

PLANT ECOLOGY COURSE INFORMATION

INSTRUCTOR

Erik Jules

REACHING THE INSTRUCTOR

Office: Rm. 169, Science D

Office Hours:

Tuesday 12:00-1:00

Wednesday 9:00-10:00

Thursday 11:00-12:00

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TEXTBOOKS AND READINGS

We will not use a textbook. Instead, readings will be available through the Blackboard system (<http://blackboard.humboldt.edu/?bbatt=Y>). Several of these readings are chapters in textbooks, while others are journal articles.

COURSE GOALS

There are four main goals of this course:

1. Learn the potential explanations for the patterns of plants we see in nature.
2. Consider and evaluate the ways in which people influence plants and the plant landscape.
3. Learn analytical skills useful in ecology.
4. Learn how to think critically about the scientific process.

GRADING

Grades will be based on exams, quizzes, and participation. All exams and quizzes are cumulative (except where noted), in that ideas and topics developed since the beginning of the course are always testable.

Class participation will be partly based on your ability to be in class, ready to start by 10:00. Consistently coming late will hurt your participation score.

Final grades will be based on the traditional scheme of $\geq 90\%$ = A, $\geq 80\%$ = B, etc... I will consider individual cases for students with scores near boundaries.

POINTS:

Terms Quiz	25 pts
Quizzes	4 x ~25 pts each
Mid-term Exam	100 pts
Final Exam	150 pts
TOTAL:	375 pts

MISCELLANEOUS

MISSED EXAMS: If you need to take one of the exams on a different date, you must talk with me at least **two weeks** beforehand. Missed exams cannot be made up, other than in the case of emergencies.

MISSED QUIZZES: Same as for missed exams.

EXAMPLE SYLLABUS



PLANT ECOLOGY SCHEDULE

<u>DATE</u>	<u>LECTURE TOPIC</u>	<u>QUIZZES</u>
Jan 18	Introduction: big fun patterns in vegetation	
Jan 20	Climate changes – why we can't really save the forests	
Jan 25	Climate changes continued – local and regional vegetation	Terms quiz
Jan 27	How plants respond to change – evolutionary & physiological modes	
Feb 1	What is a 'redwood forest'? – the nature of naming community types	
Feb 3	Classification & ordination of communities	
Feb 8	Classification & ordination, continued	
Feb 10	Demography – is this population growing, declining, or stable?	Quiz I
Feb 15	Reproduction – why some plants never have sex	
Feb 17	Dispersal – getting around when you can't walk	
Feb 22	Germination – is it always a good thing?	
Feb 24	Population viability – how do we really know if a species is at risk?	
Mar 1	Population projections & matrix modeling	Quiz II
Mar 3	Population projections & matrix modeling	
Mar 8	Populations & elasticity analysis – deciding how to manage populations	
Mar 10	MIDTERM EXAM	Exam
Mar 15	SPRING BREAK	
Mar 17	SPRING BREAK	
Mar 22	Metapopulations – no population is alone (well, except for a few)	
Mar 24	Habitat fragmentation – does it really matter for plants?	
Mar 29	Habitat fragmentation: remnant & matrix habitat	
Mar 31	Interspecific interactions – is fighting or cooperating more important?	Quiz III
Apr 5	Interspecific interactions, continued	
Apr 7	Interspecific interactions, herbivory and biodiversity	
Apr 12	Interspecific interactions, mutualism	
Apr 14	Review	
Apr 19	Invasion ecology – what determines who invades and how fast they go?	
Apr 21	Invasion ecology, continued	
Apr 26	Plant diseases – infections that changed the world	Quiz IV
Apr 28	Fire ecology – Smokey the Bear was wrong	
May 3	Fire ecology, continued	
May 5	Redwood forests – our local icon	
May 10	FINAL EXAM – Tuesday, 10:20 – 12:10	FINAL

EXAMPLE SYLLABUS

READINGS

- Jan 18/20 Roberts, L. 1989. How fast can trees migrate? *Science* 243:735-737.
- Jan 25/27 Wu, L., and A. D. Bradshaw. 1972. Aerial pollution and the rapid evolution of copper tolerance. *Nature* 238:167-169.
- Feb 1/3 *Optional readings (no required reading this week):*
Barbour, M.J., W. Burk, F. Pitts, F. Gilliam, M. Schwartz. 1999. Classification and ordination of plant communities (Chapter 10) *in* *Terrestrial Plant Ecology*, 3rd Edition. Benjamin/Cummings, Menlo Park, CA.
Gurevitch, J., S.M. Scheiner, and G.A. Fox. 2002. Communities in landscapes (Chapter 16) *in* *The Ecology of Plants*, Sinauer, Sunderland, Massachusetts.
- Feb 8/10 Gurevitch, J., S.M. Scheiner, and G.A. Fox. 2002. Growth and reproduction of individuals (Chapter 8) *in* *The Ecology of Plants*, Sinauer, Sunderland, Massachusetts.
- Feb 15/17 Matlack, G.R. Plant species migration in a mixed-history forest landscape in eastern North America. *Ecology* 75:1491-1502.
- Feb 22/24 Gurevitch, J., S.M. Scheiner, and G.A. Fox. 2002. Population structure, growth, and decline (Chapter 7) *in* *The Ecology of Plants*, Sinauer, Sunderland, Massachusetts.
- Mar 1/3 *Optional readings (no required reading this week):*
Morris, W.F., M. Groom, D. Doak, P. Kareiva, J. Fieberg, L. Gerber, P. Murphy, and D. Thomson. 1999. Projection matrix models (Chapter 4) *in* *A practical handbook for population viability analysis*. The Nature Conservancy, Washington, DC.
- Mar 8/10 **MID-TERM**
- Mar 15/17 **SPRING BREAK**
- Mar 22/24 Laurance, W.F. 2000. Do edge effects occur over large scales? *Trends in Ecology and Evolution* 15:134-135.
Bruna, E.M. 1999. Seed germination in rainforest fragments. *Nature* 402:139.
- Mar 29/31 Risch, S. and D. Boucher. 1976. What ecologists look for. *Bulletin of the Ecological Society of America* 57(3):8-9.
- Apr 5/7 Collins, S.L, A.K. Knapp, J.M. Briggs, J.M. Blair, and E.M. Steinauer. 1998. Modulation of diversity by grazing and mowing in native tallgrass prairie. *Science* 280:745-747.
- Apr 12/14 Cordeiro N.J., and H.F. Howe. 2003. Forest fragmentation severs mutualism between seed dispersers and an endemic African tree. *Proceedings of the National Academy of Science* 100: 14052–14056.
- Apr 19/21 C. Thébaud and Daniel Simberloff. 2001. Are plants really larger in their introduced ranges? *American Naturalist* 157: 231–236.
- Apr 26/28 No Reading
- May 3/5 Dupouey, J.L., E. Dambrine, J.D. Laffite, and C. Moares. 2002. Irreversible impact of past land use on forest soils and biodiversity. *Ecology* 83:2978-2984.
- May 10 **FINAL EXAM** 10:20 – 12:10