



Human Physiology BIOL-22 Spring 2023

Sections: 51027, 51028 (Hybrid)

Syllabus & Course Information

Instructor Information

Name: Karen W. Walters, Ph.D.

E-mail: karen.walters@reedleycollege.edu (message through Canvas inbox).

Office: RC Life Sciences 5

Student hours: On Campus or by appointment

- Monday, Thursday 10-12 LS5/Zoom, Wednesday 4:30-5:30 LS5

Zoom: [Dr. Walters Zoom](#)

Course Meeting Times & Rooms

Lecture: 100% Online, Asynchronous. Lecture material is on Canvas. You are responsible for reading the assigned textbook material, watching online lectures, and completing quizzes and homework assignments. Schedule a minimum of 8 hours/wk.

Laboratory: On Campus Life Science 11 (LS11)

- **Section 51027: Monday 12:00 PM - 2:50 PM**
- **Section 51028: Wednesday 6:00 PM - 8:50 PM**
- **Attendance is required****

**** You must attend lab in-person to receive credit for lab activities.**

Important Dates Spring 2023

- **January 9** Start of Spring 2023 semester
- January 16 (M) Holiday-MLK Day Monday-no classes
- January 20 Last Day to Drop-full refund
- January 27 Last Day To Drop with "W"
- February 20 (M) Holiday-President's Day no classes
- **March 10** Last Day to Drop-grades assigned after this
- April 3-7 Spring Break-Good Friday/Easter no classes
- May 15-19 Final Exams
- **May 19th** End of Spring 2023 Semester

Exam Dates**

- **Exam I Week 5 in Lab:** Monday (2/6), Wednesday (2/8)
- **Exam II Week 8 in Lab:** Monday (2/27), Wednesday (3/1)
- **Exam III Week 12 in Lab:** Monday (3/27), Wednesday (3/29)
- **Exam IV Week 17 in Lab:** Monday (5/8), Wednesday (5/10)
- **Final Exam Week 18:** Cumulative-Time/Location TBD

*** Exam schedule may be adjusted as needed to accommodate the hybrid environment. All changes will be announced and posted on Canvas in advance.*

Inclusion Statement-Building a Community of Learning

In this class, we will work together to develop a **learning community** that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, socioeconomic background, and myriad other social identities and life experiences. The goal of inclusiveness, in a diverse community, is to **encourage and appreciate expressions of different ideas, opinions, and beliefs**, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.

A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication. Both speaking up and listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community. Our core commitment shapes our core expectation for behavior inside and outside of the classroom.

In this course, all students are expected to treat each other and the instructor with respect and courtesy. Racism, intolerance, and bullying will NOT be tolerated in this course. Any disrespectful, intolerant, racist, or bullying behavior will result in disciplinary action.

Online communication: Please be respectful in all online communication including emails, discussion boards. Refer to the [course catalog](#) policy on appropriate online communications (netiquette) for all communication in this course.

Required Materials and Technology

Lecture Materials

- **Textbook:** [Anatomy & Physiology 2e](#). This OpenStax text is available free online but is also incorporated into our Canvas course. Text and additional lecture materials such as Power points, videos, or reading assignments will be provided in the Canvas modules.
- **Recommended text:** [Human Anatomy and Physiology](#) (2nd ed.) by Amerman, Pearson. This is an excellent reference textbook for both Anatomy and Physiology, especially if you are planning a career in health care. This course will closely follow the material in this text. Alternatives to this text include any edition of Tortora and Derrickson's [Principles of Anatomy and Physiology](#), Wiley.

Lab Materials

- **Lab Manual** (no cost): Lab materials for this course will be provided in the Canvas modules at no cost to students.
- **Recommended Coloring Book and colored pencils.** I do recommend that you invest in your learning with a physiology coloring book (~\$24). [Physiology Coloring Book](#) (2nd Ed.) by Kapit, Benjamin Cummings. [You may purchase this from Amazon](#)

Technology

To complete this course, you must have use of a **computer with internet access**. Laptops and tablets will work; please do not plan to do this class on your phone. Some of the links and apps we are using do not work well or at all on phones. If you do not have access to a computer, you may check one out from the library.

- Please [contact technology services to request a laptop](#).
- Additional helpful links and apps: Canvas app for your phone [Downloading instructions for the Canvas app](#)
- **Internet browser:** **Google Chrome or Firefox** will run all of the assignments required for the course. Safari does not work well for Canvas quizzes (images do not display), or for many virtual platforms.
- **Word Processing and Slide Presentations.** In this course there may be written assignments and slide presentations, I recommend Microsoft Word and Powerpoint. You may also use an alternative version of these platforms if you like (e.g. Google docs and Google slides). If you have a Mac and are using Pages, make sure you convert the file to a pdf before turning it in (see file types below).

