COURSE NAME: Human Anatomy and Physiology
COURSE ALPHA: ZOOL 142
CREDIT HOURS: 03

CATALOG DESCRIPTION:

The second semester of a two-semester course in human anatomy and physiology, which includes a study of gross anatomy, microanatomy, histology physiology, related principles of control and regulation and their homeostatic relationships. This course is intended for students entering health care or medically related fields such as nursing, physical therapy and medical technology. (3 hrs. lect.)

REQUIREMENTS COURSE SATISFIES:

Partially fulfills Windward Community College's Liberal Arts degree Natural Science requirements as a biological science course.

PREREQUISITES:

High school chemistry or equivalent preparation or consent of instructor.

RECOMMENDED SPECIAL PREPARATION:

High school biology, BIOL 100, BIOL 101 or ZOOL 101; Concurrent registration in ZOOL 142L.

RECOMMENDED BASIC SKILL LEVELS:

College level reading/writing skills.

ACTIVITIES REQUIRED AT SCHEDULED TIMES OTHER THAN CLASS TIME: None.

INSTRUCTORS: Ross Langston, Ph.D. & Ed Bernauer, Ph.D.
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Home: 429-6218 235-7910
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Office Hours: TBA

EFFECTIVE DATE: Spring Semester, 2006
COURSE GOALS

The primary goal of this course is to provide the student with the basic knowledge of human anatomy and physiology needed for entering an academic program in human health care fields such as nursing, physical therapy, and medical technology. An additional goal is for the student to achieve an understanding of the role of science, the scientific method in the study of the systemic function of the human body and its practical application in the health care professions.

COURSE OBJECTIVES

The student will learn and integrate basic biological principles (integrative physiology - physical/chemical principles at the systemic level) and define basic anatomical terms relevant to human structure and function presented in lecture and required texts, citing specific examples when asked for. These principles includes the following areas:

MODE OF INSTRUCTION (Discussion and Lab)

The previously described objectives will be achieved through the aid of the following learning activities:

• Active participation in lecture activities; introduction of core concepts and principles, essential terms, facts, and their functional relationships;
• Lecture and laboratory exercise;
• Multimedia presentations (e.g., lecture, illustrations, & videos
• Computer-assisted (e.g., CD-ROM) and Internet-assisted (e.g.,WebCT) activities, when available
• Assigned text readings; primary as appropriate to supplement background
• Lecture outlines and other handouts; for study and review
• Quizzes and examinations, as scheduled
• Extra elective assignments for bonus credit.

The material presented in all modes of instruction will be of an introductory nature but sufficient in content to prepare the student for continuation in higher-level biological science courses. Considerable out-of-classroom time will be spent completing lab reports and summaries.

EVALUATION OF OBJECTIVE ACHIEVEMENT

EXAMINATIONS. The student will take two midterm examinations (100 points each) and a cumulative comprehensive final examination (100 points) to demonstrate the acquisition of a basic understanding of information presented during lectures.
METHOD OF GRADING

The assignment of points will be according to the following protocol:

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<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Midterm Examinations</td>
<td>100 points</td>
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<td>Final Examination</td>
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<td>Class Participation</td>
<td>25 points</td>
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<td>Attendance</td>
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**TOTAL** 350 points + Bonus pts (see list appended)

Letter grades will be assigned as follows:

- **A**: 85% or above in total points.
- **B**: 75-84% of total points.
- **C**: 60-74% of total points.
- **D**: 60% of total points.
- **F**: Below 55% of total points or informal or incomplete official withdrawal from course.

*Adjusted to the performance of the class-curved.

**I**: Incomplete; given at the INSTRUCTOR'S OPTION when student is unable to complete a small part of the course because of circumstances beyond his or her control. It is the STUDENT'S responsibility to make up incomplete work. Failure to satisfactorily make up incomplete work within the appropriate time period will result in a grade change for "I" to the contingency grade identified by the instructor.

**CR**: 65 or above in total points; the student must indicate the intent to take the course as CR/NC in writing by the end of the 10th week of classes (see catalog).

**NC**: Below 65 of total points; this grade only available under the CR/NC option (see catalog).

**W**: Official withdrawal from the course after the 3rd week and prior to the end of the 10th week of classes (see catalog).

Waiver of minimum requirements for specific grades may be given only in unique situations at the instructor's discretion.

