CR COLLEGE OF THE REDWOODS

# Biology 7 Human Physiology

## Course Information

Semester & Year: Fall 2025
Course ID & Section #: BIOL-7-E9332 (059332)
Instructor's name: Ralph Reiner
Day/Time of required meetings:
Lectures: Tues Thurs 8:30 am-9:55 am SC 210
Lab Tues 10:05 am -1:15 pm SC 104
Location: Lecture: SC 210; Lab: SC 104
Course units: 4

## Instructor Contact Information

Office location: SC 104
Office hours: Thurs 10 am - noon or by appointment
Phone number: (Science Division Office: 707-476-4211);
Cell: 707-499-8619
CR mail: ralph-reiner@redwoods.edu
Home email: rreiner99@gmail.com

## Catalog Description

An organ system approach to the study of Human Physiology. Special emphasis is given to molecular and cellular mechanisms responsible for homeostasis. Labs include experiments on human subjects as well as computerized simulations of complex physiological processes. Note: This course is required for application to the nursing program.

## Course Student Learning Outcomes

1. Illustrate how the integration and regulation of organ systems affects the maintenance of homeostasis in the human body.

2. Relate the key functions of major organ systems with the cellular and molecular mechanisms that enable these functions.

3. Analyze examples of disease processes and relate them to aberrations of normal physiological functions.

4. Utilize the process of science to design and carry out physiological experiments, analyze resulting data, and relate results to physiological principles.

Bio 7 Text: Anatomy and Physiology: OpenStax College (free online Text)
Fall 2025 https://openstax.org/details/books/anatomy-and-physiology
Ralph Reiner

Tentative Lecture Schedule

| Date | | | Lecture | Sections in Text |
|---|---|---|---|---|
| Tues | **Aug** | 26 | Introduction; Homeostasis; Feedback; Cells | 1.5, 3.1, 3.6 |
| | | 28 | Neurons; Membrane Potentials | 12.2, 12.3 |
| Tues | **Sept** | 2 | Channels, Receptors, Nerve Impulse | 12.4 |
| | | 4 | Synapse: Function and Features | 12.5 |
| Tues | | 9 | Central Nervous System | 13.2 |
| | | 11 | Central Nervous System | 13.2 |
| Tues | | 16 | Autonomic Nervous System | 13.4, 15.1 |
| | | 18 | Autonomic Nervous System | 15.2 |
| Tues | | 23 | Drugs that affect the ANS | 15.4 |
| | | 25 | Endocrine System: Mechanism of Action | 17.1, 17.2 |
| Tues | | 30 | **1st Lecture Exam (through 9/23/25)** | |

| | | | | |
|---|---|---|---|---|
| | **Oct** | 2 | Hypothalamus; Pituitary; Thyroid | 17.3, 17.4 |
| Tues | | 7 | Thyroid; Parathyroid | 17.4, 17.5 |
| | | 9 | Parathyroid; Pancreas | 17.5, 17.9 |
| Tues | | 14 | Adrenal Glands | 17.6 |
| | | 16 | Muscle Function: Skeletal Muscle | 10.1, 10.2 |
| Tues | | 21 | Skeletal Muscle Contraction | 10.3 |
| | | 23 | Sources of Energy for Contraction | 10.6 |
| Tues | | 28 | Kidneys; Counter Current Mechanism | 25.1, 25.4 |
| | | 30 | **2nd Lecture Exam (through 10/23/25)** | |
| Tues | **Nov** | 4 | Urine Formation, etc | 25.5, 25.6, 25.9, 25.10, 26.2, 26.4 |
| | | 6 | Reproductive Physiology: Female Cycle | 27.2 |
| Tues | | 11 | **Holiday** | |
| | | 13 | Ovulation and Endometrial Changes | 27.2 |

**(over)**

| | | | | |
|---|---|---|---|---|
| Tues | **Nov** | 18 | Pregnancy, Parturition | 27.2 |
| | | 20 | Lactation | 27.2 |

