

**Core Curriculum Course Submission  
Criteria: Science**

**1. General Information**

<b>a. Originating Person</b>	<b>b. Contact Person's E-mail</b>	<b>c. Contact Phone</b>	<b>d. Date</b>
Janet Lanza	<a href="mailto:jxlanza@ualr.edu">jxlanza@ualr.edu</a>	(501)569-3500	04/04/2014
<b>e. College/School</b>	<b>f. Department/Program</b>		
College of Arts, Letters, & Sciences	Biology		

**Submission Statement**  
 By submitting this form, we acknowledge our understanding that the Core Council has the authority to review approved courses to ensure they continue to meet the established goals and outcomes of that category of the core; that the Council has authority to develop a core assessment program; and that the Council will be developing review and assessment policies by the end of 2014. Further, we agree that if this course is approved, we will participate in the university-wide assessment of the core.

**Chair and Dean Awareness**  
 Your department chairperson and college dean must be made aware of your submission for core. By submitting this form, you are acknowledging that this has occurred.

**2. Course Information**

<b>a. Course ID</b>	<b>b. Current Title</b>
BIOL 1400	Evolutionary and Environmental Biology

**c. Catalog Description**  
 Evolutionary, ecological, and environmental interrelationships among organisms. Basic biological principles and modern technology form the basis for inquiry and debate. The impact of society upon global biodiversity is examined from competing viewpoints. The role of science in shaping and the influence of society upon science are evaluated. Students learn through reading, writing, computer simulations, videos, field exercises, and through participation in critical thinking and problem-solving activities. Three hours lecture, two hours laboratory per week. Four credit hours.

**d. How will your department ensure a level of consistency among sections of this course? Who will be responsible for this?**  
 The course is taught by faculty at the Little Rock and Benton campuses and by high school concurrent course teachers.  
  
 The Chairperson of the Biology Department will make sure that all faculty teaching BIOL 1400 have a copy of this form and impress upon them that they need to be able to demonstrate that they are following the plan described herein. Periodically, the Chairperson will review the syllabi of the faculty to insure compliance.

Educational Goals	Learning Outcomes students will...	Learning Objectives: At the end of the course students will be able to...	Assignments	Explanation
<p><b>Knowledge 1 – Concepts, methodologies, findings, and applications of mathematics and the social and natural sciences, engineering and technology.</b></p>	<p>1. understand the theoretical perspective used in one or more science discipline;</p>	<p><b>Learning Objectives 1.1</b></p> <p>understand major biological concepts, focusing on evolutionary changes and interactions between organisms and their physical and biological environments.</p>	<p><b>Assignments 1.1</b></p> <p>homework, laboratory exercises, in-class assignments, and/or in-class discussions</p>	<p><b>Explanation 1.1</b></p> <p>Topics that this course will focus on include species concepts and phylogeny development, evolutionary processes, adaptation, interactions between organisms and their environment (abiotic and biotic), population growth, causes and consequences of endangered and invasive species, and environmental problems caused by humans (e.g., loss of biodiversity, acid precipitation, and global climate change).</p>
	<p>2. understand observational and experimental methods used in one or more of the sciences;</p>	<p><b>Learning Objectives 1.2</b></p> <p>examine correlational (observational) and experimental (manipulated) approaches to scientific questions and make conclusions on the basis of data.</p>	<p><b>Assignments 1.2</b></p> <p>homework, laboratory exercises, in-class assignments, and/or in-class discussions</p>	<p><b>Explanation 1.2</b></p> <p>In evolutionary and environmental sciences, both observational and experimental approaches to understanding natural phenomena are used. Students should be able to distinguish between correlational and experimental approaches. They should also be able to make conclusions on the basis of data resulting from research.</p>

	3. understand applications and limitations of the sciences;	<b>Learning Objectives 1.3</b> explain what ideas can be tested through scientific approaches and what ideas cannot be tested scientifically.	<b>Assignments 1.3</b> homework, laboratory exercises, in-class assignments, and/or in-class discussions	<b>Explanation 1.3</b> Students should be able to discuss and explain that only natural, not supernatural, phenomena can be investigated by scientific methods. They should also be able to show that science may tell society how to do something but that other fields (e.g., ethics) will tell society whether we should do something (e.g., should we prevent extinctions).
<b>Educational Goals</b>	<b>Learning Outcomes students will...</b>	<b>Learning Objectives: At the end of the course students will be able to...</b>	<b>Assignments</b>	<b>Explanation</b>
<b>Skills 1 – Communication</b>	1. develop an understanding of how to communicate scientific procedures, results from the inquiry and conclusions resulting from applying the scientific method;	<b>Learning Objectives 1.1</b> read graphs, draw their own graphs and interpret (make conclusions from) graphs.	<b>Assignments 1.1</b> homework, laboratory exercises, in-class assignments, and/or in-class discussions	<b>Explanation 1.1</b> Communication involves both receipt and transmission of ideas and information. Scientific data are most often shown in graphs. Therefore, students need to be able to read and interpret graphs, design and draw graphs from data they collect, and interpret the graphs.

