

BIOLOGY 204
HUMAN ANATOMY AND PHYSIOLOGY
Marilyn M. Shannon, M.A., Course Coordinator
Spring Semester, 2018

Introduction

Welcome to Biology 204! This four-credit course is the second semester of a challenging introduction to the structure and function of the human body. Like Biology 203, the first semester, the course provides majors in the health professions--nursing, dental hygiene, medical imaging and others--with a solid foundation in the structure and function of the human body. This semester's topics include the lymphatic system, the digestive system, the respiratory system, the cardiovascular system, metabolism, the urinary system, fluid and acid-base balance, and the reproductive systems. Since the course builds on many topics introduced in Biology 203, a passing grade in Biology 203 is a necessary prerequisite to this course.

By the end of the semester successful students will be able to

- (1) recognize and use the specialized vocabulary of the human organ systems named above;
- (2) understand and apply the principles and processes through which the body maintains life and health ("homeostasis")
- (3) use critical thinking skills to predict how structure and function interact to maintain homeostasis.

Required Course Materials

McGraw-Hill's online *Connect Plus with Learn Smart*. The access code for *Connect Plus* also gives you access to the digital text.

Anatomy & Physiology Biology 204 Lecture Notebook, Laboratory Guide & Photo Atlas, 3rd ed., by Karen K. McLellan, M.S. and Marilyn M. Shannon, M.A. (Fountainhead Press, 2016)

Course Textbook

Seeley's Essentials of Anatomy and Physiology, 9th ed., by VanPutte, Regan, and Russo (McGraw-Hill, 2015). This is the hard copy of the textbook, which you may or may not wish to purchase.

Attendance

Attendance is expected in lab and lecture. Even when the reason for not attending a class is very necessary, missing even one day of lecture or lab makes it difficult for you to keep up. If you know in advance that you must miss a class, you may be able to make it up during a different time that week by permission of the instructor.

Academic Honesty

A conscientious effort will be made by your course coordinator and your lab instructor to ensure that all tests are carefully proctored and that your grade will not be exceeded by someone who chooses to act dishonestly in Biology 204. Academic dishonesty, whether giving or receiving test information during a test, will result in a failing grade for the entire course. The Student Handbook also states that when such events occur, the students' major department chair and the dean of their school must receive a letter concerning the incident, and they may choose to drop the students from their program.

Assessments

Four required lecture tests (including the final exam), one optional semi-cumulative lecture test, two lab practical tests, eight lab quizzes/experiment and fourteen online lecture assignments are scheduled throughout the semester.

>Required lecture tests (4): Each of the four required lecture tests is a one-hour, 50-item, multiple-choice test. Each will test mainly physiology, consisting of (1) factual information; (2) your ability to understand physiological concepts and processes; and (3) your ability to apply factual information and physiological concepts using critical thinking skills. The final exam, Lecture Test 4, is not cumulative.

>Optional semi-cumulative lecture test: An optional semi-cumulative lecture test, over the same material as covered on Lecture Tests 1, 2, and 3, will be offered to students who wish to replace their lowest current lecture test score with a higher score from this cumulative test. (If this test's score is lower than the first three, it will not be used as part of your accumulated points.) However, the optional test cannot not replace the score from the required, non-cumulative final exam. There is no make-up for this optional test.

>Online lecture homework (SmartBook modules): Fourteen online lecture homework assignments will come from SmartBook, which you will complete in McGraw-Hill's online Connect. Each homework assignment is worth 5 points, and the lowest of seven assignments will be dropped for each half of the course. The assignments are designed to assist you with the current lecture material. You can access these assignments via Blackboard by clicking on the McGraw-Hill Campus button and then clicking on the Connect button. The assignments are adaptive and will help you master the concepts covered in the text. They must be completed prior to the posted due date.

If you need technical help with Connect, contact McGraw-Hill's Help Center at 800 331-5094 (much faster than using their website). A McGraw-Hill agent will assist you. At the completion of the call they will share a case number with you. Please write down that case number. If for some reason you are unsatisfied with their support or feel that you need further technical assistance, you will need to share that case number with me. I will only answer your Connect technical questions if you have a case number showing that you have made the effort to work through the proper channels.

>Lab practicals: The two 60-item practicals will test your ability to recognize and name anatomical structures. No lecture material will be covered on these tests. The practicals require use of your "active" memory, as you will write the correct name of a structure, rather than just recognize the name, as on a multiple-choice test.