**ACADEMIC DISHONESTY**: Students involved in academic dishonesty will receive an "F" grade for the course. Academic dishonesty is defined in WCC's college catalog, and includes:

1) Plagiarism
2) Use of “cheat sheets”
3) Copying from another student’s exam
STUDENT RESPONSIBILITIES

Rules of the classroom. Lecture attendance is expected unless you are ill or have a major conflict. Failure to attend lectures will serve as a negative indication of discipline and/or interest. Class notes are made available at the start of the class and serve as an outline for the lecture. Be on time for the lecture unless unavoidable. Students must sign the attendance sheet at the BEGINNING of each class to receive attendance credit. Students leaving class early will receive a zero attendance grade for that day unless their the instructor.

Be on time, seated, and prepared to take notes. Turn off all cell phones. It is disruptive when a student walks in late and often after the instructor has made announcements related to a number of scheduling, change in scheduling, upcoming exams or special announcements of a special nature important to the class. Random leaving class during lecture is disruptive to the focus and concentration of students and considered discourteous. As adults, it should be unnecessary to leave the classroom for any reason and then return. Again, it is disruptive and considered rude on all occasions other than an emergency.

Exams can only be made up in the event of an illness or a university approved absence. All illness related absences must be accompanied by a doctor's note. For other reasons, a prior notification must be presented to the instructor and agreed upon. After the fact, reasons will not be accepted.

Questions of a personal nature, e.g., excuses, requests for test papers, grades, missed lecture notes should be held until the end of the lecture. Given the predominant interest of the class in the health services field, a greater level of maturity is desired and expected of the students.

Students are expected to be prepared in advance when they arrive to class. Bring prepared includes the following: having already read text materials (e.g., textbook readings, study guides and handouts) assigned for that day's activities and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.).

Any changes in the course schedule, such as examination dates, deadlines, etc., will be announced ahead of time in class. It is the student's responsibility to be informed of these changes.

It is the student's responsibility to be informed about deadlines critical to making registration changes (e.g., last day of erase period and last day for making an official withdrawal).

Students should expect a level of difficulty comparable to other 100-level science classes intended for majors in the discipline. When difficult concepts and detailed information is presented, it is the student's responsibility to take the appropriate steps to learn and understand these concepts and information. The instructor is available to discuss difficult concepts or complex information, and/or to
recommend supplemental reference study materials. Discussions with the instructor during office hours are encouraged.

Science courses at W.C.C. generally require two to three hours of independent private study time (4 to 6 hours/day)* for each hour in class. However, because of the nature of the material presented in ZOOL 142, more study time may be required (depends upon the student's science/biology background). It is the student's responsibility to allocate the appropriate time needed for study in an environment conductive to quality study. The student must budget time efficiently and be realistic about all personal and professional commitments that consume time.

* Summer Session schedules will not allow this much time.

TEXTBOOK AND OTHER ASSIGNED INSTRUCTIONAL MATERIALS

The required textbook is:


Depending upon your prior course experience, you may wish to learn of supplemental texts; ask the instructor. (See attachments held in instructor's office).

OTHER INFORMATION

Important Dates:

Last day to add or drop a class: January 13th
Last day of erase period: January 29th
Last day for official withdrawal (W): February 17th
LECTURE NOTES AND STUDY GUIDELINES

Introduction/Overview:

The course material is presented by major organ-system topics, each representing a chapter heading by the authors of your textbook. However, some liberties are taken by the instructors with respect to the chapter sequences. This is done for two reasons: 1) the course will be team taught by Drs. Langston and Bernauer, each presenting topics of personal choice over a sequence of several weeks to permit the students to adapt to teaching style and related instructional features and 2) there is some integrative rational for the sequencing of the topics.

The general outline of subtopics for each major topic will be made available in lecture handouts. The generalized developmental procedure for these topics and outline will follow a uniform pattern, vis., structural features, functional features, regulatory mechanisms, and some notes on clinical impairment and/or malfunctions.

The general logical pattern of organ-system will include the major components of structure and function, histological features of functional relevance, a description of the basic functional unit of the organ-system, the mechanisms of control and the failures of control resulting in clinical malfunction. As necessary, the underlying physical-chemical principles, concepts or processes that underscore the structural-functional features will be integrated at appropriate points in the lectures and handout notes.

How to understand and organize your assigned readings, handouts and notes: (Prepare for the midterm examinations)

1. Initial text assigned reading. General overview for familiarization and identification of terms, and/or nomenclature.
   a. Your text has a glossary, but it is selective and if you have not had biology at the college level, a pocket medical dictionary is recommended.
   b. Handout "notes/outline" are constructed to emphasis the important aspects of the lecture and to help focus your initial study of the text assignment. The choice of which to begin with, text or handout, is left to the student's preference and experience.

