

# BIOLOGY 320—EVOLUTION & ECOLOGY

## Course Syllabus Fall 2006<sup>†</sup>

### I. Instructor Information

Dr. Dale D. Edwards

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Office Hours: Tuesday and Thursday, 9-10:00 a.m., Wednesday, 1:30-3:30 p.m., and by appointment

### II. Course Information

#### A. Meeting Times and Places

Lecture: 10 - 10:50 a.m., MWF, KC 200; Lab: Section 1, 2-5:00 p.m., Tu, KC 200; Section 2, 2-5:00 p.m., Th, KC 200

#### B. Textbook and Laboratory Manual

Textbook: Molles, Jr., M.C. 2005. *Ecology: Concepts and Applications*. Third Edition. McGraw Hill, Boston, MA.

Futuyma, D.J. 2005. *Evolution*. Sinauer Associates, Inc., Sunderland, MA.

Lab Manual: A lab manual for the course can purchased from Pat Akrabawi in room KC 219. There will be a fee of \$15.00 (cash only) to cover the printing costs of the laboratory manual.

#### C. Course Description and Objectives

This course introduces the fundamental concepts of evolution and ecology, with special efforts made to demonstrate the inherent relationship between these two disciplines. We will examine the ecology of individuals, populations and species and the mechanisms of evolutionary change, while also addressing the interplay between ecology and evolution. The three major objectives of this course are: (1) to provide a fundamental understanding of evolutionary and ecological theory, (2) to exercise your skills in critical thinking, and (3) to enhance your research skills by increasing your ability to design and perform experiments, as well as by improving your laboratory writing skills.

A substantial component of class period will be a lecture-based presentation of the material to ensure that everyone understands the topics being discussed. To ensure that you can provide a meaningful contribution to each subject, though, you are expected to read the assigned chapters prior to the class discussion of that subject. To encourage timely reading of the material, there will be a quiz over designated chapters at the beginning of class on most Mondays

<sup>†</sup>The schedule may be modified to enhance learning opportunities.

(see lecture schedule below). With regard to the laboratories, assignments will vary in their grade value. Because you will be developing your writing skills as this course progresses, we will give lesser weight to the first lab report. Nevertheless, you will want to invest time and effort in each report in order to improve the quality of your writing.

### III. Evaluation

Your final grade will be determined using the following formula:

Lab reports/presentation:	30%
Quizzes:	10%
Exam 1-4:	12.5% each (50% total)
Final Exam:	10%

Course grades will be determined using the following scale:

93 - 100 = A	73 - 76 = C
90 - 92 = A-	70 - 72 = C-
87 - 89 = B+	67 - 69 = D+
83 - 86 = B	63 - 66 = D
80 - 82 = B-	60 - 62 = D-
77 - 79 = C+	>60 = F

### IV. Attendance/Deadline Policy

Your participation in classroom and laboratory exercises is integral to this course. You are expected to attend all classes; if you miss class during a regular lecture session, you are responsible for all work missed. The dates for the exams, quizzes and assignments are indicated in the syllabus; if you are unable to attend class, contact the instructor immediately. In addition, you will need to submit a note from the Office of the Dean of Students confirming the reason for your absence. Your absence will be excused provided that it complies with the University's policy governing excused absences and provided that you complete the assignment within the requested time frame. Unexcused absences and incomplete work will regrettably receive zeros for grades.

### V. The Honor Code

In the performance of all work in this course each student is expected to adhere to the standards of ethical behavior as stated in the University of Evansville Honor Code (page 42, 2005-2007 Undergraduate Catalog). Accordingly, students are expected to neither give nor receive unauthorized aid on quizzes. Plagiarism, the use of unauthorized sources of information on submitted work, is considered a transgression of the honor code. If you violate the University honor code, you will receive a zero for the work in question and your violation will be reported to the Office of the Dean of Students.

