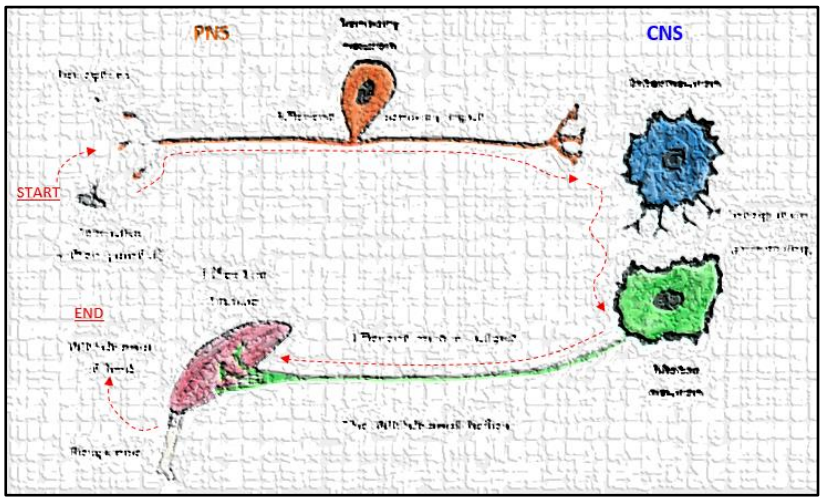


Human Physiology (Biology 235)

Sections: **53408** and **53409**
Spring 2024 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 +
Email: mmcmahon@sdccd.edu

Faculty Website: https://sdmiramar.edu/faculty/marie-mcmahon **Course Prerequisites:** BIOL 107. Advisory: BIOL 230 and CHEM 100 & 100L. Physiology Lab Manual (McMahon, Spring '24) 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.

Deadlines: Important dates for adding or dropping a class: See Spring 2024 Schedule for more information.

Feb 9, 2024	Last day to add with instructor's permission and to drop without receiving a "W"
Feb 9, 2024	Last day to drop and be eligible for a refund and/or non-resident tuition.
Apr 12, 2024	Last day to file a petition for Pass/No Pass Option.
Apr 12, 2024	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 a demanding subject because it is complex and challenging and also time consuming. This topic can require a great deal of commitment and persistence. However, it is possible to do very well in this course. It is my job to ensure that the information is delivered in a clear and comprehensible manner, and to provide you with assistance wherever possible. Furthermore, physiology is very interesting and valuable, and thus should be 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/view all lectures and labs, be present, take notes and be prepared to think about the issues.
- 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.

Details, Details, Details . . . :)

Assessment

Lecture Exams – there will be **4** lecture exams (from 60 to 75 pts each), this includes the final exam (90 pts), which is not a cumulative exam. ☺ The exams format is a mixture of multiple choice, fill-in, matching, and short essay answer 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 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 the topics that have been covered in lecture and lab content (10pts each). Students will always be notified in advanced. Because we go through all the answers, there are **no make-ups for quizzes** but the lowest score of any 10 point quiz will be dropped from the final grade. You will need a 50 question scantron for all quizzes, using the back of an old scantron is fine.

Graphing and other Assignments: Leaning how to construct and read meaningful graphs is an important component of physiology. Starting with basic graphing techniques we will get more developed as the semester progresses. There will be graphing assignments and an article presentation for students to complete during the semester. The specific details for these are provided separately. Please do not worry about this, I am here to help you and we always start with the fundamentals first.

Lecture Questions and Lab Questions – periodically there will be 1 or 2 questions presented at 11:10am in lecture or at the start of lab which students will have 1 to 2 minutes to answer and submit for points. There are no late submissions accepted for these questions, so be there or be □ square.

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 we must create meaningful communication of information and details beforehand 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 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**

Students can calculate their own current grades, and updated grades will be provided routinely throughout the semester (in class &on Canvas). 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 exam section can be found on my website: https://sdmiramar.edu/faculty/marie-mcmahon Study Guides consists of questions for each component of the class that help direct students to the fundamental issues presented in lecture and lab. An understanding of the study guide questions will really help to prepare students for the exam on the corresponding material for that section.

Absence, Tardiness and Behavior – The attendance policy for this course is that more than two absences will result in a student being dropped from the class. Any disruptive student will be asked to leave in accordance with our **BP 3100** policy. Excessive absences, inappropriate or disruptive behavior are not tolerated, so be cool!

Academic Integrity – Integrity and honesty are essential to many realms, 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 devise 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 polices if needed.

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 2023-24 Catalog for more information.