2. “Vocabulary to Know” - This course involves a tremendous amount of anatomical vocabulary and terminology. We will not have time to go over every important term during the lecture. Your instructor will pass out a worksheet listing important vocabulary the lecture BEFORE a major shift in topic. The student is expected to write a brief definition for each term and bring the completed worksheet to class each lecture. These worksheets will be collected periodically by your instructor and counted towards your “class participation” grade.

3. Lecture note taking is a critical aspect of learning and an important method of study. The lecturer has experience with the subject matter as taught and often provides clues of emphasis and related insights. Note taking should record these aspects for later integration into your handouts for elaboration and for more thorough understanding. Much of this material is complex and not always intuitive (instinctive or perceptive) so it is hoped that the lecturer's contribution will directly aid your understanding of major points of function and underlying properties and their regulation.

4. Study Guides: At the end of each major topic (e.g., the digestive system) your instructors will hand out a study guide which will emphasize important topics and concepts for that topic. The study guide is not intended as a stand-alone study aid,
but will consist of a series of detailed questions which will require the student to consult both text and lecture notes in order to answer. A well-prepared student will typically spend several hours working on each study guide.

5. The final aspect of learning and study requires the student to be self-honest and responsible, i.e., admit you do not understand after an earnest effort to study the topic. At this point, having so marked these aspects of the readings, lecturer, and handouts, that remain unclear*, you are welcome to discuss these specific aspects with the instructor during his office hours; that's the primary purpose of office hours, not distributing handouts of missed lectures.

A Generalized Outline as a Study Guide:

1. The text provides a study outline.
2. The text provides self-quiz questions.
3. Review the critical thinking questions.*
4. Attempt to answer the principal questions under the figures of the chapter. Answers at end of chapter.
5. Find correct answers in Appendix D and E of your textbook.

* These questions are excellent to test your understanding and logic, to answer short essay, or problem-solving questions that will be included in the midterm exams.

Study Guide Example

The Heart, Chapter 20:

1. Describe the anatomy of the heart in detail.
   • How many chambers does it have?
   • Which chamber(s) are the largest & strongest?
   • What types of valves separate each chamber?
   • What major blood vessels lead to and from the chambers?
2. Draw a picture diagramming the circulation of blood through the heart.
   • Where does blood enter and exit?
   • What type of valves separate the different chambers?
   • Describe the operation of each valve type.
3. Describe the differences in blood pressure, O2, and CO2 content between the pulmonary and systemic circuits (including the chambers of the heart).
4. Cardiac Conduction:
   • Diagram the different layers of the cardiac wall.
   • Describe the arrangement of muscle fibers in cardiac muscle.
   • What factors allow propagation of actions potentials from one cardiac cell to another?
   • What aspect(s) of cardiac tissue allow for synchronized contraction?
   • Describe the three phases of an action potential that occur in cardiac muscle.
   • What are the various component waves of an ECG? What does each of the waves represent?
5. Cardiac Cycle: Describe, in detail, the events occurring during the cardiac cycle.
6. Cardiac Output (CO):
   • Know how CO, SV, and HR are related
   • Describe how CO is regulated by the brain.
   • Explain how CO increases when exercising.
7. Exercise and the heart
8. What are some common disorders or homeostatic imbalances of the heart? What is their cause? Contributing factors?
Bonus Points Essay  
(30 points Maximum)

Select one topic from those listed below or choose another topic (must be approved by instructor). You may wish to select a clinical disorder you or someone in your family has experienced. In this manner, you will become better informed and provide sound advice and valid reference.

The specification of the assignment is as follows:

1. A five-page paper, double spaced, including a title and reference page.
2. The paper must include a minimum of six references of which three must be obtained from a scientific research journal. The remaining three can be obtained from a website or interview with an established health authority (personal communication).
3. The references must be cited in the text (see your instructor for details and sample formats).
4. The general outline of the paper should follow the order presented below:
   a. Title (Topic)
   b. A general clinical description of the disorder
   c. The symptoms of the disorder
   d. The current treatments or counter measures used to treat the disorder.
   e. Causes (injury or genetic) and contributing factors (e.g., smoking, obesity)
   f. Recommended lifestyle changes to minimize impairment or progression.
   g. Any general statistical information available (What percentage of the population is affected? Differences between males and females?)
   h. Is there a cure, or must it be managed and monitored to maintain homeostasis?
   i. General conclusions.
   j. Recommendations for future study

