1. Course learning objectives
As an interdisciplinary upper division biology course, the learning objectives of this laboratory course are
1. To introduce students to the ecology of plant communities in and along the Wasatch Front.
2. To introduce students to both field and laboratory techniques relevant to ecology and plant distribution, so as to better understand how to approach and to evaluate research topics.
3. To engage students in a team-focused learning environment, with projects focusing on quantitative, modeling, and analytical techniques.
4. To develop writing skills through laboratory reports and through engagement in the methods and approaches for developing, presenting, and evaluating proposals.

2. Achieving learning objectives
These course learning objectives will be achieved through field-based projects. Assignments will require that students participate in four Saturday field trips and that they are familiar with Microsoft Office Products (MS Word, Excel, and PowerPoint) or equivalent computer programs for data analysis, word processing, and graphics preparation.

3. Text books and reading materials

- No text book
- PDF copies of background literature for each lab module are found at the UU CANVAS site.

4. CANVAS
- The CANVAS site contains all of the downloadable files related to this course.
- All assignments must be turned in by uploading through the CANVAS site.

There are plenty of computers available on campus and within the department to assist you. Spell checking and grammar checking programs, spreadsheet programs, drawing programs, statistical programs, and data-analysis programs are also available.
5. Grading for course

A student’s final grade will be based on a cumulative point total of 325 points:
90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; <60% = E

Module 1, Quantifying Plant Abundances and Characteristics, 50 points, lab writeup
Module 2, Measuring and Modeling Plant Distributions, 50 points, lab writeup
Module 3, Assessing Edaphic Impacts on Plant Distribution, 50 points, lab writeup
Module 4, Interpreting Intrinsic Water-use Efficiency in Plants, 25 points, online quiz
Module 5, Assessing Anthropogenic Impacts on Plants, 50 points, lab writeup
Module 6, Developing, Assembling, Presenting, and Evaluating a Proposal, 105 points
  • 5 points, proposal title submitted on time
  • 75 points, written proposal
  • 15 points, presentation of proposal
  • 10 points, constructive written evaluation of student proposal presentations

6. Modules 1-5, Project-based field and laboratory projects

Group and individual efforts associated with data collection and data interpretation in these modules. Collaboration is an important skill in the workforce today, but individual skills are evaluated in module writeups.
  • Modules require data collection and data interpretation. Students will work together to collect the data in the field. Once back in the lab, the data will be coalesced, shared, and discussed; then the composite data sets will be made available to students for their individual write-ups.
  • Data analyses for each of the modules will be a group activity within the time allocated to the lab following the field trip
  • A student’s write-up for each of modules should reflect use of the composite data sets associated with each module.

Guidelines for writeups associated with these modules. Writeups for each of these modules are expected to contain the following elements:
  • A maximum of 4 pages in length, excluding a bibliography presented in the Ecology journal style format
  • A structure that includes abstract, introduction, methods, results, and discussion
  • At least one and no more than three figures or tables; figures/tables must be numbered individually and include a legend
  • A minimum of three and no more than five references from books and refereed literature
  • The grading rubric will be based on
    o Introduction to the topic (5 points)
    o Description of the methods used (5 points)
    o Results - figures or tables (10 points)
    o Results - statistical evaluations (5 points)
    o Results - description of the significance of the results (5 points)
    o Depth and relevance of the discussion (10 points)
    o References (5 points)
    o Clarity and logical consistency of the writing (5 points)
7. Module 6, Developing, assembling, presenting, and assessing a project proposal

Guidelines for developing, assembling, presenting, and assessing a project proposal (Module 6). There can be a minimum of one and a maximum of three individuals per proposal. The proposal is submitted as a group and each student in the group will receive the same score.

Proposal
- Proposal title submitted by the deadline (5 points)
- A maximum of 6 pages in length, excluding a bibliography presented in the Ecology journal style format
- A structure that includes separate sections for
  - Abstract (5 points)
  - Introduction and importance of the topic (10 points)
  - Background data that justify the proposed research (10 points)
  - Methods to be used in the proposed research (10 points)
  - Proposed research (20 points)
  - Anticipated significance of the proposed research (5 points)
  - One-year budget and budget justification (10 points)
- Bibliography (5 points)
- Curriculum vitae(s) (5 points)
- At least two and no more than four figures or tables; figures/tables must be numbered individually and include a legend
- A minimum of ten and no more than fifteen references from books and refereed literature

Presentation
- A 5-minute proposal of the proposed research followed by a 5-minute defense of the proposal (15 points)
- The presentation must be a PowerPoint presentation, uploaded prior to the oral presentation

Evaluation
- Each student will evaluate two different proposal presentations, evaluating the presentations on importance of the proposed research, feasibility of the proposed research, appropriateness of the budget and justification, and overall likelihood of success (2 assessments @ 5 points each)

All writeups (i.e., lab reports, proposal text, proposal powerpoint, biogeography text) must be uploaded through CANVAS. No exceptions.

8. Not officially ‘Writing Intensive’, but with a focus on improving your writing skills
- We expect papers to reflect your best effort. If there are excessive grammatical and/or spelling errors in your paper, we will discuss this with you individually, we will offer help in improving the quality of the presentation, and we will expect that you will correct and improve the paper before a grade for that submission is received.
- Although this is not a “writing intensive” class, we do expect that papers will be written with reasonable quality in terms of content, data analysis, and presentation. After all, once employed after finishing school, you certainly would not think of turning in shoddy work to your employer.

9. ADA Information
The University seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD) to
make arrangements for these accommodations. All written information in this course can be made available in alternative format with 72-hour prior notification.

10. Course Drop Policy
The withdrawal policy is the same as the University policy described in the Class Schedule. Students may drop without penalty or permission up through September 1. Up through October 20, students may withdraw without permission, but will receive a “W” grade. Course withdrawal after this date is possible with permission of the instructor, but requires a significant medical or personal situation in order for the withdrawal to be approved.

11. Addressing Sexual Misconduct
Title IX makes it clear that violence and harassment based on sex and gender (including sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 801-581-8365, or the Office of the Dean of Students, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

12. Plagiarism
Plagiarism will not be tolerated. Please read the document for details about this form of cheating within the CANVAS folder associated with this class. You may also download a copy at http://www.plantecology.net/uploads/3/1/8/3/31835701/avoid_plagiarism_advice.pdf.