GRAYSON COLLEGE

Course Syllabus

Course Information

BIOL 2101
Human Anatomy & Physiology I

Face-to-Face course, Lecture meets 3 hours/ week & Lab meets 3 hours/week, testing conducted on campus in the lab

Hybrid course meets 3 hours/week, testing conducted on campus in the lab

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Professor Contact Information

Instructor/Professor:

Science Department Phone: 903-463-8797

e-mail:

Office Phone:

Office Location:

Office Hours:

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Although students must register for a separate course number for lab and lecture, the two components are in fact part of the same course and are separated for scheduling and reporting reasons. Final grades are derived from the combination of both lecture and laboratory grades (60%/40% respectively). Together the lecture and laboratory components satisfy the state learning objectives (CS1, CT2, CT3, EQS2, and TW1) and therefore must be taken concurrently.

Prerequisite: College Readiness in reading required. Students must have passed the reading portion of the THEA (score of at least 230)

Concurrent enrollment in BIOL 2101 is required.

Prior completion of General Biology I (BIOL1306/1106), or Survey A&P (BIOL2404) is strongly recommended.

Course Description

BIOL 2301. Anatomy and Physiology I. (3-0-3). Anatomy and Physiology I is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the

following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis.

Student Learning Outcomes

State Core Objectives Met in this Combined Lecture and Lab Course:

1. Communication Skills, CS1 – Students will develop, interpret, and express ideas through written communication.
2. Critical Thinking Skills, CT2 – Gather and assess information relevant to a question.
3. Critical Thinking Skills, CT3 – Analyze, Evaluate, and Synthesize Information.
4. Empirical and Quantitative Skills, EQS2 – Students will describe, explain, and predict natural phenomena using the scientific method.
5. Teamwork, TW1 – Students will work cooperatively with their pears and leaders to more effectively solve problems by utilizing insights from multiple perspectives.

Student Learning Outcomes Met in this Combined Lecture and Lab Course:

1. Students will be able to locate and identify the various regions of the human body as well as the organs and their associated functions.
2. Students will be able to demonstrate an understanding of the integumentary, skeletal, muscular, and nervous systems and their interrelatedness.
3. Students will be able to identify the structures of the human cell and their related functions, including metabolism and cellular respiration.
4. Students will be able to demonstrate working knowledge of the chemical process of the human body as well as the physical properties that govern them.

State Learning Outcomes Met in this Combined Lecture and Lab Course:

<u>Lab component</u>

Upon successful completion of this course, students will:

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general labware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.
7. Use critical thinking and scientific problem-solving skills, including, but not limited to, inferring, integrating, synthesizing, and summarizing, to make decisions, recommendations and predictions.

<u>Lecture component</u>

Upon successful completion of this course, students will:

1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
2. Explain interrelationships among molecular, cellular, tissue, and organ functions in each

system.
3. Describe the interdependency and interactions of the systems.
4. Explain contributions of organs and systems to the maintenance of homeostasis.
5. Identify causes and effects of homeostatic imbalances.
6. Describe modern technology and tools used to study anatomy and physiology.

Course Competencies:
A student completing this course can expect lectures covering the following topics in detail, and will be tested over each section as announced by the instructor. Within each section of Anatomy and Physiology I, content may or may not be covered in the sequence presented here. Content topics need not be taught in single blocks, yet may be integrated. Unifying themes, such as homeostasis, are emphasized throughout.

Body Plan and Organization-Students who have completed this section of the course should understand the scope of studies in anatomy and physiology and be able to use and understand descriptive anatomical and directive terminology.

Homeostasis-Upon completion of this section of the course, students should be able to explain the basic concept of homeostasis and how homeostatic mechanisms apply to the body systems.

Chemistry and Cell Biology Overview-Students who have completed this section of the course should be able to identify cellular structures and explain their respective functions.

Histology-Completion of this section of the course should enable the student to be able to describe the basic tissues of the body, indicate their location, and explain their functions.

Integumentary System-Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the integumentary system and describe the functions of the system.

Skeletal System-Completion of this section of the course should enable a student to be able to identify and describe the major gross and microscopic anatomical components of the skeletal system and describe the functions of the system.

