PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

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

Class Hours: 3.0  Credit Hours: 4.0
Laboratory Hours: 3.0  Date Revised: Fall 00

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, muscular and nervous systems of the human body. Course includes 3 hours of lecture and laboratory applications each week.

Entry Level Standards:
Eligible for enrollment in ENGL 1010 and DSPM 0850
Preferably high school biology

Prerequisites:
None

Textbook(s) and Other Reference Materials Basic to the Course:


I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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</table>
| 1    | Lecture: Begin Unit 1: Introduction/Cell Basics; Orientation to Anatomy, Ch. 1; Chemistry of Life, Ch. 2  
Lab: Lab Orientation/safety rules; Anatomical Terms(1&2); Microscope (3) |
| 2    | Lecture: Cells and Cell Division, Ch. 3; Cell Metabolism, (pgs 923-939) of Ch. 25  
Lab: Cell, Mitosis (4); Cell Transport (5); Epithelial tissues (6) |
| 3    | Lecture: Test 1 (Unit 1); Begin Unit 2: Histology and Integumentary System: Tissues, Ch. 4  
Lab: Connective, Muscular and Nervous Tissues (6); Membranes (8) |
| 4    | Lecture: Membranes, Ch. 4-5; The Skin and Integument, Ch. 5  
Lab: Lab Practical 1(1-6, 8); Integument (7); Skeleton Overview (9) |
| 5    | Lecture: Test 2 (Unit 2); Begin unit 3: Support and Protect; Bones/Skeletal Tissue, Ch. 6 |
Lab: The Skeletal System (10-11)

6 Lecture: Bones/Skeletal Tissue (cont’d), Ch. 6; The Skeleton, Ch. 7
Lab: Fetal Skeleton (12); Joints (13)

7 Lecture: Test 3 (Unit 3); Begin Unit 4: MOVEMENT; Joints ; Ch. 8
Lab: Review

8 Lecture: Joints, (cont’d), Ch. 8; Muscles and Muscle Tissues, Ch. 9
Lab: Lab Practical 2 (7-13); Muscle Histology (14); Gross Muscle Anatomy (15)

9 Lecture: Muscle Tissues (cont’d); Ch. 9; The Muscular System, Ch. 10
Lab: Gross Muscle Anatomy (15)

10 Lecture: Test 4 (Unit 4); Begin Unit 5: NERVOUS SYSTEM COMPONENTS;
Nervous System Tissues, Ch. 11
Lab: Gross Muscle Anatomy (15); Muscle Physiology (16)

11 Lecture: Nervous System Tissues (cont’d), Ch. 11; Central Nervous System, Ch. 12
Lab: Review

12 Lecture: Central Nervous System (cont’d), Ch. 12; Peripheral Nervous System, Ch. 13
Lab: Lab Practical 3 (14-16); Nervous Tissues (17)

13 Lecture: Peripheral Nervous System (cont’d), Ch. 13
Lab: Anatomy of the Brain, Spinal Cord and Nerves, Reflexes (19, 21, 22)

14 Lecture: Begin Unit 6: INTEGRATION, COORDINATION AND SENSES;
Autonomic Nervous System, Ch. 14; Neural Integration, Ch. 15
Lab: The Senses (23-26); Review

15 Lecture: Special Senses, Ch. 16
Lab: Lab Practical 4 (19-26)

16 FINAL EXAM PERIOD: Test 6 (Unit 6 plus comprehensive questions)

II. Course Objectives*:

A. Know the anatomical terminology used in describing the whole body and selected organ systems. I.5

B. Understand the process of Homeostasis. III.2

C. Understand the relationships between cells, tissues, organs, systems and the organism. I.5, III.2

D. Understand the basic chemistry of the cell and the human body. I.5

E. Know the structure and function of cellular components. I.5

F. Understand the function of DNA and RNA in cellular processes. I.5

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

H. Demonstrate effective, safe and ethical laboratory procedures.I.5

*Roman numerals after course objectives reference goals of the university parallel program.

