**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  
peter.adler@usu.edu

**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](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:** The class meets in the third floor reading room of the Quinney Library (NR 304).

**Objectives:**

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<tr>
<th><strong>Course objective</strong></th>
<th><strong>Learning objectives (IDEA evaluation)</strong></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. <em>(Essential)</em></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. <em>(Important)</em></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. <em>(Important)</em></td>
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<td>Improve oral communication skills.</td>
<td>8. Developing skills in expressing oneself orally or in writing. <em>(Important)</em></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.
Schedule:

Aug. 29 & 31: What is community ecology? R basics (tutorials, logistic growth example)

Sept 5: Why care about coexistence? R basics (tutorials, logistic growth example)

Sept. 7, 12 & 14: Coexistence: Lotka-Volterra competition (deterministic and stochastic)

Sept. 19 & 21: Coexistence: Resource-ratio hypothesis

Sept. 26, 28 & Oct. 3: Stability, resilience, and compensation

Oct. 5, 10 and 12: Composition—Similarity

Oct. 17, 24, 26, & 31: Composition—Multivariate statistics (No class Oct. 19)

Nov. 2 & 7: Biodiversity—Rarefaction and species time and area relationships

Nov. 9 & 14: Community assembly and null models

Nov. 16 & 21: Trait and phylogenetic community assembly

Nov. 28: Pathogens

Nov. 30: Biodiversity and ecosystem function

Dec. 5 & 7: Final project presentations