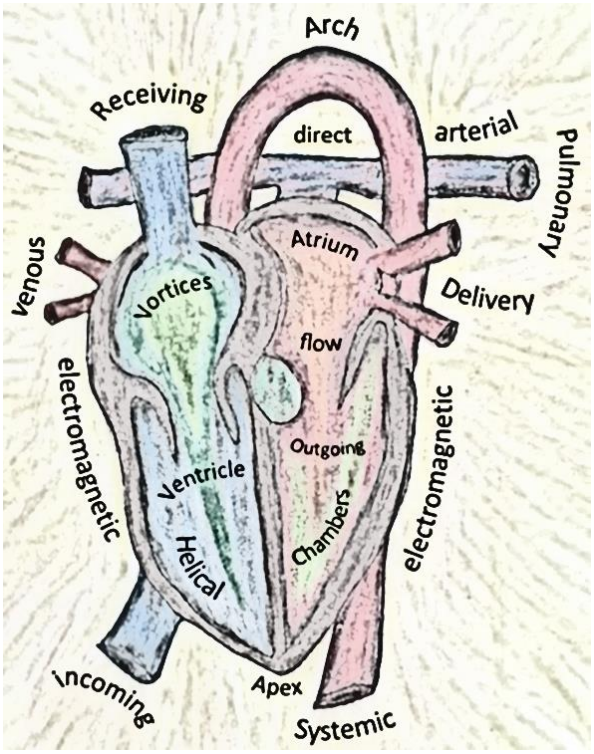
Student Facilities Online – There are tutors and other support options available at the Academic Success Center (ASC). Other Info that may be useful:

Student Services	https://www.sdmiramar.edu/campus/counseling
Health Center	https://www.sdmiramar.edu/campus/healthcenter
Academic Support and Tutoring	https://www.sdmiramar.edu/campus/asc

Class Schedule for Spring 2024 Human Physiology

Date	*Lecture Topic (*Tentative, may change)	OER Ch	*Lab Activity (*Tentative, may change)
Week 1 1/30 2/1	Intro to Homeostasis, Molecules and Energy Enzymes and Cell Membrane Dynamics	Ch 1, 2 Ch 3	Introduction to the Scientific Method: Arm Span Body Height Measurements.
Week 2 2/6 2/8	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	Physiological Solutions (Ch 6), Enzymes and factors influencing Activity (Ch 3). Graphing Results.
Week 3 2/13 2/15	Temporal and Spatial Summation in Neurons: Biochemistry of the Synapse and	Ch 7	Sensory Lab Part 1: (Ch 11) Sensory Receptor Classification. Sensory Perception.
Week 4 2/20 **2/22**	Neuronal Transmission Ionotropic and Metabotropic Effects **Exam 1** (covers material through week 4)	Ch 7	Data Gathering Activity Using Excel Spreadsheet/Graphs.
Week 6 2/27 2/29	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 3/5 3/7	The Somatic and Autonomic Nervous System Muscle Tissue Physiology; Skeletal Muscle	Ch 10 Ch 13	Skeletal Muscle Physiology Spatial and Temporal Summation. Muscle Fatigue
Week 7 3/12 3/14	Skeletal Sarcomere, Contraction and Force Skeletal Muscle Metabolism Cardiovascular Physiology: Heart	Ch 13 Ch 14	Heart Rate, Exercise, and Fitness. Changes in Body Position and Cardiovascular adaptation.
Week 8 3/19 **3/21**	Myocardiocytes Actions Potentials Electrical Conduction System & Cardiac Cycle **Exam 2** (covers material through week 8)	Ch 14	Effects of Drugs on the Heart. Myocardiocytes and Electrocardiogram (ECG)
3/25-3/29	**Spring Break**		**No Classes or Labs All Week**
Week 9 4/2 4/4	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. Blood Cells and Blood Typing. Cardiovascular Dynamics Blood Pressure.
Week 10 4/9 4/11	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.
Week 11 4/16 4/18	Respiratory System: Partial Pressures and Gas Exchange; Chemoreceptors and Control	Ch 18	Renal System Urinalysis Experimentation. Beverage Fluid Loads on Urine Output.
Week 12 4/23 **4/25**	Hb-O_2 Saturation Curve; Altitudes and Depths Analysis of Disease States on Lung Function **Exam 3** (covers material through week 12)	Ch 19	Digestive Enzymatic Processes (Ch 19) Acid-Base Balance Search for Scientific Articles.
Week 13 4/30 5/2	The Renal System: Glomerular Filtration Renin-Angiotensinogen-Aldosterone System	Ch 21 Ch 21	Student Article Presentations.
Week 14 5/7 5/9	The Endocrine System Overview Hormones: Pancreas, Thyroid, Pituitary Gland Adrenal, Pineal, Parathyroid Glands Endocrine	Ch 12 Ch 12	Data Graphing and Analysis. Endocrine System Physiology

Week 15 5/14 5/16	Growth and Stress Response Reproductive System Overview	Ch 12 Ch 22	Scientific Method Analysis and Conclusions.
Week 16 5/21	Male and Female Reproductive Systems Review for Final Exam	Ch 23	Review Session for Lab and Lecture.
5/23	**Final Exam** (covers material to week 16)		



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!