PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

HUMAN ANATOMY AND PHYSIOLOGY I
BIOL 2010 (formerly BIO 2310)

Class Hours: 3.0
Credit Hours: 4.0
Laboratory Hours: 3.0
Revised: Spring 07

Catalog Course Description:

A study of the basic biological chemistry, cellular structure and function (including cellular respiration, protein synthesis and cell division), histology and the integumentary, skeletal, and nervous systems of the human body. Course includes 3 hours of lecture and 3 hours of laboratory applications each week.

Entry Level Standards:

Eligible for enrollment in ENGL 1010 and DSPM 0850
Preferably high school biology

Prerequisites:

Students enrolled in lecture must be enrolled in laboratory during the same semester.

Textbook(s) and Other Course Materials:


I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Lecture: Orientation to Anatomy, Ch. 1; Chemistry of Life : Inorganic, Ch. 2 Lab: Lab Orientation/Safety rules; Anatomical Terms (1&amp;2); Microscope (3) Cells (4)</td>
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<tr>
<td>2</td>
<td>Lecture: Chemistry of Life : Organic, Ch. 2; Cells and Cell Division, Ch 3 Lab: Cell Transport (5); Tissues and Membranes (6&amp;8)</td>
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<tr>
<td>3</td>
<td>Lecture: Cell Metabolism, Ch. 25 (parts); Review Chapter 1-3 Lab: Integument (7); Review for LP 1</td>
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<tr>
<td>4</td>
<td>Lecture: Test 1 (Chapter 1-3); Tissues &amp; Membranes, Ch. 4</td>
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<tr>
<td>Day</td>
<td>Lecture/Experience</td>
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</tbody>
</table>
| 5   | Lecture: The Skin and Integument, Ch 5; Bones/Skeletal Tissue, Ch. 6  
Lab: The Skeletal System (9-11) |
| 6   | Lecture: Test 2 (Chapters 4, 5); Bones/Skeletal Tissue, Ch. 6  
Lab: The Skeletal System. Cont’d (9-11); Fetal Skeleton (12)   |
| 7   | Lecture: The Skeleton, Joints, Ch. 7, 8, 9  
Lab: Joints (13); Review for LP-2 |
| 8   | Lecture: Test 3 (Chapters 6-9); Muscles and Muscle Tissues, Ch. 10  
Lab: Lab Practical 2 (9-13) |
| 9   | Lecture: Muscle Tissues (cont’d); Ch. 10  
Lab: Muscle Histology (14); Gross Muscle Anatomy (15) |
| 10  | Lecture: The Muscular System, Ch. 11; Nervous System Tissues, Ch. 12  
Lab: Gross Muscle Anatomy (15) |
| 11  | Lecture: Test 4 (Chapters 10-11); Nervous System Tissues (cont’d), Ch. 12; Brain and Cranial Nerves, Ch. 14  
Lab: Review Muscles |
| 12  | Lecture: Brain and Cranial Nerves (cont’d), Ch. 14; Spinal Cord and Nerves, Ch. 13  
Lab: Lab Practical 3 (14-16); Nervous Tissues (17) |
| 13  | Lecture: Spinal Cord and Nerves (cont’d), Ch. 13; Special Senses, Ch. 16; Test 5 (Chapters 11-13)  
Lab: Gross Anatomy of the Nervous System (19, 21); Reflexes (22) |
| 14  | Lecture: Special Senses (cont’d), Ch. 16; Autonomic Nervous System, Ch. 14  
Lab: The Senses (23-26); Review for LP-4 |
| 15  | Lecture: Test 6 (Chapters 17, 15, 16 plus review questions)  
Lab: Lab Practical 4 |

**II. Course Objectives**:  

A. Know the anatomical terminology used in describing the whole body and selected organ systems. V.3  

B. Understand the process of homeostasis. V.4  

C. Understand the relationships between cells, tissues, organs, systems and the organism. V.4, V.5  

D. Understand the basic chemistry of the cell and the human body. V.3  

E. Know the structure and function of cellular components. V.4  

F. Understand the function of DNA and RNA in cellular processes. V.4  

G. Know anatomy (micro- and macro-) and understand the physiology of the following systems: V.3, V.4, V.5  
   1. Integumentary  
   2. Skeletal
3. Muscular
4. Nervous

H. Demonstrate effective, safe and ethical laboratory procedures. V.1

I. Use scientific methods to conduct an experiment, analyze anatomical specimens and perform physiological tests. V.1, V.2

J. Apply the principles of anatomy and physiology to case study situations. V.4, V.5

*Roman numerals after course objectives reference TBR's general education goals.

