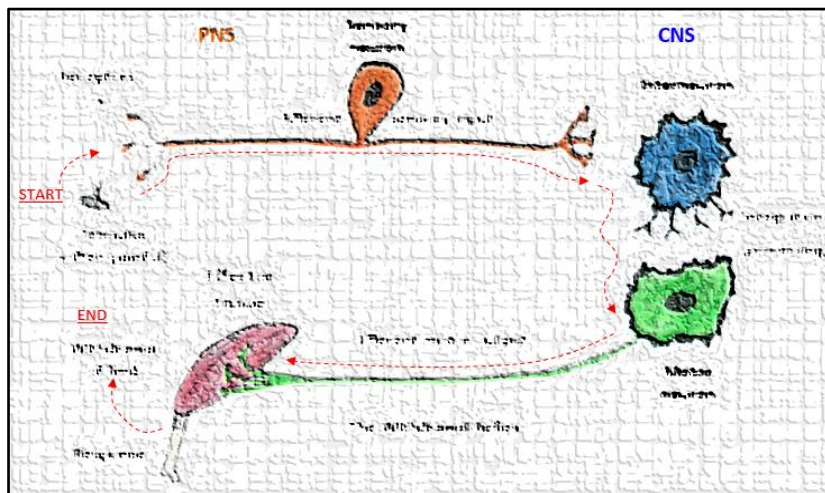




Human Physiology (Biology 235)

Sections: 43303 and 43310
Fall 2026 Course Syllabus

Instructor: Dr. Marie McMahon, Ph.D.

Lecture: T/Th 11:10-12:35pm, Rm S5-103

Lab: T/Th 1:00-4:00pm Lab, Rm S5-212

Office Phone (voice mail): (619) 388-7497

Office: Rm S6-115L.

Office Hours: MW 11:30am to 12:30pm +
T/Th 4:00pm to 5:30pm

Email: mmcmahon@sdccd.edu

Course Prerequisites: BIOL 107. **Advisory:** BIOL 230 and CHEM 100 & 100L. Physiology Lab Manual (McMahon, Fall '26) is available from Mira Mesa Copy & Print, 9705 Carroll Centre Rd. #101, San Diego ph: (858) 578-0941. **ZERO Cost Text:** *Human Physiology* by Marie McMahon (OER edition) available on my **Faculty Website:** <https://sdmiramar.edu/faculty/marie-mcmahon>.

Deadlines: Important dates for adding or dropping a class: See Fall 2026 Schedule for more information.

Sept 4, 2026 Last day to add with instructor's permission and to drop without receiving a "W"

Sept 4, 2026 Last day to drop and be eligible for a refund and/or non-resident tuition.

Oct 30, 2026 Last day to file a petition for Pass/No Pass Option.

Oct 30, 2026 Last day to withdraw from the course with an option of "W" grade.

Student Learning Outcomes (SLO's) of this Course. Student should be able to:

- 1) Understand the unifying concept of *homeostasis* and feedback loops in physiology and apply this to the major systems in the body to be studied. Emphasis is placed on: *Nervous; Endocrine; Muscular; Circulatory; Immunological; Respiratory; Renal* and *Reproductive systems*.
- 2) Apply the Scientific Method to physiological systems and laboratory investigations. This includes becoming competent at obtaining, analyzing and communicating scientific data in the lab. It also includes the interpretation and presentation of data, graphs and scientific research papers.
- 3) Be able to apply the information gained in the classroom toward everyday situations, for instance what are normal blood glucose levels, and why can elevated or lowered levels be dangerous?



Physiology is complex and challenging and will require commitment and persistence, including your time and presence in class. It is possible to do very well in this course and it is my job to ensure the information is delivered in a clear and comprehensible manner, and to provide you with assistance wherever possible. Understanding physiology is very valuable, tangible and enjoyable. I truly want every student to succeed in this course so we must all do our part.

Here are some Helpful Tips you may want to think about during the semester:

- Attend lectures and labs, take notes, **be present** and prepared to think about the issues presented.
- Anticipate studying **3 hours per unit per week** for this course (= **12 hours/week**), that is expected.
- Stay caught up with lecture and lab material. Study every day if possible, in order to avoid cramming.

