Biology 242: Human Anatomy and Physiology II

Course Schedule:
Lecture: Mondays, Wednesdays, Friday (12-12:50, SAM 104)
Lab: Tuesday, Thursday (12:00 - 1:50, Lab 306)

Instructor: Dr. Anna Davis
Email: adavis@sccd.ctc.edu
Office: SAM 321
Phone: 516-3125 (however it is best to reach me via email)
Office Hours: By appointment
Course Website: [http://www.seattlecentral.edu/faculty/adavis/](http://www.seattlecentral.edu/faculty/adavis/) and ANGEL course site (You will receive instructions Class 1)

PREREQUISITES:

Required:
1) English language competency
2) 2.0 or better Anatomy and Physiology I
2) Successful Angel LOGIN
   (You can access Login Instructions at [http://www.waol.org/getStarted/findClassroom.asp](http://www.waol.org/getStarted/findClassroom.asp))

Recommended:
1) College Chemistry (introductory, 121)
2) College Biology (introductory, 160)
3) Eligibility for Math 084 and English 101

COURSE DESCRIPTION:

Human Anatomy and Physiology (A&P) 242 is the second class in a two quarter sequence in which human anatomy and physiology are studied using a body systems approach with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. You can think of this course as "An Owner's Guide to the Human Body". My goal is to help you learn how your body works so that you can explain concepts to others and apply knowledge to novel situations (e.g. make informed decisions regarding your own health and those whom you care about). You'll also learn how to evaluate scientific research that forms the basis of our understanding of human anatomy and physiology and gain an appreciation for what remains to be discovered. To accomplish these goals requires significant effort from both of us. Although you will need to commit information to memory, I will ask you to focus on learning for understanding and your assessments will reflect this emphasis.

ANP 242 topics include: nervous system structure and physiology; special senses; endocrine system, reproductive system; digestive system; metabolism; urinary system; fluid and electrolyte balance; and, unifying themes of homeostasis, health and disease.

You will also gain experience problem solving, interpreting data, communicating verbally and in writing with others, developing information literacy skills, using technology and exploring how your knowledge of
anatomy and physiology can be applied to real world health challenges. This course is designed to build the core knowledge and skills needed to succeed in a world that demands flexibility and continuous learning and to prepare you for advanced study of anatomy, physiology and clinically-related subjects.

REQUIRED TEXTS/MATERIALS:

*Exploring Anatomy and Physiology in the Laboratory* by Ammerman, Morton Publishing Company (please do not purchase this text if you do not already own it).

***Additional Support Materials: Online course materials will be provided via ANGEL, PhysioEX, Histology and Anatomy Atlases. All of you have access to additional support materials by registering with your textbook at [http://www.aw-bc.com/maandp/booksAvail.html](http://www.aw-bc.com/maandp/booksAvail.html)

COURSE LEARNING OBJECTIVES*:

General Objectives
1. Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology.
2. Recognize the anatomical structures and explain the physiological functions of body systems.
3. Recognize and explain the principle of homeostasis and the use of feedback loops to control physiological systems in the human body.
4. Use anatomical knowledge to predict physiological consequences, and use knowledge of function to predict the features of anatomical structures.
5. Recognize and explain the interrelationships within and between anatomical and physiological systems of the human body.
6. Synthesize ideas to make a connection between knowledge of anatomy and physiology and real-world situations, including healthy lifestyle decisions and homeostatic imbalances.
7. Demonstrate laboratory procedures used to examine anatomical structures and evaluate physiological functions of each organ system.
8. Interpret graphs of anatomical and physiological data.

Specific Objectives
A. **Nervous System:** Identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control, and integration. Develop a basic understanding of neurophysiology including cell resting potential, action potential, impulse transmission; understand how neural circuits control "behavior" (e.g. reflexes, heart rate, skin blood flow).
B. **Special Senses:** Identify and describe the major gross and microscopic anatomical components of the eye and ear and explain their functional roles in vision, hearing and equilibrium. Identify and locate the receptors responsible for olfaction and gustation and briefly describe the physiology of smell and taste.
C. **Endocrine System:** Identify and describe the major gross and microscopic anatomical components of the endocrine system and explain the functional roles of hormones in communication, control, and integration. Understand mechanisms of hormone action, control of hormone secretion, and explain the stress response and its role in homeostasis, health and disease.
D. **Reproductive Systems:** Identify and describe the major gross and microscopic anatomical components of the reproductive system and explain their functional roles in reproduction and inheritance. Understand the physiology of gametogenesis, conception, pregnancy, development, parturition and birth.
E. **Digestive System:** Identify and describe the major gross and microscopic anatomical components of the digestive system and explain their functional roles in digestion, absorption, excretion and elimination.
F. **Metabolism:** Explain the functional relationship among cellular, tissue and organ level metabolism, the role nutrition plays in metabolism, and the mechanisms by which metabolic rate is regulated in the body.
**G. Urinary System:** Identify and describe the major gross and microscopic anatomical components of the urinary system and explain their functional roles in the process of urine formation including filtration, reabsorption, secretion and excretion.

