PIKEVILLE COLLEGE
COURSE REQUIREMENT FORM
SPRING TERM 2009

BIO 411 ECOLOGY II **Credit Hours**: 4

Official Course Description: Further study of ecological principles introduced in BIO 310. Topics will be chosen by the instructor and may include population ecology, community ecology, ecosystem ecology, or environmental ecology. *Prerequisites: A grade of "C"or better in BIO 151 and 152, and BIO 310.*

Instructor: Joe Whittaker

Office: ARM 105

email: jwhittak@pc.edu

Office Hours: See attached schedule or by appointment.

Lecture: TR 9:30 - 10:45 AM
Room: ARM 103
Lab: T 3:00 – 5:50 PM
Room: ARM 113

Office Phone: 218 - 5467
Home Phone: 478 – 3999
(please use only for emergencies)
Division Phone: 218 - 5460

Pre-requisite: BIO 151, BIO152, BIO 310

Required Textbook: Smith, R. L., and T. M. Smith. 2001. Ecology and Field Biology. 6th Edition. Benjamin Cummings. New York. 842 pp.

Supplemental material available on ANGEL.

Goals and Objectives: The primary goal of this course is to continue your understanding of ecology. We will discuss classical and current ecological issues and methodology. You will gain an appreciation for natural diversity and how humans interact with and use the world around them. We will examine biodiversity and sustainability of natural systems. Additionally, we will explore the benefits and limitations of scientific efforts to understand ecological relationships. Lastly, you will learn to critically evaluate environmental issues locally, regionally, and globally, and to effectively communicate your knowledge in a meaningful way. Writing assignments will expose you to current literature and aid you in the process of critical thinking.

Specific **learning outcomes** for this course include:

(1) Access, critically evaluate, and use scientific literature; (2) describe organizational levels observed in ecology; (3) describe how populations are regulated and how data can be collected, analyzed, and interpreted using statistics, graphs, life tables, and survivorship curves; (4) describe the interactions between different species and how they impact one another; (5) describe the major forces responsible for community structure, describe how community structure can be represented by food webs, and explain how communities change in both space (to form biomes and gradients) and time (succession); (6) discuss patterns of biodiversity, how biodiversity is measured, and predict the consequences of continued species loss.

Attendance Policy: Attendance in lectures is not required. However, if absences become what I determine to be excessive (without valid college recognized excuses) points will be deducted from your final percentage, or in extreme cases a grade of Q, or F (after 20%, or 6, unexcused absences) will be assigned. I strongly recommend you attend class. There is a **strong positive correlation** between lecture attendance and final course grade. While attendance will not formally count for points in the course, students who attend class regularly will be given extra consideration in the case of a borderline final grade. If you miss a lecture you are responsible for getting the material you missed. If you know ahead of time (athletic activities, etc.) that you will be missing an assignment, you must contact the instructor at least **24 hours** in advance concerning your absence in order to make arrangements to make up any missed assignments. You must make up any missed assignments either before your absence or before the next class meeting. Any work missed because of a **valid, college-recognized emergency absence** (must be accompanied by a written excuse, (e.g., physicians note, etc.)) must be made up as soon as possible after your return.

In the event you must miss a lecture exam you must contact me <u>BEFORE</u> the exam. If you miss a test or other assignment due to an emergency (illness, etc.), you must have a valid, written excuse (physician's note, etc.). Any exam missed without specifically notifying me and making arrangements **ahead** of time or without a **valid, college-recognized emergency excuse will be assigned a grade of "0" on the exam**. A word of warning: make-up exams will not be identical in content or format to original exams (often in essay format and therefore may seem more difficult than the original examination). Typically make-up exams are given during finals week.

Grading Policy and Scale:

Grades will be based on the following:

1. Three lecture exams (~130 points each)
2. Cumulative final exam (~240 points)
3. Lab Write-ups
4. Additional class assignments or projects
5. Participation (~10%)

Your grade will be based on your percentage* of the total points as follows:

<u>Percentage</u>	<u>Grade</u>
$\geq$ 90	A
80-89	B
70-79	C
60-69	D
$\leq$ 59	F

* Your percentage = Your total points / Total number of points possible

Lecture exams will be of variable format. This may include a combination of, but is not limited to, multiple choice, true/false, matching, short answer, and brief essays. Material covered in labs will be covered on lecture exams. The final lecture exam will be cumulative.

You will be doing several write-ups based on lab exercises and/or provided data.

Assignments are due at the beginning of the class period unless otherwise specified. Late assignments will be penalized 10% per day (starting with – 10% after the assignments are collected in class).
Field Trips: Ecology is best learned first hand in the field. Field trips will allow us to practice collecting data and using techniques we discuss in class. We will be scheduling field trips during the lab period, and when possible, during weekends. We will be going out in a variety of weather conditions, so you should be sure to dress appropriately. We will perform indoor labs in the event of truly severe weather. Do not expect labs to necessarily occur in the order listed (ecologists have to be able to adapt to ever changing situations).

