Autonomic Physiology
BBB 269-001, Fall 2013

Course Instructor:

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DATE	TOPICS	READINGS
8/29	Overview of Course Drug Administration	Feldman, Chp. 1
9/3	Basic Principles in Pharmacology	
9/5	Basic Principles in Pharmacology Continued	
9/10	Acetylcholine Receptor Function and Pharmacology	Siegel, Chp. 13
9/12	Acetylcholine Continued	
9/17	Catecholamines and Indoleamines Receptor Function and Pharmacology of Norepinephrine, Epinephrine and Serotonin	Siegel, Chp. 14 Siegel, Chp. 15
9/19	Autonomic Nervous System I: Overview and Anatomy	Rhoades, Chp. 10
9/24	Midterm Exam 1	
9/26	Autonomic Nervous System II: Sympathetic Nervous System The "Fight or Flight" Response	
10/1	Autonomic Nervous System II: Sympathetic Nervous System Regulation of Peripheral Tissues	
10/3	Autonomic Nervous System III: Parasympathetic Nervous System The "Rest and Digest" Response	
10/8	Autonomic Nervous System Reflexes I: Urination	

	II: Defecation	
10/10	Fall Break	
10/15	Autonomic Nervous System Reflexes III: Sensory Spinal Reflexes	
10/17	Autonomic Regulatory Systems I: Cardiovascular System	
10/22	Autonomic Regulatory Systems I: Cardiovascular System continued	
10/24	Autonomic Regulatory Systems II: Respiratory System III: Thermoregulation	
10/29	Midterm Exam II	
10/31	Pituitary Function and Neuroendocrinology I: Adrenal Hormones, Gonadotropins	Rhoades, Chp. 13
11/5	Pituitary Function and Neuroendocrinology II: Prolactin, Growth Hormone	
11/7	Pituitary Function and Neuroendocrinology III: Thyroid Hormone, Posterior Pituitary Hormones	
11/12	Society for Neuroscience Conference, no class	
11/14	Regulation of Body Fluids- Thirst I: Vasopressin	Fluharty, Chp. 8
11/19	Regulation of Body Fluids- Thirst II: Angiotensin II	
11/21	Regulation of Body Fluids- Salt Appetite I: Mineralocorticoids	Daniels paper
11/26	Regulation of Body Fluids- Salt Appetite II: Angiotensin II	
12/3	Regulation of Caloric Homeostasis Feeding and Satiety	
12/5	Enteric Nervous System I: Basic Anatomy and Physiology	Janig, Chp. 5
12/10	Enteric Nervous System II: Function and Regulation by Higher Brain Centers	Cummings paper

Cumulative final exam has been scheduled for Wednesday, December 18, from 12-2pm.

Autonomic Physiology is lecture course is designed to introduce the student to the functioning of the autonomic nervous system (ANS), which is critically involved in the maintenance of body homeostasis through regulation of behavior and physiology. The course will begin with a review the basic anatomy and physiology of the ANS including the sympathetic, parasympathetic and enteric divisions. The mechanisms by which the ANS regulates peripheral tissues will be discussed, including reflex and regulatory functions, as will the effect of drugs that modulate ANS activity. The role of the ANS in regulating behavior will be addressed in the context of thirst, salt appetite and food intake. This course utilizes the Blackboard website. Please visit: https://courseweb.library.upenn.edu/ early in the semester to make sure you can access the course site.

Course grades will be based on completion of a lecture wiki or editing of a wiki (10%), weekly quizzes (10%), two midterm exams (25% each) and one cumulative final exam (30%). Students have the option of writing an extra credit paper worth up to 10 points. Suggested topics include diseases of the ANS and drugs which interact with the ANS, although other topics related to the ANS may be considered. Extra credit papers must be at least two pages, single-spaced, in 11-point font, with in-text citations. Source material should include reliable scientific sources and primary journal articles. All students must propose their topic to the course professor for approval before beginning their paper.

Exams:

The midterm and final exams will consist of multiple choice and open-ended questions designed to assess basic knowledge of the concepts discussed in class as well as the ability to integrate information from different lectures.

Missed exams will only be given at a later date with an authorized university absence. If you wish to submit an exam for a re-grade, you should do so in writing within *one week* of receiving the graded exam. If you submit an exam for a re-grade, the entire exam will be re-graded and your resulting score may higher or lower than the original grade. A fraction of exams are photocopied before being returned to the students. If an exam is determined to have been altered before submission for re-grading, the student will be reported to the Office for Student Conduct.

Reading Assignments:

Readings will be available through the course Canvas website and will include chapters from the following sources:

Principles of Neuropsychopharmacology by Feldman, et al. (Sinauer, 1997)

Basic Neurochemistry: Molecular, Cellular and Medical Aspects, 8th edition / Editor-in-chief George J. Siegel; editors R. Wayne Albers, Scott T. Brady, Donald L. Price (Elsevier, 2012).

The Integrative Action of the Autonomic Nervous System by Wilfrid Janig (Cambridge University Press, 2006).

Human Physiology, 4th edition, by Rhoades & Pflanzer (Thomson/Brooks Cole, 2003).

Hormones, Brain and Behavior, Volume 1, Chapter 8, Neuroendocrinology of Body Fluid Homeostasis, by Steven J. Fluharty, Elsevier Science (USA) 2002.

Daniels, Derek, and Steven J Fluharty. Physiology & Behavior 81.2 (2004):319-37.