

SYLLABUS**PHA6508****SYSTEMS PHYSIOLOGY AND PATHOPHYSIOLOGY – I****3 Credit Hours****Fall 2022****OBJECTIVES**

Systems Physiology and Pathophysiology-I is the first of a two-course sequence that aims to provide graduate students in the Department of Pharmacodynamics with an integrated knowledge base in the physiological functions of the human body and pathological changes pertinent to the development and progression of various diseases. As an integral component of the Ph. D. curriculum, the two courses will provide students with a solid understanding of human pathophysiology in preparation for their dissertation research. Specifically, upon completion of the sequence, students should be able to:

1. Understand physiological processes at the molecular, cellular, organ and system level;
2. Understand mechanisms responsible for the control and coordination of various functions;
3. Understand the integration of the organ systems in maintaining homeostasis;
4. Understand the mechanisms of disease initiation, progression and sequela;
5. Recognize the signs and symptoms of major disease states or processes; and
6. Demonstrate familiarity with normal and abnormal values of physiological variables.

FACULTY

Instructors	Office	Email
Dr. Jason Frazier	MSB P2-29	frazier@cop.ufl.edu
Dr. Maureen Keller-Wood	HPNP 4332A	kellerwd@cop.ufl.edu
Dr. Bin Liu	MSB P2-31	liu@cop.ufl.edu
Dr. Brandon Warren	MSB P1-27	Brandon.warren@cop.ufl.edu

Course Coordinator: Dr. Bin Liu

COURSE FORMAT

The course consists of multiple components:

- (a) Lecture videos of Fall 2021 PHA5560, Pathophysiology and Patient Assessment-I and Spring 2021 PHA5561, Pathophysiology and Patient Assessment-II
- (b) Interactive discussion sessions with instructors
- (c) Assignments from instructors

COURSE MATERIALS

Course materials include lecture videos, slides, and reading assignments.

The recommended textbook for the course will be: **Pathophysiology of Disease: An Introduction to Clinical Medicine, 6e**; Stephen J. McPhee, Gary D. Hammer.

Faculty may also provide review chapters or articles and research papers to the students for each of the weekly discussion sessions.

ATTENDANCE POLICY

Students are required to watch all lecture videos and attend all interactive sessions in person.

EVALUATION OF PERFORMANCE

Grades will be based on performance on the essay exams that are based on materials covered in the lectures, discussion sessions and additional assignments from the instructors and the participation of the discussion session. The point breakdown is as follows.

	Module	Points
Exams		360
Discussion sessions		70
Total:		430

	Module	Instructor	Content	Points
Exam 1	Module 1	Dr. Frazier	Lectures/Discussion	100/20
Exam 2	Module 2	Dr. Warren Dr. Liu	Lectures/Discussion	70/20 20/10
Exam 3	Module 3	Dr. Keller-Wood	Lectures/Discussion	85/20
Exam 3	Module 4	Dr. Liu	Lectures/Discussion	60/20
Total:				425

Makeup for missing an exam/required activity

When an emergency/occasion arises that may make it impossible for a student to take a regularly scheduled exam or attend a pre-schedule activity, inform the course coordinator and the relevant instructor at the earliest possible time. Afterwards, follow through with the course coordinator and the relevant instructor to discuss and set up the makeups.

Grading Scale

Percent Grade	Letter Grade	GPA
≥ 93.0%	A	4.00
90.0% - 92.9%	A ⁻	3.67
87.0% - 89.9%	B ⁺	3.33
83.0% - 86.9%	B	3.00
80.0% - 82.9%	B ⁻	2.67
77.0% - 79.9%	C ⁺	2.33
73.0% - 76.9%	C	2.00
70.0% - 72.9%	C ⁻	1.67
67.0% - 69.9%	D ⁺	1.33
63.0% - 66.9%	D	1.00
60.0% - 62.9%	D ⁻	0.67
< 60.0%	E	0.00

PROFESSIONAL CONDUCT

Students are expected to adhere to the University of Florida Honor Code “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity”. Academic dishonest will result in earning a failing grade (i.e., E) for the entire course and additional consequences dictated by University of Florida code of conduct.

