PHYSIOLOGICAL PSYCHOLOGY: 363

Fall, 2003  Lecture: 8:00 MWF  Lab: 1-4 T or W

Mr. John E. Kelsey  Office: Pettingill 359  Office Hours: 9-10:30 T Th
Instructor  Phone: 786-6184  and by appointment

Ms. Tina Rioux  Office: Carnegie 410  Office Hours: 10-11:30 M & W
Assistant in Instruction  Phone: 786-8267  and by appointment

REQUIRED TEXTS:
  Needham Heights, MA; Allyn and Bacon.

Sept.  3  **Introduction:** What is physiological psychology? (C: Ch. 1)

**Basics: Neuronal Transmission, Psychopharmacology, and Neuroanatomy**
5  a. The neuron and axonal conduction (C: Ch. 2, 27-50; P: Ch. 3)
8  b. Synaptic transmission: EPSPs, IPSPs, and synaptic integration (C: Ch. 2, 50-65)
10 c. Neuropharmacology (C: Ch. 4, 100-111; Ch. 5, 149-152 & 155-159)
  d. Psychopharmacology
12 (1) Acetylcholine and Alzheimer's disease (C: Ch. 4, 112-115; Ingram, 2003; Capsoni et al., 2000; P: 176-177 & 167-169)
15 (2) Norepinephrine and depression (Ch. 4, 120-121)
15 (3) Dopamine, Parkinson's disease, Huntington’s disease, and schizophrenia (C: Ch. 4, 116-120; Ch. 8, 262-268; Youdim & Riederer, 1997; Freed et al. 2001; Follett, 2000; Cattaneo et al., 2002; P: 120-121 & 160-161)
19 (4) Serotonin, glutamate, peptides, and others (C: Ch. 4, 121-130; Corbett et al., 1999; Kemp & McKernan, 2002)
23-24 (Lab)  e. Neuroanatomy (C: Ch. 3; Ch 5, 137-145; P: Chs. 1-2 & 5-7)

24  **FIRST EXAM**

26 **Input and Output: Sensory and Motor Systems** (Rosenzweig et al., 1999, 189-202)
  a. Vision
29 (1) Anatomy and coding (C: Ch. 6, 162-183; Ch. 5, 146-149; P: 129-133)
Oct.  3 (2) Perception (C: Ch. 6, 183-201; Zeki, 1993)
6  b. Audition (C: Ch. 7, 202-219; Rauschecker & Shannon, 2002; P: 134-137)
8  c. Somesthetic senses (C: Ch. 7, 222-233; Vogel, 2000; Manzke et al., 2003; P: 138-148)
10  d. Motor systems (C: Ch. 8; Youdim & Riederer, 1997; Follett, 2000; P: Ch. 9)

13  **SECOND EXAM**

Motivation
20  a. Water intake (C: Ch. 12, 373-382; P: 94-99 & 186-187)
b. Food intake (C: Ch. 12, 382-409; Wisse & Schwartz, 2003; Woods et al., 1998; P: 183-185)

c. Sleep and arousal (C: Ch. 9; P: 192-195; Mieda & Yanagisawa, 2002; Mednick et al., 2003)

d. Reinforcement and addiction (C: Ch. 13, 444-450 & Ch. 18; Ch. 5, 152-155; Nestler et al., 2000, Ch. 16; Grimm et al., 2001; Siegel et al., 1982; Vorel et al., 2001; P: 188-189)

Nov. 3 e. Sexual behavior and sex differences (C: Ch. 10, 308-336; Kimura, 2002; P: 196-201

5 Excitotoxicity, Strokes, Recovery of Function, Transplants, and Growth Factors
(Fisher, 1999; Björklund & Lindvall, 2000; Freed et al., 2001; Gage, 2003; Specter, 2001; Olson, 2000; Wickelgren, 2002)

10* THIRD EXAM

Learning and Memory
14 a. Habituation and associative learning (C: Ch. 13; Kandel, 2001; Tsien, 2000)
17 b. Memory (C: Ch. 14; Riedel et al., 1999; Bechara et al., 1995; P: Ch. 10)

Mental Illness and Stress
21 a. Depression (C: Ch. 16, 532-545; Blier & de Montigny, 1998; Santarelli et al., 2003)
Dec. 3 b. Schizophrenia (C: Ch. 16, 515-532; Sawa & Snyder, 2002; Corbett et al., 1999; Shi et al., 2003)
5 c. Anxiety, stress, control, and health (C: Chs. 11 & 17; Sapolsky, 2003; Canli et al., 2002; Ader, 2001; P: 190-191 & 212-213)

5 FINAL PROJECT DUE

11 FINAL EXAM AT 8:00 A.M.

* I will be out of town November 10-12.

TENTATIVE LAB SCHEDULE:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>9/8</td>
<td>Ethics of animal (and human) research (C: Ch 1, 20-21 &amp; 453-455; Bowd, 1980; Gallistel, 1981; Siegel et al., 1982; Freed et al., 2001)</td>
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<td>2</td>
<td>9/15</td>
<td>Psychopharmacology project: Use of EXCEL and ENDNOTE; Discussion of final projects</td>
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<td>3</td>
<td>9/22</td>
<td>Neuroanatomy lecture; Analysis of psychopharmacology project (continued)</td>
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<td>4</td>
<td>9/29</td>
<td>Sheep brain dissection and rat brains; Choose Final Project</td>
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<td>5</td>
<td>10/6</td>
<td>Use of stereotax; Demonstration of brain lesion (C: Ch. 5, 131-137)</td>
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<td>6</td>
<td>10/13</td>
<td>NO LAB (October break)</td>
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<td>7</td>
<td>10/20</td>
<td>Neurosurgery for final project</td>
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<td>8</td>
<td>10/27</td>
<td>Neurosurgery for final project: Work on final project</td>
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<tr>
<td>9*</td>
<td>11/3</td>
<td>Work on final project</td>
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<tr>
<td>10</td>
<td>11/10</td>
<td>Work on final project</td>
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Week 11  (11/17) Histology (C: Ch. 5, 137-143) and data analysis
Week 12  (12/1) Neuroanatomy; **FINAL PROJECT DUE ON DECEMBER 5**

**GRADING PROCEDURE:**
The following percentages will be given to each assignment in computing your final grade.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>First Exam</td>
<td>18%</td>
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<tr>
<td>Second Exam</td>
<td>10%</td>
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<tr>
<td>Third Exam</td>
<td>18%</td>
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<tr>
<td>Lab and Class Participation</td>
<td>10%</td>
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<tr>
<td>Final Lab Project</td>
<td>18%</td>
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<tr>
<td>Final Exam</td>
<td><strong>26%</strong></td>
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<tr>
<td></td>
<td><strong>100%</strong></td>
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**RESERVED READINGS** (the articles marked by an asterisk are not available on-line)