III. Instructional Processes*:

Students will:

1. Develop a body of knowledge that helps ensure success in upper-level health related classes and careers. Natural Sciences Outcome

2. Locate and become more proficient at using medical resources in the library and on the Internet. Communications Outcome, Technological Literacy Outcome

3. Participate in group activities (including case studies) to facilitate cooperative learning. Transitional Strategy: Active Learning

4. Analyze Health-related Case Studies, develop, evaluate and choose appropriate responses to health issues. Natural Science Outcome, Communications Outcome.

5. Use related laboratory tools and equipment for making anatomical and physiological observations. Natural Science Outcome.

*Strategies and outcomes listed after instructional processes reference TBR’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Use correct terminology to describe the human body in terms of planes, sections, regions, organs and systems. A

2. Explain homeostasis and its significance to normal body functioning. B,C

3. Explain the chemical composition of the cell including its primary elemental, inorganic and organic components. D

4. Describe cell structures and their functions. C, E

5. Describe the functions and importance of DNA and RNA in maintaining cellular processes. F

6. Identify the anatomical components studied and explain the physiological mechanisms described in the following systems B, G and H:
   a. Integumentary System
   b. Skeletal System
   c. Muscular System
d. Nervous System
e. Special Senses

7. Demonstrate proper use of the microscope in the study of human cells and tissues. E, H

8. Demonstrate safe and ethical laboratory procedures. H

9. Evaluate laboratory data, develop and test hypotheses and write a coherent lab report that summarizes findings. I, G.

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

The lecture portion of this course contains 825 points (75% of the total grade). Each lecture unit will be evaluated using a written test totaling 100 points (25 points for Test 1). Exams will be a mix of multiple choice, short answer, listing and 1 or 2 essay questions. Some tests may contain diagrams for the student to draw and/or label. **Lecture tests that are missed for a valid reason may be made up at the discretion of the instructor.** Students must notify their instructor as to the reason for missing a test **on the day the test is missed or as soon as possible.** Failure to do this will make the reason invalid. **Make-up tests must be taken within a week of the original test date and will be of a different nature and will generally be harder than the regular tests.** Lecture tests missed without a valid excuse will be given a score of Zero.

Unit vocabulary quizzes (worth 3-5 points each) will be taken on-line before most units begin and there will be Case Studies (worth 10 points each) over most units. A Take-Home final project worth 50 points will be given during the last half of the course. The instructor may choose to give alternate assignments (including pop quizzes) in lieu of quizzes or case studies.

B. Laboratory Expectations:

The Laboratory portion of the grade covers a total of 275 points for determining letter grade, but a student must pass the lab with a 60% average in order to pass the course. Each laboratory unit will be evaluated using a Lab Practical worth 50 points. Lab Practicals will consist of short answer questions that require identification of structures and processes explored during lab exercises. Some questions may contain diagrams or pictures for the student to identify, draw and/or label. The final lab practical will cover the last unit and up to 20 points worth of comprehensive material. **Make-up Lab Practicals may be possible in certain special cases. Prior approval is required and the make up must be completed within 1 week of the original test date.** Students unable to complete lab practicals within a reasonable amount of time, that are otherwise passing the course, may receive an incomplete for the semester.

There will be an experimental lab report worth 10 points and group projects worth 15 to 20 points each. The remaining 30 points associated with lab will be determined by weekly quizzes, reports and/or homework. Quizzes and homework will consist of short answer/identification questions and may cover new or review material.

C. Field Work:

Students may be required to read supplemental articles or papers on reserve in the library. Students may also be required to access various internet sites for supplemental information.
D. Other Evaluation Methods:

Other evaluation methods may be arranged at the instructor’s discretion.

