

BIOL 3100 ECOLOGY & EVOLUTION: AN AUSTRALIAN PERSPECTIVE

South Pacific Study Abroad Program, Spring 2007

(Enforced pre-requisite Biology 2100)

Instructors: Dr. David Garton, GT
Dr. David Fields, Bigelow Laboratory for Ocean Sciences

Textbook: Cotgreave and Forseth, *Introductory Ecology* (Blackwell Publishing).
In addition, class handouts and observation data sheets for field trips

Grading: Two midterm exams: 25% each
Two in-class quizzes: 10% each
Field journal: 20%
Research paper: 10%

Objectives: This course will cover basic principles of ecology and evolution, with a special emphasis on the unique ecosystems and biomes of Australia. The unusual animals and plants of the southern hemisphere had a significant influence on the early development and understanding of evolutionary theory, and their importance will be discussed. The successful adaptations of Australian mammals to this isolated continent will be explored, as well as the impact of recent human development.

The course includes field trips to areas of ecological interest, and students should be in reasonably good shape as some of the areas have steep trails and/or long walks.

<u>DATE</u>	<u>Topic</u>
Dec TBA	Pre-departure lectures: intro. To Ecology & Evolution; Gondwana and the formation of Australia
Feb 19	Diversity of Life on Earth (field trip to Long Reef tide pools, daytime tide dependent)
20	Patterns of Biodiversity
21	Major Biomes
22	Role of Climate in Structuring Ecosystems
Feb 26	Environmental Adjustments & Adaptations
27	Life History Strategies & the Concept of Fitness
28	Population Demographics
Mar 1	All day field trip to Blue Mountains
Mar 5	Interspecific Competition
6	Community Ecology
7	Review Session
8	Midterm Exam 1
9	travel to Brisbane
Mar 12	Species richness, abundance & diversity
13	Evolution of the Major Vertebrate Groups
14	Phylogeny of Australian Animals: Why So Many Marsupials?
15	All day field trip to Lamington National Park
Mar 19	Pragmatic Approaches to Conservation
20	All day field trip to Australia Zoo (Role of Zoos in Conservation)
21	Human Population Dynamics and Exponential Growth Curves
22	Geological Patterns of Climate Change in Australia and Consequences from Global Climate Change

Mar 26 Biogeochemical Cycling in Forest Communities
27 Ecological Dynamics of the Great Barrier Reef
28 The Marsupial Mode of Reproduction: Are Placentals Really More Efficient?
29 Review Session
30 Second Mid-Term Exam
31 Depart for Los Angeles