Muscular System-Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture, and heat production.

Nervous System-Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control, and integration.

Special Senses-Completion of this section of the course should enable a student to be able to 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. Students should also be able to identify and locate the receptors responsible for olfaction and gustation and briefly describe the physiology of smell and taste.

Required Textbooks

LAB (**REQUIRED**)

Exploring Anatomy & Physiology in the Laboratory, 3rd Edition by Erin C. Amerman, Morton Publishing Company, ISBN 9781617316203. This is CHEAPER and better than the McGraw-Hill manual

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Required Assignments & Academic Calendar
(Topics, Reading Assignments, Due Dates, Exam Dates and where/how exams will be administered)

In case of inclement weather, emergency closings, or other unforeseen disruptions to scheduled classes, student must log onto their Canvas accounts for directions on where or how to continue their coursework.

Important Dates:

SEQUENCE OF INSTRUCTION

Week	Date	Topics, Readings, Assignments, Deadlines
1		**Lab Safety and Rules** **Lab 1 Introduction to Anatomical Terms,** Exercises 1.2 Directional terms, 1.3 Regional terms, 1.4 Body cavities & Membranes, 1.5 Planes of Section and 1.6 Organs and Organ Systems
2		Take lab quiz over human body **Lab 3 Introduction to the Microscope**
3		Take lab quiz over microscope **Lab 4 Cytology** Exercises 4.1 Organelles and cell structures, 4.2 Diffusion, 4.3 Osmosis and tonicity Exercise 4.4 Mitosis and cell cycle
4		Take lab quiz over cells, molecular movement, and the cell cycle **Lab 5 Histology** Exercise 5.1 Epithelial tissue Exercise 5.2 Connective tissue, 5.3 Muscle tissue, 5.4 Nervous tissue
5		Take lab quiz over tissues REVIEW FOR PRACTICAL 1 **PRACTICAL 1 covers labs 1, 3, 4, and 5**
6		NO QUIZ **Lab 6 Integumentary System** Exercises 6.1 Skin anatomy and accessory structures, 6.2 Histology of integument, **Lab 7 Introduction to the Skeletal System** Exercises 7.1 Histology of osseous tissue, 7.2 Chemical components of bone tissue, 7.3 Bone markings and bone shapes, and 7.4 Anatomy of long bones
7		Take lab quiz over integument & bone microscopy

Week	Date	Topics, Readings, Assignments, Deadlines
		Lab 8 Skeletal System Exercises 8.1 Skull, 8.2 Remainder of the Axial Skeleton, 8.3 Appendicular Skeleton
8		Take lab quiz over BONES **Lab 9 Articulations** Exercises 9.1 Classification of joints, 9.2 Synovial joints, and some of 9,5 Motions of synovial joints **Lab 10 Muscular System: The Gross Anatomy of Muscles** Exercises 10.1 Skeletal muscle and 10.2 Muscle origins, insertions and actions
MARCH 9 – 13 IS SPRING BREAK. NO CLASSES YEAHHHHHHHH!		
9		Take lab quiz over joints & muscle **Lab 10 Muscular System, The Gross Anatomy of Muscles continued** Exercises 10.1 Skeletal muscle and 10.2 Muscle origins, insertions and actions
10		Take lab quiz over muscles **Lab 11 Muscle Tissue** Exercise 11.1 Microscopic anatomy of skeletal muscle
11		Take lab quiz over anatomy of muscles REVIEW FOR PRACTICAL 2 **PRACTICAL 2 covers labs 6 to 11**
12		NO QUIZ **Lab 12 Introduction to the Nervous System** Exercise 12.1 Neurons and neuroglia **Lab 13 Central Nervous System** Exercise 13.1 Anatomy of the brain
13		Take lab quiz over neurons and brain **Lab 13 Central Nervous System, continued** Exercise 13.1 Anatomy of the brain and exercise 13.2 The spinal cord **Lab 14 Peripheral and Autonomic Nervous System** Exercise 14.2 The cranial nerves
14		Take lab quiz over brain and spinal cord **Lab 15 General and Special Senses** Exercises 15.1 Anatomy of the Eye and Vision, 15.2 Anatomy of the ear, hearing and equilibrium
15		Take lab quiz over eyes & ears REVIEW FOR PRACTICAL 3