>Lab quizzes/experiments: Eight lab quizzes and two lab experiments, worth 8 points each, are scheduled during the semester, five before the first practical and five after the first practical. Most will cover material from the previous week, and like the lab practicals, you will be asked to recall and write the names of anatomical structures exhibited in lab. The lab experiments will be graded based on participation and lab reports completed in class.

Grades and Grading

Each lecture test, lab practical, quiz and online homework assignment will be graded on a 90-80-70-60 basis, with 90% the lowest A, 80% the lowest B, 70% the lowest C, and 60% the lowest D. The possibility of lowering this scale a bit exists but should not be assumed.

>Lecture Tests: Raw scores from the lecture tests and lab practicals will be converted to percentages, and the percentage scores will then be used as points to be accumulated to earn the final grade in the course

>Online Lecture Homework: Each of the 14 assignment is worth 5 points. Your lowest homework grade from each half of the semester will be dropped, so that you can gain a total of 60 points from the homework assignments. These homework points are not bonus points.

>Lab quizzes/experiments: Each of the 10 lab quizzes/experiments is worth 8 points. Your lowest lab quiz from each half of the semester will be dropped (*but you may not drop the score from the lab experiments*), so that you can gain a total of 64 points from the lab quizzes/experiments. These quiz points are not bonus points.

If you have taken Biology 203 during Fall, 2017, you will notice that Biology 204 is set up in a similar way relative to lecture tests, lab practicals, lab quizzes, homework, and optional test:

| | |
|-------------------------------|-----------|
| Lecture Test 1 | 100 |
| Lecture Test 2 | 100 |
| Lecture Test 3 | 100 |
| Lecture Test 4 (Final Exam) | 100 |
| Lab Practical 1 | 100 |
| Lab Practical 2 | 100 |
| Online Lecture Homework Set 1 | 30 |
| Online Lecture Homework Set 2 | 30 |
| Lab Quiz/Expt. Set 1 | 32 |
| Lab Quiz/Expt. Set 2 | <u>32</u> |
| Total possible points | 724 |

>Final grade assignment: At the end of the semester a 90-80-70-60 scale of the cumulative points will be used to determine the final grade. That is, 652 points will ensure an A; 579 points a B; 507 a C; and 434 a D. (The scale could possibly be lowered a bit, but that should not be assumed.) A consistent performance throughout the semester will result in a better grade than a "miracle finish" at the end of the semester, since no greater weight is put on points gained late in the semester rather than early. Because the grading scale and current cumulative point totals are updated after each test, *you will always know what your current grade is in this course*. You will be able to view your test scores and cumulative points on Blackboard, and will see the current grading scale on users.ipfw.edu/shannon, the course website.

3-Digit ID Number and Assigned Seat Number for Lecture Tests and Lab Practicals

You will be assigned your own 3-digit ID number for use on every test throughout this course. All your lecture grades will be transferred by computer to a master grading program. Your 3-digit ID number, not your name, will be used by the computer to post your grades. Therefore, two practices are essential to your grade:

>First, know your number and use it in on every machine-gradable test answer sheet. (It will be given to you in lab during the second lab class.)

>Second, always check your score on Blackboard to make sure your score is correctly posted. Let me know immediately if your score is incorrect or missing.

>Record your 3-digit ID number here: .

A free point, worth 2% on each lecture test, will be given automatically to all students whose lecture tests do not require individual handling to correct technical errors.

At the time you receive your 3-digit I.D. number, you will also receive a seat number consisting of a letter followed by a number, which is assigned for taking all lecture tests.

>Record your seat number here: .

Make-up Tests and Homework

If you must miss any lecture test or lab practical for any reason, and if you wish to take a make-up, you must leave me an e-mail (shannon@ipfw.edu) or a voice-mail message (260 481-6314) *before* the test is missed. More than one make-up test will require documentation for both absences, and approval by the Biology Department Chair. There is no make-up for the Optional Lecture Test.

>Lecture test make-ups: The large number of students makes individually scheduled make-up tests impossible. Therefore, make-ups for all missed lecture tests (except for the Optional Lecture Test, for which there is no make-up) will be given on **Tuesday or Thursday, April 17 or 19**, during office hours. Make-up lecture tests may consist of a completely different format than the regular tests-- a mix of multiple choice, fill-ins, labeling, and short essay questions.

>Lab practical make-up policy: Due to set-up space and time required to provide a lab practical, no make-ups are available. Instead, an incomplete grade to be completed during the next time the course is offered (Summer or Fall, 2018) is the only option offered for make-up of lab practicals.

