>
<th>Point value:</th>
</tr>
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<tbody>
<tr>
<td>Attendance, participation</td>
<td>10%</td>
<td>100pts</td>
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<tr>
<td>Lab journal</td>
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<tr>
<td>Statistics assignment</td>
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<tr>
<td>Presentation</td>
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<tr>
<td>Introduction, references</td>
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<td>200pts</td>
</tr>
<tr>
<td>Restoration Plan</td>
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<td>400pts</td>
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</table>

Course schedule

January 26 – Orientation, Hypothesis generation (Strawberry Creek)

February 2 – Soil seedbank collection and greenhouse set up (Strawberry Creek)

February 9 – TBA

February 16 – Restoration Field Trip #1 – East Bay Creek (Site TBA)

February 23 – Ecophysiology Lab (Botanical Garden)

March 2 – TBA

March 9 – Vegetation sampling (Strawberry Creek)

March 16 – Exotic plant removal (Strawberry Creek)

March 23 – SPRING BREAK

March 30 – Introduction to statistics (Computer Lab)

April 6 – Vegetation sampling, site #2 (Location TBA)

April 13 – Harvest greenhouse seedbank experiment

April 20 – Data analysis (Computer Lab)

April 27 – TBA

May 4 – Presentations. Habitat Restoration Plan due