- Create a study group if that works for you; discussing class issues with other students can be helpful.
- Do not hesitate to **ask me questions** – that’s why I’m here. And please use my office hours!
- Use the resources and lab sessions to study all material, even if you finish lab assignments quickly.
- Organize yourself and try to work out a system of studying that is effective for you. It may take trying a few different methods to find the ones that work best for you. Ask me for ideas.

Assessments

Lecture Exams – there will be **4** lecture exams (from 65 to 75 pts each), this includes the final exam (90 pts), which is not a cumulative exam. 😊 Typical exam format is a mixture of multiple choice, fill-in, matching, and short answer essay questions. Exams are based on material covered in lecture and lab exercises and the exams are returned to me for safekeeping after the class has had an opportunity to review them. Students can then review them any time. A 50 question scantron (the 882-E) is needed and lecture exams will be taken in person on the days set by the class schedule (below). All features of the exam process will be clearly explained each time to reduce any anxiety or stress!

Quizzes – there will be regular quizzes on topics covered in lecture and lab (**10pts** each). Students will always be notified in advance. For many reasons **there are no make-ups for quizzes**. There have never been any make-ups for quizzes, this will not change. The lowest score of any 10-point quiz will be dropped from the final grade, so that is a good safeguard. You will need a 50 question scantron for all quizzes, using the back of an old scantron is fine. It bears repeating: There are ***No make-ups for quizzes of any kind.***

Graphing and other Assignments: Learning how to construct and read meaningful graphs is an important component of physiology. We will construct some basic graphs learning useful techniques for creating and interpreting graphs. There will also be an article presentation for students to complete during the semester, specific details are provided separately. Please do not worry about any assignments because I am here to help you, and we always start with the fundamentals first.

Lecture Questions and Lab Questions – periodically there will be questions presented at **11:10am** in lecture, at the start or any time in lecture or at **1:00pm** in lab, which students will have 1 to 2 minutes to answer and submit for points. Only students who are on time can participate and submit these.

Can you plan your schedule to attend Lecture and Lab **on time**? Yes ☐ No ☐

Laboratory Component – The proportion of points for the lab component is approximately **25%** of the total points awarded for this course. Some of the lab sessions will have **Pre-Lab Questions** that need to be completed and submitted ***before*** the lab session begins. There will also be several laboratory exercises in class that will be turned in and graded (10 to 20pts). Additional points are awarded for lab participation and appropriate lab clean up and lab etiquette. There will be a lab exercise concerned with data collection, analysis and graphing to be completed by all students individually.



General Policies

Make-Up Exams – These are any exams that not taken at the scheduled time. If, due to illness or an emergency, you miss an exam, there will be one opportunity to make-up an exam. There may be a **10%** penalty applied to any grade on a make-up exam. Make-up exams will be different from the original. Exams taken prior to the scheduled time will be also be different. **Any assignment turned in late will be penalized 10%, and a further 10% for every additional day it is late.**

Every case may be different but there is a basic framework we all need to work within. Please always try to let me know of any “situation” (work, family, health, etc.) that may arise **beforehand** if possible, this is the best way for us to work out something fair. I will work with you, that is a given, so let’s create meaningful communication of info and details as soon as possible and also abide by the existing policies.

Grading - The final grade is based on the total number of points accumulated from quizzes, lecture and lab assignments opportunities and exams. The total point available in this class is approximately 450 pts. The grades are calculated as a percentage of your scores over the total available points, as follows:

100 - 90% = **A**; 89 - 80% = **B**; 79 - 70 = **C**; 60 - 69% = **D**; below 59% = **F**



Updated grades are displayed on our canvas course shell, and anyone can check their grade with the professor’s spreadsheet. There is **no** extra credit work. There is already enough to learn in this course without the *extra* work!