**Nov 24 - 28 Thanksgiving Holiday**

| | | | | |
|---|---|---|---|---|
| Tues | **Dec** | 2 | Respiratory Physiology | 22.4 |
| | | 4 | Hemoglobin; $O_2$ and $CO_2$ Transport | 22.5, 22.6 |
| Tues | **Dec** | 9 | Heart; Blood; Hemoglobin | 19.2, 19.4 |
| | | 11 | Hemostasis; Circulation | 18.5 |

**Final Exam: Tuesday Dec 16, 2025 8:30-10:30 am**

Bio 7 Lab Sheets posted in Canvas in the Modules for each Week
Fall 2025
R. Reiner Tentative Lab Schedule

| Date | | | Lab Topic |
|---|---|---|---|
| Tues | **Aug** | 26 | Buffers |
| Tues | **Sept** | 2 | Osmosis and Cell membrane Integrity |
| Tues | | 9 | Cutaneous Receptors and Somatic Reflexes |
| Tues | | 16 | Selected Cranial Nerve Function |
| Tues | | 23 | Eye tests |
| Tues | | 30 | Ear: Hearing, Equilibrium; plus Taste |
| Tues | **Oct** | 7 | EKG (ECG); Heart Sounds; Blood Pressure |
| Tues | | 14 | Spirometry; Peak Flow and FEVt; $CO_2$ Production |
| Tues | | 21 | The Kidney and Homeostasis |
| Tues | | 28 | Data Analysis of "The Kidney and Homeostasis" |
| Tues | **Nov** | 4 | Urine: Composition and Tests |
| Tues | | 11 | **Holiday** |
| Tues | | 18 | Review for Lab Exam |
| | | **Nov 24 – 28, 2025** | **Thanksgiving Holiday** |
| Tues | **Dec** | 2 | **Lab Exam** |
| Tues | | 9 | Review for Lecture Exam |

Bio 7 Human Physiology R. Reiner

## General Information

This course is designed to provide students, particularly students of the health professions, with an introduction to Human Physiology. Included is the study of the function of all the organ systems that make up the human body. Special emphasis is given to the role of each system in maintaining homeostasis.

Structure of the Course:

Four Semester Units of Credit consisting of three (+) hours of lecture per week and one three-hour laboratory per week.

Fall Semester 2025

| | | |
|---|---|---|
| Lectures | Tu Th 8:30 am – 9:55 am | SC 210 |
| Lab | Tu 10:05 am - 1:15 pm | SC 104 |

Prerequisites: Satisfactory completion of Biology 1 Introductory Biology (or equivalent), Biology 6 Human Anatomy (or equivalent), and Chemistry 2 (or equivalent)

Textbook and Laboratory Manual:

Text: Human Anatomy and Physiology from OpenStax (a free online text)

The textbook for this class is available for free online, in web view and PDF format! You can also purchase a print version, if you prefer, via the campus bookstore or from OpenStax on Amazon.com

Link to the text: https://openstax.org/details/books/anatomy-and-physiology

The OpenStax text is heavy on the Anatomy and lighter on the Physiology. If you want a different Physiology textbook (preferably one titled Human Physiology), try Amazon or other websites that sell used texts. You don't need an expensive text and there are many decent used ones available.

Lab Text: there is no official lab manual. All the lab sheets necessary for the lab exercises will be posted on Canvas and should be printed as needed for the lab each week.

Course Evaluation and Grading:

Two lecture Exams @ 100 points each = 200 points total
One lecture final exam = 100 points = 100 points total
Laboratory write-ups = 100 % points total
One laboratory exam = 100 points total

(Note: The final course grade depends on the total points earned, as stated below. However, all the above grading criteria must be completed for a passing grade in the course. Thus, if one of the exams is missed or at least 75% of the laboratory write-ups are not turned in, a satisfactory evaluation cannot be given and the student will not receive a passing grade in the course.)

