

**Syllabus: BIO 448.01, Ecology**  
**Term I, 2005/06, 3 credits**

**Instructor:** Stokes S. Baker, Ph.D.  
**Office:** 211 Ford Life Sciences Bldg.  
**Lecture:** 1:00 to 1:50 PM, MWF  
 LS118, Ford Life Science Bldg.

**Phone:** (313) 993-1142  
**E-mail:** bakerss@udmercy.edu  
**Office Hours:** 12:00 to 11:50 PM, MWF, 11:30 to 12:30 TR  
 (Additional hours by appointment, or **just drop by**)

**Text:** Smith, Thomas M., and Robert L. Smith. 2006. Elements of Ecology, 6th ed. Benjamin/Cummings, San Francisco.

**Description**

A lecture course designed to introduce students to major concepts in the science of ecology. Major topics include natural selection and speciation; physical environmental factors (e.g. biogeochemical cycles, light, water); populations and their dynamics; community relationships; and ecosystem dynamics. Upon completion of this course, the student will be able to:

- explain basic concepts in the discipline of ecology
- explain the meaning behind mathematical models that describing ecological principles
- describe how humans impact the natural environment.

**Prerequisites**

BIO120/122, CHM107/108, CIS100

**Methods**

Just-in-time (Jitt) instructional methods will be used. Jitt involves the student reading the assigned text before coming to class, and completing on-line Warm-up exercises before coming to class. The results of the Warm-ups will then be used in developing the later materials for the class. Additionally, to help you develop your analytical skills, a series of questions presented at the end of each chapter will be assigned for you to complete (non-graded). Quantitative analysis will be emphasized in this course. Materials from class presentations and homework assignments will be assessed on the exams.

**Lecture Topics:**

<b><u>Chapter</u></b>	<b><u>Title</u></b>	<b><u>Pages</u></b>
<b>Part I.</b>	<b>Introduction</b>	2-4
1.	The Nature of Ecology	4 - 16
2.	Adaptation and Evolution	17 - 40
<b>Part IV.</b>	<b>Populations</b>	184-185
9.	Properties of Populations	186 - 203
10.	Population Growth	204 – 221
8.	Life History Patterns	184-185
11.	Intraspecific Population Regulation	223 – 240
12.	Metapopulations	241 – 255
<b>Part V.</b>	<b>Species Interactions</b>	256-257
13.	Interspecific Competition	258-282
14.	Predation	283-310

<b>Part VI.</b>	<b>Community Ecology</b>	332-333
16.	Community Structure	334-352
17.	Factors Influencing the Structure of Communities	353-372
18.	Community Dynamics	373-397
19.	Landscape Ecology	398-421

**Lecture topics continued:**

<u>Chapter</u>	<u>Title</u>	<u>Page</u>
<b>Part VII.</b>	<b>Ecosystems Ecology</b>	424-425
20.	Ecosystem Energetics	426-449
21.	Decomposition and Nutrient Cycling	450-473
22.	Biogeochemical Cycles	474-493
<b>Part II.</b>	<b>The Physical Environment</b>	42-43
3.	Climate	44-64
29.	Global Climate Change	631-658
4.	The Aquatic Environment	65-83
5.	The Terrestrial Environment	84-102

**Computer Requirements and Resources:**

Blackboard course development World Wide Web (WWW) server and Microsoft (MS) Excel spreadsheets are extensively used in this course. Thus, students must:

- have an active Email account
- update their Blackboard account with an active Email account that they will check
- know how to use the MS Windows operating system
- know how to use the MS Explores web browser (required for Blackboard)
- know how to use basic calculation and graphing functions in MS Excel

Student computer labs have the required software and Internet access. UDM's Computer Center will provide you with a free Email account, if you request one.

The following WWW resources are available to you:

<u>Internet Resource</u>	<u>URL</u>
<b>Course web site:</b> Contains warm-up assignments, copy of syllabus, some of the handouts, links to the textbook's web site, and other resources.	<b><a href="http://knowledge.udmercy.edu">http://knowledge.udmercy.edu</a> (Required):</b> The Registrar's Office automatically enrolls students into their Blackboard account. However, the students must change the "dummy" email account to an active Email account.
<b>Textbook web site:</b> Chapter description, on-line simulations, and practice quizzes.	<b><a href="http://www.ecologyplace.com">http://www.ecologyplace.com</a>(Optional):</b> To access this site, you need to activation your Biology Place account using the ID and Password found on the first page of your textbook.

