

**MOREHEAD STATE UNIVERSITY
COLLEGE OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF BIOLOGY AND CHEMISTRY
SPRING 2009 COURSE SYLLABUS**

COURSE: Biology 461. Ecology. (2-2-3); I. Interrelations of organisms and environment. Some all day field trips required. *PREREQUISITES:* BIOL 210, BIOL 215, MATH 152 or higher, eight hours of college chemistry.

PROFESSOR: Dr. Reeder. 327C Lappin Hall, 3-2957, b.reeder@moreheadstate.edu

REQUIRED TEXTS: Molles, M.C. 2008. Ecology: Concepts and Applications
Brower et al. 1998. Field and Laboratory Methods for General Ecology

COURSE GOAL: The purpose of the course is to gain an understanding of the structures and functions of biological systems at the population, community, and ecosystem levels.

COMPETENCIES: Students will be expected to:

- be proficient with common aquatic and terrestrial ecosystem component sampling and analysis techniques
- be capable of accurately and clearly analyzing, and scientifically reporting, ecological data and information
- have a demonstrated competency and understanding of ecosystem processes, included food webs, energy flow and modeling, biogeochemistry, and the effects of macro and microclimate on ecosystem structure
- have a demonstrated competency and understanding with concepts in community ecology, including stages and processes of succession, interspecific interactions, niche theory, and biodiversity
- have a demonstrated competency and understanding of population ecology, including growth models and life tables, intraspecific competition, and speciation
- have a demonstrated competency and understanding of adaptations of plants and animals to varied environmental conditions at cellular, organismal, and population levels
- demonstrate reliability and honesty.

COURSE ACTIVITIES: Students will be asked to listen, think, and interact with the teacher in regard to course material presentations, take quizzes and exams that require critical thinking and writing skills, read assigned materials, and interact with classmates and the teacher to answer questions/solve problems/conduct field and laboratory experiments. Students will use mathematical and chemical skills, computer technology, and lab methods to study a variety of aquatic and terrestrial ecosystems. Students will formulate hypotheses, collect and analyze data and the literature, formulate conclusions, and present results.

Professional Courtesy: You are expected to conduct yourself as a professional during class. Conduct that inhibits or disrupts the learning of others is rude, and will not be tolerated. Electronic devices can not be used during class (e.g. cell phones, beepers, tape recorders, etc.). The classroom and laboratory are not suitable environments for children; therefore, in accordance with University regulations, children are not permitted. To be counted as attending on a day, you must be seated and ready when class starts, and stay until the end of the class. You may not leave your chair unless instructed by the professor or for medical emergencies.

ASSESSMENTS:

Average of mid-term exams	40% of grade
Laboratory assignments, reports, and proficiency evaluations	30% of grade
Daily quizzes	15% of grade
Comprehensive Final Exam	15% of grade

Grading Scale: 90 – 100%, A; 80 – 89%, B; 70 – 79%, C; 60 -69%, D; <59%, E.

U- more than 6 total absences (lecture or lab), or any unexcused exams.

Exams: Exams are to help me evaluate what you have learned, and to motivate you to study. Exams may test lecture and laboratory knowledge, and will be primarily objective. Exam questions test your ability to

integrate material and assess novel situations--rather than simply testing your factual recall. The instructor's decisions on grading are not debatable.

Laboratory Assignments: You are all responsible for keeping a safe and clean environment. Some activities will be done with groups in lab or the field. You are responsible for your helping your team. I will specify when reports or assignments are to be completed individually. If a number of pieces of individual work have identical answers, or otherwise demonstrate collusion, then all parties involved lack professional and personal integrity and character; therefore they will not receive any points for the assignment. Lab reports and assignments must be turned in on time. There is no partial credit for late assignments. If you have mastered time travel, you may go back into the past and complete an assignment or task.

Attendance: Attendance is **required**. Treat this course like you would a job. Exams, quizzes, and labs can not be made-up. "Legitimate absences do not excuse students from class responsibilities" (MSU Student Handbook). Students with official university excuses should present them to Dr. Reeder before the absence. Medical excuses are only valid if the condition required hospitalization. Funeral excuses are only valid for the day of the funeral, and with the following qualifications: 1) it is your death; or 2) the death is of your immediate family member. To maintain fairness, I do not want to be put into the position of judging the validity or seriousness of your excuses.

Date	Lecture	Molles Ch.
11-Jan-10	Introduction Basic Terms	1
13-Jan-10	Quantifying Populations	9
18-Jan-10	Dr. King Day	
20-Jan-10	Population Dynamics	10
25-Jan-10	Population Growth	11
27-Jan-10	Life History and Niche	12
1-Feb-10	What do Predators Do?	13
3-Feb-10	Predator-Prey Dynamics	14
8-Feb-10	Competition Leads to Speciation	13 and 15
10-Feb-10	Exam 1-Populations	
15-Feb-10	Causes and Consequences of Sex	8
17-Feb-10	Abundance and Diversity	16
22-Feb-10	Food Webs and Efficiency	17,18
24-Feb-10	Food Webs and Diversity	17,18
1-Mar-10	Biogeography	22
3-Mar-10	Succession	20
8-Mar-10	Amazonia during the ice age	
10-Mar-10	Exam 2-Community Ecology	
15-Mar-10	Spring Break	
17-Mar-10	Spring Break	
22-Mar-10	Production	7
24-Mar-10	Primary Production Limitations	18
29-Mar-10	Maintenance of Air	19
31-Mar-10	Maintenance of Limiting Nutrients	19,23
5-Apr-10	Climate	2
7-Apr-10	Terrestrial Biomes	2
12-Apr-10	Lakes	3
14-Apr-10	Streams and Rivers	3
19-Apr-10	Wetlands	3
21-Apr-10	Oceans	3
26-Apr-10	Mountain Top Removal	23
28-Apr-10	Exam 3-Ecosystems	
May	Comprehensive Final Exam	