Educational Goals	Learning Outcomes students will...	Learning Objectives: At the end of the course students will be able to...	Assignments	Explanation
<b>Skills 2 – Critical Thinking, Quantitative Reasoning, and Solving Problems Individually and Collaboratively</b>	1. develop basic skills from the scientific method including inquiry, data collection, analysis, and interpretation in order to explore a scientific problem from hypothesis testing to formulating a conclusion based on the inquiry;	<b>Learning Objectives 2.1</b> propose testable questions and hypotheses, collect and analyze data, and draw conclusions about the questions and hypotheses from the data.	<b>Assignments 2.1</b> laboratory exercises, homework, in-class assignments, and/or in-class discussions	<b>Explanation 2.1</b> Laboratory exercises provide prime opportunities to address this learning outcome, but homework and classroom discussions and assignments can be used to reinforce this outcome.
	2. learn about the world through observation and experimentation, through modeling and interpretation, and through analysis and evaluation;	<b>Learning Objectives 2.2</b> explain the costs and benefits of various adaptations of different plants and animals.	<b>Assignments 2.2</b> laboratory exercises, homework, in-class assignments, and/or in-class discussions	<b>Explanation 2.2</b> Adaptations, traits that promote survival and reproduction by organisms, result from natural selection. Many different adaptations can be discussed in this course, including, for example, traits that allow survival in dry or high altitude conditions. Students will learn that no organism has adaptations that allow survival and reproduction in all environments.
Educational Goals	Learning Outcomes students will...	Learning Objectives: At the end of the course students will be able to...	Assignments	Explanation
<b>Skills 3 – Information Technology</b>	1. develop and apply technological tools for inquiry, analysis, and presentation of scientific information and data;	<b>Learning Objectives 3.1</b> use word processing (e.g., Word), spreadsheet and graphing programs (e.g., Excel), and presentation software (e.g., PowerPoint).	<b>Assignments 3.1</b> homework and oral and/or written laboratory reports	<b>Explanation 3.1</b> None
Educational Goals	Learning Outcomes students will...	Learning Objectives: At the end of the course students will be able to...	Assignments	Explanation

<b>Values 1 – Personal Responsibility and Ethical Behavior</b>	1. take responsibility for completing assignments in an ethical manner, working on one's own when required and acknowledging resources when used;	<b>Learning Objectives 1.1</b> avoid plagiarism, cite correctly from reference sources, and follow the UALR policies on academic integrity.	<b>Assignments 1.1</b> in-class discussions and/or homework	<b>Explanation 1.1</b> The syllabus contains the instructor's expectation for personal responsibility.
	2. develop an understanding of the ethical obligations in conducting research, and of being precise and accurate with data, including how this obligation applies to communication of information;	<b>Learning Objectives 1.2</b> develop an understanding of ethical obligations in conducting research and obligation to be precise and accurate in data collection and in communication of information.	<b>Assignments 1.2</b> homework, laboratory exercises, and/or in-class discussions and assignments.	<b>Explanation 1.2</b> None

Educational Goals	Learning Outcomes students will	Learning Objectives: At the end of the course students will be able to	Assignments	Explanation
<p><b>Values 2 – Civic Responsibility</b></p>	<p>1. develop an understanding of the ethical issues that may result when applying scientific knowledge that is incomplete.</p>	<p><b>Learning Objectives 2.1</b></p> <p>understand that scientific “knowledge is always incomplete” but that new understanding of natural phenomena is always being developed. They will understand that society may have to act before phenomena are fully understood</p>	<p><b>Assignments 2.1</b></p> <p>laboratory exercises, homework, in-class assignments, and/or in-class discussions</p>	<p><b>Explanation 2.1</b></p> <p>Examples of issues where society made decisions and adopted policies before everyone agreed about causes of environmental problems include the ban on DDT use, elimination of chlorofluorocarbons in aerosols and air conditioners, and reduction in emissions that led to acid precipitation. Current issues where these ideas can be addressed include extinction of plants and animals and global climate change.</p>

**Additional Comments:**

Belencla Blewinski  
Approved by Core Curriculum Committee

5-6-14  
Date

[Signature]  
Approved by Provost

5/7/2014  
Date

[Signature]  
Approved by Chancellor

5/8/14  
Date