**Evaluations:**

Your grade for this course will be based upon four (4) examinations.

**EXAMS**

There will be three hour-long exams (150 points each). Each exam will have an in-class-closed-book section with 100 points, and a take-home-open book section with 50 points two-hour comprehensive. The comprehensive final and will consist of two parts. Part A, worth 100 points, will cover the last quarter of the lecture material. Part B, worth 100 points, will be comprehensive. If the score in Part B is higher than the score of the in-class-closed book portion received one of the previous exam (Exam I, Exam II, or Exam III) then that the lowest score will increase to with the score obtain on Part B.

### DISTRIBUTION OF POINTS AND EXAM SCHEDULE

Assignment	Points	Date
Exam I	150	Friday, February 3
Exam II	150	Monday, March 20
Exam III	150	Friday, April 7
Exam IV (comprehensive final)	<u>200</u>	Tuesday, April 25, 2:00 - 3:50 p.m.
<b>Total:</b>	<b>650</b>	

### Grades:

You are guaranteed the following minimum grades based upon the following percentile scale:

$$\% = (\text{points received} / \text{points possible}) \times 100$$

A = 95 to 100%	A- = 94 to 90%	
B+ = 89 to 85%	B = 84 to 80%	B- = 79 to 75%
C+ = 74 to 70%	C = 69 to 65%	C- = 64 to 60%
D+ = 59 to 55%	D = 54 to 50%	
F = 49 to 0%		

### Attendance:

Make-up exams will only be given if you miss an exam for a legitimate excuse (e.g., illness, death in the family). You must notify me within 24 hours of the exam time to schedule a make-up exam. Otherwise, missed exams will receive a score of 0 points.

### Important Dates:

#### **Winter 2005-2006**

October 31	Advising for Term II Winter 2005-2006 begins
November 7	Registration for Term II Winter 2005-2006 Begins
December 22 - January 1	Christmas Break (University Closed)
January 2	Winter Tuition Payment Due for Mail-in
January 9	Classes Begin
January 13	Last Day to Declare Audit or Pass/Fail Option
January 16	Martin Luther King, Jr. Holiday (No classes/Offices Closed)
January 17	Last Day to Add a Class
January 27	Application Deadline for May/June/August 2006 Graduation
February 3	Last Day to Drop a Class without a "W"
February 10	Deadline for Fall Term I 2005-2006 "I" Grades
February 28	Mid-term grades submitted
March 6-11	Mid-Winter/Spring Break (No classes/Offices Open)
March 13	Advising for Fall term I 2006-2007
March 20	Registration for Fall Term I 2006-2007 Begins
April 14-16	Easter Recess - University Closed

### **Class Cancellation Policy:**

Class will only be canceled if the President's office closes the university, or if the Dean's office cancels class due to a special event (e.g., Technology Discovery Day).

### **Special Needs Accommodations**

Students with special needs due to disabilities should contact University Academic Services / Disability Support Services (UAS/DSS) located on the ground floor of the Student Center (578-0310) to make arrangements. If you have emergency medical information, or need accommodations in case of building evacuation, inform the instructor as soon as possible.

### **Courtesy**

1. You must be courteous to your fellow classmates, teaching assistant and instructor. To this end, talking during lectures is not permitted. If you are disturbing others in class, the instructor will require you to leave the laboratory.
2. Cellular phones and pagers must be on vibrating mode. If responding to an emergency call, you must leave the classroom.

### **Academic Integrity**

I expect you to follow the norms of academic conduct. You will adhere to the policies outlined in Appendix A of the 2005/06 Student Handbook of Policies and Procedures. The instructor recommends that you read this appendix. Students caught plagiarizing or cheating will received a grade of zero for that assignment. The following activities are considered cheating:

1. Looking at someone else's exam.
2. Looking at notes, books, or electronic data storing devices during an exam.
3. Transferring information to another student using wireless technology.
4. Looking at an answer on another student's calculator.
5. Giving information to another student during an exam.
6. Collaborating anyone on take-home graded assignments.
7. Talking during an exam.
8. The sharing of outputs from computer programs. (If you copied the file, it is not your own work!)
9. Submitting assignments completed by another person and claiming it is your own work.
10. Lying on "Honor" statements.