Study Guide Questions – A Study Guide for each of the **4** exams can be found on my website: <https://sdmiramar.edu/faculty/marie-mcmahon>. Study Guides consist of questions for a section of the class which help direct students to the fundamental issues presented in lecture and lab. Understanding how to answer study guide questions will really help to prepare students for the exam on the corresponding material for that section.

Absence, Tardiness and Behavior – Absences in excess of two (2) classes (which includes arriving late and leaving early for lecture or lab) **will result in the student being dropped from this class**. It’s also the student’s responsibility to drop. Any inappropriate or disruptive student will be asked to leave in accordance with student behavior policy **BP 5500**. Our aim is to work out any issues that may arise.

Academic Integrity – Integrity and honesty are essential in any realm, including the academic process, thus **it is imperative that the work you submit is your own**. Students found cheating will receive an **F** (zero) for that assignment or exam. This can affect your performance in the entire course. “Cheating” includes but is not limited to: *revealing test questions or soliciting another person to reveal test questions, copying another person’s work or allowing someone to copy your work, using unauthorized materials, such as notes, books, computers, tablets, phones, etc.* Computer or other device usage for assignments should only be accessed when directly stipulated by the instructor. Otherwise, these materials are not to be accessed for exams, quizzes, etc. If I see behavior indicative of cheating, I will address it directly in order to resolve the situation, and I will pursue District policies if needed. It is possible we can create some character building activities in our course during the semester.



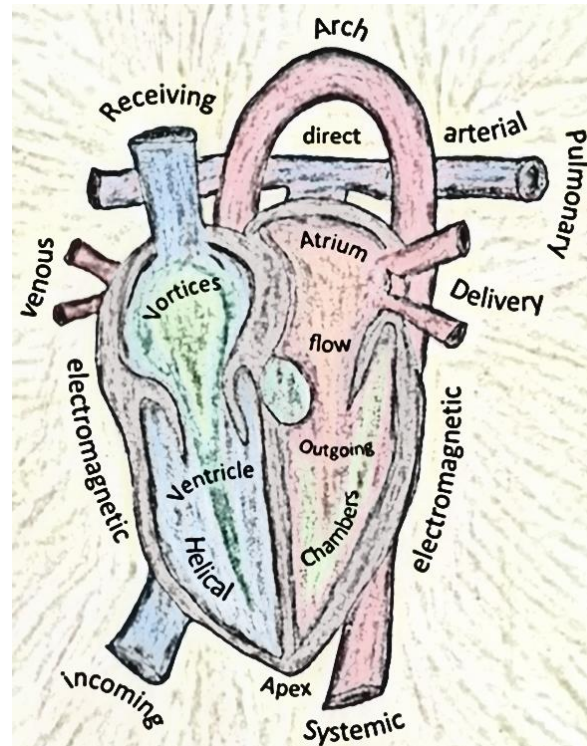
Disability Services – Any student with a disability who may need academic accommodation, or advice should contact the instructor and the Disabled Support Programs and Services (DSPS) Office during the first week of class. Refer to the Miramar College 2026-27 Catalog for more information.

Student Facilities – There are tutors, Anatomy Models and Microscopes available for students at the **Academic Success Center**, in the Library and Independent Learning Center (ILC) room **L-101**, and The **STEM Center** in **S6-110**. These facilities are here for you as students to use – please take advantage of them.