- **File type restrictions:** Throughout the semester you will be uploading many types of files, including documents and images. However there are few file types from Macs or iPhones that will not work on most computers and should not be uploaded as assignment submissions. These include: ".pages", "HEIC" and "HEIF". Pages files are made from the pages applications on Mac computers and iPads; these can easily be converted to a pdf or word document. HEIC and HEIF are image files from iPhones and iPads and are Mac specific. See links below for information on how to convert these file types to more universal formats.
- [How to convert a pages document to a pdf or word document](#)
 - [How to convert a HEIC image file to a jpeg](#)
 - [How to convert a HEIF image file to a jpeg](#)

Accessibility

Every effort will be made to ensure that the content of this course is accessible to all students. Video content will be closed-captioned, or transcriptions will be available, documents and online pages will meet accessibility requirements.

Course Description and Learning Outcomes

Biology 22, **Human Physiology**, is a 5-unit biology course with 4 lecture hours and 3 lab hours per week. This course provides a basic understanding and working knowledge of the human body with emphasis on the functions of each major system. The interrelationship between human systems and the relationship between structure and function of each system will be studied at several levels (biochemical, cellular, organ levels).

PREREQUISITES: Biology 20 and Chemistry 1A or 3A. (A,CSU-GE, UC, I)

Student Learning Outcomes (SLO)

Upon completion of this course, students will be able to:

- **BIOL-22 SLO1:** Describe the function of each human organ and organ system.
- **BIOL-22 SLO2:** Explain the cell membrane potential and how it becomes an action potential.
- **BIOL-22 SLO3:** Describe the cell-to-cell communication.
- **BIOL-22 SLO4:** Demonstrate the use of the electrocardiograph and identify the components of a normal reading.
- **BIOL-22 SLO5:** describe the interactions of the respiratory and excretory systems.
- **BIOL-22 SLO6:** Demonstrate critical thinking in the evaluation of homeostasis.

Course Objectives

In the process of completing this course, students will

1. Assess the results of laboratory experiments and demonstrations.
2. Illustrate the cell membrane, its electrical activity and the conduction of action potentials.
3. Compare the autonomic system and the endocrine system.
4. Analyze the cardiovascular system by performing an EKG and monitoring blood pressure.
5. Evaluate lung and kidney function using computer simulations.
6. Demonstrate knowledge of metabolic and physiological disorders of the major organ systems

Course Outline-Topics

- A. The Study of Body Functions
- B. Chemical Composition of the Body
- C. Cell Structure and Genetic Control
- D. Enzymes and Energy
- E. Cell Respiration and Metabolism
- F. Interactions Between Cells and the Extracellular Environment
- G. The Nervous System: Neurons and Synapses
- H. The Central Nervous System
- I. The Autonomic Nervous System
- J. Sensory Physiology
- K. Endocrine Glands: Secretion and Action of Hormones
- L. Muscle: Mechanisms of Contraction and Neural Control
- M. Heart and Circulation
- N. Cardiac Output, Blood Flow, and Blood Pressure
- O. The Immune System
- P. Respiratory Physiology
- Q. Physiology of the Kidneys
- R. The Digestive System
- S. Regulation of Metabolism
- T. Reproduction
- U. Bone regulation and clinical applications

Lab Outline

- A. Homeostasis and Negative Feedback
- B. Colorimetry: Measurement of Plasma Glucose, Cholesterol and Protein

- C. Diffusion, Osmosis, and Tonicity
- D. Cell Transport Mechanisms and Permeability
- E Endocrine System Physiology
- F. Neurophysiology of Nerves
- G. Cutaneous Receptors
- H. Skeletal Muscle Physiology
- I. Cardiovascular Physiology
- J. Cardiovascular Dynamics
- K. EKG Lab
- L. Blood Analysis
- M. Respiratory System Mechanics
- N. Renal System Physiology
- O. Acid/Base Balance
- P. Chemistry and Physiology of Digestion
- Q. Nutrition, metabolism and bone regulation
- R. Serological Testing
- S. Immunity

Assignments and Grading

Exams

- There will be **4 exams and a cumulative final exam** (see the Tentative Schedule and Canvas for exam dates). Exams may only be made up due to extreme circumstances, at the discretion of the instructor, if arranged with the instructor **before** the scheduled exam period (at least 48 hrs prior).
- Each exam will include new material covered in the corresponding unit. Exams will cover both **lecture and laboratory material** and will consist of multiple-choice, matching, fill in the blank, and short-answer/essay questions. Forming study groups and attending SI sessions is highly recommended.
- All exams will be given during scheduled **in-person** lab sessions. Exams will combine lecture and laboratory material.
- A **scantron** will be required 882E.

