

# Graduate Medical Physiology I



## MCP8041 Fall Semester 2021 Syllabus

Graduate Medical Physiology I is the first of a two-part course intended to provide a thorough introduction to human systems physiology at the level of first year medical school. The course will provide students with an understanding of the anatomy, function, regulation and integration of human body organ systems, with emphasis on homeostatic maintenance in health as well as in some disease processes. The content of GMPI will cover whole-body fluid homeostasis, cell and membrane physiology, muscle biology (Unit 1), and cardiovascular physiology (Unit 2). This part of the course is primarily lecture based, but also includes problem-solving, group discussion, and online presentations. Unit 3 is a laboratory-based course designed to provide interactive learning activities that contribute to an understanding of the bony features that contribute to the topography of the human skin surface, its clinical landmarks, and the positions of important deeper structures; students work with other members of their dissecting team to examine pertinent bones and their landmarks on a volunteer serving as a surrogate patient.

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Registration	Course #	Section	Class #	Credits	Class Schedule*
	<b>MCP8041</b>	<b>001</b>	<b>20628</b>	<b>4 G</b>	Variable

**Assessment** **Class Quizzes (8 pts)** 10-15 quizzes/questions; best 8 scores are used  
1 point per quiz = 8 points

**Total=160 pts**

**Discussion Group Tests (20 pts)** 5 tests, Best 4 scores are used  
5 questions per test, 1 points per question = 5 points per test = 20 points

**Exam 1 (44pts)** Multiple-choice test covering material from Cellular and Muscle Physiology

**Exam 2 (48pts)** Multiple-choice test covering material from Cardiovascular Physiology

**Anatomy Practical Exams (40 pts)** Lab-based practical exams. 2 exams, 20 points each.

**Grading** Grading will be in line with CoM policy with no adjustment for the distribution of scores. There is no option for the remediation of grades after the scheduled final exams (i.e. no make-up tests).

<b>A</b>	90%–100%	<b>B+</b>	82%–84.99%	<b>B–</b>	74%–76.99%	<b>C</b>	67%–69.99%
<b>A–</b>	85%–89.99%	<b>B</b>	77%–81.99%	<b>C+</b>	70%–73.99%	<b>Fail</b>	Below 67%

Also for a passing course grade, the *average for the two unit exams* must be greater than 67%.

**Prerequisites** Acceptance into Special Master's Program in Physiology

**Attendance** Attendance is required

**Auditing** No auditing option

**Canvas & Email Policy** Messages sent via Canvas or directly through e-mail will be considered sufficient notice. You should make sure that you have entered your UC email address in Canvas.

**Textbooks** Required texts will be provided in electronic format (pdf), or through electronic resources available through the UC library. In addition, the following optional textbooks are recommended for further reading:

- *Physiology* Fifth Edition, Linda S. Costanzo (ELSEVIER Saunders)
- *Medical Physiology: A Systems Approach* (Lange Medical Books) Hershel Raff, Michael Levitzky
- *Medical Physiology*. (ELSEVIER Saunders), Walter F. Boron & Emile L. Boulpaep

## UNIT 1

### **Module 1: Body Fluids**

- Body fluid spaces & water movement, problem solving.

### **Module 2: Membrane potentials**

- Resting potential, action potential, propagation in nerve and muscle.

### **Module 3: Muscle Physiology**

- Striated muscle, smooth muscle, excitation-contraction coupling, metabolism, deranged Ca<sup>2+</sup> homeostasis.

## UNIT 2

### **Module 4: Cardiovascular Physiology**

- Cardiac electrophysiology & ECG, cardiac muscle, vascular structure and function, microcirculation, regulation of cardiac output and blood pressure.

## UNIT 3

### **Module 5: Osteology and Surface Anatomy**

- Anatomy of the head, neck and back; anatomy of the thorax & abdomen; anatomy of the upper and lower limbs.