

Principles of Ecology- Spring 2005

ABIO 570 (4 credit hours)

Instructor: Dr. Andrew Dyer
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Office: SBDG 101E
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Lecture: MW 2:30 – 3:15 SBDG 200
Lab: W 9:00 - 11:40 SBDG 108
Office hours: TTh: 9:00-10:30 and by appointment

Required textbook: R. Brewer and M. T. McCann. 2001. *Laboratory and field manual of ecology*. Thomsen Learning

Course description

This course is intended for biology majors and will combine lecture and laboratory activities aimed at improving general understanding of ecological concepts. Much of the class will focus on application of concepts in ‘experimental’ situations and will involve reading, writing, analysis of data and presentations. Aspects of both plant and animal ecology will be presented and discussed. Information will be presented in the form of lectures, discussions, reading assignments, group reports, and laboratory exercises.

Laboratory description

This session will be used for exploratory labs, formal and informal discussion of lecture, text, and supplementary material, individual and group presentations, and individual projects. Assignments in lab will have due dates depending on the assignment, but the last lab of the semester is the last day any regular work can be accepted. Any supplementary reading materials assigned for lab discussions will be handed out in class or will be available for photocopying outside Room 101E in the Sciences building. On some days we will leave the campus to visit nearby areas of ecological interest.

Objectives

- To acquaint the student with the basic ecological principles describing the regulation of plant and animal abundance and distribution.
- To develop skills in experimental design, data collection, and data analysis.

Competencies

By the end of this course, the student will have demonstrated the ability to

- Discuss basic ecological principles and contemporary examples that illustrate those principles.
- Describe potential mechanisms by which organisms interact and compete for resources in nature.
- Describe basic methods for quantifying ecological interactions in the field and through statistical analysis.

Grading (about 700 total points)

Testing on principles, examples –	4 exams = 400 pts
Essay-style on understanding of material, may be take home	
May include short reading assignments	
Reading assignments	6 papers = 150 pts
Lab exercises	15 assignments = 300 pts
May include creating and reading bar graphs, regressions, statistical interactions; calculating means, standard errors, percent; interpreting statistical results	
	Total ~ 850 pts

Additional comments

1. Preparation for class includes reading any assigned material beforehand.
2. If you are having difficulty with any aspect of this course, please come see me as soon as possible. If my regular office hours conflict with your schedule, you can make an appointment to see me at a more convenient time.
3. If you have a physical, psychological, and/or learning disability which might affect your performance in this class, please contact the Office of Disability Services, 126A B & E, (803) 641-3609 as soon as possible. The Disabilities Services Office will determine appropriate accommodations based on medical documentation.
4. You will be expected to endorse the following Honor Pledge on every quiz or exam:
 On my honor as a University of South Carolina Aiken student, I have neither given nor received any unauthorized aid in this assignment/examination. To the best of my knowledge, I am not in violation of academic honesty.
5. Students are expected to adhere to the University attendance policy as stated in the Student Handbook. If a student has more than 4 unexcused lab absences, a failing grade will be issued. If tardiness to lecture causes unnecessary interruptions, the front door to the classroom will be locked at the beginning of the class.

ABIO 570 - Tentative course outline					
Week	Date		Topic	Material	Laboratory
1	Jan	10	Scaling in ecology	Forest fragments-	(from Brewer & McCann)
		12	Natural selection	Bierregaard	Exercise 3: leaf morphology
2	Jan	17	MLK Day		Prep Island biogeo lab
		19	Evolution		Ex 5: sampling
3	Jan	24	Adaptation		
		26			Ex. 6: spatial relations in Hitchcock Woods
4	Jan	31	Variation	Finches- Grant	
	Feb	2	Sampling		Dispersal exercise
5	Feb	7	Sampling		
		9	Exam I		Ex. 8: territoriality at Citizens Park
6	Feb	14	Competition	Gerbils- Kotler	
		16	Competition		Ex. 9: predation
7	Feb	21	Competition		
		23	Sampling intro		Ex. 10: life tables in Graniteville
8	Feb	28	Communities	Cascades- Carpenter	
	Mar	2	Interactions		Ex. 14: community biomass in
9	Mar	7	Spring break		
		9	Spring break		
10	Mar	14	Disturbance	Fire ecology- Minnich	
		16	Exam II		Ex. 20: forest succession in HW
11	Mar	21	Succession		
		23			Ex. 17: island biogeography
12	Mar	28	Equilibria	Butterflies- Harrison	
		30			Computer research project
13	Apr	4	Island bio/geo		
		6			Project reports and discussion
14	Apr	11	Metapops/ MVPs		
		13	Exam III		Ex. 16: forest diversity in HW
15	Apr	18	Metapops/ MVPs		
		20			Plasticity
16	Apr	25	Invasions-IPM	Hydrilla	
			Conservation	Management/rarity	Multiple use
Monday	May	2	Final exam-2 pm		