>Lab quiz policy: No make-ups are permitted for lab quizzes, even in another lab class during the same week. Any lab quiz not taken will result in a score of 0. However, your lowest lab quiz score for each half of the semester will be dropped.

>Online lecture homework: No late assignments will be accepted, unless you have a case number due to a technical problem from McGraw-Hill to confirm your inability to complete the assignment. However, your lowest homework score from each half of the semester will be dropped.

Last Day to Withdraw with a Grade of W--Friday, March 16

After this date, only a serious, documented reason, approved by the dean, will justify a grade of W. After this date, you cannot drop due to poor performance. This is a university-wide policy to which the instructor cannot make exception.

Out-of-Class Resources

Below is a list of resources put in place to help you achieve success in Biology 204.

>Biology 203-204 Website-- "The Green Screen," available through Blackboard or users.ipfw.edu/shannon. This website contains course materials including the syllabus, the lecture PowerPoint illustrations, Lecture Study Organizers, photographs of lab models, and the textbook's Online Learning Center. The "News You Can Use" section is updated often, and communicates times, dates, places, changes, and corrections as they occur. The current grading scale is also available here.

>Biology 204 Lecture Study Organizers: Available on the Biology 203-204 website, these summarize what you need to learn from each chapter in the text. They note useful reading, chapter questions, useful illustrations, and practice questions.

> Seeley's Essentials of Anatomy and Physiology Online Learning Center: www.mhhe.com/seeleyess8. The Student Edition allows access to a wealth of learning tools for each chapter, such as animations and downloadable chapter study guides.

>Practice lecture test questions: A handout with sample lecture test questions will be available before each lecture test. While these will not be the same as the actual test questions, they will help you know what to expect on the coming test.

>Practice lab practical questions: Several practice practical questions will be set up during the week before each lab practical so that you may prepare for these tests.

>Open lab/lecture help: Weekly "Open Labs," giving you time to work in the lab outside of your scheduled lab, will be held at times and locations to be announced (see users.ipfw.edu/shannon). You can also get lecture help there.

>Lecture help/ lab models: Lecture help sessions, conducted by an embedded lecture tutor who has successfully completed this course and is attending it again, will be held at times and locations to be announced (see users.ipfw.edu/shannon). A few lab models will be available for students who wish to use them outside of the lab.

>Tutoring: Tutoring is available on campus. It may be scheduled through www.ipfw.edu/casa; or 481-5419.

Weather Cancellations

Weather cancellations are made by IPFW's administrators, not by course instructors. See the university website (www.ipfw.edu) for weather-related announcements as they occur. Any canceled lecture test will be held during the next class meeting; any lecture test scheduled after a cancellation will be held as usual, but will not cover any missed material. Check the Biology 203/204 website at users.ipfw.edu/shannon if you are concerned about test scheduling or test content after a weather cancellation.

University Disability Policy

If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the director of Services for Students with Disabilities (Walb, Room 113, phone 481-6658), as soon as possible to work out the details. Once the director has provided you with certification attesting to your need for modification, bring the letter to your instructors.

LECTURE SCHEDULE FOR ALL BIOLOGY 204 LECTURE SECTIONS
Tuesday and Thursday 1:30-2:45 p.m., LA 159; or
Tuesday and Thursday 4:30-5:45 p.m.; or
Friday 5:00-7:45 p.m., LA 159

This schedule includes times for lectures other than your scheduled ones so that you may attend another lecture if you need to miss your own. You do not need to ask my permission to attend another lecture; however, you must take your lecture tests during your scheduled time.

Tuesday-Thursday, January 9 and 11; or
 Friday evening, January 12:

Lymphatic System 1 and 2. Text Chapter 14

Lymphatic System online homework due Tuesday, January 16
 [Weekend Lymphatic System homework due Thursday, January 18]

Tuesday-Thursday, January 16 and 18; or
 Friday evening, January 19:

Digestive System 1 and 2. Text Chapter 16

Digestive System 1 online homework due Monday, January 22
 [Weekend Digestive System 1 homework due Thursday, January 25]

Tuesday-Thursday, January 23 and 25; or
 Friday evening, January 26:

Digestive System 3; Completion and review. Text Chapter 16

Digestive System 2 online homework due Friday, January 26
 [Weekend Digestive System 2 homework due Tuesday, January 30]

Tuesday-Thursday, January 30 and February 1; or
 Friday evening, February 2:

Respiratory System 1. Text Chapter 15

LECTURE TEST 1 over Lymphatic and Digestive Systems.