Appendix A: Schedule

Date	Time	Lecture Topic	Instructor
Module 1: Cell Signaling, Neural Biology & Muscle Pathophysiology			
08/24-08/26		Cell membranes (1 hr) Receptors and 2 nd Messengers (1.5 h)	Dr. Frazier Dr. Frazier
08/29-09/02		Resting Membrane Potential & Action Potential (2 h)	Dr. Frazier
09/02 (Fri)	3-5 pm	Discussion - 1(2 hr)	Dr. Frazier
09/05-09/09		Autonomic Nervous System (1.5 h) Skeletal Muscle (1.5 h)	Dr. Frazier Dr. Frazier
09/12-09/16		Smooth and Cardiac Muscle (1.5 h) Muscle Pathophysiology (1 h)	Dr. Frazier Dr. Frazier
09/16 (Fri)	3-5 pm	Discussion - 2 (2 hr)	Dr. Frazier
09/19 (Mon)	3-5 pm	Exam 1 (2 h, Room)	
Module 2: Neurological System			
09/20-09/23		Pain: Signal Reception, Transduction and Perception (1 h) Amino Acid Neurotransmitters (1 h)	Dr. Warren Dr. Warren
09/26-09/29		Biogenic Amines: Catecholamines, Norepinephrine, Epinephrine, Dopamine (1 h)	Dr. Warren
09/30 (Fri)	3 - 5 pm	Discussion - 3	Dr. Warren
10/03-10/06		Biogenic Amines: Histamine, Serotonin (0.75 h) Cholinergic System (0.5 h) Opioids (1.25 h) Fatty Acid Neurotransmitters (0.75 h)	Dr. Warren Dr. Warren Dr. Warren Dr. Warren
10/07 (Fri)	3 - 5 pm	Discussion - 4	Dr. Warren
10/10-10/13		Movement Regulation and Disorders (1 h) Stroke (1 h)	Dr. Liu Dr. Liu
10/14 (Fri)	3 - 5 pm	Discussion - 5	Dr. Liu
10/17 (Mon)	3-5 pm	Exam 2 (2 h, Room)	

Module 3: Cardiovascular Physiology & Pathophysiology

10/18-10/21		Intro to Cardiovascular Pathophysiol. (1 h) Control of the Heart: I-II (1.5 h) I: The cardiac cycle and valve disease II: Heart rate	Dr. Keller-Wood Dr. Keller-Wood
10/24-10/27		Control of the Heart: III-V (1.5 h) III: Arrhythmias IV: Stroke volume V: Cardiomyopathy	Dr. Keller-Wood
10/28	3-5 pm	Discussion - 6	Dr. Keller-Wood
10/31-11/04		Control of the Vasculature: I-III (1.5 h) I: Review of vascular tone II: Reflex control (parts 1 & 2) III: Autoregulation Vascular: IV-VI (2 h) IV: Atherosclerosis V: Cardiac Ischemia VI: edema	Dr. Keller-Wood Dr. Keller-Wood
11/07-11/10		Compensations (0.75 h) for exercise & disease	Dr. Keller-Wood
11/11	3-5 pm	Discussion - 7	Dr. Keller-Wood
11/14 (Mon)	3-5 pm	Exam 3 (2 h, Room)	

Module 4: Immune and Inflammation

11/15-11/17		Innate Immunity (1.2 hr) Adaptive Immunity I & II (1.75 hr)	Dr. Liu Dr. Liu
11/18	3-5 pm	Discussion - 8	Dr. Liu
11/21-11/30		Inflammation (0.75 hr) Wound Healing (0.75 hr) Hypersensitivity (0.75 hr) SARS CoV-2 and Immune (0.5 hr)	Dr. Liu Dr. Liu Dr. Liu Dr. Liu
12/02	3-5 pm	Discussion - 9	Dr. Liu
12/05 (Mon)	3-5 pm	Exam 4 (2 h, Room)	