Course Syllabus

BIOL 2401 – Anatomy and Physiology 1

Catalog Description: Functional anatomy and physiological activities of cells, tissues, and different body systems are emphasized. Lecture hours = 3, Lab hours = 0

Prerequisites: A background in basic chemistry and basic biology is advised. One semester from the following is recommended: CHEM 1405, CHEM 1411, BIOL 1408, BIOL 1409, BIOL 1411, BIOL 1413 or BIOL 2404.

Semester Credit Hours: 4
Lecture Hours per Week: 3
Lab Hours per Week: 3
Contact Hours per Semester: 96
State Approval Code: 2607075103

Course Subject/Catalog Number: BIOL 2401
Course Title: Anatomy and Physiology 1

Course Curriculum: State Criteria (those marked with an X reflect the state-mandated competencies taught in this course)

Basic Intellectual Competencies in the Core Curriculum

- ☒ Reading
- ☐ Writing
- ☐ Speaking
- ☒ Listening
- ☐ Critical thinking
- ☐ Computer literacy

Perspectives in the Core Curriculum

- ☐ Establish broad and multiple perspectives on the individual in relationship to the larger society and world in which he/she lives, and to understand the responsibilities of living in a culturally and ethnically diversified world.
- ☐ Stimulate a capacity to discuss and reflect upon individual, political, economic, and social aspects of life in order to understand ways in which to be a responsible member of society.
- ☒ Recognize the importance of maintaining health and wellness.
- ☒ Develop a capacity to use knowledge of how technology and science affect their lives.
- ☐ Develop personal values for ethical behavior.
- ☐ Develop the ability to make aesthetic judgments.
- ☐ Use logical reasoning in problem solving.

☒ Integrate knowledge and understand the interrelationships of the scholarly disciplines.

Core Components and Related Exemplary Educational Objectives

Communication (composition, speech, modern language)
The objective of a communication component of a core curriculum is to enable the student to communicate effectively in clear and correct prose in a style appropriate to the subject, occasion, and audience.

☐ To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.

☐ To understand the importance of specifying audience and purpose and to select appropriate communications choices.

☐ To understand and appropriately apply modes of expression, i.e. descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.

☒ To participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.

☐ To understand and apply basic principles of proficiency in the development of exposition and argument.

☐ To develop the ability to research and write a documented paper and/or to give an oral presentation.

Mathematics
The objective of the mathematics component of the core curriculum is to develop a quantitatively literate college graduate. Every college graduate should be able to apply basic mathematical tools in the solution of real-world problems.

☐ To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.

☒ To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.

☐ To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.

☐ To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.

☐ To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.

☐ To recognize the limitations of mathematical and statistical models.

☐ To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.

Natural Sciences
The objective of the study of a natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories.

☒ To understand and apply method and appropriate technology to the study of natural sciences.

☐ To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.

☒ To identify and recognize the differences among competing scientific theories.

☒ To demonstrate knowledge of the major issues and problems facing modern science, including

issues that touch upon ethics, values, and public policies.

☒ To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

Humanities and Visual and Performing Arts
The objective of the humanities and visual and performing arts in a core curriculum is to expand students' knowledge of the human condition and human cultures, especially in relation to behaviors, ideas, and values expressed in works of human imagination and thought. Through study in disciplines such as literature, philosophy, and the visual and performing arts, students will engage in critical analysis, form aesthetic judgments, and develop an appreciation of the arts and humanities as fundamental to the health and survival of any society. Students should have experiences in both the arts and humanities.

☐ To demonstrate awareness of the scope and variety of works in the arts and humanities.

☐ To understand those works as expressions of individual and human values within an historical and social context.

☐ To respond critically to works in the arts and humanities.

☐ To engage in the creative process or interpretive performance and comprehend the physical and intellectual demands required of the author or visual or performing artist.

☐ To articulate an informed personal reaction to works in the arts and humanities.

☐ To develop an appreciation for the aesthetic principles that guide or govern the humanities and arts.

☐ To demonstrate knowledge of the influence of literature, philosophy, and/or the arts on intercultural experiences.

Social and Behavioral Sciences
The objective of a social and behavioral science component of a core curriculum is to increase students' knowledge of how social and behavioral scientists discover, describe, and explain the behaviors and interactions among individuals, groups, institutions, events, and ideas. Such knowledge will better equip students to understand themselves and the roles they play in addressing the issues facing humanity.

☐ To employ the appropriate methods, technologies, and data that social and behavioral scientists use to investigate the human condition.

☐ To examine social institutions and processes across a range of historical periods, social structures, and cultures.

☐ To use and critique alternative explanatory systems or theories.

☐ To develop and communicate alternative explanations or solutions for contemporary social issues.

☐ To analyze the effects of historical, social, political, economic, cultural, and global forces on the area under study.

☐ To comprehend the origins and evolution of U.S. and Texas political systems, with a focus on the growth of political institutions, the constitutions of the U.S. and Texas, federalism, civil liberties, and civil and human rights.

☐ To understand the evolution and current role of the U.S. in the world.

☐ To differentiate and analyze historical evidence (documentary and statistical) and differing points of view.