(Test will be held on **Thursday** for Tuesday-Thursday students and during the first hour of lecture for Friday evening students.)

Respiratory System 1 online homework due Wednesday, February 7
 [Weekend Respiratory System 1 homework due Monday, February 12]

Tuesday-Thursday, February 6 and 8; or
 Friday evening, February 9:

Respiratory System 2 and 3. Text Chapter 15

Respiratory System 2 online homework due Monday, February 12
 [Weekend Respiratory 2 homework due Thursday, February 15]

Tuesday-Thursday, February 13 and 15; or
 Friday evening, February 16:

Heart 1 and 2. Text Chapter 12

Heart 1 online homework due Friday, February 16
 [Weekend Heart 1 online homework due Tuesday, February 20]

Tuesday-Thursday, February 20 and 22; or
Friday evening, February 23:

Heart 3/Cardiovascular System 1; Completion and Review. Text Chapters 12-13.

Heart 2 online homework due Friday, February 23

[Weekend Heart 2 homework due Tuesday, February 27]

Tuesday-Thursday, February 27 and March 1; or
Friday evening, March 2:

LECTURE TEST 2 over Respiratory System, Heart, and Cardiovascular System 1

(Test will be held on **Tuesday** for Tuesday-Thursday students and during the first hour of lecture for Friday evening students.)

Thursday and Friday lecture: Cardiovascular 2. Text Chapter 13

SPRING BREAK MARCH 5-9

Tuesday-Thursday, March 13 and 15; or
Friday evening, March 16:

Cardiovascular System 3. Text Chapter 13

Metabolism 1. Text Chapter 17

Cardiovascular System online homework due Friday, March 16

[Weekend Cardiovascular homework due Wednesday, March 21]

Tuesday-Thursday, March 20 and 22; or
Friday evening, March 23:

Metabolism 2 and 3. Text Chapter 17

Metabolism online homework due Monday, March 26

[Weekend Metabolism homework due Wednesday, March 28]

WEEKEND CLASSES CANCELED FOR EASTER WEEKEND, MARCH 30

Tuesday-Thursday, March 27 and 29; or
Friday evening, April 6:

Urinary 1 and Urinary 2/Fluid Balance 1. Text Chapter 18

Urinary System online homework due Monday, April 2

[Weekend Urinary System homework due Wednesday, April 11]

Tuesday-Thursday, April 3 and 5; or
Friday evening, April 13:

Tuesday Lecture: Completion and Review

LECTURE TEST 3 over Cardiovascular System 2-3, Metabolism, Urinary, and Blood Pressure information from lab

Friday Lecture: Fluid Balance 2. Text Chapter 18

(Test 3 will be held on **Thursday** for Tuesday-Thursday students, and during the first hour of lecture for Friday evening students.)

Tuesday-Thursday, April 10 and 12:

Fluid Balance 2. Text Chapter 18

Acid-Base Balance. Text Chapter 18

Fluid and Acid-Base Balance online homework due Wednesday, April 18

[Weekend Fluid and Acid-Base Balance due Monday, April 23]

Tuesday, April 17 and Thursday, April 19: Make-up lecture tests. Students who have *previously received permission* to take a make-up test should already have made arrangements to do so during regularly scheduled office hours.

Tuesday-Thursday, April 17 and 19:

Male Reproduction. Text Chapter 19

Optional Cumulative Test over Test 1-3 material, to replace Lecture Test 1, 2, or 3 score. (Thursday, during regularly scheduled lecture time.)

Male Reproductive System online homework due Friday, April 20

Friday, April 20:

Acid-Base Balance. Text Chapter 18

Male Reproduction. Text Chapter 19

Optional Cumulative Test over Test 1-3 material to replace Lecture Test 1, 2, or 3 score, offered before or after lecture time.

[Weekend: Male Reproductive System online homework due Tuesday, April 24]

Tuesday-Thursday, April 24 and 26, or

Friday, April 27:

Female Reproduction. Text Chapter 19

Development. Text Chapter 20

Female Reproduction online homework due Friday, April 27

[Weekend Female Reproductive System due Monday, April 30]

Development online homework due Monday, April 30

[Weekend Development online homework due Tuesday, May 1]

REQUIRED FINAL EXAM:

Subject to confirmation by the Registrar's office for time and location: All Tuesday-Thursday afternoon and evening students are scheduled to take the final exam, Lecture Test 4, on **Thursday, May 3** in LA 159 at 1:30 p.m. or 4:30 p.m.; same time as you usually meet.

