Human Anatomy & Physiology I

BIO 253 H1
Winter 2019

Number of Credits: four

Days Class Meets: Tuesdays

Meeting Times: 11-2 pm**

Location: JM 104

Instructor: Jan Bradford, M.S.
Office: JM 110

Contact Phone: 796-8648

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Office Hours: **M. 11-12, 5-5:30**; **T. 10:30-11am**; **W.11-noon**; **Online office hours Th/F**. Others by appointment.

Online: Course uses JetNet (Moodle)
Contact Solution Center for technical support.

***Email is the best route to contact me**. To the best of my ability, email replies to coursework questions will be sent between 8AM on Mondays and noon on Thursdays, within 24 hours of message receipt from a student.
****On site dates:** You will be required to come to central campus **each week** on the designated day & time.

Course Description

This is the first course of a 2-semester course sequence in which students study the anatomy and physiology of the human body. The course includes introductions to basic chemistry, biology, and histology, and extends to the survey of the integumentary, skeletal, muscular and nervous systems. This course includes a laboratory component in which students are responsible for performing dissections and making original observations on dissected material. The laboratory experience culminates with the use of a plastinated human specimen for observation. **It is a difficult course requiring hard work and discipline to be successful. A strong background in biology and/or chemistry is highly recommended.**

Prerequisite(s)

ENG 085* and MAT 019 or higher*.

Course Considerations

This is a lab science course so should be thought of as two courses. The reading level is difficult. **Caution:** Online courses cover the same amount and level of content as "face-to-face" courses. Students taking this course online find that it requires **more time** than the traditional format. **It is not recommended for students who have not had a previous online course, nor for those who have not had prior college level science. Chemistry and biology are strongly suggested prior to this course.** Students earning a final grade of 3.0 or higher report **studying 15-20 hours per week for this one course in a 15-week semester**. Please plan accordingly when considering this course.

General Philosophy: You are an adult and a college student. As such you are expected to be able to work and learn independently, and to be responsible for all assignments and materials. This is a difficult course, and will cover a tremendous amount of material; that will require hard work and discipline. You will need to keep up, as the pace of the class is fast, and it will pick-up as we cover the last few chapters and get into consolidation and review. **There are no quick, easy ways**; what you learn here will be directly proportional to the amount of effort you have expended. You're also expected to be considerate of the rights of others and not to interfere with those who are trying to study, work and learn.

Course Objectives (Learning Outcomes) – (in brief)

By the end of the semester, students will demonstrate – through both factual lecture exams and laboratory practical identification – their understanding of the following topics (with focus on the human body):

1. Anatomical terminology
2. Levels of organization in organisms
3. Homeostasis and feedback loops
4. General chemistry and biochemistry basics
5. Structure and function of biological membranes
6. Cell structure and function
7. Transcription, translation and the cell cycle
8. Structure and function of major body tissues (histology)
9. Structure and function of the skin and related integumentary system structures
10. Formation and homeostasis of the major types of bone
11. Bones and major bony structures of the human skeleton
12. Types, and structures, of articulations and movements performed by each
13. Structure of skeletal muscles and mechanisms of muscle contraction
14. Identification of the movement(s) generated by contraction of specific muscles
15. Interaction between muscles, tendons, ligaments and bones in generating movement
16. Control of action potential generation in neurons
17. Role of neuroglia in nervous system structure and function
18. Structure and function of the divisions and components of the human nervous system
19. Interaction of various brain regions in maintaining life and regulating interaction with the world
20. Development, growth and repair processes in skin, bone, muscle and nervous tissue.

The course goals incorporate specific General Education Outcomes (GEOs) established by the JC Board of Trustees, administration, and faculty. These goals are in concert with four-year colleges and universities and reflect input from the professional communities we serve. GEOs guarantee students achieve goals necessary for graduation credit, transferability, and professional skills needed in many certification programs. The GEOs and course objectives addressed in this class include the following: **GEO 4 (Scientific Reasoning).**

Textbook

PRINCIPLES OF ANATOMY AND PHYSIOLOGY, Tortora & Derrickson; 15th edition; [ISBN: 9781119343738]

[***Text Book Zero***! …Text available in digital format.]

- Other A&P textbooks for a full-year class (25-29 chapters) are acceptable (e.g. Martini, Marieb, Patton, Saladin or Seeley). (An online A&P text available at www.openstax.com; it is missing some information for the end of the course.)

