

BLINN COLLEGE
MASTER COURSE SYLLABUS

BIOLOGY 2402

CIP # 26.0707.51 03

CIP Area: Life Sciences

Fall, 2005

Prepared by:

Bryan Campus / Date

Confirmed by:

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BIOL 2402 Anatomy and Physiology II

This course is in the core curriculum.

Purpose Statement

The purpose of the natural science component in the core curriculum is to enable the student to understand the basic concepts in the natural sciences and to apply that understanding to the analysis of current issues in society. Biology 2402 is a continuation of a two semester sequence using an integrated approach to examine the systems. The focus of the anatomy and physiology course is to provide students with an understanding of the principles of the structure and function of the human body. Emphasis is given to skills and acquisition of knowledge that will be useful to those students continuing in related academic or allied health science careers.

Course Description

Biology 2402 – Anatomy and Physiology II. A continuation of the principles of structure and function of the human body. Anatomy and Physiology II is the second course in a two semester sequence which examines the systems of the human body using an integrated approach. The major areas of study will be those not covered in Anatomy and Physiology I, including general senses, endocrine system, the cardiovascular system, lymphatic and immune systems, respiratory system, digestive system, urinary system, and reproductive system. Laboratory exercises are to enhance the students' appreciation and comprehension of the biological concepts of structure and function of the human body. Prerequisites: Biology 2401 or approval of division chair on the relevant campus. Three class hours and three laboratory hours per week. Credit: Four semester hours.

1. Expanded Course Description:

A. Major areas to be covered in lecture are:

- 1) Special Senses
- 2) Endocrine System
- 3) The Cardiovascular System
- 4) The Lymphatic System
- 5) The Immune System
- 6) The Respiratory System
- 7) The Digestive System
- 8) The Urinary System
- 9) The Reproductive System

B. Major areas to be covered in laboratory are:

- 1) Special Senses
- 2) Endocrine System
- 3) Blood
- 4) Heart
- 5) Circulatory System
- 6) Respiratory System
- 7) Digestive System
- 8) Urinary System
- 9) Reproductive System

2. **Classroom Hours:** Three lecture hours and three laboratory hours per week.
3. **Credit Hours:** Four credit hours.
4. **Prerequisite:** Biology 2401 or approval of the division chair on the relevant campus.
5. **Core Course:** This is a Core Course in the 42-hour Core of Blinn College; more can be found at www.blinn.edu/corecurriculum/. As such, students will develop proficiency in the appropriate Intellectual Competencies, Exemplary Educational Objectives, and Perspectives as listed below.

A. Intellectual Competencies

- 1) **Reading:** The ability to analyze and interpret a variety of printed materials, books, documents and articles - above the 12th grade level.
- 2) **Writing:** The ability to produce clear, correct and coherent prose adapted to purpose, occasion and audience - above the 12th grade level.
- 3) **Listening:** The ability to analyze and interpret various forms of spoken communication - above 12th grade level.
- 4) **Critical Thinking:** The ability to think and analyze at a critical level.
- 5) **Computer Literacy:** The ability to understand our technological society, use computer-based technology in communications, solving problems, acquiring information.

B. Exemplary Educational Objectives

- 1) Understand and apply method and appropriate technology to the study of natural sciences.
- 2) Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings and analyses.
- 3) Identify and recognize the differences among competing scientific theories.
- 4) Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
- 5) Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

C. Perspectives

- 1) Recognize the importance of maintaining health and wellness.
- 2) Develop a capacity to use knowledge of how science and technology affect their lives.
- 3) Develop personal values for ethical behavior.
- 4) Use logical reasoning in problem solving.
- 5) Integrate knowledge and understand the interrelationships of the scholarly disciplines.

Course Objectives and Student Learning Outcomes

These learning outcomes and course objectives will include the student demonstrating competence in following areas.

Lecture Objectives:

- 1) Explain the principle of complementarity, homeostasis and feedback mechanisms.
- 2) Describe special senses histology, anatomy & function.

- 3) Explain the major endocrine organs and hormone actions.
- 4) Identify and discuss anatomical components of the cardiovascular system and their functional roles in transport and hemodynamics.
- 5) Identify and discuss anatomical components of the lymphatic system and their functional roles in fluid dynamics and immunity.
- 6) Identify and discuss anatomical components of the respiratory system and their functional roles in ventilation, external and internal respiration.
- 7) Identify and discuss anatomical components of the digestive system and their functional roles in digestion, absorption, metabolism and elimination.
- 8) Identify and discuss anatomical components of the urinary system and their functional roles in urinary concentration, conservation of water and electrolytes, and acid/base balance.
- 9) Identify and discuss anatomical components and functional roles of the reproductive system.
- 10) Communicate effectively an understanding of pertinent biological processes or topics.