Friday evening students are scheduled to take the final at **5:00 p.m. Friday, May 4**, in LA 159. Lecture Test 4 covers **Fluid and Acid-Base Balance, Reproduction, and Development**. It is not cumulative.

LABORATORY SCHEDULE FOR ALL BIOLOGY 204 STUDENTS
All labs are held in SB 369

University policy prohibits students from attending labs for which they are not registered, unless they have the express permission of the laboratory instructor. In case you must miss a lab, this information can be used to help you arrange for a make-up, or to obtain permission for extra time in lab. Missed lab quizzes may not be taken in another lab under any circumstances, but one quiz grade from each half of the semester will be dropped.

| Date | Topic | Assignment in Lab Guide |
|--------------------|---|--------------------------------|
| Jan. 9-12 | Digestive System | pages 1-8 |
| Jan. 16-19 | Body Cavities and Serous Membranes; Lymphatic System Quiz 1 over Digestive system (8 points) | pages 9-16 |
| Jan. 23-26 | Respiratory System Quiz 2 over Body cavities and serous membranes and lymphatic system (8 points) | pages 17-27 |
| Jan. 30- Feb. 2 | Human Heart Quiz 3 over respiratory system (8 points) | pages 28-34 |
| Feb. 6-9 | Dissection of a Sheep Heart Quiz 4 over human heart models (8 points) | pages 35-45 |
| Feb. 13-16 | Inflation Dynamics of a Preserved Pork Lung; Review Quiz 5 over sheep heart and in-class pork lung demonstration | Supplement |
| Feb. 20-23 | LAB PRACTICAL 1 Any and all boldfaced material from the above labs will be covered on a write-in test using mostly models, sheep hearts, and pork lungs. This test will have 60 items and will last 55 minutes. | |
| Feb. 27- Mar. 2 | Diffusion, Osmosis, and Filtration Lab participation and report is worth 8 points as "Quiz 6" <i>It may not be dropped.</i> Tested on Lecture Test 3. | pages 61-69 |
| Mar. 5-9 | SPRING BREAK | |
| Mar. 13-16 | Urinary System Blood Pressure Measurement* (*Tested on Lecture Test 3.) No quiz | pages 50-60 |

Mar. 20-23 **Male Reproductive System;**
Female Reproductive System pages 70-76
 Quiz 7 over Urinary System (8 points)

No class for Weekend students Friday, March 30, due to Easter Weekend

Mar. 27-29 **Blood Vessels: Arteries** pages 77-80
 Friday, April 6 Quiz 8 over Male/Female Reproductive Systems
 (8 points)

Apr. 3-5 **Blood Vessels: Veins;** pages 81-84;
 Friday, April 13 **Fetal Circulation** 89-94
 No quiz

Apr. 10-12 **Heart Review, Overall Review**
 Friday, April 20 Quiz 9 over Arteries, Veins, and Fetal Circulation

April 17-20 **Principles of Genetics** Supplement
 Friday included Lab participation and report is worth 8 points as "Quiz 10."
It may not be dropped. Tested on Lecture Test 4 (final).

Apr. 24-27 **LAB PRACTICAL 2** Any and all boldfaced material, including
 Urinary System, Male and Female Reproductive System, Blood
 Vessels, Fetal Circulation, and heart models and sheep hearts will be
 covered on a write-in test using mostly models. (Blood Pressure
 Measurement, Diffusion, Osmosis, and Filtration lab, and Principles
 of Genetics lab will not be on this practical.) This practical will have
 60 items and will last 55 minutes.

Biology 204 Laboratory Class Times and Instructors

All labs are held in SB 369.

Time

| | |
|---------------------------|--------------------|
| Tuesday 9:00-10:50 a.m. | Emily Mettler |
| Tuesday 11:00-12:50 p.m. | Emily Mettler |
| Tuesday 3:00-4:50 p.m. | Reine Sovey |
| Tuesday 6:00-7:50 p.m. | Jonathan Danielson |
| Thursday 9:00-10:50 | Reine Sovey |
| Thursday 11:00-12:50 p.m. | Tyler Scoville |
| Thursday 2:30-4:20 p.m. | Cecelia Smith |
| Thursday 6:00-7:50 p.m. | Tyler Scoville |
| Friday 3:00-4:50 p.m. | Laura Steele |
| Friday 8:00-9:50 p.m. | Marilyn Shannon |