Spring 2009: Graduate Systems Physiology: BME 511 (M,W,F)
1 hr lectures; 9:00 – 9:50 AM, COM Rm. 8403
Suggested Advanced Reading Topics

Section 1: Neurophysiology

Date	Instructor	Lecture Topic
Jan 14 (W)	Gothard	Principles NS organization
		Subcortical structures of the brain
16 (F)	Gothard	Somatosensory system
		Viscero-sensory system
21 (W)	Delamere/Guest	Vision
		Retina and visual pathways
23 (F)	Gothard in Duval Auditorium AHSC	Motor systems
26 (M)	Gothard	Autonomic Nervous System
		Diseases of the Nervous System
28 (W)	Gothard	Neurotransmitter systems and the limbic system.
		Language and higher cognitive function.
30 (F)	Gothard	Learning and memory
Feb 2 (M)	Gothard	Executive function and the frontal lobes
		Motivation, emotion, and social behavior
4 (W)	EXAM #1 BME	

Section 2. Renal Physiology

Feb 6 (F)	Brooks	Introduction to the Renal System
9 (M)	Brooks	Tubular Transport I Salt/Water/Ca^{2+}
		GFR, RBF, Role of Diuretics
11 (W)	Brooks	Volume Regulation
		Clearance and Renal Calculations
13 (F)	Lynch	pH and Acid Base Regulation I

16 (M)	**Brooks**	**Regulation of Renal Function in Disease**
		K^+ Regulation and Acid Base II
18 (W)	**EXAM #2 BME**	

Section 3. Cardiovascular Physiology

20 (F)	**Burt**	**The Cardiovascular System**
23 (M)	**Burt**	**Cardiac Cycle**
		Electrical Activity – ventricular cells
25 (W)	**Burt**	**Cardiac Electrophysiology - ECG**
		Electrical Activity – pacemaker cells
27 (F)	**Burt**	**Contractile Function**
March 2 (M)	**Burt**	**Intrinsic regulation of cardiac function**
		Contraction – EC coupling
4 (W)	**McDonagh**	**The Peripheral Circulation and Regulation of Blood Pressure**
		Heart Failure
6 (F)	**McDonagh**	**Regulation of Organ Blood Flow**
9 (M)	**McDonagh**	**Microcirculation**
		Computer Simulation: The Cardiovascular Response to Exercise
11 (W)	**McDonagh**	**Special Circulations**
13 (F)	**EXAM #3 PSIO & BME**	**CARDIOVASCULAR EXAM**
16-20	**Spring Break- no classes**	

Section 4. Respiratory Physiology

23 (M)	**Fregosi**	**Pulmonary: basic physical principles & anatomy; lung microstructure.**
		Matching of metabolism and alveolar ventilation
25 (W)	**Fregosi**	**Mechanics of the lung and chest wall**
		Resistance, compliance and the mechanical work of breathing
27 (F)	**Fregosi**	**Gas diffusion from lung to blood**
30 (M)	**Fregosi**	**O2 and CO2 transport**
		Ventilation:perfusion matching
Apr. 1 (W)	**Fregosi**	**Pulmonary blood flow**
		Regulation of breathing
3 (F)	**Fregosi**	**Pulmonary regulation of acid-base balance**
6 (M)	**EXAM #4 BME**	

Section 5. Endocrine Physiology

8 (W)	**Limesand**	**Basic Concepts in Endocrinology**
		Expanded Basic Concepts/Signaling
10 (F)	**Hoyer**	**Neuroendocrine**
13 (M)	**Hoyer**	**Male/Female Reproduction**
		Pregnancy/Parturition/lactation
15 (W)	**Hoyer**	**Adrenal Cortex**
		Adrenocortico pathophysiology
17 (F)	**Hoyer**	**Adrenal Medulla**
20 (M)	**Limesand**	**Glucose homeostasis**
		Insulin resistance and Type II Diabetes Mellitus
22 (W)	**Limesand**	**Thyroid/calcium**
Apr. 24 (F)	**EXAM #5**	**EXAM ENDOCRINE**

PSIO& BME

Section 6.	**Gastrointestinal**	**Physiology**
27 (M)	**Lynch:**	**Introduction to GI**
		Regulation of Feeding Behavior
29 (W)	**Lynch:**	**GI Smooth Muscle Motility**
		Liver, GI Immunology and the Splanchnic Circulation
May 1 (F)	**Lynch**	**Secretion: Salivary and Stomach**
4 (M)	**Lynch**	**Secretion: Pancreatic and Biliary**
		Lipid Metabolism/Absorption
May 6 (W)	**Lynch**	**Digestion and Absorption**
		Defects in Nutrient Assimilation

May 11(M) 9	**EXAM Opt 1 #6 BME**	**GASTROINTESTINAL EXAM**
May 16(F) 8-10	**EXAM Opt 2 #6 BME**	**GASTROINTESTINAL EXAM**