Core Curriculum Course Submission
Criteria: Science

1. General Information

a. Originating Person	b. Contact Person's E-mail	c. Contact Phone	d. Date
Forrest Payne	fepayne@ualr.edu	(501)569-8515	4/3/14
e. College/School	**f. Department/Program**		
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

a. Course ID	b. Current Title
BIOL 1401	Science of Biology

c. Catalog Description

The process of science, including observation, evaluation, and predictions, will be applied to the understanding of biological principles. Illustration of the methods of science in the study of major biological concepts, including the cell theory, energy transformation, inheritance, and the theory of evolution. Selected biological systems will be surveyed to compare life forms and to examine related human issues. Three hours lecture, two hours lab per week.

d. How will your department ensure a level of consistency among sections of this course? Who will be responsible for this?

The lecture portion of the course is taught by biology faculty, high school concurrent course teachers, and an adjunct at the Benton campus. The lab is taught by the same personnel as well as graduate assistants. In addition, two of the biology faculty teach an online course that is a combination of lecture and lab. The Science of Biology Coordinator is responsible for ensuring consistency among the various institutions. This is accomplished by site visits, and by providing instructors with a pre- and post-assessments that covers concepts the students should be exposed to. Meetings are routinely conducted with graduate assistants to ensure that all graduate assistants are presenting similar material. In addition, laboratory grades are monitored to see if grades ranges are similar among classes (i.e., no one appears too hard or too easy). In the future, on campus group workshops are being proposed.

Educational Goals	Learning Outcomes students will...	Learning Objectives: At the end of the course students will be able to...	Assignments	Explanation
Knowledge 1 – Concepts, methodologies, findings, and applications of mathematics and the social and natural sciences, engineering and technology.	1. understand the theoretical perspective used in one or more science discipline;	**Learning Objectives 1.1** identify and discuss major biological concepts.	**Assignments 1.1** Exams, discussions, and/or written assignments	**Explanation 1.1** At the end of the term students should be able to explain major biological concepts at the molecular, cellular, and organismal level.
	2. understand observational and experimental methods used in one or more of the sciences;	**Learning Objectives 1.2** describe how observations can lead to a general conclusion that can lead to hypothesis testing about a specific case.	**Assignments 1.2** Exams, discussions, laboratory exercises, and lab reports.	**Explanation 1.2** At the end of the semester, students will be able to make a conclusion about general observations and use the conclusion to develop a hypothesis for a specific case.
	3. understand applications and limitations of the sciences;	**Learning Objectives 1.3** discuss the applications and limitations of biological sciences.	**Assignments 1.3** Exams , discussions and/or writing assignment	**Explanation 1.3** Students will demonstrate their understanding of the limitations of science through exams and/or discussions. Depending on the size of the class, discussion board participation may be required.

Educational Goals	Learning Outcomes students will..	Learning Objectives: At the end of the course students will be able to..	Assignments	Explanation
Skills 1 – Communication	1. develop an understanding of how to communicate scientific procedures, results from the inquiry and conclusions resulting from applying the scientific method;	**Learning Objectives 1.1** analyze, interpret, and/or verbally explain media stories about biological topics.	**Assignments 1.1** Written assignment(s) and/or face-to- face discussions or through a discussion board.	**Explanation 1.1** Students will analyze a media story and critique its scientific validity based on criteria such as the media outlet, where the investigation was conducted, the credentials of the investigator(s), sample size, and controls.
Educational Goals	**Learning Outcomes students will..**	**Learning Objectives: At the end of the course students will be able to..**	**Assignments**	**Explanation**
Skills 2 – Critical Thinking, Quantitative Reasoning, and Solving Problems Individually and Collaboratively	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;	**Learning Objectives 2.1** apply the scientific method to biological questions at the cellular, molecular, and organismal levels of organization.	**Assignments 2.1** Develop a laboratory experiment that illustrates a biological concept.	**Explanation 2.1** Students will conduct a laboratory experiment where they will develop a hypothesis, design an experiment, conduct the experiment, analyze the data using simply tables and graphs, and draw a conclusion(s).
	2. learn about the world through observation and experimentation, through modeling and interpretation, and through analysis and evaluation;	**Learning Objectives 2.2** compare and contrast plant and animal structure and function.	**Assignments 2.2** Exams, written assignments, critical thinking questions.	**Explanation 2.2** Humans will be used as the model for comparing and contrasting plants and animals. Tissue types, nutrition and transport, and reproduction will be emphasized.

Educational Goals	Learning Outcomes students will..	Learning Objectives: At the end of the course students will be able to..	Assignments	Explanation
Skills 3 – Information Technology	1. develop and apply technological tools for inquiry, analysis, and presentation of scientific information and data;	**Learning Objectives 3.1** use basic word processing, email, internet searches, spreadsheet and graphic programs (e.g. Excel) and presentation software (e.g. PowerPoint).	**Assignments 3.1** Term paper and laboratory exercises.	**Explanation 3.1** By the end of the term, students will have prepared a research paper on a biological topic using the internet. In conjunction with Skill 2.1, students will make a computer presentation of their results.
Educational Goals	**Learning Outcomes students will..**	**Learning Objectives: At the end of the course students will be able to..**	**Assignments**	**Explanation**
Values 1 – Personal Responsibility and Ethical Behavior	1. take responsibility for completing assignments in an ethical manner, working on one's own when required and acknowledging resources when used;	**Learning Objectives 1.1** avoid plagiarism, cite correctly from reference sources, and understand the UALR policies on academic integrity.	**Assignments 1.1** Exams, discussions, writing assignments	**Explanation 1.1** The syllabus contains the instructor's expectations for personal responsibility and ethical behavior.
	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;	**Learning Objectives 1.2** understand ethical obligations in conducting research and being precise and accurate even in the communication of information.	**Assignments 1.2** Critical thinking assignments and/or discussions. Depending on the class size, discussion boards may be used.	**Explanation 1.2** Ethical issues that have been raised in scientific literature and the media will be a source of discussion material or critical thinking questions. For example, there are issues regarding the field collection of organisms and the handling of organisms in the lab for scientific research.

Educational Goals	Learning Outcomes students will..	Learning Objectives: At the end of the course students will be able to..	Assignments	Explanation
Values 2 – Civic Responsibility	1. develop an understanding of the ethical issues that may result when applying scientific knowledge that is incomplete.	**Learning Objectives 2.1** understand the biological science underlying societal issues such as stem cell research, cloning, gene therapy, and genetic engineering.	**Assignments 2.1** Exams, written assignments , discussions which may include the use of discussion boards	**Explanation 2.1** The course materials address these issues, which will be discussed through student participation and input.

Additional Comments:

Approved by Core Curriculum Committee — Date: 5-6-14

Approved by Provost — Date: 5/7/2014

Approved by Chancellor — Date: 5/8/14