# Physiological Psychology: 363

**Fall, 2006**

Lecture: 8:00 MWF  
Lab: 1-4 T or W

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## REQUIRED TEXT:

### Sept. 6
**Introduction:** What is physiological psychology? (Ch. 1)

### Basics: Neuronal Transmission, Psychopharmacology, and Neuroanatomy

- **8** a. The neuron and axonal conduction (Ch. 2, 28-53; Ch. 15, 544-546; Fields, 2006)
- **11** b. Synaptic transmission: EPSPs, IPSPs, and synaptic integration (Ch. 2, 53-67)
- **13** c. Neuropharmacology (Ch. 4, 102-114; Ch. 5, 153-156 & 160-164)
  - (1) Acetylcholine and Alzheimer's disease (Ch. 4, 114-118; Ch. 15, 539-543; Wolfe, 2006; Oddo et al., 2004)
  - (2) Norepinephrine and depression (Ch. 4, 122-123)
  - (3) Dopamine, Parkinson's disease, Huntington's disease, and schizophrenia (Ch. 4, 118-122; Ch. 8, 280-284; Ch. 15, 532-538; Youdim & Riederer, 1997; Freed et al. 2001; Marx, 2005)
  - (4) Serotonin, glutamate, peptides, and others (Ch. 4, 124-133; Corbett et al., 1999; Kemp & McKernan, 2002; Moles et al., 2004)

### 26-27 (Lab)
- **e. Neuroanatomy** (Ch. 3; Ch. 5, 140-150)

## FIRST EXAM

29 **Input and Output: Sensory and Motor Systems** (Rosenzweig et al., 2005, 216-228)

- **a. Vision**
- **6** (1) Anatomy and coding (Ch. 6, 168-185; Ch. 5, 150-153)
- **b. Audition** (Ch. 7, 210-231; Rauschecker & Shannon, 2002)
- **c. Somesthetic senses** (Ch. 7, 234-246; Basbaum & Julius, 2006; Manzke et al., 2003)
- **d. Motor systems** (Ch. 8; Ch. 15, 543-545; Youdim & Riederer, 1997; Follett, 2000)

## SECOND EXAM

### Motivation

- **23** a. Water intake (Ch. 12, 394-403)
- **25** b. Food intake (Ch. 12, 403-429; Badman & Flier, 2005)
- **30** c. Sleep and arousal (Ch. 9)
- **d. Sexual behavior and sex differences** (Ch. 10, 328-357; Cahill, 2005)
- **2** e. Reinforcement and addiction (Ch. 13, 454-458; Ch. 18; Nestler & Malenka, 2004; Deroche-Gamonet et al., 2004; Grimm et al., 2001; Siegel et al., 1982; Dackis & O’Brien, 2005)

### Excitotoxicity, Strokes, Recovery of Function, Transplants, Neurogenesis, and Growth Factors

(Ch. 15, 518-528 & 546; Kemp & McKernan, 2002; Björklund & Lindvall, 2000; Freed et al., 2001; Gage, 2003; Mirescu et al., 2004; Specter, 2001; Leuner et al., 2006; Kraft, 2005)

## THIRD EXAM

### Learning and Memory

- **17** a. Habituation and associative learning (Ch. 13, 430-458; Kandel, 2001; Tsien, 2000)
- **29** b. Memory (Ch. 13, 459-479; Riedel et al., 1999; Lee et al., 2004; Bechara et al., 1995)
Mental Illness and Stress

Dec. 1 a. Depression (Ch. 16, 568-583; Blier & de Montigny, 1998; Santarelli et al., 2003)
6 b. Schizophrenia (Ch. 16, 550-568; Javitt & Coyle, 2004; Corbett et al., 1999)
8 c. Anxiety, stress, control, and health (Ch. 11; Ch. 17, 584-594 & 601-613; Sapolsky, 2003; Bechara et al., 1995; Canli et al., 2002)

FINAL PROJECT DUE

14 FINAL EXAM AT 8:00 A.M.

TENTATIVE LAB SCHEDULE

Week 1 (9/12) Ethics of animal (and human) research (Ch. 1, 23-24; Bowd, 1980; Gallistel, 1981; Siegel et al., 1982; Freed et al., 2001)
Week 2 (9/19) Psychopharmacology project: Use of EXCEL and RefWorks; Discussion of final projects
Week 3 (9/26) Neuroanatomy lecture; Analysis of psychopharmacology project (continued)
Week 4 (10/3) Sheep brain dissection and rat brains; Choose Final Project
Week 5 (10/10) Use of stereotax; Demonstration of brain lesion (Ch. 5, 134-140)
Week 6 (10/17) NO LAB (October break)
Week 7 (10/24) Neurosurgery for final project
Week 8 (10/31) Neurosurgery for final project: Work on final project
Week 9 (11/7) Work on final project
Week 10 (11/14) Work on final project
Week 11 (11/28) Histology (Ch. 5, 140-150) and data analysis
Week 12 (12/5) Neuroanatomy; FINAL PROJECT DUE ON DECEMBER 8

GRADING PROCEDURE

The following percentages will be given to each assignment in computing your final grade.

- First Exam: 17%
- Second Exam: 10%
- Third Exam: 17%
- Quizzes and Lab and Class Participation: 14%
- Final Lab Project: 17%
- Final Exam: 25%
- TOTAL: 100%

RESERVED READINGS


