

BIOLOGY 481 (SECTION 503) – INTRODUCTION TO BIOGEOGRAPHY

LECTURE SYLLABUS – FALL 2009

Lecture Time/Location: Thursday 2:20pm – 3:35pm/Military Sciences Building, Room 317

Instructor: David Baumgardner

Office: Biological Sciences Building East (BSBE), Room 325

Office Hours: TU, TR 11:00 – 12:00 PM and by appointment.

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September	03	1. History and Science of Biogeography	Chapters 1,2
	10	2. Earth's Geological History	Chapter 8
	17	3. Vicariance and Dispersal	Chapter 6
	24	4. Species Formation and Extinction	Chapter 7
	01	5. Techniques in Historical Biogeography	Chapters 11, 12
October	08	6. Reconstructing History of Lineages and Biota's	Chapters 11, 12
	15	7. Island Biogeography	Chapters 13, 14
	22	8. STUDENT PRESENTATION 1	Platnick, 1976
November	29	9. STUDENT PRESENTATION 2	Simpson, 1940; Marshall, 1982
	05	10. STUDENT PRESENTATION 3	Brundin, 1966
	12	11. STUDENT PRESENTATION 4	Rosen, 1978
	19	THANKSGIVING HOLIDAY	NONE
	26	12. STUDENT PRESENTATION 5	Wiley, 1988
December	03	13. Problem of Historical Biogeography	Henning, 1966; Nelson, 1969
	08 (TU)	FINAL EXAM (Redefined Day)	

IMPORTANT DATES:

06 November 2009: Last day for all students to drop courses with no penalty (Q-drop).

22 October 2009: Draft of research paper due at beginning of class.

08 December 2009: FINAL EXAM – **Tuesday**, Redefined Day.

Course Objectives: The principal objective of this course is to build a firm foundation in the basic principles of biogeography that students can use to continue their education and research in the field of biogeography. Secondary objectives include enhancing students ability to present oral presentations or enhance their writing skills through the successful completion of a student research paper.

Course Outline: Biogeography is the science of spatial patterns of biological diversity. It includes the study of spatial patterns of geographic variation in nature at all levels from genes to communities to ecosystems. Understanding patterns and processes in the context of the evolutionary history of a biota and Earth's history are critical concepts in biogeography. This course will cover the history of biogeography from pre-Darwin times through modern quantitative approaches to understanding biogeography. Topics will include mechanisms of vicariance and dispersal, species formation and extinction, island biogeography, and reconstructing the history of lineages.

Text (Optional, but encouraged): Mark V. Lomolino, Brett R. Riddle, and James H. Brown. Biogeography, 3rd Edition. Sinauer Associates, Inc.

Americans with Disabilities Act: Reasonable accommodations will be made for students with documented disabilities. Contact the Department of Student Life, Services for Students with Disabilities, in Room B118 of Cain Hall or call 845-1637 for assistance.

Academic Integrity: **THE HIGHEST ETHICAL STANDARDS ARE EXPECTED AT ALL TIMES FROM ALL STUDENTS.** For additional information visit:
www.tamu.edu/aggiehonor

Plagiarism is using another person's words or ideas without giving credit to the other person. When you use someone else's words, you must put quotation marks around them and give the writer or speaker credit by revealing the source in a citation. Even if you revise or paraphrase the words of someone else or just use their ideas, you still must give the author credit in a note. Plagiarism is a combination of stealing (another's words) and lying (claiming implicitly that the words are the student's own), and also shows contempt for the professor, other students, and the entire academic enterprise. Plagiarizers by their actions declare that they are not at the university to gain an education, but only to pretend to do so, and that they therefore intend to gain by fraud the credentials (the degree) of an educated person.

Final Grades: The final letter grade for each student will be determined based upon performance of two opportunities. One-half of the final grade will be determined from either an oral presentation or written paper (see details below), and one-half from the final exam. All students will be required to take the final exam. Ten students (in groups of two each) will be given the opportunity to present an oral presentation to the class, while the remaining students will be required to write a research paper.

Student Oral Presentations: The purpose of the oral presentations is to give students experience in preparing and presenting materials, working as a team, and to reinforce and discuss concepts covered during the first half of the semester. There will be five oral presentation groups, each consisting of two students. Each group will present one topic that is expected to last approximately 45 minutes, with questions and discussion to follow from the presentation. The groups and associated topics will be assembled on a "first-come, first-serve" basis. If the groups are not formed by the third weeks of class (17 September), the instructor will randomly match people until all five groups are formed and their topics assigned. The following will be the order of presentation and associated topic:

22 October 2009: STUDENT PRESENTATION 1. Drifting spiders or continents? Vicariance biogeography of the spider subfamily Laroniinae (Araneae: Gnaphosidae) (Platnick, 1976).

29 October 2009: STUDENT PRESENTATION 2. Mammals and land bridges (Simpson, 1940; Marshall et al., 1982).

05 November 2009: STUDENT PRESENTATION 3. Transantarctic Relationships and Their Significance, as Evidenced by Chironomid Midges (Brundin, 1966).

12 November 2009. STUDENT PRESENTATION 4. Vicariant patterns and historical explanation in biogeography (Rosen, 1978).

26 November 2009: STUDENT PRESENTATION 5. Vicariance biogeography (Wiley, 1988).

Student Research Paper:

Those students not presenting an oral presentation will be required to write a 12 to 15 page research paper on a biogeographic topic of their choice, as approved by the instructor. These papers are due by 5pm on 03 December 2009. All papers will be doubled spaced, 12 point font, and one inch margins on all four sides. A draft of the research paper (at least 6 pages in length) is due at the beginning of class on 22 October 2009 and will count 25% of the grade of the final paper.

Required Reading Materials (will be posted on TAMU elearning website):

Brundin, L. 1966. Transantarctic Relationships and Their Significance, as Evidenced by Chironomid Midges. *Kungliga Svenska Vetenskapsakademiens Handlingar*, series 4, 11(1):437-472.

Hennig, W. 1966. *Phylogenetic Systematics*. University of Illinois Press, 280 pp.

Marshall, L.G., S.D. Webb, J.J. Sepkoski, Jr., and D.M. Raup. 1982. Mammalian evolution and the Great American Interchange. *Science* 215:1351-57.

Nelson, G.J. 1969. The problem of historical biogeography. *Systematic Zoology* 18:243-246.

Platnick, N. I. 1976. Drifting spiders or continents? Vicariance biogeography of the spider subfamily Laroniinae (Araneae: Gnaphosidae). *Systematic Zoology* 25: 101-9

Rosen, D.E. 1978. Vicariant patterns and historical explanation in biogeography. *Systematic Zoology* 27:159-188.

Simpson, G.G. 1940. Mammals and land bridges. *Journal of the Washington Academy of Sciences* 30:137-163.

Wiley, E.O. 1988. Vicariance biogeography. *Annual Review of Ecology and Systematics* 19:513-542.