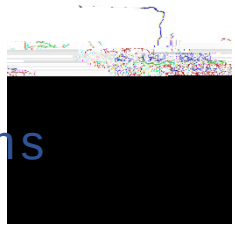
BIO 553 Syllabus (section 015), Spring 2024
Advanced Systemic Physiology: Control Systems



Time	Place	Professor
MW 3:35PM-4:50PM	Ross Hall 0280	Dr. Nick Pullen (email) Open Office Hours: MW 2pm-3:30pm, Ross Hall 2536

Course Description & Purpose

The current UNC catalog entry is found here. This course introduces, at the graduate level, the physiological systems governing homeostasis in humans. We will address content in excitable tissues (nervous and muscle), endocrine systems (including reproductive), and immunology. You will also develop and hone your ability to find, read, and discuss primary basic science and clinical literature. Prerequisites include cell biology and upper-level undergraduate biochemistry, so you are expected to have familiarity with that content and/or the resources to independently review it. This is a companion course to BIO 552 (Homeostats), so I suggest taking that too (it doesn't matter what order). This course is foundational for developing biomedical scientists, healthcare practitioners, and science teachers seeking graduate-level content expertise.

Course Conduct

As a graduate level physiology course my main personal goal is to have you participating in dynamic and relevant discussions about ***translational science***. I want you always to be thinking "how does this affect health?" Think about potential treatments, mechanisms, and expected outcomes. As developing authorities in the field, my expectation is that you will read what is assigned, research what intrigues you most, be prepared to discuss it, and ask questions. The Boron chapters and my presentationym0.005 (o)6.67.2 (ymsr)3.3 (ed)3.5 (wess(o)6.6 0 Tw [m(d)3.5 (i.s)29.5 (ssi)5 (o)6.6 (n)]TJ 0 Tc .s)]TJ

This is a tentative schedule of topics covered. If the schedule changes you will receive an announcement indicating any changes. The course calendar and announcements in Canvas will indicate specific due dates and changes.

Readings are aligned to chapters of both Boron & Boulpaep texts, but you only need one of them. The topic of each chapter is the same in both, except that *Concise Medical Physiology* is the more recent, much shorter version of *Medical Physiology, 3rd ed.*

Day	*Topic*	*Reading (Boron)*	*Module*	*Assignments*
M Jan 8	Intro., Review, Homeostasis Principles	1, 2, 3, 5	1	
W Jan 10	Nervous system Organization & Development	10	2	Primary Literature and Intro.
M Jan 15	MLK DAY - NO CLASSES			
W Jan 17	Neurons, Glia, and Their Functions	11, 12		
M Jan 22	Neurons, Glia, and Their Functions			Quiz 1
W Jan 24	Synapses	7,13		
M Jan 29	General properties of sensory systems (tentative)	15, 16	3	Paper Analysis
W Jan 31	Autonomic Nervous Control	14	4	
M Feb 5	Master Endocrine: Hypothalamus & Pituitary	47, 48	5	Quiz 2
W Feb 7	Master Endocrine: Hypothalamus & Pituitary			Paper Analysis
M Feb 12	EXAM 1 –Nervous System and HP Axes			
W Feb 14	Thyroid & Parathyroid Physiology	49, 52	6	
M Feb 19	Adrenal Physiology	50		Quiz 3
W Feb 21	Endocrine Pancreas	51 (43)		
M Feb 26	Endocrine wrap-up and discussion			Paper Analysis
W Feb 28	The Neuromuscular Junction	8	7	
M March 4	Skeletal Muscle	9		
W March 6	Smooth & Cardiac Muscle			Quiz 4
M March 11	SPRING BREAK	SPRING BREAK		SPRING BREAK
W March 13	SPRING BREAK	SPRING BREAK		SPRING BREAK
M March 18	Muscle & Exercise wrap-up (energy & fatigue)	60		Paper Analysis
W March 20	EXAM 2 –Endocrine and Muscl.289 (n)3.s 3			