E. Grading Scale:

Point Distribution: 1100 points Total Possible

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<tr>
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<th>Lecture Portion:</th>
<th>Laboratory Portion:</th>
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<tbody>
<tr>
<td>Test 1:*</td>
<td>15pts</td>
<td>Lab Practical 1: 50pts</td>
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<tr>
<td>Test 2:</td>
<td>100pts</td>
<td>Lab Practical 2: 50pts</td>
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<tr>
<td>Test 3:</td>
<td>100pts</td>
<td>Lab Practical 3: 50pts</td>
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<tr>
<td>Test 4:</td>
<td>100pts</td>
<td>Lab Practical 4: 50pts</td>
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<tr>
<td>Test 5:</td>
<td>100pts</td>
<td>Osmosis Report 5pts</td>
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<td>Test 6:</td>
<td>100pts</td>
<td>Muscle Man 20pts</td>
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<tr>
<td>Test 7/comp. 100pts</td>
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<td>Bone Forensics 10pts</td>
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<tr>
<td>Take Home Final</td>
<td>60pts</td>
<td>Nervous Functions 10pts</td>
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<tr>
<td>Vocab. Quizzes*</td>
<td>50pts</td>
<td>Weekly Quizzes** 30pts</td>
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<tr>
<td>Case Studies:</td>
<td>100pts</td>
<td>Sub Total:</td>
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<td></td>
<td></td>
<td>275pts</td>
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<td>825pts</td>
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Letter Grades will be determined as follows:

A 90% and above 990 or more points
B+ 87-89% 957-989 points
B 80-88% 880-956
C+ 77-79% 847-879
C 70-77% 770-846
D 60-69% 660-769
F 59% and below 659 or fewer points

NOTES: A student must attain at least 165pts (60%) in lab in order to pass the course.

*Vocab Quizzes and selected tests will be taken on-line. Other tests may be given online or in alternate formats as deemed appropriate by the instructor.

**Lab Quizzes may be given in-lab, as homework, or taken on-line.

Incomplete grades are possible for students missing a few specific assignments due to circumstances beyond their control. Students must request an incomplete in writing (e-mail is acceptable), and must be passing the course. Students missing more than 25% of the assignments are not eligible for incompletes.

VI. Policies:

A. Attendance Policy:

Students are expected to be in class and lab in order to learn and participate in discussions and activities. Institutional policy mandates that a student be present for at least 75% of their scheduled class laboratory meetings in order to receive credit for the course. Instructors will maintain an accurate record of attendance. Students are highly discouraged from switching lab or lecture sections. Missing more than four labs in a semester will result in failure of the course.

B. Academic and Classroom Misconduct:

1. See the current Catalog and Handbook.
2. Students in BIOL 2010 are expected to behave in a professional and adult manner at all times. Offensive statements regarding one’s race, religion, creed, national origin, physical disability or mental disability are not appropriate and will not be tolerated. Horseplay, loud noises and distracting actions/dress will not be tolerated. Students disrupting classes or labs
will be asked to leave and will be counted absent for that day. Students are also expected to do their own work. With any form of valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions from giving a zero on that particular assignment to failure of the entire course.

C. Accommodations for disabilities:

If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127 or 131 or by phone: 694-6751(Voice/TTY) or 539-7153.

D. Other Policies:

Laboratory Activities. Students are expected to arrive at lab fully prepared to participate in all activities. Students should dress appropriately for the lab to minimize the possibility of spreading contamination and the risk of personal injury. Garments that cover the legs are recommended and open toed/open heeled shoes are not allowed. Students are required to report to their instructor any injuries sustained during lab exercises. Drinks, food, and tobacco use are not allowed in the lab or classroom. Visitors are not allowed in the lab or classroom.

Student Participation in Dissections. Dissections are an integral part of BIOL 2010 and are therefore mandatory. This will include a dissection/observation of a human cadaver. All students enrolled in the course are expected to fully participate. However, in consideration of medical, religious and/or moral objections of isolated individuals, students wishing to be excused from the actual dissection may petition for a waiver by submitting a written request to the lead instructor. Students that are pregnant should consult their physician regarding their participation in dissection labs. With proper documentation, waivers may be granted and alternate activities may be arranged. Students granted waivers will only be excused from the physical dissection itself. They will still attend labs and be responsible for all material presented in lab. All students are required to take the laboratory practicals which will include material from the dissections.

On-line Course Enhancement (WEBCT)

1. This lecture course is enhanced with on-line material available through Pellissippi’s current course management system. To access this material, students must be officially registered and must be entered into the system by the instructor.
2. Information available on-line may include: Class Notes, Test Study Guides, Vocabulary Quizzes, Case Studies, On-line Tests and links to useful sites related to A&P.
3. The college provides ample computer access for students that don’t own their own computer. Therefore, students are expected to be able to access on-line material on a regular basis and are responsible for assignments posted there.