BIOL 142 - FOUNDATIONS OF BIOLOGY II: ECOLOGY & EVOLUTION

Summer 2012

Instructor: Dr. Erik P. Scully
E-mail contact: escully@towson.edu
Phone: 410-704-3012
UMBC, Biological Sciences Phone: 410-455-2261
Office hours: immediately before or after class

Date	Topic
5/29	Darwin, Wallace & Natural Selection; Descent with Modification; A brief History of Life
5/31	What Darwin didn't know: principles of Mendelian Genetics
6/5	Principles of Population Genetics
6/7	Quantifying Genetic Variation & Principles of Selection
6/12	Speciation
6/14	**Exam I** (Take home exam due 6/21)
6/19	Principles of Phylogeny
6/21	Applications: Metazoan Evolution and the Diversification of Land Plants
6/26	The Ecological Theatre: Principles of Population Biology
6/28	Life History Evolution & Molecular Ecology
7/3	**Exam II** (Take Home due 7/10)
7/5	Species Interactions
7/10	Community Structure – ***article summary due***
7/12	Community Development & Succession
7/17	Biogeography, Phylogeography & Biodiversity
7/19	**End session Exam**

Course Objectives: The goal of this course is to present an important series of topics in organismal biology, including a detailed look at evolution by natural selection, a central unifying principle of biology. We will also study the diversity of life that evolution has produced by studying speciation and phylogeny. Finally, we will learn how these organisms interact with each other and their environment, the science of ecology. An important secondary goal is to promote understanding of science as a process and as an ever-changing body of knowledge that helps us understand the world. Finally, we will use ecology and evolution to understand threats to biodiversity and ecosystems worldwide.

Academic Integrity: All work in this course is covered by UMBC policies on academic misconduct. Any copying, crib noting, assisting others, etc. will be considered as academic misconduct and strict sanctions will be applied. In previous years students have been caught through a variety of methods (including statistical computer matching of exam answers). Do not risk an F in this course or worse.

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full "Undergraduate Student Academic Conduct Policy" click on:

http://www.umbc.edu/undergrad_ed/ai/documents/ACC2011.pdf (Document)
http://www.umbc.edu/undergrad_ed/ai/students.html (Resources)

Class Attendance & Participation: Class attendance is mandatory, and prompt arrival is crucial. Each class during the summer session is the equivalent of ***one week*** of a regular semester course. In addition, a portion of each class will be devoted to class discussion and problem sets. Finally, assignments, additional readings and other course-related information will be announced in class before any notice is placed on the course site.

Blackboard: Essential course materials including this syllabus, relevant, sample exam questions, etc. will be posted on Blackboard. It is crucial that all students become accustomed to using Blackboard regularly to obtain course announcements and information.

Grading:
Exam I (in class) – 100 points
Take-home Exam I – 15 points
Exam (in class) II – 100 points
Take-home Exam II – 15 points
End Session Exam (in class) – 115 points
Problem sets & short exercises – 15 points
Article summary – 5 points
TOTAL - 365 points

Course grade is based upon the % of the **Total ~365 pts (100%)**

Grade Cutoffs: Based on this total percentage (total/365*100), final grade cutoffs will be as follows:

86-100%=A; 75-85%=B; 62-74%=C; 50-61%=D; 0-49%= F

Examinations: The format for the in-class portion of the examination will be essay, short answer and fill-in-the blank question. The take-home questions will be based on a primary research article. You will have to read the article, summarize its main points, and explain how the study is related to topics discussed in class. The actual take home will consist of five questions, each of which is worth 3 points. The end-session examination will also have an article that you have to read in advance, but the questions will form a special section of the exam.

Problem sets and exercises: There will be several problem sets and exercises. These are designed to help develop a better understanding of the related concepts. The exercises will not be time consuming, but credit will not be given for incomplete or late exercises.

Submitting Problem Sets & Other Assignments: There are two ways to submit any assignments and take home exams: (1) Hand in a "hard copy" in class on the due date for the assignment; (2)

Article Summary: The best way to learn about a field is to review current research or researchers in that discipline. The assignment is simple: find a recent (**published between 2010 and the present**) journal article that presents research relevant to topics covered in the course. Your summary should include the concepts related to the study, the specific hypotheses being addressed and the conclusions.

The following are some major journals related to the fields of Ecology and/or Evolution: *Ecology*, *Evolution*, *Oikos* *The American Naturalist*. Links to these and other representative journals can be found on the BlackBoard site. There are, however, many primary research journals that publish papers related to this course. Feel free to send me the link and reference to a paper if you are unsure if the paper is acceptable.

The only exception to the 2010 limit on recent papers are those published be members of the Evolutionary Biology group at UMBC. There will be a list of recommended articles on the BlackBoard site.

Studying: The exams will emphasize material that we have covered in lecture. The main objective of the reading assignments is to help you understand the topics covered during the lecture. A good strategy for success in the course includes the following.

Careful Notes: Take notes during the lecture, emphasizing material that is written or presented in figures, but also jotting down material presented verbally.

Use of the Lecture Outlines: Major concepts and definitions will be available in PowerPoint "handouts" format in advance of each class. These are so you can focus on the details rather than being concerned with copying definitions, etc. The outlines are *not* a substitute for taking notes or class attendance.

Study Groups: Students that form and participate in serious study groups do best in this course. Check your notes each night concepts you did not fully understand. Later, compare notes with a few other students in a study group and discuss problem areas.

Understanding vs. Memorizing: Make sure that you understand each of the topics discussed. Memorizing everything in the notes is not sufficient to do well in this course. Some exam questions will just test your conceptual understanding. But you must also memorize the notes as well (e.g., lists, definitions). Both are necessary to do well.

Keep Up Each Week: Each weekend learn the material presented in lecture well. Really study the notes thoroughly. Understand and memorize lists, definitions, key concepts. See me or send me a message if you have questions.