Laboratory Objectives:

- 1) Identify and discuss major features of special senses using dissected specimens, models, or slides.
- 2) Identify and discuss endocrine organs using dissected specimens, models, or slides.
- 3) Identify homeostatic feedback mechanisms and effects of endocrine hormones.
- 4) Identify components of cardiovascular system from slides, specimens, or models. Describe their roles in transport and hemodynamics using various equipment and computer models.
- 5) Identify components of lymphatic and immune systems from slides, specimens, or models. Describe their roles in fluid transport and immunity.
- 6) Identify components of respiratory system from slides, specimens, or models. Describe their roles in ventilation, external and internal respiration using various equipment and computer models.
- 7) Identify components of digestive system from slides, specimens, or models, and describe their roles in digestion, absorption, metabolism and elimination.
- 8) Identify components of urinary system from slides, specimens, or models. Describe their roles in fluid dynamics, water & electrolyte concentration and acid/base balance using various equipment and computer models.
- 9) Identify and discuss functional roles for components of reproductive systems using slides, specimens, or models.

Course Requirements

Upon completion of the course, the student will have an overall average of $\geq 60\%$ of the combined lecture and laboratory components of the course. This includes at least 3 major lecture exams and a comprehensive final examination. The student will demonstrate an understanding of the laboratory exercises through analysis of the data and the ability to use the data to solve problems. Laboratory examinations will be designed to address both knowledge and skills.

Grading System

The following areas will be clearly outlined by the instructor in the Course Information Sheet given to the students.

- 1) Major Exams: At least three major exams covering the lecture material evenly distributed throughout the semester. Information from the laboratory experiments may be included on major exams

- 2) Laboratory Exams: At least two laboratory examinations on knowledge and skills acquired through laboratory activities, covering histological slides, models, dissections, and any other lab work deemed appropriate by the instructor.
- 3) Minor Exams/Quizzes/Homework: Given at the discretion of the instructor.
- 4) Additional Reports or projects: Assigned at the discretion of the instructor.
- 5) Final Exam: Comprehensive exam covering the entire course, counting no less than 15% of the final course grade.

Outcomes Inventory

Biology 2402 will be evaluated through the following methods:

1. A pretest and posttest instrument is used to determine the extent of student improvement during the semester.
2. Each Intellectual Competency listed above will be evaluated to measure its attainment:
 - A. **Reading:**
 - 1) Source: Textbook OR Lab book OR Journal articles.
 - 2) Method of Measurement: Exam score (posttest or other test) OR Lab assignment score OR Research paper score OR Written assignment score OR Class participation score OR Other measure such as quiz.
 - B. **Writing:**
 - 1) Source: Journal article review OR Term paper OR Essays on exam
 - 2) Method of Measurement: Lab assignment score OR Research paper score OR Written assignment score OR Exam score (Other than posttest) OR Class participation score OR Other measure score such as quiz.
 - C. **Listening:**
 - 1) Source: Lecture OR video
 - 2) Method of Measurement: Lab assignment score OR Exam score (Other than posttest) OR Class participation score OR Other measure such as quiz.
 - D. **Critical thinking:**
 - 1) Problem solving assessed with Exam score (posttest or other test) OR Lab assignment score OR Research paper score OR Written assignment score OR Class participation score OR Other measure such as quiz.
 - E. **Computer literacy:**
 - 1) Use of Internet / CD-ROM or DVD assessed with Exam score (posttest or other test) OR
 - 2) Lab assignment score OR Research paper score OR Written assignment score OR Class participation score OR Other measure such as quiz.

Calendar

The instructor will ensure that the course content is covered in a manner that fulfills the course objectives. The instructor will also provide Course Information Sheets to the students and the administration. Important details including tentative examination dates and due dates for assignments are provided.

Lecture Topics

1. Taste & Olfaction
2. Vision
3. Hearing & Equilibrium

4. Endocrine System
5. Blood Histology & Physiology
6. Heart Histology & Physiology
7. Blood Vessel Histology & Physiology
8. Lymphatic System
9. Respiratory System
10. Digestive System
11. Urinary System
12. Urinary Physiology
13. Fluid & Electrolyte Balance
14. Male Reproduction
15. Female Reproduction

Laboratory Topics

1. Taste & Olfaction
2. Vision
3. Hearing & Equilibrium
4. Endocrine System
5. Blood Histology & Physiology
6. Heart Histology & Physiology
7. Blood Vessel Histology & Physiology
8. Lymphatic System & Immune System
9. Respiratory System
10. Digestive System
11. Urinary System
12. Urinary Physiology
13. Fluid & Electrolyte Balance
14. Male Reproduction
15. Female Reproduction & Pregnancy

Materials:

Required:

Lecture Materials:

Human Anatomy & Physiology, 6th ed. 2004. E.N. Marieb. Benjamin Cummings.

Laboratory Materials:

Human Anatomy & Physiology Laboratory Manual, cat edition, 8th. 2004. E.N. Marieb. Benjamin Cummings.

Recommended:

Study Guide for Human Anatomy & Physiology, 6th ed. 2004. E.N. Marieb. Benjamin Cummings.

Anatomy and Physiology Coloring Workbook – a Complete Study Guide, 7th ed. 2003. E.N. Marieb. Benjamin Cummings.

Textbook support website @www.mariebmap.com