Lecture exams will cover lecture material and will consist mainly of essay questions. Each lab write-up will be discussed at the beginning of the lab. The lab exam will include written questions relating to experiments performed in the lab and the **significance** of the experiments. **Be sure to contact the instructor in advance if there is any problem with respect to attendance in the lab periods or attendance when there is an exam.**

Email: school: ralph-reiner@redwoods.edu
home: rreiner99@gmail.com
Phone: school: 707-476-4211 (Science Office) (but it is better to call or text me on my cell phone)
cell phone: 707-499-8619

Final course grades are based on the percentage of the total possible points earned. Percentages for the respective letter grades are as follows:

A = 93-100 %, A- = 90-92 %, B+ = 88-89 %, B = 83-87 %,
B- = 80-82 %, C+ = 78-79 %, C = 70-77 %, D = 60-69 %, F < 60%

Academic Integrity: Any student observed cheating will receive a zero grade for that assignment.

Office Hours:

I can meet for office hours in the lab: after the lectures on Thursday or after the labs on Tuesdays. Other times can be arranged if necessary.

If you have a disability or believe you might benefit from disability related services and may need accommodations, please see me or contact Disabled Students Programs and Services. Contact DSPS for requests for alternative media.

## Emergency Procedures

Please review the campus evacuation sites, including the closest site to this classroom (posted by the exit of each room) and access www.redwoods.edu/safety.asp for information on campus Emergency Procedures.

During an evacuation:

· Be aware of all marked exits from your area and building. Know the routes from your work area to the nearest exits.
· Once outside, move to the nearest evacuation point outside your building.
· Keep streets and walkways clear for emergency vehicles and personnel.
· Do not leave campus, unless it has been deemed safe by the Incident Commander or campus authorities. (Be aware that CR's lower parking lot and 101 frontage road are within the Tsunami Zone).

RAVE - College of the Redwoods has implemented an emergency alert system. Everyone is entered already to receive a message at their CR email address. In the event of an emergency on campus, you can also elect to receive an alert through your personal email, and/or phones at your home, office, and cell. This emergency alert system will be available to all students, staff, and other interested parties.

Registration is necessary in order to receive emergency alerts. Please go to https://www.GetRave.com/login/Redwoods and use the "Register" button on the top right portion of the registration page to create an account. During the registration process you can elect to add additional information, such as office phone, home phone, cell phone, and personal email. Please use your CR email address as your primary Registration Email. Your CR email address ends with "redwoods.edu."

# Educational Accessibility and Support

College of the Redwoods is committed to providing reasonable accommodations for qualified students who could benefit from additional educational support and services. You may qualify if you have a physical, mental, sensory, or intellectual condition which causes you to struggle academically, including but not limited to:

- Mental health conditions such as depression, anxiety, PTSD, or bipolar disorder
- Common ailments such as arthritis, asthma, diabetes, autoimmune disorders, and diseases
- Temporary impairments such as a broken bone, recovery from significant surgery, or a pregnancy-related disability
- Neurodevelopmental disorders such as a learning disability, intellectual disability, autism, acquired brain injury, or ADHD
- Vision, hearing, or mobility conditions

Available services include extended test time, quiet testing environments, academic assistance and tutoring through the LIGHT Center, counseling and advising, alternate formats of course materials (e.g., audio books, braille, E-texts), assistive technology, learning disability assessments, approval for personal attendants, interpreters, priority registration, on-campus transportation, adaptive physical education and living skills courses, and more. If you believe you might benefit from disability- or health-related services and accommodations, please contact Student Accessibility Support Services (SASS). If you are unsure whether you qualify, please contact Student Accessibility Support Services (SASS) for a consultation: sass@redwoods.edu.

## SASS office locations and phone numbers

### Eureka campus

- Phone: 707-476-4280
- Location: Learning Resource Center (Library)

### Del Norte campus

- Phone: 707-465-2353
- Location: main building, near the Library

### Klamath-Trinity campus

- Phone: 707-476-4280