Always come prepared to go outside on laboratory days!

Use of technology: Students will be expected to use Internet and World Wide Web for literature searches of lab projects as well as use e-mail, word processing, and appropriate ecological modeling and data analysis software as assigned. In various labs, students will use technical procedures involving spectrophotometers, multiparameter probes, pH meters, titrators, and electronic balances, sling psychrometers, anemometers, muffle furnace, block digestors, microscopes, maps, flow-meters, and various other analytical equipment.

Diversity Issues: Inherent in this course is the discussion of the abundance and distribution of species (biodiversity); however, human diversity is not addressed.

Campus Safety Statement: Emergency response information will be discussed in class. Students should familiarize themselves with the nearest exit routes in the event evacuation becomes necessary. You should notify your instructor at the beginning of the semester if you have special needs or will require assistance during an emergency evacuation. Students should familiarize themselves with emergency response protocols at www.moreheadstate.edu/emergency.

Academic honesty: Cheating, fabrication, plagiarism or helping others to commit these acts will not be tolerated. Academic dishonesty will result in severe disciplinary action including, but not limited to, failure of the student assessment item or course, and/or dismissal from MSU. If you are not sure what constitutes academic dishonesty, read The Eagle: Student Handbook or ask your instructor. The policy is located at <http://www.morehead-st.edu/units/studentlife/handbook/academicdishonesty.html>. For example: Copying information from the Internet is plagiarism if appropriate credit is not given.

Policy for Accommodating Students with Disabilities: Professional staff from MSU Academic Services Center (ASC) coordinates efforts to address accessibility needs and class accommodations with instructors of students who have learning or physical disabilities. Faculty will cooperate with the ASC staff to accommodate the needs of students taking departmental courses.

The instructor may change or amend the schedules and rules to enhance your educational experience.

Addendum for NCATE Review
MOREHEAD STATE UNIVERSITY
PROFESSIONAL EDUCATION UNIT
COLLEGE OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF BIOLOGICAL AND ENVIRONMENTAL SCIENCES
BIOLOGY 461 – ECOLOGY
COURSE SYLLABUS – SPRING 2009

COURSE: BIOL 461; Ecology (2-2-3) I

TIME AND PLACE: Lecture 9:10-10:10 MW in Lappin 310; Laboratory 12:40-2:50 M in Lappin 243

LECTURE INSTRUCTOR: Dr. Brian Reeder

OFFICE: 327C Lappin Hall

PHONE: 783-2957

EMAIL: b.reeder@morehead-st.edu

OFFICE HOURS: 3:00-5:00 M and 10:20-12:30 T

Conceptual Framework for Educator Preparation Program:

“Community Engagement: A Light to and from the Mountains.” The Professional Education Unit at Morehead State University delivers rigorous, high quality programs that prepare professionals informed by best national and international scholarship, plus research, literature, and experiences specific to Appalachia - preparing professionals to improve the schools, quality of life, and the communities in which they live and serve. This statement is not only the strategic mission for the Unit, but it also incorporates the conceptual framework that guides all our activities.

The following objectives have been established for Biology 461. These objectives are consistent with standards listed by the National Science Teachers Association (NSTA), Kentucky Department of Education Core Content for Assessment (KDECCA), and the Kentucky Teacher Standards (KTS).

COURSE OBJECTIVES:

1. to develop a personal, well-structured, interconnected understanding of the principles of ecology. KTS 1; KDECCA 3, 3, 4, 4.
2. to understand what science is as a “way of knowing”. NSTA 2.
3. to see science as a process where hypotheses are tested, and then either accepted or rejected on the basis of evidence. NSTA 2.
4. to relate structure and function at the physiological, population, community, and ecosystem levels. KTS 1, KDECCA 3.
5. to develop a foundation of ecological vocabulary, concepts, and principles related to structure of the energy and nutrient flow, heredity, evolution, and ecology. KTS 1; NSTA 1, 2; KDECCA 3, 4.
6. to see the relevance of ecological principles to everyday life. KTS 1.
7. to use, and interpret data obtained from, scientific instrumentation (microscopes, pH meters, spectrophotometers, CHN Analyzer, multiparameter datasondes). KTS 6; NSTA 5.
8. to participate in laboratory both as an individual and as part of a group. KTS 8; NSTA 3.
9. all of these objectives are geared toward generating a student experience that will integrate skills and knowledge from other biology courses in the major. KTS 1, NSTA 1, 2; KDECCA 3, 4.