Lecture Evaluations

- **Chapter quizzes.** Lecture material will be assessed by weekly **Canvas quizzes** to measure understanding, mastery of the material and in preparation for the unit exam.

Lab Reports & Quizzes

- Each week you will complete 1 lab during the scheduled time (see the course schedule for details). There are 13 labs planned.
- Completed labs will be turned in digitally on Canvas.
- For each lab, take the associated online lab quiz to assess mastery.

Homework: Physiological Processes & Coloring

- Weekly homework will reinforce your learning and understanding of physiology.
- Completed diagrams/coloring will be turned in digitally on Canvas as a PDF file.

Grading Policy

Activity	Points	% of Grade	Breakdown
Exams (Lec/Lab)	500	50%	4 exams @125
Final Exam	100	10%	1 cumulative final @100 points
Lab Reports Quizzes	240	24%	12 @ 20 points (1 drop)
Lecture Assignments	100	10%	Reading Quizzes Homework
Case Studies	60	6%	4@15 points
Totals	1000	100%	

Grades will be posted on Canvas and will be updated regularly throughout the semester.

Letter grades will be based on percentages of total points earned:

90 – 100% = A

80 – 89% = B

70 – 79% = C

60 – 69% = D

59 – 0% = F

Course Policies

Communication

The best way to communicate with me is by **email**. I check email often and will respond within 24 hours during the week. If you do not receive a response within a day, assume I did not receive your communication- please resend the email. You may email through Canvas or directly. Please remember to include your name, ID, and the course. Canvas will do this automatically for you.

E-mail: karen.walters@reedleycollege.edu (message through Canvas inbox).

Office: RC Life Sciences 5

Student hours: On Campus or by appointment. I will be available on Zoom during M/TH office hours.

- Monday, Thursday 10-12 LS5/Zoom
- Wednesday 4:30-5:30 LS5

Zoom: [Dr. Walters Zoom](#)

Canvas - I will send **weekly announcements** and provide **feedback** on your submitted assignments. Canvas is our primary contact point for the course. You should be checking Canvas daily to keep current. I recommend that you set the notifications to alert you when announcements are posted. [How to reset notifications](#)

Attendance and Drop Policy

As with any class, regular attendance is a key to success! It is critical that you establish your intentions to remain enrolled in the class. During the first week, Complete the Getting Started module, review the lecture material and **attend lab**. Take advantage of opportunities to connect with the instructor and your peers.

- **Attendance is required** for all laboratories unless class is canceled or not meeting due to holiday schedules. Attendance will be taken during every class session.
- Attendance is **not graded** but your participation in class and lab will enhance your success and enjoyment of the course.
- Students **will be dropped from this course** if they do not attend the first in-person lab without prior notification to the instructor.

Review and Study Expectations

- **Study Expectations.** Consider the following statement as a general guideline for participation for this class: "It is usually expected that students will spend approximately 2-3 hours of study time outside of class for every one hour in class. Since this is a 5-unit class (7-8 hrs/week), **you should expect to study an average of at least 15-20 hours outside of class each week.** Some students may need more outside study time and some less. "

- **Review** and practice opportunities will be provided both during class time and in optional in-person or virtual (Zoom) sessions. Watch Canvas announcements for details.
- For **extra help**, please feel free to reach out. There are a number of resources to help you!
 - Student Hours with your instructor(s)
 - Tutorial Center: [Contact the Reedley tutorial center here](#)
 - Study groups-form one!

Late Work Policy

Exams will be given on the days/times posted. These exams will cover multiple chapters and overlap material presented in labs. There are **no make-up exams**, plan accordingly. I reserve the right to make exceptions under extenuating circumstances. You must notify me 48 hours **BEFORE** the exam.

Assignments are due on their due date. Assignments submitted late will not receive credit (*see note below*). **Your success in Physiology will be directly related to the time and effort you put in to complete the labs and course work.** Assignments will not be accepted for credit after the exam covering the material. For example, no assignments from weeks 1-4 will be accepted after Exam I.

Note: Life happens. I will allow 3 “late” assignments for the semester. You do not need to tell me why the assignment is late but, above rules still apply and if you use your 3 “get out of late jail” cards, all further late assignments are a “0”.

Assignment & Exam Feedback

I will make every effort to grade assignments promptly and give you meaningful feedback. A reasonable expectation is that assignments will be graded within 1 week of submission. Grades will be updated in Canvas as assignments are completed. Note-Canvas grading scale may not be accurate. Your course grade is determined as a % of the **total points** for the semester. If you have any questions or concerns about grading, please reach out to your instructor.

Technology Support Policy

For basic technology concerns related to the course, I am happy to help. For questions related to navigating Canvas, access to assignments, broken links and such, please send me an **email**. If you have any issues with Canvas that are not directly related to the materials in our course, or more technically challenging, then please contact Technology Services and Support.

