

ADVANCED HUMAN ANATOMY & PHYSIOLOGY

BIOL 253 Spring 2018

Corey S. Johnson, Ph.D.

Lecture: Tuesdays & Thursdays at 12:30pm-1:45pm in Greenlaw 101

Office hours and contact: Tuesdays & Thursdays 10am-12pm in Wilson Hall 210. No appointment needed. I will also meet anytime outside of those hours if I am able for those who cannot make it during regular office hours. I can be reached most quickly by email: johnsonc@bio.unc.edu

Requirements: Co-requisite: BIOL 253L, Prerequisite BIOL 252 & 252L.

Spring 2019 Course Information: An in-depth study of physiological mechanisms at the molecular, cellular, and system levels of organization. Students will develop analytical skills, problem solving skills, and an appreciation for the mathematical, physical, and chemical basis for physiological phenomena. Course intended for pre-professional students who require a second semester of anatomy & physiology beyond BIOL 252/252L.

Required materials: Vander's Human Physiology by Widmaier 15th edition. ISBN: 9781260231519. Please see Sakai for announcement regarding your options.

About your Instructor: I received my Ph.D. in 2006 from UNC School of Medicine where I conducted research on limb development and ethanol teratogenesis, and I was trained as an anatomist and developmental biologist. I am interested in all aspects of vertebrate and human anatomy, development, and physiology. You too? Let's talk! I've been teaching at UNC since 2007.

Grading policy and other information: Outside of class, I will make all important information known through the 'announcements' section of Sakai. Grades will be posted to Sakai as soon as they are available after exams. Your grade for this course will be determined by 3 exams and assignments as follows:

Exams (90%): Exams 1, 2, and 3 are 25%, 30%, and 35% of your grade, respectively.

Assignments (10%): Assignments will be given periodically with the goal of helping students learn the knowledge and skills required to perform well in this course. There will be 2 types of assignments.

1. In-class assignments: includes participation in the classroom response system, Polleverywhere (see Sakai for registration information). Other types of assignments may be given as well.
2. Study resources: upon taking the first exam, you must submit your study resources. This may look very different for each student. Some students will develop mind-maps, others will turn in outlines, incomprehensible notes, or whatever they are using to study. The goal of this "assignment" is to allow me to assess your level of preparation. Following the first exam, I will give feedback to students to help them plan the remainder of the semester. See Sakai for details regarding the grading, timing, and submission protocol for this assignment.

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Grading scale:

		93.0-100	A	90.0-92.9	A-
87.0-89.9	B+	83.0-86.9	B	80.0-82.9	B-
77.0-79.9	C+	73.0-76.9	C	70.0-72.9	C-
67.0-69.9	D+	60.0-66.9	D		
		<60	F		

Honor code: Students are expected to abide by the UNC honor code at all times. Your participation in all activities, exams, and assignments implies compliance to the letter and intent of the honor code.

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CLASS SCHEDULE - GENERAL TOPICS ONLY
Please see Sakai for a detailed reading schedule

Date	Topic
Cell Physiology	
R Jan 10	01 Diffusion, transport
T Jan 15	02 Osmosis & Resting membrane potential
R Jan 17	03 Receptors, Signal transduction, ANS organization
T Jan 22	04 ANS physiology
Cardiac Physiology	
R Jan 24	05 Heartbeat coordination, Cardiac cycle
T Jan 29	06 EKG & Oxygen supply/demand
R Jan 31	07 Cardiac output and its regulation
T Feb 5	08 Arteries, arterioles, Veins, venules
R Feb 7	09 Neural & hormonal regulation of MAP
T Feb 12	10 Capillary exchange, lymphatic drainage, edema
R Feb 14	Midterm Exam 1
Respiratory Physiology	
T Feb 19	11 Respiratory Anatomy & Ventilation mechanics
R Feb 21	12 Factors affecting ventilation
T Feb 26	13 Pulmonary circulation, partial pressure, solubility
R Feb 28	14 Gas exchange & transport
T Mar 5	15 Ventilation & perfusion coupling, Central regulation
Renal physiology	
R Mar 7	16 Renal functions, filtration
T Mar 12	Spring Break
R Mar 14	Spring Break
T Mar 19	17 Regulation of filtration
R Mar 21	18 Excretion, renal clearance, micturition
T Mar 26	Midterm Exam 2
Fluid & electrolyte balance; GI & Endocrine Physiology	
R Mar 28	19 Fluid balance; regulation of water balance
T Apr 2	20 Countercurrent multiplication, exchange & urea recycling
R Apr 4	21 Regulation of sodium balance
T Apr 9	22 Acid base balance
R Apr 11	23 Endocrine and neural control of the GI tract; secretion & absorption
T Apr 16	24 Gastric motility; Metabolism, energy intake, utilization, storage, & balance
R Apr 18	25 Regulation of metabolism; endocrine pancreas; glucocorticoids
T Apr 23	26 More endocrine
R Apr 25	27 Thermoregulation, thyroid hormone, thyroid disorders
F May 3	Final exam, 12pm Greenlaw 101