**VI. Lecture Schedule\***

<b><u>Week</u></b>	<b><u>Lecture Topic</u></b>	<b><u>Reading</u></b>	<b><u>Quiz Topic</u></b>
8/21	Introduction: Relationship between ecology and evolution; Ecology; Natural history of streams and rivers	Molles 1, 3	
8/28	Ecology of populations and communities	Molles 9, 16	Molles 9
9/4	Ecology of communities (cont.); Food webs (pgs. 419-25), Trophic pyramids (pgs. 442-3), Succession (pgs. 485-8); Population dynamics	Molles 16 Molles 17, 18, 20 Molles 10	Molles 16
9/11	Population growth; Life history biology <b>Exam 1 (Friday)</b>	Molles 11, 12	Molles 11
9/18	Life history biology (cont.); Competition	Molles 13	Molles 12
9/25	Predation; Herbivory; Mutualism	Molles 14, 15	Molles 14
10/2	Mutualism (cont.) Physiological ecology	Molles 15 Molles 4, 5, 6	Molles 15
10/9	<b>Fall Recess</b> Patterns of Evolution <b>Exam 2 (Friday)</b>	Futuyma 2, 3	
10/16	Sources of genetic variation; Population genetics	Futuyma 9	Futuyma 9
10/23	Genetic drift, gene flow, non-random mating	Futuyma 10	Futuyma 10
10/30	Natural Selection (also see Molles Ch. 8)	Futuyma 11, 12	Futuyma 11
11/6	Quantitative genetics <b>Exam 3 (Friday)</b>	Futuyma 13	
11/13	Sexual selection; Kin selection If time allows: Social behavior	Futuyma 14 Molles 7	Futuyma 14
11/20	Species and Speciation Thanksgiving break	Futuyma 15, 16	Futuyma 15
11/27	Speciation; macroevolution	Futuyma 16, 21	
12/4	<b>Exam 4</b>		
12/12	<b>Final Exam</b> (12:30 p.m.)		

\*This lecture schedule may be modified depending on the pace of the course

## VII. Laboratory Schedule

<u>Week</u>	<u>Lab Topic</u>
8/21	No lab
8/28	Natural history of Pigeon Creek: collection
9/4	Pigeon creek: sample identification
9/11	Woody plant diversity: Wesselman Woods I (Pigeon creek report due)
9/16-17	Hancock Biological Station Field Trip
9/18	Woody plant diversity: Wesselman Woods II
9/25	Discussions of: Writing a Lab Report Literature Research JMP & Data Analysis (Students will need to collect and care for isopods)
10/2	TBA (Woody plant diversity report due)
10/9	Fall Break
10/16	Seed dispersal experiment: experiment I
10/23	Seed dispersal experiment: experiment II
10/30	Isopod behavior: experiment
11/6	Isopod behavior: experiment and data analysis (Seed dispersal report due)
11/13	Isopod selection experiment
11/20	<b>Thanksgiving</b>
11/27	Presentation of isopod behavior experiment (Both Isopod reports due)

**Weekend Field Trip:** We have a special opportunity to take a trip to the Hancock Biological Field Station at Aurora, KY during the weekend of **September 16<sup>th</sup> and 17<sup>th</sup>**. We will leave for the station early Saturday morning and return to UE early Sunday afternoon. Due to travel constraints, only the first 15 students who deposit a \$25 fee to cover travel, housing, and food costs will be able to attend the trip. This trip will provide you with an opportunity to sample, identify, and learn more about the natural history of a variety of plants and animals from a unique aquatic ecosystem. Please apply for this trip ASAP.

### VIII. Writing Assignment Policy

To ensure that students turn in original work, all writing assignments must be submitted to Turnitin.com. Your assignment will not be graded (and may be counted as late) until your assignment has been successfully submitted to turnitin.com. The procedures are very easy for anyone who has worked on the WWW. Follow the instructions below to get started:

1. Go to <http://www.turnitin.com>
2. Click on user login, and then click on **CLICK HERE TO GET STARTED** (unless you already have an account at turnitin.com from a previous course—if this is the case, go to 4.)
3. Enter your UE email address and choose a personal password. You will need to remember this password. Click the **NEXT** button to enter your name and address. When finished, return to the login page and login as a student. You can now always register as a student. (Please do not ask me what your personal password is; I will not know)
4. Click on **JOIN NEW CLASS**. The course ID is **1552046** and the enrollment password is **evolve**.

**To submit a paper, click the **TURN IT IN!** button. Select the appropriate assignment, and upload the file or paste it into the text box. Press submit when you are finished.**

**BIO 320 Questionnaire** (tear off and return to instructor)

Full Name (Preferred Name/Nickname): \_\_\_\_\_

Class Standing: Fr \_\_\_ So \_\_\_ Jr \_\_\_ Sr \_\_\_ Student SS#: \_\_\_\_\_

Campus e-mail address: \_\_\_\_\_ Local Phone Number: \_\_\_\_\_

Advisor: \_\_\_\_\_

Career Objective: \_\_\_\_\_  
\_\_\_\_\_

Based on the course goals, what are your greatest strengths coming into this course?

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What do you hope to learn in this course?

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**Academic Honor Code:** All students are expected to abide by the University's Honor Code (page 40, 2001-2003 Undergraduate Catalog). Accordingly, students are expected to neither give nor receive unauthorized aid. Plagiarism, the use of unauthorized sources of information on submitted work, is a transgression of the honor code. By signing below, you are acknowledging that you understand and will abide by the academic honor code.

**Permission Agreement:** Examples of student work can be useful both for educational purposes and for evaluation of teaching effectiveness. By signing below, you are granting permission to use your exams and assignments for these purposes. In no way does this permission extend beyond professional use. Thank you.

Student Signature \_\_\_\_\_ Date \_\_\_\_\_