

Biodiversity and Conservation of Animals
BIOL 2251
Fall 2013

Instructor: Dr. James H. Kennedy
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Office Hours: Tues. 4:00 – 5:00, Friday 11:00 – 12:00 or by appointment

Time and Room: MW 2:00 – 3:20; CURY Hall 103.

Required Text: Lomolino, M.V., Riddle, B.R., Whittaker, R.J., and Brown, J.H. 2010. Biogeography, Fourth Edition. Sinauer Associates, Inc., Sunderland, Mass. 878 pp.

ANIMAL BIODIVERSITY and Conservation is a foundation course in the biodiversity of animals and conservation of animals. Biodiversity is much more than the numbers of species. Biodiversity can best be described by its three major attributes; composition, structure, and function. Composition the first and most familiar component of biodiversity includes species lists and other measures of species diversity such as genetic diversity. Structure refers to the physical organization, from habitats measured within communities to the mosaic pattern of patches and other elements at a landscape scale. Function involves ecological and evolutionary processes, including gene flow, disturbances, and nutrient cycling. Conservation discussed in this course will focus on human impacts to biodiversity and integrative approaches for the protection and management of biodiversity.

OBJECTIVES: The course aims to provide students with a range of fundamental concepts, and practical applications pertaining to BioDiversity. At the end of the semester each student is expected to be knowledgeable and competent in the following areas:

- a) Basic knowledge about the diversity and distribution of organisms;
- b) Understanding the links between biodiversity and ecosystem processes and services;
- c) Information needed to evaluate the cultural and economic value of biodiversity and to use this to develop conservation plans and policy decisions.

Course Outline and Tentative Schedule

TENTATIVE SCHEDULE

Date	Topic	Reference
28 Aug 2013	Class policies; Introduction to the discipline. Relationship of Biogeography and Science of Biodiversity	LRWB Chap 1
02 Sep. 2013	University Holiday No Class	
04 Sep. 2013	History of foundations of Biodiversity	LRWB Chap 2 Darwin Intro
The Ecological and Geographical Determinants of BioDiversity		
09 Sep. 2013	The Biological Template The species concept – brief definition Ecological Foundations of distribution of species	LRWB page 210 – 215; LRWB Chap 3
11 Sep. 2013	The Biological Template Cont'd	LRWB Chap 4
16 Sep. 2013	The Geographic Template, weather and climate, Global Climates	LRWB Chap 2
18 Sep. 2013	Patterns of BioDiversity and Distribution of Modern Species	LRWB Chap 4
23 Sep. 2013	Patterns of BioDiversity and Distribution of Modern Species	LRWB Chap 4
25 Sep. 2013	Opportunity #1	
30 Sep. 2013	Distribution of Communities	LRWB Chap 5
02 Oct. 2013	Visualization of BioDiversity Patterns, Landsat, GIS	LRWB Chap 3
07 Oct. 2013	Speciation	LRWB Chap 7
09 Oct. 2013	Speciation	LRWB Chap 7
The History of Place: Tectonic, Eustatic, Climatic Change and BioDiversity		
14 Oct. 2013	Introduction to the influence of space, time and life and the patterns in species richness	LRWB Chap 8
16 Oct. 2013	Looking at the distribution of life on a Geological time scale, Plate Tectonics Dispersion in deep time. Continental Drift	LRWB Chap 8
21 Oct. 2013	Geological time continued	LRWB Chap 8
Dispersal, Island Biogeography; Conservation		
23 Oct. 2013	Glaciation – the Pleistocene.Dynamics; deglaciation and impacts on species ranges.	LRWB Chap 9 + readings from Pielou 1991..
28 Oct. 2013	Opportunity #2	
30 Oct. 2013	Island Biogeography, the assemblage and evolution of insular communities.	LRWB Chap 14
04 Nov. 2013	Island Biogeography and continued	
06 Nov. 2013	Fragmentation, climate change, extinction, Island Biogeography and Conservation	Quammen 127
11 Nov. 2013	More Fragmentation, climate change and extinction	
13 Nov. 2013	TBA	

Frontiers of BioDiversity and Conservation		
18 Nov. 2013	Opportunity #3	
20 Nov. 2013	The role of Conservation in BioDiversity	LRWB 16
25 Nov. 2013	Endangered and Threatened Species ... what does this mean?	Assigned Readings
27 Nov. 2013	Challenge of Global Warming.	Assigned Readings
02 Dec. 2013	Invasive species	Assigned Readings
04 Dec. 2013	The Four step cycle approach to solving conservation problems	Assigned Readings
09 Dec. 2013	FINAL OPPORTUNITY ... 1:30 - 3:30 http://essc.unt.edu/registrar/schedule/fall/final.html	

Please note that this schedule of topics is approximate and subject to revision. I will make every attempt to cover the materials in the syllabus as outlined but reserve the right to make changes in content and order. Any changes I deem necessary will not be done precipitously. In all cases students will be given reasonable notification concerning changes. Changes, for example, might occur because of important new information that is published during the course or based on discussions and feedback with students enrolled in the course. It is the student's responsibility to know any changes to this syllabus that may have occurred during justified or unjustified absences from this class. There will also be several times during the semester that we will have guest speakers. These speakers will pre-empt the discussion scheduled for that day.