**H. Fluid/Electrolyte & Acid/Base Balance:** Identify and explain the homeostatic mechanisms that control fluid/electrolyte and acid/base balance (buffers, respiratory system and urinary system).

*Adapted from HAPS Learning Outcomes Project, 2010*

**COURSE DETAILS (Keys to Success)**

**Instructional Delivery:** This is an ANGEL supported class with content divided into modules of study aligned to different body systems. Daily face-to-face meetings will include group discussions/presentations, laboratory work and in-class assessments of new material and sometimes traditional lecture. Laboratory exercises include hands-on work with tissues, microscopes, models, and organs and where appropriate use of human subjects (students) for physiology experiments.

Online course materials will include: text readings, written study questions, thought provoking discussion board topics, written laboratory preparation activities, and active learning activities including exploration of global issues linked to health and disease.

**Assignments:** Student assignments will be submitted via the Angel drop box linked to each assignment unless otherwise specified.

**Lectures/Class Meetings:** Lectures and in-class exercises emphasize content that you will be required to learn. The textbook and online materials will support and supplement the material covered in class. It is good practice to read the text before the topic is discussed in class and come to class with your questions. Pre-lecture assignments must be completed and submitted before lecture. Late work will not be accepted for credit.

**Labs:** Weekly lab exercises must be completed during the scheduled lab sessions. Attendance in lab is mandatory. Pre-labs must be completed and submitted prior to lab. After the first week of the quarter, there are open labs supervised by tutors where you can have additional time with lab models (e.g. bones), histology slides.

**Angel:** Our Angel website contains the course calendar, content, discussion board, assignment drop boxes. You are required to check the course the website daily throughout the quarter.

**Student Responsibilities:** You are expected to:
- check the class ANGEL site daily
- turn in assignments on time (posts to discussion board, homework, quizzes) either in class or via the ANGEL drop-box,
- attend every class session including labs. If you miss a lecture, then it is your responsibility to obtain the lecture notes, assignments, and materials handed out in class. Unfortunately labs cannot be made up. If you must miss class due to a prolonged illness or unexpected circumstance, you should notify the instructor as soon as possible to make arrangements.
- participate as a fully engaged member for all group work (e.g. in lab)
- respond to any course emails within 24 hours throughout the quarter. Participation means being prepared and engaged as an eager learner in class, during lab, online and as an equal partner during group project work.

**Commitment/Study Suggestions:** This course covers a lot of material in a short period of time therefore it requires a strong commitment in order to succeed. Plan to attend every class and spend at least 2 hours outside of class for each hour spent in class therefore you should expect to spend a minimum of 10 additional hours per week studying. Your studies outside of class should include reading and studying your lecture notes, the online
course materials, answering study questions, participating in group discussions (provide thoughtful analyses of questions posed) and studying laboratory materials (microscope slides, models, etc.). Many successful students (3.5 - 4.0) form study groups and communicate regularly with their teacher.

Need help?
Communicate with the Instructor: Please ask for help early and often if you are struggling.
During this course, my top priority is to help you understand Anatomy and Physiology. If you have any questions throughout the quarter please contact me immediately: in person during class, via the ANGEL Discussion Board, via ANGEL email (preferred) or adavis@sccd.ctc.edu. Additionally, you can make an appointment to meet with me privately outside of class. This is YOUR learning experience and I am here to support you! You should expect an email response from me within 24 hours to a direct question or post to our Discussion Board (Monday-Friday). Please note that I will not respond to every message sent to the Discussion Board but I will facilitate the discussion threads so that learning objectives are met. You should expect to receive your critiqued and graded work within 5 days of the assignment deadline unless I post a message indicating otherwise.

Additional Help: Tutors will be available in OPEN Lab to provide additional support (Days/Times TBA). Additional tutors are available in the Science and Math Resource Center (SAM 100). Anatomical models are available in the library.

Special Assistance: Please let me know if there are any additional areas that you will need assistance including physical access to the classroom or laboratory, ASL interpreters, or extra time to take an exam. If you are physically or learning challenged, please let me know at the start of the class so that steps can be taken to make the learning environment as comfortable and successful as possible. If you need special arrangements in case the building must be evacuated, please contact me. Counselors are available to assist you. You may make an appointment through the Science and Math Division Office, Room 110 or contact Counselor Stephen Simeona via email: ssimeona@sccd.ctc.edu.