☐ To recognize and apply reasonable criteria for the acceptability of historical evidence and social research.

☐ To analyze, critically assess, and develop creative solutions to public policy problems.

☐ To recognize and assume one's responsibility as a citizen in a democratic society by learning to think for oneself, by engaging in public discourse, and by obtaining information through the news media and other appropriate information sources about politics and public policy.

☐ To identify and understand differences and commonalities within diverse cultures.

Instructional Goals and Purposes: Human Anatomy and Physiology 1 is a biology course designed for students with majors/minors in the sciences or related disciplines. This course will provide the student with an in-depth study of the anatomy and physiology (structure and function) of the human body. Both normal and pathological conditions are emphasized.

General Course Objectives: Successful completion of Human Anatomy and Physiology 1 will allow the student to...

- develop an understanding of the interrelationships of body organ systems.
- develop a critical understanding of the structure of an organ, tissue or cell as a prerequisite to comprehending its function.
- acquire critical thinking skills by applying/relating physiological, clinical and medical topics in human biology.

Specific Course Objectives:

Lecture Objectives

1. To identify basic anatomy and physiology concepts.
2. To interrelate chemistry with anatomy and physiology.
3. To identify structural components of the cell and recognize how the cell is genetically regulated.
4. To relate enzymes, energy and metabolism to cell function.
5. To identify the importance of membrane transport and membrane potential to cell function.
6. To examine the classification, structure and function of tissues.
7. To identify the structure, function and clinical considerations of the integumentary system.
8. To identify the structure, function and clinical considerations of bone and describe bone development.
9. To identify bones and structures comprising the axial and appendicular skeletons.
10. To describe the structure, function and clinical importance of articulations.
11. To identify the structure, function, and clinical considerations associated with muscles.
12. To identify muscles of the axial and appendicular skeleton.
13. To describe the functional organization of the nervous system.
14. To identify characteristics, components and functions of the central nervous system.
15. To identify characteristics, components and functions of the peripheral nervous system.
16. To identify characteristics, components and functions of the autonomic nervous system.

Laboratory Objectives

1. To identify basic anatomy and physiology concepts.
2. To interrelate chemistry with anatomy and physiology.
3. To identify structural components of the cell and recognize how the cell is genetically regulated.
4. To relate enzymes, energy and metabolism to cell function.
5. To identify the importance of membrane transport and membrane potential to cell function.
6. To examine the classification, structure and function of tissues.
7. To identify the structure, function and clinical considerations of the integumentary system.
8. To identify the structure, function and clinical considerations of bone and describe bone development.
9. To identify bones and structures comprising the axial and appendicular skeletons.
10. To describe the structure, function and clinical importance of articulations.
11. To identify the structure, function, and clinical considerations associated with muscles.
12. To identify muscles of the axial and appendicular skeleton.
13. To identify characteristics, components and functions of the central nervous system.
14. To identify characteristics, components and functions of the peripheral nervous system.

Course Content:

Lecture
Unit #1 – Lecture Objectives 1-5
Unit #2 – Lecture Objectives 5-8
Unit #3 – Lecture Objective 9
Unit #4 – Lecture Objectives 11-12
Unit #5 – Lecture Objectives 13-16

Laboratory
Unit #1 – Laboratory Objectives 1-4
Unit #2 – Laboratory Objectives 5-7
Unit #3 – Laboratory Objectives 8-9
Unit #4 – Laboratory Objectives 9-10
Unit #5 – Laboratory Objectives 11-12
Unit #6 – Laboratory Objectives 13-14

Methods of Instruction/Course Format/Delivery: Lecture, class discussion, reading assignments, laboratory performance, computer-based assignments including CD-ROM and web-based tutorials.

Assessment:

Course Grade:
Grading scale: A=90-100, B=80-89, C=70-79, D=60-69, F=59 and below
Components: Lecture is 70% of total course grade; Laboratory is 30% of total course grade. The number or exams, quizzes, and awarding of points will be at the discretion of the professor.

Laboratory:
Lab Quiz Grade: Any laboratory session may begin or end with a quiz. Missed lab quizzes due to legitimate reasons should be rescheduled within one week of the scheduled quiz. It is the responsibility of the student to schedule makeup quizzes. Makeup quizzes will consist of fill in the blank questions.
Lab Exercise Grade: Laboratory exercises may include drawings, laboratory reports or any other methodologies deemed important by the professor. To earn credit for laboratory work the student must be both present and participating in the activity. Lab exercises are due the next scheduled lab meeting after a laboratory exercise has been completed. Thirty points or more will be taken away for any assignment turned in late. The quantity of materials necessary and the time sensitive nature of some exercises are usually not conducive for make-up sessions.
Lab Practicals: Lab practicals will cover all items studied in lab (including: models, charts, pictures, diagrams, dissections, and experiments). Lab practicals will consist of fill in the blank questions. Missed lab practicals due to legitimate reasons should be rescheduled within one week of the scheduled lab practical. It is the responsibility of the student to schedule makeup lab quizzes. The professor will determine makeup lab practical formats.