Lab Manual for Anatomy & Physiology I, Bradford & Visser; [from JC Bookstore; also on course-site]

Anatomy and Physiology I Coursepack - Bradford sections; from the JC Bookstore

Extras

No other purchases are required; safety glasses for dissection are recommended.

Grading Procedure

The grade you earn in this course is based upon total points accumulated on: (approximately 770 pts.)

1) Lab Participation / Recitation Quizzing (60 pts. total)
2) Online Terminology Quizzes (10 best; @ 5pts each = 50 pts.)
3) Homework and/or Pop Quizzes (minimal pts. each)
4) Take Home Quizzes (5 @ 5 pts. each)
5) Lab Practicals (25-100 pts. each)
6) Theory Exams (5 @ 80 pts. each) 50 minutes each

Grading Scale [You are expected to keep a record of your grades. Grades will be posted on our course-site.]

GPA	GRADE RANGE
4.0	95-100%
3.5	90-94%
3.0	85-89%
2.5	80-84%
2.0	75-79%
1.5	70-74%
1.0	65-69%
0.5	60-64%
0.0	0-59%

Failure

Use of the human materials and cadaver mandates a requirement to sign the LEARNING CONTRACT prior to participation of any kind. You must read and accept: the Human Specimen Respect Policy and the "Anatomy and Physiology Lab Rules". These can be found on the course JetNet site. [BIO 253 students will not be dissecting nor working extensively with the human specimen. Instructor demonstration of the specimen will be part of the course.] Your instructor will give you a learning contract to fill out and return**. It is due before the end of the semester's second week. Failure to complete and return this will result in an instructor initiated withdrawal.**

A student found cheating or plagiarizing information will either receive a score of zero on that particular exam or assignment, or a grade of 0.0 in the course. In addition, the Academic Deans will be informed of any such incident.

Note: **Late Assignments -** Instructor reserves the right to award zero or reduced credit for any and/or all late assignments.

Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

Plagiarism is defined as the failure to give credit for the use of material from outside sources. Plagiarism includes but is not limited to:

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

Cheating is defined as obtaining answers/material from an outside source without authorization. Cheating includes, but is not limited to:

- Plagiarizing in any form
- Using notes/books/electronic material without authorization
- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

Makeup Policy

You are responsible for all assignments, handouts and materials covered in both theory and lab.
Make-up opportunities for the exams and/or practicals are extended only in the case of emergencies / hospitalization / funerals and require written documentation verifying the cause of the absence. It is your responsibility to contact your instructor for arrangements. **Second and subsequent make- up exams will be awarded only 80% of the achieved score**. **Practicals may not be made up unless you can take the practical with another lab section. In the event of a missed practical, you may either take a zero for the score, or take an incomplete for the course, and make up the practical the next semester that BIO 253 is offered.** Instructor reserves the right to award zero or reduced credit for any and/or all late assignments.

Help

* **The text's companion website** is available -- see instructions in your text and/or our JetNet site.
* Tutors and additional free services for academic success are available at the Center for Student Success. CSS will help you with writing, study skills, test anxiety, math and reading.
* Students with documented disabilities should contact the Center for Student Success as soon as possible to ensure that accommodations are implemented in a timely fashion. Accommodations do not automatically carry over to the next semester.
  https://www.jccmi.edu/center-for-student-success/accommodations-for-students-with-disabilities/

Calendar (Tentative Schedule)

BIO 253: A&P I Hybrid [01: Mon. 1:35-4:29pm] **[H1: Tues. 11:00-2pm]** [02: Wed. 1:35-4:29pm]

Week	Date Week of Monday…	Chapter Study and Exams	This Week's **Lab** **[Meeting days/time listed above]**
1	Jan. 14	**Ch. 1**	**Introduction; safety; microscopy** *Online Pretest*
2	Jan. 21	**Ch. 2**	**Mitosis; Histology**
3	Jan. 28	**Ch. 2**	**Histology**
4	Feb. 4	**EXAM 1 (Ch. 1, 2)** **Ch. 4**	**LAB PRACTICAL EXAM 1 (25pts) Introduction to the Skeleton**
5	Feb. 11	**Ch. 3**	**Skeletal System (1)**
6	Feb. 18	**EXAM 2 (Ch. 4,3)** **Ch. 5**	**Skeletal System (2)**
7	Feb. 25	**Ch. 6** **Ch. 7 & 8 (posted)**	**Skeletal System (3) & Articulations**
8	Mar. 4	**EXAM 3 (Ch. 5-8)** **Ch. 9**	**Review**
	3/11-17	**NO CLASES**	**SPRING BREAK**
9	Mar. 18	**Ch. 10**	**LAB PRACTICAL EXAM 2 (100 pts)**
10	Mar. 25	**Ch. 10, 11 (posted)**	**Muscles (1)/ Models**
11	Apr. 1	**EXAM 4 (Ch. 9-11)** **Ch. 12**	**Muscles (2)/ Dissection**
12	Apr. 8	**Ch. 12, 13**	**Muscles (3)/ Nervous System**
13	Apr. 15	**Ch. 13, 14**	**Review; Human Specimen**
14	Apr. 22	**Ch. 14**	**LAB PRACTICAL EXAM 3 (100 pts)**
15 **EXAMS**	Apr. 29	**EXAM 5 (Ch. 12-14)**	*Online Post Test* *[Classes end May 5]*

