

**Core Curriculum Course Submission
Criteria: Science**

1. General Information

a. Originating Person	b. Contact Person's E-mail	c. Contact Phone	d. Date
John Bush	jmbush@ualr.edu	569-3270	04/15/2014
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

A separate statement from the chair must be included that states that the department faculty have approved this course for submission to the core and that the chair takes responsibility for informing the Dean about the submission of the course.

2. Course Information

a. Course ID	b. Current Title
BIOL 1433	Essentials of Anatomy and Physiology

c. Catalog Description

BIOL 1433. Essentials of Anatomy and Physiology. This one semester course is a study of the fundamentals of human anatomy and physiology. Topics include the hierarchy of body structure and organization, physiological processes and basic cellular biological chemistry. The structures and physiological functions of each body system are studied experimentally and in theory, with emphasis on the contributions that each makes to homeostasis and human health and disease. 3 hours of Lecture and 2 Hours of Lab per week. Note that this course may not meet the requirements for

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

All Faculty are required to cover a common syllabus of Lab topics as well as given Lecture topics. The Chair for consistency will review all syllabi.

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 Understand major anatomical and physiological concepts, focusing on evolutionary changes in structure and function of the major body systems; identify the key concepts and principles in anatomy and physiology and understand these concepts in terms of human health and disease.	Assignments 1.1 Reading assignments from the textbook, online supporting materials and lectures will be provided to students. In class quizzes and exams will be conducted to demonstrate student's mastering of these concepts.	Explanation 1.1 The theoretical and historical under-pinnings anatomy and physiology and the science methodology are fundamental to understanding anatomy and physiology. Assignments are designed to enforce student's understanding of the basic concepts of anatomy and physiology.
	2. understand observational and experimental methods	Learning Objectives 1.2	Assignments 1.2	Explanation 1.2

	<p>used in one or more of the sciences;</p>	<p>examine correlational (observational) and experimental (manipulated) approaches to common anatomical and physiological scientific questions; make conclusions on the basis of data; employ observational and experimental methods learned in both the lecture and laboratory portion of the course to understand relationships of both structure and function of major organ systems to human disease diagnosis and treatment.</p>	<p>Student will be assigned to specific organ systems in the Laboratory. Student are exposed and expected to master observational methods (dissection for macro-scale analysis and micro-scale using staining/microscopy/histology, etc.) and experimental physiological perturbations using drug treatments. Students are required to identify the structures at both a macro and micro scale as well as selected physiological testing. Moreover, students are also required to restate clinical relationships of the human organ systems and the disease process and treatments.</p>	<p>The current and historical techniques of physiological experimentation are assigned and taught through theory and lab exercises</p>
	<p>3. understand applications and limitations of the sciences;</p>	<p>Learning Objectives 1.3</p> <p>.explain what ideas can be tested through scientific approaches and what limits our current knowledge in anatomical physiology; examine the current state of anatomical physiological knowledge and understand how these ideas evolved from a historical perspective and how we have improved our knowledge base as technology/instrumentation has improved; understand the need to continue our advancements to ensure the progress of needed medical</p>	<p>Assignments 1.3</p> <p>Reading assignments will ask students how technical advances changes our knowledge due in anatomical physiology. Examples include recent advances in cancer, heart diseases and diabetes on the relationships in our altered human physiology leading to diagnosis and treatment modifications over time (new medicines, earlier detections, correlations with both genetics and environmental influences). These assignments will be assessed by hand-in reading</p>	<p>Explanation 1.3</p> <p>In anatomical physiology, the dependency of treatment and diagnoses using current technologies exemplifies limitations of current knowledge (i.e. use of animal insulin before the 1970s vs. recombinant human insulin after the 1970s for the treatment of diabetes). Thus current theory in relationship to medical history on these aspects will be stressed in the lecture and laboratory portion of the course.</p>