- **Lab Grade:** Lab quizzes – 20% of lab grade, Lab exercises – 40% of lab grade, and Lab practicals – 40% of lab grade.
  - A student can earn 2 points on their lab average for participating in lab activities, and not exceeding the college's attendance policy (see above).

Lecture:

Quiz: Any lecture session may begin or end with a quiz. Quiz questions will be drawn from lecture notes, reading assignments, text objectives and review questions. Each quiz will consist of multiple-choice questions. Missed quizzes due to legitimate reasons should be rescheduled within one week of the scheduled quiz. It is the responsibility of the student to schedule makeup quizzes. Makeup quizzes will consist of fill in the blank questions. The professor reserves the right to change the test format on any make-up quiz.

Exams: Four tests will be given during the semester. Test questions will be drawn from lecture notes, reading assignments, text objectives and review questions. Each exam will consist of multiple-choice, matching, fill in the blank, and essay type questions. Missed examinations due to legitimate reasons should be rescheduled within one week of the scheduled examination. It is the responsibility of the student to schedule makeup quizzes. A student will not be permitted more than one makeup exam. Makeup exams will consist of multiple-choice, matching, fill in the blank and 2 essay questions. The professor reserves the right to change the test format on any make-up test.

Final Exam: A final comprehensive examination will be given the week of final exams and will cover material from the whole semester. The final comprehensive exam will consist of multiple-choice and matching questions.

- **Lecture Grade:** Quizzes – 10%, Tests – 70% of lecture grade, and Final exam – 20% of lecture grade.
  - A student can have the final exam can replace the lowest lecture exam grade by participating in lecture activities, and not exceeding the college's attendance policy (see above).

Texts, Materials, and Supplies:

Required:

Martini, Ober, Garrison, Welch & Hutchings. 2006. Fundamentals of Anatomy and Physiology 7th ed. Pearson Education, Benjamin Cummings, San Francisco, CA.

Martini and Welch. 2006. Fundamentals of Anatomy and Physiology Applications Manual 7th ed. Pearson Education, Benjamin Cummings, San Francisco, CA.

Martini, Ober, Garrison, Welch & Hutchings. 2006. Martini's Atlas of the Human Body. Pearson Education, Benjamin Cummings. San Francisco, CA.

Meehan. 2001. Fundamentals of Anatomy and Physiology Laboratory Manual 5th ed. Prentice Hall, Upper Saddle River, NJ.

Optional:

Bowden and Bowden. 2005. An Illustrated Atlas of the Skeletal Muscles 2nd ed. Morton Publishing, Englewood, CO.

Kapit and Elson. 1993. Anatomy Coloring Book 2nd ed. Addison-Wesley, New York, NY.

Krieger. 2005. A Visual Analogy Guide to Human Anatomy 1st ed. Morton Publishing, Englewood, CO.

Sackheim, George. 1995. Introduction to Chemistry for Biology Students. Benjamin/Cummings Publishing Company, Redwood City, California.

Seiger. 2005. Fundamentals of Anatomy and Physiology Study Guide 7th ed. Pearson Education, Benjamin Cummings, San Francisco, CA.

Van De Graaf and Crawley. 2003. A Photographic Atlas for the Anatomy and Physiology Laboratory 5th ed.

2006. Anatomy and Physiology Revealed, CD#1 Skeletal and Muscular system. McGraw-Hill

2006. Anatomy and Physiology Revealed, CD# 2 Nervous system. McGraw-Hill

Laboratory coat or apron/gloves

Dissection Kit

Map Colors

Course website http://webctserver.panola.edu/webct/entryPageIns.dowebct

Course requirements The student is responsible for attending all lectures and laboratories and completing all assigned lecture/lab assignments/examinations. When the professor feels that the student has been absent to such a degree as to invalidate the learning experience, the professor may recommend to the Vice President of Instructional Affairs that the student be dropped from the course. The professor may drop the student for attendance deficiencies after they have accumulated the following number of absences:

Regular sessions
5 absences.....MWF classes
3 absences.....TTH or MW classes
2 absences.....T or W or TH classes

The student is also responsible for being punctual to class and attentive in class. One point will be deducted from the final average in lecture or lab for every absence that exceeds the college's attendance policy (above). Three tardies count as one absence.

Academic integrity is an important value in student development. Plagiarism and cheating are not allowed. Any student found cheating on an assignment or exam would be given a zero for that assignment, and could be dropped from the course.

The student is responsible for taking notes, reading and outlining course materials, and being prepared for lecture and laboratory responsibilities.

It is the responsibility of the student to complete and turn in all course work on the scheduled dates. Thirty points or more will be taken away for any assignment turned in late. Regardless of any situation, the professor should be contacted ASAP to develop an alternate schedule.

** The student will need to makeup the missed lab hours. Failure to makeup the missed lab hours will result in a loss of points. For example, if a student turns in a lab assignment without making up the missed hours will only get 40% of the total grade.

Other:

- For current texts and materials, use the following link to access bookstore listings: http://www.panola.edu/collegestore.htm
- For testing services, use the following link: http://www.panola.edu/instruction/dl/testing.htm