- Exam / Practical dates subject to change (but not likely)
- Complete your reading/study of the chapters by these exam dates

- **Chapter Vocabulary Quiz** due dates are listed and to be completed on the online course-site. Complete these ahead of schedule to avoid loss of opportunity due to technical difficulty. Plan ahead. No make ups. They close at the due date/time.
- **Take Home Quizzes** are due at the start of each Exam – hand in on your way into the class period.
- **Lab-Participation Points** occur in lab/recitation and cannot be made up.
- **No video / no photography** in class at any time.
- **Schedule Changes**: Instructor reserves the right to alter schedule if necessary, at their sole discretion.

Important Dates: Winter 2019

DATE	EVENT
MONDAY, JAN. 14, 2019	DAY AND EVENING CLASSES BEGIN
JAN. 14 – MAY 5, 2019	SEMESTER DATES
FRIDAY, FEB. 1, 2019	IN-SERVICE DAY. NO CLASSES
MAR. 11-17	MID-SEMESTER BREAK
MAY 5, 2019	END OF WINTER SEMESTER
TUE., MAY 7, 2019	GRADES DUE (FOR 15-WEEK CLASSES)

Student Lab Responsibilities

The lab period is a time of active learning involving the study of various materials, interactive projects, and other activities to enhance class success. Interaction with, and learning from, other members of the class and the instructor are critical parts of the lab environment. Cooperation with other students and the instructor in keeping the lab orderly and clean is expected. Please observe the following laboratory guidelines, and encourage your partners to do the same.

1. Specific instructions will be given at the beginning of each lab period. You will be expected to complete all the assignments that require dissection or lab apparatus during this time.
2. You will be expected to return all materials, apparatus, and reference books to their proper place at the end of the lab period. Apparatus that has been used should be washed with tap water and blotted dry with paper towels. Please leave materials neatly arranged; all members of each working group will be held accountable for the condition and return of all lab materials.
3. Consult with other members of the class and the instructor concerning any part of your work. Cooperation and consultation are encouraged: however, make certain that you completely understand everything since you will be held individually accountable for all materials covered.
4. Disruptive behavior and loud conversations will not be permitted. Do not disturb others.
5. Expect to work the entire allotted class period. Lab and recitation typically require the full amount of time.
6. 60 points of your final grade will be based on your attitude and effort in lab during the on-site days, as demonstrated by your cooperation and concentration in lab; as well as from in class assignments.
7. Any information covered in lab is "fair game" for both the lab practical exams and class/chapter exams. Lab practicals, however, are limited to information on the lab practical lists. **Correct spelling required.**

Attendance Policy

In compliance with Federal Title IV funding requirements, as well as college initiatives, reporting of student participation in classes will occur at three designated times each semester. Instructors will assign one of three non-transcripted letter symbols to each student during each reporting period (see below). Students identified as no longer participating will be dropped or administratively withdrawn from the class, and students identified as needing academic assistance will be contacted.

Participation/Progress Symbols

- H – The student is not doing acceptable work and needs **H**elp to be successful.
- Q – The student has not participated and the instructor believes they have unofficially withdrawn (**Q**uit). These students will be dropped/withdrawn from the class.
- V – The instructor **V**erifies that the student is participating and doing acceptable work.

Caveat

It is possible that some revisions will be necessary during the course due to unforeseen school closing policies, instructor illness and other procedural improbabilities.