Class participation will be gauged by your activity in the field and laboratory. You have signed up for a largely field course and are expected to participate actively in the field and laboratory setting and to interact in an appropriate manner with your fellow students. Science requires collaboration and a willingness to work effectively with others. Expect that if you are not taking part in the day's activities or wander away from the class that you will lose some portion of the participation grade. Additionally, if you are behaving in a manner which is distracting to the instructor and other students or endangering yourself or other students you may be asked to wait in the van or be restricted from participation in future field exercises. If you are asked not to participate in field activities your grade will be lowered accordingly and in extreme cases may involve removal from the course with a failing grade.

Academic Dishonesty: Pikeville College views academic dishonesty as cheating, plagiarism, fabricating, or facilitating academic dishonesty. **I will not tolerate any instance of academic dishonesty**. Science depends on the integrity of those contributing to it. As such, instances of plagiarism or academic dishonesty will result in either: the student receiving a failing grade for the activity or receiving a failing grade for the course, according to the perceived intent and extent of the instance(s) of academic dishonesty. This policy will be **rigidly** enforced. Copying portions of written assignments word-for-word from the source article or copying from a friend or the internet is plagiarism. Please see the Pikeville College Course Catalog or ask me if you have questions about academic dishonesty. It is your responsibility to understand what constitutes academic dishonesty.

Vandalism, intentional destruction and theft of Pikeville College property (including specimens, models, slides, or facilities) and/or endangering other people through negligent or irresponsible behavior will result in your immediate dismissal with a grade of "F" for this course and may result in legal action by Pikeville College.

Tentative Schedule for BIO 411 Ecology II

DATE	TOPIC	CHAPTER
8 January	Ecology Definitions and the Experimental Approach	1
13	Ecology of Eastern Kentucky	Braun, 1950
15	The Physical Environment: Climate	2

20	The Physical Environment: Water & Soils	3 & 4
22	Plant Adaptations	5-7
27	Animal Adaptations	8
29	**EXAM I**	
3 February	Decomposition	9
5	Population Ecology: Properties I	10
10	Population Ecology: Properties II	10
12	Population Growth	11
17	Population Regulation	12
19	Life History Patterns	13
24	**EXAM II**	
26	Interspecific Competition	14
3 March	Interspecific Competition	14
5	Concepts of Predation	15 & 16
10	**SPRING BREAK**	
12	**SPRING BREAK**	
17	Predators and Prey	16
19	Coevolutionary Interactions: Parasitism & Mutualism	17
24	Human Impacts on Populations	18
26	Population Genetics: Minimum Viable Populations	19
31	Community Structure	20
2 April	**EXAM III**	
7	Community Dynamics and Processes Controlling Community Dynamics	21 & 22
9	Landscape Ecology	23
14	The Ecosystem	24
16	Biogeography	27
21	Toxicology	
23	Global Environmental Change	32
30 April	**FINAL EXAM: THURSDAY 9:30 AM**	

Tentative Lab Schedule for BIO 411 Ecology II

DATE	TOPIC
13 January	Compass Use and Field Mapping; Keys and Keying; Competition Experiment
20	Sampling Populations: Background & Techniques*
27	Environmental Contamination*
3 February	Demography - Cemetery
10	Demography – Mark-Recapture Simulation*
17	Predator-Prey Relationships: Owl Pellets*
24	Physiological Ecology: Diet Selection
3 March	Mimicry

10	**SPRING BREAK**
17	Small Mammal Demography
24	Vegetation and Soil Sampling Techniques & Analysis
31	Sampling Biodiversity
7 April	Aquatic Sampling
14	Aquatic Community
21	GIS and Ecological Mapping*

* These labs are indoor labs and my be substituted for earlier labs in the event of **SEVERE** weather or bumped back in the case of particularly good weather

Proposed Saturday Field Trips for BIO 411 Ecology II

DATE	TRIP
TBA	Elk Tour
TBA	Lilley Cornett Woods
TBA	Coal Mine Tour
TBA	Fishtrap Lake and Surrounding Area
TBA	Jenny Wiley (overnight – trapping and fluorescent powder)
TBA	Redbird Ranger District – Mussel Surveys

Disclaimer: The schedules and policies associated with this course may be subject to revision or change as a consequence of changing circumstances or events. Reasonable notification will be provided to students prior to any major changes in course policies or procedure.

Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform me (the instructor) at the start of the semester. Methods, materials, or testing may be modified as required to provide for equitable participation.

Course Requirement Sheet Acknowledgment Form

I _____ have received a copy of the Requirement Sheet for BIO 411,
(Printed Name)
Ecology II, and understand all the policies and procedures outlined therein.

_____ _____
(Signature) (Date)

Please fill out the optional information requested below:

Major: _____

Contact Phone Number: _____

E-mail. Address: _____

Medical information that the instructor should be aware of:

Hometown:

Career interests or goals:

Reasons for taking this course:

Previous biology background (high school and college):

USE OF PHOTOGRAPHIC LIKENESS RELEASE

For good and valuable consideration, I authorize Dr. Joseph Whittaker to record photographs of me and use, reproduce, modify, distribute, and exhibit such photographs, in whole or in part, without restrictions or limitation for marketing and instructional purposes.

I release Dr. Whittaker, Pikeville College, its successors and assigns, agents, and all persons for whom it is acting from any liability by virtue of any blurring, distortion, alteration, optical illusion, or use in composite form, whether intentional or otherwise, that may occur or be produced in the photographic process and waive any right that I may have to inspect or approve the finished recordings.

_____

Printed Name

_____

Signature Date