Class Schedule for Fall 2026 Human Physiology

Date	*Lecture Topic (*Tentative, may change)	OER Ch	*Lab Activity (*Tentative, may change)
Week 1 8/25 8/27	Intro to Homeostasis, Molecules and Energy Enzymes and Cell Membrane Dynamics	Ch 1, 2 Ch 3	Introduction to the Scientific Method: Physiological Solutions (Ch 6). Arm Span Body Height Measurements.
Week 2 9/1 9/3	Colloid Osmotic & Hydrostatic Pressure. Transport and Control Systems of the Body. Nervous System Overview: Integration Action Potentials and Graded Potentials	Ch 5 Ch 5, 7	Enzymes (Urease and Amylase) and the factors influencing Enzyme Activity (Ch 3). Graphing the Enzyme Results.
Week 3 9/8 9/10	Temporal and Spatial Summation in Neurons: Biochemistry of the Synapse and	Ch 7	Data Gathering Activity. Creating Graphs Using Excel Spreadsheets.
Week 4 9/15	Neuronal Transmission Ionotropic and Metabotropic Effects	Ch 7	Sensory Lab Part 1: (Ch 11). Sensory Receptor Classification. Sensory Perception.
9/17	Exam 1 (covers material through week 4)		
Week 6 9/22 9/24	Neurotransmitters; Central Nervous System The Peripheral Nervous System	Ch 8 Ch 9	Sensory Lab Part 2: (Ch 11). Reflexes and Voluntary Actions. Feedback Loops.
Week 6 9/29 10/1	The Somatic and Autonomic Nervous System Muscle Tissue Physiology; Skeletal Muscle	Ch 10 Ch 13	Skeletal Muscle Physiology (Ch 13). Spatial and Temporal Summation. Skeletal Muscle Fatigue Experiment.
Week 7 10/6 10/8	Skeletal Sarcomere, Contraction and Force Skeletal Muscle Metabolism Cardiovascular Physiology: Heart	Ch 13 Ch 14	Heart Rate, Exercise, and Fitness. Blood Cells and Blood Typing (Ch 14). Cardiovascular Adaptation (Body Position)
Week 8 10/13	Myocardocytes Actions Potentials Electrical Conduction System & Cardiac Cycle	Ch 14	The Electrocardiogram (ECG) (Ch 15). Effects of Drugs on the Heart.
10/15	Exam 2 (covers material through week 8)		
Week 9 10/20 10/22	Components Blood: Plasma, Glucose, Proteins, Electrolytes, Gases, LDL's and HDL's. Erythrocytes and Leukocytes Blood Vessels, Pressure and Flow	Ch 15 Ch 15 Ch 16	Measuring and Monitoring Blood Glucose. Cardiovascular Dynamics Blood Pressure. Changing Body Positions (Ch 15 and 16).
Week 10 10/27 10/29	Mean Arterial Pressure; Baroreceptors Reflex Cardiovascular Diseases and Shock Lymphatic and Circulatory Systems Components of the Immune System	Ch 16 Ch 17	Spirometer and Breathing Physiology Lung Volumes and Capacities (Ch 16).
Week 11 11/3 11/5	Respiratory System: Partial Pressures and Gas Exchange; Chemoreceptors and Control	Ch 18	Renal System Urinalysis Experimentation. Beverage Fluid Loads on Urine Output (Ch 21).
Week 12 11/10	Hb-O ₂ Saturation Curve; Altitudes and Depths Analysis of Disease States on Lung Function	Ch 19	Digestive System Enzymatic Processes (Ch 20). Search for Scientific Articles.
11/12	Exam 3 (covers material through week 12)		
Week 13 11/16 11/18	The Renal System: Glomerular Filtration Renin-Angiotensinogen-Aldosterone System The Endocrine System Overview	Ch 21 Ch 21	Scientific Method Analysis and Conclusions. Sweat Gland Activity. How to Make Butter by Hand Lab.
11/23-11/28	Thanksgiving Break		No Classes or Labs All Week

Week 14 12/1 12/3	Hormones: Pancreas, Thyroid, Pituitary Gland Hypothalamus-Pituitary-Adrenal Axis	Ch 12 Ch 12	Student Article Presentations. Data Graphing and Analysis.
Week 15 12/8 12/10	Adrenal, Pineal, Parathyroid Endocrine Glands Growth and Stress Response Reproductive System Overview	Ch 12 Ch 22	Student Article Presentations. Endocrine System Physiology.
Week 16 12/15	Male and Female Reproductive Systems Review for Final Exam	Ch 23	No Lab.
12/17	Final Exam (covers material to week 16)		No Lab.



Please Note: There will be 10 points deducted from a student's total points any time that their phone rings or they send or read text/email/phone messages or use any unauthorized technology during class. So ...

Please turn off or silent your cell phones/technology while in class.

Sending/reading texts or using unauthorized devices is not allowed in class.

Thank You!