		advances for the diagnosis and treatment of human diseases.	reports.	
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 present their conclusions from lab observations verably and orally; show how they draw their conclusions from observations; and explain how theories in anatomical physiology is affected by current technologies.	Assignments 1.1 Students in the form of lab reports will present their analysis and discussions.	Explanation 1.1 Students are exposed to the ways of science communication by use of the science methods, stats, and peer-review process.
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 propose testable physiology-based questions and hypotheses; collect and analyze data from their lab work and testing; and draw conclusions about the questions and hypotheses from the data.	Assignments 2.1 A section of the labs will result students going through the process of critical analyses using both physiological experimental observations and student-derived data. Students will learn how to perform laboratory assignments individually and also work in teams to propose experiments, collect data and analyze that data on a number of physiological topics covered in lectures and lab.	Explanation 2.1 Lecture topics will present the current state of the knowledge on how to use science methodology in anatomical physiology. The lab exercises will result in inquiry guided data collection followed by student analysis and interpretation. Students are expected to apply the science method and inquiry to the various physiological experiments.

	<p>2. learn about the world through observation and experimentation, through modeling and interpretation, and through analysis and evaluation;</p>	<p>Learning Objectives 2.2</p> <p>explain the methodology of physiological experiments and their impacts and treatment in human health and disease; connect laboratory experiments to the lecture topics; derive and confirm understanding of scientific processes in anatomical physiology.</p>	<p>Assignments 2.2</p> <p>A section of the labs will result in students going through the process of using the common methodology of science.</p>	<p>Explanation 2.2</p> <p>The experimental labs will result in inquiry, data collection, analysis and interpretation. In the lab exercises, students are perform experiments, collect data and are expected to apply science method and inquiry to test key physiological principles</p>
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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 word processing (e.g., Word), spreadsheet and graphing programs (e.g., Excel), and presentation software (e.g., PowerPoint) in documenting and presenting current anatomical physiological theories and student's own lab observations by the format of graphs, tables, models, and animations.	Assignments 3.1 Students will be assigned several physiological based lab exercises to test common physiological hypothesis and present their results in lab reports.	Explanation 3.1 The lab course takes students through a series of experiments of physiological experiments and testing test common physiological hypothesizes. They will have to apply inquiry-based analysis and present their data on a lab report sheet.
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 cite correctly from reference sources; follow the UALR policies on academic integrity; understand the ethics of self guided work and use of appropriate resources.	Assignments 1.1 Lab Safety, ethics of data collection and presentation will be presented in student's lab reports.	Explanation 1.1 Students in preforming physiological experiments are instructed in the procedures and ethics of self guided work.
	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 physiological research and their obligation for precision, truthfulness and accuracy in data collection and in their communication of this information and analytical conclusions contained in their lab	Assignments 1.2 Various Lecture topics have a discussion of ethics of data collections and its accuracy. Labs concerning physiological experiments are based on these ethics	Explanation 1.2 Students in testing the various physiological experiments are instructed in the procedures and ethics of self guided work.

		reports and presentations.		
Educational Goals	Learning Outcomes students will	Learning Objectives: At the end of the course students will be able to	Assignments	Explanation
<p>Values 2 – Civic Responsibility</p>	<p>1. develop an understanding of the ethical issues that may result when applying scientific knowledge that is incomplete.</p>	<p>Learning Objectives 2.1 understand that scientific “knowledge” is always incomplete but that new technology and observations concerning understanding of physiological processes involvement in human health and disease is always being generated and report in the clinical and scientific journals; understand that medical and political members of society may have to act to change policy and procedures before physiological phenomena in disease and health are fully understood; evaluate historical examples illustrating the potential for harm that results from use of incomplete or inaccurate scientific information such as incorrect diagnoses leading to the use of ineffective drugs in treating the underlying physiological processes of a disease.</p>	<p>Assignments 2.1 Students are presented case studies involving laboratory safety and research ethics. Student’s understanding of the related ethical issues will be judged by their in-class discussions and their answers to exam questions.</p>	<p>Explanation 2.1 Students will be exposed to historical and current analysis of treatment based on those diseases with an underlying physiological basis. Examples of the progress in treatments of diseases such as diabetes, hormonal imbalances, and muscular dystrophy will be major case studies to illustrate the process that ethical experimentation and technology discoveries has on current methods of disease diagnoses and treatment.</p>

Additional Comments:

Bulinda Blum-Knabe
Approved by Core Curriculum Committee

10-5-15
Date


Approved by Provost

1/22/16
Date


Approved by Chancellor

1/19/16
Date