Week	Date	Topics, Readings, Assignments, Deadlines
		PRACTICAL 3 covers labs 12 to 15
16		**Lab Final Practical is COMPREHENSIVE & OPTIONAL**

Note: The sequence of instruction may be modified during the semester. Students will receive notification from the instructor of any changes

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Methods of Evaluation

Anatomy and Physiology I is a composite course, composed of a Biology 2301 lecture section and a Biology 2101 laboratory section. 60% of the composite course grade will come from the student's performance in the lecture section. The remaining 40% of the composite course grade will come from the student's performance in the laboratory section. The student's final composite course grade will be calculated by their lecture professor at the end of the semester. **The resulting letter grade will be reported to the registrar as the final grade for both the laboratory and lecture sections.**

LAB COMPONENT

LAB QUIZZES/DAILY WORK: Students will be given weekly quizzes over the information taught during the previous week's labs. Therefore your first quiz will cover lab safety and body organization. If a student must miss a lab, they are encouraged to attend another lab session. Students may take the other instructor's quiz **and must stay for the entire lab**, otherwise students will receive a "0" for that quiz and for each quiz they do not take. There will be NO quiz make-ups. **The two lowest grades** of these quizzes will be dropped**.**

One of your quiz grades will come from a skills assessment. Your skill and use of the microscope will be demonstrated before the first practical. This performance assessment will count as one quiz grade. Students will be given a microscope slide and microscope and asked to find the specimen in the microscope slide within a reasonable time frame at an appropriate magnification, as determined by the professor. **PLEASE note that this quiz CANNOT be dropped.**

A lab report will be submitted to fulfill the Core Competencies for the state. This report will describe the Molecular Movement experiment in lab 4, week 3), as well as the analysis of the data and your conclusions. The report will be written in proper scientific format and will be evaluated for both substance and writing quality. The lab report will be worth a quiz grade. **The lab report grade may NOT be dropped**.

Cumulative points from the lab quizzes and lab reports will be equal to one lab practical.

There will be three lab practicals given at scheduled times throughout the semester. Each practical will consist of 50 questions (each worth 2 points) with an additional bonus of 4 points. The students will be timed at each station of the lab practical (2 questions per station). Partial credit for answers will be awarded due to deductions such as ¼ point for incorrect spelling and ½ point for failure to designate right or left when identifying structures. The grade for each practical will constitute 25% of the final laboratory grade. Anyone missing a lab practical must take the Comprehensive Final Lab Practical at the scheduled time at the end of the semester. **For those who have taken all three practicals, the Comprehensive Final Lab Practical is optional.** It may be taken and

substituted for a lower grade on one of the other three practicals. This will allow those who have taken all three practicals and the Comprehensive Final Practical to drop their lowest practical grade. Those who are satisfied with their grades do not have to take the Comprehensive Final Practical.

Course Grading

Your final grade will be determined by both lecture and laboratory scores. **Sixty percent (60%) of the final grade will be based on your lecture grade and 40% will be based on your laboratory grade. You will receive the SAME grade in lecture and lab.**

To calculate a final grade in lecture and lab: You take the lecture grade and multiply by 0.60 and the laboratory grade multiplied by 0.40. You add the two resulting numbers together and get the final grade. e.g., you make a 72% average in lecture and an 86% in the laboratory. So you do the following: (0.72*0.60) + (0.86 * 0.40) = final grade. If you perform this equation, you calculate 0.43 + 0.34 = 0.77 or 77% as a final course grade, because your lecture grade contributes more to the final grade than your laboratory grade. This calculated grade will then be reported for BOTH lecture and lab sections to the registrar.

At the end of the semester, the laboratory instructor will communicate students' laboratory grades to the students' lecture professor for calculation of the students' final A&P1 course grades.

Lab report and exam grades will be posted on Canvas, students should retain quiz scores to calculate class points

Composite grades will be rounded up or down. For example, an average of 89.5 will be rounded up to a 90 and 89.4 will be rounded down to an 89.