READINGS: The course outline includes references. These are chapters in the course textbook (abbreviated LRWB) that provide background to the topics that I will discuss in class. Often additional material beyond that discussed in the book will be presented in class. **Examples** of outside readings are included in the list below. This list is not complete. These readings will be clearly announced during class.

Darwin, C.R. 1859. *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*. London: John Murray. [1st ed.]. Available ¹

Noss, R. 1990. Indicators for monitoring Biodiversity: A hierarchical approach. *Conservation Biology* 4(4): 355- 364.

Pielou, E.C. 1991. *After the last Ice Age: The return of Life to Glaciated North America*. University of Chicago Press.

Quammen, D. 1996. *The Song of the Dodo: Island Biogeography in the Age of Extinction*. Scribner, New York. 702 pp

Rozzi, R., Anderson, R. B., Pizarro, J. C., Massardo, F., Medina, Y., Mansilla, A., Kennedy, J. H., Ojeda, J., Contador, T., Morales, V., Moses, K., Poole, A., Armesto, J. and Kalin, M.T. 2010. Field environmental philosophy and biocultural conservation at the Omora Ethnobotanical Park: Methodological approaches to broaden the ways of integrating the social component ("S") in Long-Term Socio-Ecological Research (LTSER) Sites. *Revista Chilena de Historia Natural* 83: 27-68

Rozzi, R., J. Armesto, J. Gutierrez, C. Anderson, F. Massardo, G. Likens, A. Poole, K. Moses, E. Hargrove, A. Mansilla, J. Kennedy, M. Willson, K. Jax, C. Jones, J.B. Callicott & M. Arroyo. Integrating ecology and environmental ethics: Earth stewardship in the southern end of the Americas. *BioScience*. *Accepted*.

¹The Complete Works of Charles Darwin On-line

<http://darwin-online.org.uk/>

<http://www.facebook.com/pages/Darwin-Online/143922578989763>

FINAL OPPORTUNITY: The final opportunity includes information from all areas that was covered during the semester.

GRADING: The grade you earn in Biodiversity and Conservation of Animals is based on lecture opportunities (90%) and participation (10%). There are three lecture opportunities and a final opportunity. All opportunities (lecture and final) are equally weighted and will be averaged to determine your grade. Participation points are based on class attendance, participation in class activities and pop quizzes. Grades will be assigned as follows:

A = 89.5 – 100

B = 79.5 – 89.4

C = 69.5 – 79.4

D = 59.5 – 69.4

F = 59.4 and below

There will be a number of opportunities to earn points through participation exercises and quizzes. There will be **no** individual extra credit assignments—please do not ask. Grades will **not** be given out over the phone or via email at any point during the semester.

Although I do not anticipate any reason to modify this grading plan, I reserve the right to do so if circumstances warrant. I will inform the class if modifications to the grading scale are necessary.

ATTENDANCE: Attendance is expected. Students are responsible to prepare for class ahead of time, attend lectures and discussion sessions, ask questions, and express themselves creatively and concisely in their work. I will randomly check attendance. If you miss lecture 8 times (= 4 weeks of class), you will receive, at the discretion of the instructor, an incomplete or an “F” for the course.

OFFICE HOURS: If you are having problems, you are encouraged to talk with me as soon as possible. Please feel free to drop by during posted office hours (Tuesday 4:00 – 5:00 and Friday 11:00 – 12:00 or by appointment). My office is in EESAT 310F or you may e-mail me for an appointment at kennedy@unt.edu. It is always a good idea to contact me (even for visits during posted office hours) before you visit

DISHONESTY: Academic dishonesty in this class is unacceptable and will not be tolerated in any form. Cheating can impact the entire class. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Please consult the [University of North Texas Center for Student Rights and Responsibilities](http://www.unt.edu/csrr/) at <http://www.unt.edu/csrr/> including the [Code of Student Conduct](http://www.unt.edu/csrr/code_of_student_conduct.htm) at http://www.unt.edu/csrr/code_of_student_conduct.htm.

CLASSROOM BEHAVIOR: It is expected that student behavior will be courteous of the professor and other students. Students should arrive for class early and leave only at the end of class. If you arrive late or must leave early please select a sit at the back of the classroom (near the door). Please do not disrupt the class during your entrance or exit (i.e. close the door gently). **If you missed any handouts distributed at the beginning of the class you will need to wait until the end of the class to receive them.** During lectures there should be no distracting behavior including the use of headphones or other unauthorized electronic devices. **Cell phones must be turned off during class.** If you receive a phone call I will stop the class and we will wait for you to conclude your call. Lap top computers may only be used for note taking and you must sit in the first row of the lecture room. Students violating these norms will be asked and expected to leave the classroom.

Policy on Audio/Video recording devices this includes smart phones or any other electronic device: Lectures developed by me for this class are my intellectual property. The following policy statement is legally binding upon you, the student; I am the only person authorized to distribute materials associated with this course and you are not authorized to record my lectures, without express prior written consent from me.

DISABILITY ACCOMODATION: *“The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at 940.565.4323.”*

DROP/ADD INFORMATION: www.essc.unt.edu/registrar/schedule/scheduleclass.html