III. Instructional Processes*:

Students will:

1. Develop a body of knowledge that helps ensure success in upper-level health related classes and careers. *Transitional Strategy, Personal Development Outcome*

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

3. Participate in group activities to facilitate cooperative learning. *Active Learning Strategies*

4. Use related laboratory equipment and tools for making anatomical and physiological observations. *Technological Literacy Outcome, Numerical Literacy Outcome*

*Strategies and outcomes listed after instructional processes reference Pellissippi State’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 activities 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
   b. Skeletal
   c. Muscular
   d. Nervous

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*

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

V. Evaluation:
A. Testing Procedures:

The lecture portion of this course contains a total of 650 points (75% of the grade). Each lecture unit will be evaluated using a written test totaling 100 points. Exams will be mix of multiple choice, short answer, and listing questions. Some tests may contain diagrams for the student to draw and/or label. The final exam will cover the last unit and up to 25 points worth of comprehensive material. Lecture tests that are missed for a valid reason may be made up at the discretion of the instructor. Make-up tests will be of a different nature and will generally be harder than the regular tests. The remaining 50 points associated with lecture will be earned by doing a variety of activities as determined by the instructor. These activities may include: pop quizzes, case studies, article summaries, seminars or special projects.

B. Laboratory Expectations:

The Laboratory portion of the grade covers a total of 220 points for determining letter grade, but a student must pass the lab with a 70% average in order to pass the course. Each laboratory unit will be evaluated using a Lab Practical totaling 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 10 points worth of comprehensive material. Make-up Lab Practicals may be possible during the same week if prior arrangements are made and space is available. The remaining 20 points associated with lecture will be earned by doing a variety of activities as determined by the instructor. These activities may include: pop quizzes, lab notebooks, case studies, or special projects.

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:

<table>
<thead>
<tr>
<th>Point Distribution:</th>
<th>870 points Total Possible</th>
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<tbody>
<tr>
<td>Lecture Portion:</td>
<td>Laboratory Portion:</td>
</tr>
<tr>
<td>Unit 1: 100pts</td>
<td>Lab Practical 1: 50pts</td>
</tr>
<tr>
<td>Unit 2: 100pts</td>
<td>Lab Practical 2: 50pts</td>
</tr>
<tr>
<td>Unit 3: 100pts</td>
<td>Lab Practical 3: 50pts</td>
</tr>
<tr>
<td>Unit 4: 100pts</td>
<td>Lab Practical 4: 50pts</td>
</tr>
<tr>
<td>Unit 5: 100pts</td>
<td>Assignments: +20pts</td>
</tr>
<tr>
<td>Unit6/comp. 100pts</td>
<td>SubTotal: 220pts</td>
</tr>
<tr>
<td>Assignments: +50pts</td>
<td>SubTotal: 650pts</td>
</tr>
</tbody>
</table>

Letter Grades will be determined as follows:

- A 90% and above 783 or more points
- B+ 87-89% 757-782 points
- B 80-88% 696-756
- C+ 77-79% 670-695
C 70-77% 609-669
D 60-69% 522-608
F 59% and below 521 or fewer points

NOTE: A student must attain at least a 70% average in lab in order to pass the course.

VI. Policies:

A. Attendance Policy:

Students are expected to be in class and lab in order to learn and participate in discussions and activities. Consistent tardiness and excessive absences may lower the final grade. Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent. 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. Other Policies:

Behavior. Students 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. See the current Catalog Handbook for further Student Disciplinary Rules.

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 shoes are not allowed. Students are required to report to their instructor any injuries sustained during lab exercises. Drink, 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 BIO 2310 and are therefore mandatory. All students enrolled in the course are expected to fully participate. This will include a dissection/observation of a human cadaver. However, in consideration of 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 Biology Program Coordinator, Room 232 Alexander Building. Students requesting waiver are encouraged to support their request with pertinent documentation. 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.

Full time biology faculty members reserve the right to grant or deny waivers. Appeals may be made to the Head of the Department of Natural and Behavioral Sciences and then to the Office of the Vice President for Academic Affairs. 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.

Laboratory Substitution Policy. There may be a time during the semester that a student will not be able to attend their regularly scheduled lab section. Since attendance is critical, we have a policy that allows a student to attend an alternate lab section Only one time during a semester. Lab substitution is only allowed for valid reasons and with adequate approval. To
attend a substitute lab, the student must:
1. Obtain permission from both their regular lecture instructor and the substituting
instructor: Before the Substitution
2. Obtain a dated signature from the substituting instructor that they attended the lab.

Course Ethics. Students are 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. Academic dishonesty could lead to failure of the entire course on consultation with the
lead instructor, department head and dean. Additionally, dismissal from the institution is an
option that may be sought.