DUE DATE: The Bonus Paper is due the WEEK BEFORE the last class meeting
           Wednesday, April 26th
           Thursday, April 27th

Late papers will NOT be accepted!
<table>
<thead>
<tr>
<th>WEEK</th>
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<th>DATES</th>
<th>TITLE</th>
<th>READING</th>
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<tbody>
<tr>
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<td>RL</td>
<td>M 1/9</td>
<td>Course Introduction</td>
<td>Syllabus</td>
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<td>T 1/10</td>
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<td>2</td>
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<td>RL</td>
<td>W 1/11</td>
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<td>Ch.18: 617-630</td>
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<td>W 1/18</td>
<td>Endocrine System</td>
<td>Ch. 18: 630-654</td>
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<td>M 1/23</td>
<td>Cardiovascular System: Blood</td>
<td>Ch. 19: 667-693</td>
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<td>T 1/24</td>
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<td>6</td>
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<td>EB</td>
<td>M 1/30</td>
<td>Cardiovascular System: Heart</td>
<td>Ch. 20: 695-733</td>
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<td>M 2/1</td>
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<td>Ch. 21: 736-804</td>
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<td>EB</td>
<td>M 2/6</td>
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<td>Ch. 21: 736-804</td>
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<td>EB</td>
<td>W 2/8</td>
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<td>Ch. 21: 736-804</td>
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<td>EB</td>
<td>M 2/13</td>
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<td>W 2/15</td>
<td>Lymphatic System: Vessels, Organs &amp;</td>
<td>Ch. 22: 805-819</td>
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<td>R 2/16</td>
<td>Nonspecific Resistance</td>
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<td>RL</td>
<td>M 2/20</td>
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<td>T 2/21</td>
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<td>RL</td>
<td>W 2/22</td>
<td>Lymphatic System: Specific Resistance</td>
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<td>R 2/23</td>
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<td>M 2/27</td>
<td>Respiratory System: Anatomy &amp; mechanics of</td>
<td>Ch. 23: 847-873</td>
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<td>16</td>
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<td>EB</td>
<td>W 3/1</td>
<td>Respiratory System: Transport of O₂ and CO₂</td>
<td>Ch. 23: 873-890</td>
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<td>M 3/6</td>
<td>Digestive System: Upper GI Tract</td>
<td>Ch. 24: 895-911</td>
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<td>T 3/7</td>
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<td>RL</td>
<td>W 3/8</td>
<td>Digestive System: Accessory Organs</td>
<td>Ch. 24: 912-921</td>
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<td>R 3/9</td>
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<td>M 3/13</td>
<td>Digestive System: Lower GI Tract</td>
<td>Ch. 24: 921-939</td>
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<td>20</td>
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<td>EB</td>
<td>W 3/15</td>
<td>Metabolism and Nutrition</td>
<td>Ch. 25: 951-986</td>
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<td>M 3/27- F 3/31</td>
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<td>M 4/3 T 4/4</td>
<td>Urinary System: Kidney anatomy &amp; nephron function</td>
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<td>W 4/5 R 4/6</td>
<td>Urinary System: Dilute vs. Concentrated Urine</td>
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<td>25</td>
<td>EB</td>
<td>M 4/10 T 4/11</td>
<td>Fluid and Electrolyte Balance</td>
<td>Ch. 27: 1037-1045</td>
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<td>26</td>
<td>EB</td>
<td>W 4/12 R 4/13</td>
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<td>RL</td>
<td>M 4/17 T 4/18</td>
<td>Male Reproductive System</td>
<td>Ch. 28: 1056-1070</td>
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<td>RL</td>
<td>W 4/19 R 4/20</td>
<td>Female Reproductive System</td>
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<td>16</td>
<td>29</td>
<td>RL</td>
<td>M 4/24 T 4/25</td>
<td>Birth Control, STDs, &amp; abnormal sexual development</td>
<td>Ch. 28: 1088-1094</td>
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<td>30</td>
<td>RL</td>
<td>W 4/26 R 4/27</td>
<td>Development</td>
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<td>RL</td>
<td>M 5/1 T 5/2</td>
<td>Inheritance</td>
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<td>W 5/3</td>
<td>TBA</td>
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- **Final Exam Schedule**
  - MW Section: Wednesday, May 10th, 5:30-7:20 pm
  - TR Section: Thursday, May 11th, 9:30-11:20 am