Letter grades will be assigned as follows:

100 - 89.5	= A
89.4 - 79.5	= B
79.4 - 69.5	= C
69.4 - 59.5	= D
Below 59.4	= F

Daily work and exam grades to be posted on Canvas

Methods of Instruction

Students will work in groups to conduct experiments, collect data, draw logical conclusions and answer questions on biological principles presented in the lecture portion of this course. Students will dissect preserved specimens, work with models, and view prepared slides through the microscope. The instructor will present information on exercises to be done weekly and will be present during the scheduled lab period for assistance and to answer questions.

Class Attendance

Academic success is closely associated with regular classroom attendance and course participation. All successful students, whether on campus or online, are expected to be highly self-motivated. All students are required to participate in courses regularly and are obliged to participate in class activities and complete and submit assignments following their professors' instructions.

Students taking courses during compressed semester time frames such as mini-mester, summer sessions, and mid-semester should plan to spend significantly more time per week on the course. Responsibility for work missed because of illness or school business is placed upon the student. More than two (2) absences are considered to be excessive. **In accordance with the College's Developmental Education Plan, students withdrawn from their only developmental course may be withdrawn from all academic courses.** In addition, students' eligibility to receive financial aid or live in a College dormitory can be affected by withdrawal from courses. When withdrawal occurs, any tuition refund would be made in accordance with state regulations.

Student Conduct & Discipline

Classroom Behavior
Students are expected to maintain classroom decorum that includes respect for other students and the instructor, prompt and regular attendance and an attitude that seeks to take full advantage of the educational opportunity.

Defacing College Property
Anyone caught defacing property in the lab will be responsible for cleaning, repairing or replacing the defaced property. The individual will also receive a zero (0) for the current lab assignment. Defacing property includes, but is not limited to, writing, marking or scratching on the tables, tabletops, chairs, cabinets, counter tops, shelving or walls.

Cell Phone Policy
All cell phones and other electronic devices must be turned off before entering the classroom. Text messaging is not permitted during class. If you have an emergency and need to take a call during class, you must inform the instructor before the beginning of class. Turn your ringer to vibrate, and when your call comes in, pick up all of your belongings and leave the classroom. You may return to class the next time the class meets.

Academic Integrity
The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the college's policy on plagiarism (see GC Student Handbook for details). Grayson College subscribes to turnitin.com, which allows faculty to search the web and identify plagiarized material. Students are prohibited, too, from engaging in self-plagiarism. Self-plagiarism is the act of using work created for another course and submitting that work for credit in this course. This includes work submitted previously for one of this instructor's courses. There are limited circumstances under which the instructor will permit self-plagiarism, and special permission must be received in order to do so. Those who engage in acts of self-plagiarism (without the necessary permission) will be subject to the penalties listed in this syllabus for all other acts of plagiarism.

The policy of the Science Department: Any instance of a) plagiarism, b) collusion, c) cheating, or d) falsifying records, will result in a "0" for the assignment. The "0" assigned for cheating cannot be dropped or replaced by another grade when calculating the laboratory average.

Basic Rules for the Compound Microscope

1. Check the number on the microscope assigned to you with its corresponding place in the cabinet.

2. Grasp the microscope arm firmly with one hand, and lift the instrument carefully from the shelf. Hold it upright and close to your body when carrying it. Gently place it on the laboratory bench away from the edge of the bench.

3. Remove the dust cover, uncoil the power cord, and plug it into an appropriate outlet.

4. Examine the microscope to see if any damage is apparent or if the microscope was put away in an unacceptable condition, if so report this immediately to your instructor.

5. Clean all lenses by wiping several times with an acceptable lens paper. Do not use paper towels, Kleenex, clothing, or other types of material on lenses. Especially do not use Kimwipes!

6. Examine the stage to see if it is free of oil, that no slide has been left on the stage, and that the stage is racked all the way down into the lowest possible position. The scanning objective (or low power objective) should be in the path of light position. In other words, you want the objectives and the stage to be as far apart as possible.

7. Turn on the light to check if it is functional.

8. Follow your lab manual's and instructor's directions for using the microscope.

9. At the end of each lab session, turn off the light and check the stage to be sure no slide is on it and it is clean.

10. Clean all lenses with dry lens paper. If the oil immersion objective lens has been used, clean it last to avoid contaminating the other objectives with oil.