Miscellaneous

* ALL electronic correspondence MUST utilize JC supported systems: JC outlook email and/or JetNet messaging. Your instructor will NOT respond to any other electronic correspondence.
* No phone nor camera usage during **any** class times; **no exceptions** unless instructor directs use.
* No materials will be used during examinations of any kind, except those provided by your instructor. No electronic devices are allowed during examinations. You will need a #2 pencil for examinations.
* An exam score curve (or linear addition) MAY be used for each exam. The curve is a privilege.
* It is expected that problems that occur because you feel an error has been made, or disagree with what has been done, or feel that you have been treated unfairly, will be brought to my immediate attention so that they can be resolved.
* There will be no extra credit projects for this course, since it is felt that your time will be better allocated in studying the assigned materials.
* An iClicker ***may*** be loaned to you during class visits for the semester. **At no time will this iClicker leave the lab room!** You will borrow your loaner clicker at the beginning of lab and return it to where it belongs at the end of each lab. **You are responsible for the replacement cost of your clicker should it become damaged, or is missing.**

Course Design – Online/Hybrid Anatomy and Physiology I

This course has two major components: "theory" (analogous to a traditional class lecture curriculum) and "lab exercises" (to be completed at central campus and reviewed from home). For the majority of the semester you will work at your distance learning site (home, etc.); and EACH WEEK during the semester you will come to Jackson College - Central Campus at the designated date and times. Read the following descriptions for the theory portion, lab exercise portion and central campus visits.

THEORY DESCRIPTION

Preview by: Reading objectives at the start of each section of a chapter in your text book; study for and complete the chapter terminology quizzes on our online site.
Learn by: Filling in information on your Anatomy & Physiology Outline using your Tortora & Derrickson text. Compare your notes to the notes provided by your instructor on the course site. Committing that material to memory by rehearsal and repetition. Activities on the companion website and in the text will enhance learning.
Self-assess by: Activities, quizzes and tutorials at the companion website and in the text.
Graded by: Minimal Homework, in class Quizzing/Participation, online terminology quizzes and FIVE on-site CHAPTER EXAMINATIONS.

LABORATORY (LAB) EXERCISES DESCRIPTION

Learn by: Assigned lab exercises in the schedule. You can solidify your knowledge at any time using the online images or diagrams in your Tortora/Derrickson text. Pay particular attention to the lab practical lists when preparing for the lab practicals. Study the images loaded onto the course site of lab images. Make use of the screen-casts on your instructor's web page. These images are of the actual materials you will be tested on when coming to central campus for the practicals. It is on these days where you need to come prepared expecting to transfer what you have learned from two-dimensional images to an understanding/knowledge of three-dimensional objects. At times, you can go to external links to find good lab images to study - but remember another instructor's list of items to know may not match ours!
Graded by: On-site LAB Practical Examinations, and Participation Points

CENTRAL CAMPUS VISITS

Each week during the semester you will be required to come to central campus on the designated day and times to complete: chapter exams, lab activities, lab practicals, recitation, and clean up.
On-Site Schedule: When a Chapter Examination or Lab Practical Examination is scheduled, these will occur in the first hour. Following, lab study/recitation will solidify knowledge of items to learn for the lab and/or theory portion of the course.

"Need to Know" Topics from BIO 253 - [Information that most directly flows into BIO 254]

Of course students are expected to study and learn *everything* from a class, but it is even more important when a class is the first in a two-semester sequence and when some information seems to have no relevance to the "real" subject of the class. And of course, there is always the problem of students cramming for a test and then "dumping" what they've learned to make room for the new material that will be on the next test, since once you've been tested on something, you don't need to worry about it anymore, right? Wrong!!! Therefore this is a list of topics from this class that will be very important for you to work extra hard at learning, understanding and remembering because they will show up in various ways later in this class and/or in Bio 254.

Ch. 1 Body fluids, Feedback loops, Anatomical terminology
Ch. 2 Properties: water, Acid-Base & Buffers; Hydrophilic vs. Hydrophobic;
Structural differences between organic molecule
Ch. 3 Membrane transport & Gradients, Diffusion & Osmosis, Mitochondria, Lysosomes, Meiosis
Ch. 4 All tissue types/structures/locations/uses
Ch. 5 Functions of skin, Gland secretions
Ch. 6 Calcium homeostasis
Ch. 7,8 Bone names, Skull structures (especially foramen)
Ch. 10 Muscle metabolism (ATP formation), Cardiac & Smooth muscle structure/function

All of the Nervous System chapter (12-14) material is important because Bio 254 starts off with **3** Nervous System chapters, and the material is all inter-related. That said, it is especially important to understand the following topics:

Ch. 12 Neurotransmitters and Neuromuscular junction activity, Agonists vs. Antagonists
Ch. 13 Anterior vs. Posterior structure/function of the spinal cord, Reflex arcs
Ch. 14 Brain stem & Cerebellum functions, Cranial nerves