Evaluation

Academic Honesty: The worst academic offenses are cheating and plagiarism. All exams and quizzes are independent works of the individual student. Please make sure you understand the definition of plagiarism as defined here: http://www.wpcouncil.org/node/9. The consequences for cheating and plagiarism can be as serious as failing the course, and in some instances, being kicked out of school.

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Point Value</th>
<th>%</th>
<th>Points</th>
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<tbody>
<tr>
<td>2 Exams</td>
<td>200 pts</td>
<td>40%</td>
<td>400</td>
</tr>
<tr>
<td>1 Final Exam</td>
<td>200 pts</td>
<td>20%</td>
<td>200</td>
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<tr>
<td>(cumulative)</td>
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<tr>
<td>5 (Weekly) Quizzes</td>
<td>20 pts</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>10 (Weekly) Homework Assignments (e.g.</td>
<td>15 pts</td>
<td>15%</td>
<td>150</td>
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<tr>
<td>discussion questions, discussion board posts, mini-</td>
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<td>presentations, pre and post labs, TBD)</td>
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<tr>
<td>1 Group Project</td>
<td>100 pts</td>
<td>10%</td>
<td>100</td>
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<tr>
<td>*Participation</td>
<td>50 pts</td>
<td>50%</td>
<td>50</td>
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<tr>
<td>TOTAL = 1000</td>
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Tests (Exams/Quizzes): There will be 3 exams. These tests are designed to assess your understanding of anatomy and physiology and are likely to include a mix of multiple choice, short answer and essay style questions as well as identification of structures studied in lab (e.g. cell structure and tissue histology, organ structure (heart) etc.)
- The approximate dates of tests are listed in the course schedule.
- There are no early, late, or makeup tests and no extra time is given for those arriving late to an exam.
- Quizzes are not cumulative and are designed to take approximately 15 minutes.
- All 3 exams are cumulative with emphasis on the most recent material covered except for the final.
- Exam/Quiz Reflections: As part of this course you will be required to submit corrected responses to any missed exam/quiz questions and a brief reflection on why you missed the question (rubric will be provided). For exams I and II only, you will be able to obtain reflection points if you meet with me and defend answers to any missed questions within 3 days of receiving your graded exam.
- If there is a mistake on the addition of your exam, please return it to me immediately for a reassessment. If you are unsure/unhappy with the grading protocol, turn in a written explanation of the areas in question no later than one week after the exam has been returned.

Homework (Discussion Board posts/Assignments, etc.): There will be weekly homework assignments associated with each module (e.g. discussion board reflections, study questions, etc.). All homework must be submitted on time (in class or to the drop box associated with the assignment). Late homework will receive no credit.

Group Project: On the second week of the quarter you and several peers will chose a body system to explore in health and disease. During the last week of the quarter, you will share your organ system presentation orally (15 minute presentation) and in writing (3 page maximum). Detailed project guidelines will be provided.

Grading/Assessment Policy: The final grade for this course will be a combination of your assessment scores according to the rubric shown above. Dates for assessments are listed in the tentative schedule but note that the instructor reserves the right to alter the schedule, assignments, grading procedures, etc., at any point in time during the class, due to schedule conflicts, new/different assignments, new approaches, etc., based upon the instructor's professional judgment.

Course Grade: Grades will be tentatively assigned as follows and follow the standards set by Central Seattle Community College:

\[
\begin{align*}
4.0 & = 95\% & 3.4 & = 89\% & 2.8 & = 79\% & 2.2 & = 70\% & 1.6 & = 61\% & 1.0 & = 52\% \\
3.9 & = 94\% & 3.3 & = 88\% & 2.7 & = 78\% & 2.1 & = 69\% & 1.5 & = 60\% & 0.9 & = 50\% \\
3.8 & = 93\% & 3.2 & = 85\% & 2.6 & = 76\% & 2.0 & = 68\% & 1.4 & = 59\% & 0.8 & = 48\% \\
3.7 & = 92\% & 3.1 & = 83\% & 2.5 & = 74\% & 1.9 & = 66\% & 1.3 & = 58\% & 0.7 & = 46\% \\
3.6 & = 91\% & 3.0 & = 81\% & 2.4 & = 73\% & 1.8 & = 64\% & 1.2 & = 56\% & 0.6 & = 44\% \\
3.5 & = 90\% & 2.9 & = 80\% & 2.3 & = 71\% & 1.7 & = 62\% & 1.1 & = 54\% & 0.5 & = 42\% & etc. \\
\end{align*}
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Technology Access/Skills Required:
Minimum suggested technology access includes the following:
- Access to a computer (at home, school, or work) which you can use for extended periods of time.
- Broadband internet access (cable modem, DSL, or other high speed).
- Firefox 3.0 or later or Internet Explorer 7 or later. Safari and Chrome are not compatible with Angel.
- Failsafe back-up for course work: Memory stick, external hard-drive, or google docs, etc.
- Permissions/ability to install plug-ins or class software (e.g. Adobe Reader or Flash)
- Highly recommended: up-to-date anti-virus software
  review the System Check nugget on the Angel home page.
Minimum technical skills include ability to:
- Navigate web sites (download and read files from web sites)
- Download and install software or plug-ins such as Adobe Reader or Flash
- Use email, including attaching and downloading documents/files from emails
- Save files in commonly used word processing formats (.doc, .docx, .rtf)
- Copy and paste text and images on a computer
- Save and retrieve documents and files on your computer
- Locate information on the internet using search engines
- Read, understand and agree to adhere to "netiquette" in all course communication as articulated here: http://www.online.uwc.edu/Technology/onlineEtiquette.asp

