WILD 6770: Community Ecology (T/Tr 10:30-11:45)

Instructor:
Peter Adler
BNR 287
(435) 797-1021 Office hours: Wed. 1:30-3 and by appointment
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Course web page: Assignments, readings, and datasets will be distributed on the course web site on Canvas. Log-in at: https://usu.instructure.com/login

Course description: This advanced graduate course focuses on the quantitative methods used to address current research questions in community ecology. Essentially, it is a “how to” course. Each research question or topic will be introduced with readings from the primary literature. After a short discussion of the reading, students will work in groups to perform similar analyses themselves. My philosophy is that you will learn much more by doing than by just listening and discussing.

Location: We will start the semester meeting entirely online, via Zoom conference calls. Links to the Zoom calls are on Canvas (look for the Zoom navigation tab in the list on the left of the home page). Depending on the number of students in the class, and how the pandemic evolves, we may have same face-to-face meetings at a location to be announced.

Objectives:

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<tr>
<th>Course objective</th>
<th>Learning objectives (IDEA evaluation)</th>
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<tr>
<td>Understand the classic questions in plant community ecology, as well as the current “hot” topics</td>
<td>2. Learning fundamental principles, generalizations, or theories. (Essential)</td>
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<td>Use the computing application R to analyze data, run simulations, and visualize data; appreciate how quantitative approaches can help you learn more from your field data.</td>
<td>4. Developing specific skills, competencies and points of view needed by professionals in the field most closely related to this course. (Important)</td>
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<td>Practice doing science as a member of a collaborative team.</td>
<td>5. Acquiring skills in working with others as a member of a team. (Important)</td>
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<td>Improve oral communication skills.</td>
<td>8. Developing skills in expressing oneself orally or in writing. (Important)</td>
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Grades: Grades will typically be assigned at the end of the course as A (90-100% of available points), B (80-89%), C (70-79%), etc. Points will be earned in three categories:
  i. Participation in discussions, usually of journal articles (10%)
  ii. Weekly group projects (60%). Members of each group receive the same grade on a given assignment, but I will also ask you to rate (anonymously) each other's contributions at the end of the semester. If you are a lousy team member, it won't affect your grade, but we will make sure you feel very, very guilty.
iii. Final individual project and presentation (30%). I would like this project to involve quantitative analysis of your own data. I want you to start thinking about this right away, so a proposal outline will be due by mid-September. If you do not have a suitable topic, I will help suggest one.

USU policies

- The schedule of topics, assignments, and all other details in this syllabus are subject to change with fair warning.
- ADA compliance: Students with physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. All accommodations are coordinated through the Disability Resource Center in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.
- Sexual harassment is defined by the Affirmative Action/Equal Employment Opportunity Commission as any “unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature.” If you feel you are a victim of sexual harassment, you may talk to or file a complaint with the Affirmative Action/Equal Employment Opportunity Office located in Old Main, Room 161, or call the AA/EEO Office at 797-1266.
- Students whose religious activities conflict with the class schedule should contact me at the beginning of the semester to make alternative arrangements.
- Cheating and other forms of academic dishonesty are listed in The Code of Policies and Procedures for Students at Utah State University (revised September 2009), Article VI, Section 1. If you are found to be engaged in academic misconduct, at a minimum you will receive no credit for that exam or assignment. Repeat or serious offenders can expect more serious consequences.

Schedule:

Here is a first draft of our schedule. I will alter this based on your interests, and your progress on weekly projects. I will do my best to communicate all changes clearly and with enough time for you to adjust your schedules.

Sept 1 & 3: What is community ecology? R basics (tutorials, logistic growth example)

Sept 8: Why care about coexistence?

Sept. 10, 15 & 17: Coexistence: Lotka-Volterra competition (deterministic and stochastic)

Sept. 22 & 24: Coexistence: Resource-ratio hypothesis

Sept. 29, Oct. 1 & 6: Stability, resilience, and compensation

Oct. 8, 13 & 15: Composition—Similarity

Oct. 20, 22, 27 & 29: Composition—Multivariate statistics
Nov. 3, 5 & 10: Biodiversity—Rarefaction and species time and area relationships

Nov. 12: Community assembly and null models

Nov. 17 & 19: Trait and phylogenetic community assembly

Nov. 24 & 26: Thanksgiving, no class

Dec. 1: Natural enemies

Dec. 3, 8 & 10: Final project presentations