American Disability Act

“If you have verified need for an academic accommodation or materials in alternate media (ie: Braille, large print, electronic text, etc.) per the American With Disabilities Act or Section 504 of the Rehabilitation act please contact your instructor as soon as possible”

Academic Dishonesty Policy

“**Students at Reedley College** are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, **each student is expected to exert an entirely honest effort in all academic endeavors.** Academic dishonesty in any form is a very serious offense and will incur serious consequences.”

Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another’s work, supplying one’s work to another, giving or receiving copies of examinations without an instructor’s permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

Plagiarism is a specific form of cheating: the use of another’s words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify contributors to work done in collaboration, submitting duplicated work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights.

Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on the particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents. For more information, contact the Vice President of Instruction and Student Services’ Office.”

Biol 22: Human Physiology Spring 23 Schedule-Hybrid*

DATES	Reading/Lectures- On Canvas	Laboratory-Attend in person
Unit 1: Week 1 1/9/23	Read OpenStax CH 1 Intro to A & P CH 2 Chemistry of Life (Amerman CH 1,2)	Safety Macromolecule Activity Lab 1 – Metrics & Biochemistry <i>Lab Report & quiz Due by Friday</i>
Holiday	MLK Day - No Classes Monday	
Week 2 1/16/23	Read OpenStax CH 3 Cell CH 23 Digestive System (Amerman CH 2, 22)	Lab 2 – Colorimetric Tests & Digestive Enzymes <i>Monday lab online option</i>
Week 3 1-23-23	Read OpenStax CH 24 Metabolism and Nutrition CH 4 Histology Tissues (Amerman CH 23, 4)	Lab 3: Cell Membrane transport
Week 4 1-30-23	Read CH 5 Integumentary System CH 6 Bone Tissue	Lab 4: Medical Imaging & Integumentary System Unit 1 Case Study Due
Week 5 2/6/23	Unit 1: Lecture/Lab Exam I Given during Lab Chapters 1-6, 23-24 (OpenStax) and Labs 1-4	
Unit 2: Week 6 2/13/23	Read OpenStax CH 10 Muscle Tissue <i>Review CH 11 Muscles</i> CH 12 Intro to Nervous System & Nervous Tissue (Amerman CH 10, 11)	Lab 5: Neuromuscular Physiology
Holiday	President's Day-No Classes Monday	
Week 7 2/20/23	Read OpenStax CH 13 The Central Nervous System Peripheral Nervous System CH 14 The Somatic NS (Amerman CH 12, 13)	Lab 6: Reflexes <i>Monday lab online option</i> Unit 2 Case Study Due
Week 8 2/27/23	Unit 2: Lecture/Lab Exam II Given during Lab Chapters 10-14 and Labs 5-6	

Unit 3: Week 9 3/6/23	Read OpenStax CH 15 Autonomic NS CH 17 Endocrine System (Amerman CH 14, 16)	Lab 7 – Endocrine System
Week 10 3/13/23	Read OpenStax CH 14 Sensory CH 16 The Neurologic Exam (Amerman CH 15)	Lab 8 – Senses
Week 11 3/20/23	Read OpenStax CH 18 Blood CH 21 Lymphatic System (Amerman 19, 20)	Lab 9 – Blood Cells, Lymphatic System, Cancer and AIDS Unit 3 Case Study Due
Week 12 3/27/23	Unit 3: Lecture/Lab Exam III Given during Lab Chapters 14 (sensory),15-18, 21 and Labs 7-9	
Spring Break April 3-7 (Good Friday- NO Classes)		
Unit 4: Week 13 4/10/23	Read OpenStax CH 19 Heart CH 20 Blood Vessels/circulation (Amerman 17, 18)	Lab 10 – Cardiac Cycle, Pulse, & Blood Pressure Vernier LabQuest 12-ECG
Week 14 4/17/23	Read OpenStax CH 22 Respiratory System (Amerman CH 21)	Lab 11 – Respiratory Volumes
Week 15 4/24/23	Read OpenStax CH 25 Urinary System CH 26 Fluid & Electrolyte Balance (Amerman 24, 25)	Lab 12 – Urinalysis
Week 16 5/1/23	Read OpenStax CH 27 The Reproductive System CH 28 Development and Inheritance (Amerman 26, 27)	Lab 13 – Reproductive Systems Unit 4 Case Study Due
Week 17 5/8/23	Unit 4: Lecture/Lab Exam IV- Given during Lab Chapters 19, 20,22, 25-28 and Labs 10-13	
Week 18 5/15/23	Final Exam - Cumulative	

**This schedule is tentative and subject to change. Check Canvas for most current information.*