Other Information:
- Inclement Weather: Please sign up to receive Campus Alerts: https://alert.seattlecolleges.edu/LogIn.aspx
- Library Resources - http://dept.sccd.ctc.edu/cclib/
- Technology Help: http://seattlecentral.edu/it-services/student/index.php

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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Apr. 4</td>
<td>SPRING QUARTER BEGINS.</td>
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<tr>
<td>Apr. 8</td>
<td>Last day to withdraw with 100% refund (less $5).</td>
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<tr>
<td>Apr. 15</td>
<td>Last day to add/register; instructor permission required. Last day to change audit/credit status without instructor permission. Last day to withdraw without a &quot;W&quot; appearing on transcript and without instructor permission.</td>
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<tr>
<td>Apr. 22</td>
<td>Last day to withdraw with 50% refund. Instructor permission required.</td>
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<tr>
<td>May 27</td>
<td>Last day to withdraw (no refund) or change audit/credit status; instructor permission required.</td>
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<tr>
<td>Jun. 17</td>
<td>SPRING QUARTER ENDS.</td>
</tr>
<tr>
<td>Jun. 22</td>
<td>Grade Deadline (9:00 p.m.)</td>
</tr>
<tr>
<td>Jun. 23</td>
<td>GRADES AVAILABLE</td>
</tr>
</tbody>
</table>

Students who stop attending class and do not initiate one of the following alternatives will receive a grade of 0.0. Please take note of the following:
- **I** - Incomplete. Given only to students who perform at a passing level (60%) but did not complete a small portion of the course requirements and wish to complete the course next quarter. Given at the instructor’s discretion.
- **N** - Audit. Requires official registration.
- **NC** - No Credit. Student did not fulfill the course requirements. If the overall student performance is 60% or better, a student may request an NC from the instructor PRIOR to the final exam. This grade is granted at the instructor’s discretion.
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
<th>Text</th>
<th>Lab</th>
</tr>
</thead>
</table>
| 1    | 4/4-4/8     | Nervous Tissue, Membrane Transport, Action Potentials | Ch 12-13 | • ANGEL access and Lab Safety Review  
• Nervous System Histology - Microscope Review  
• Membrane Potentials |
| 2    | 4/11 - 4/15 | Synapses, Spinal Cord, Reflexes              | Ch13 - Ch 15 | • Neurophysiology  
• Spinal Cord Anatomy and Dissection  
• Brain Anatomy and Dissection |
| 3    | 4/18 - 4/22 | Sensory Paths, Reflexes, Higher Functions    | Ch 16 - 17 | • General Sensory  
• Special Senses |
| 4    | 4/25 - 4/29 | Review, Exam 1 and Endocrinology             | Ch 18    | • *Exam 1 tentative schedule: 4/26  
• Endocrine Anatomy/Physiology |
| 5    | 5/2 - 5/6   | Endocrinology, Digestion                     | Ch 18, Ch 24 | • Endocrine Anatomy/Physiology  
• Stress Response |
| 6    | 5/9 - 5/13  | Digestion, Metabolism                        | Ch 24, Ch 25 | • Digestion Anatomy/Physiology |
| 7    | 5/23 - 5/27 | EXAM 2 Endocrinology/Digestion, System, Electrolyte Balance | Ch 26, Ch 27 | • Urinary System Anatomy and Physiology  
• Kidney Dissection |
| 8    | 5/30 - 6/3  | Reproduction and Development                 | Ch 29    | • Anatomy and Physiology of Reproduction |
| 9    | 6/6 - 6/10  | Group Project Presentations                  | all      |                                                                      |
| 10   | 6/13 - 6/17 | Final EXAM - June 16th (Thursday): 10:30 - 12:30 | Ch 19, Ch 22 | • Study Session 6/14  
• Final Exam 6/16 |