11. Rotate the nosepiece so that the scanning objective (low power objective) is in the light path.

12. Rack the stage down so that the objective and stage are as far apart as possible.

13. Unplug the power cord and rewind it. Replace the dust cover.

14. Carry the microscope as previously described back to the cabinet, returning it to its appropriate (numbered) place.

Biology Laboratory Safety Guidelines

1. Locate safety equipment: know where to find exit(s), fire extinguisher, and first aid kit. Know how to use the safety equipment.

2. **Do not eat or drink in the laboratory**.

3. Monitor risk: inform the instructor if you are pregnant, taking immunosuppressive medicines, or have any medical condition that might require special precautions in the lab, such as medications that would influence your response or reflex time. Under NO circumstances should you attend a lab session while "under the influence" of any chemical substance.

4. Avoid spills: place liquids toward the center of the bench, away from the edges.

5. Labels: read labels carefully before removing substances from containers. Properly label glassware before use.

6. Dissection: use care at all times when handling sharp dissection tools. Wear disposable gloves when dissecting preserved materials. Cover open cuts with a bandage before donning gloves. Do not touch face or eyes while wearing soiled gloves, and wash hands immediately after gloves are removed.

7. Discard used chemicals and materials into appropriately labeled containers, do not dispose of them down the sink unless specified by the instructor.

8. Broken glass: be careful handling broken glassware with bare hands. Dispose of all cracked or broken glassware in a puncture resistant container found in S 200 (chemistry lab), not the regular trash can.

9. Report any spills, accidents, strange occurrences, or other safety incidents to the instructor. Immediately report damaged equipment to your instructor

10. Professional conduct is expected to avoid creating dangerous situations. If you have any questions concerning the safety of a procedure, consult your instructor.

11. To find the MSDS on any product used by Grayson, please go to this link and search **https://msdsmanagement.msdsonline.com/?ID=C9DFE03B-6CE5-4E53-AD11-CB6588BAE690**

12. Thoroughly wash hands with soap and water before leaving the laboratory.

You will be asked to sign the following during class:

Waiver of Liability
As a Science student in a Grayson College laboratory course, I hereby confirm that I have been advised of laboratory safety measures and rules and agree to comply with these rules at all times during my enrollment in this laboratory course. In addition, I agree to hold harmless GC in any event resulting from the laboratory environment.

Contact Lenses
I am aware of the added health risks associated with wearing contact lenses in the lab, but have elected to do so against the advice of my instructor. (If unsigned, I have agreed not to wear contact lenses at any time during this course.)

Student Responsibility
You have already made the decision to go to college; now the follow-up decisions on whether to commit to doing the work could very well determine whether you end up working at a good paying job in a field you enjoy or working at minimum wage for the rest of your life. Education involves a partnership that requires both students and instructors to do their parts. By entering into this partnership, you have a responsibility to show up for class, do the assignments and reading, be engaged and pay attention in class, follow directions, and put your best effort into it. You will get out of your experience here exactly what you put into it – nothing more and nothing less.

TITLE IX

TITLE IX
GC policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status.
Furthermore, Title IX prohibits sex discrimination to include sexual misconduct: sexual violence (sexual assault, rape), sexual harassment and retaliation.
For more information on Title IX, please contact:

Dr. Regina Organ, Title IX Coordinator (903-463-8714)
Mr. Brad Bankhead, Title IX Deputy Coordinator- South Campus (903) 415-2601
Mr. Mike McBrayer, Title IX Deputy Coordinator (903) 463-8753

Website: http://www.grayson.edu/campus-life/campus-police/title-ix-policies.html
GC Police Department: (903) 463-8777- Main Campus) (903) 415-2501 - South Campus)
GC Counseling Center: (903) 463-8730
For Any On-campus Emergencies: 911

Grayson College is not responsible for illness/injury that occurs during the normal course of classroom/lab/clinical experiences.

These descriptions and timelines are subject to change at the discretion of the Professor.

Grayson College campus-wide student policies may be found on our Current Student Page on our website:
http://grayson.edu/current-students/index.html
