PSYCH 428 Human Motor Control and Learning (5 credits)
Spring Quarter 2011 9:00-10:20 MWF Psych 428 is an optional W course

Instructor: Dr. Beth Kerr ChemLib Building 33 543-4159 bkerr@u.washington.edu

Office Hours: Wednesday 10:30-11:20 and by appointment. Call or E-mail at any time.

Course Description:
A lecture/discussion course on current theory and research in human motor-skill acquisition and performance. Emphasis on experiments in which normal adults perform real-world tasks such as driving a car, playing the piano, or hitting a baseball, as well as laboratory experiments.

Prerequisites: Psych 101 and Psych 202 and Psych 209
Recommended: at least one 300-level core course in psychology

Course Learning Goals. Students should leave this course with a better understanding of:
1. Human motor control and learning – viewed from the behavioral perspective. Topics include:
   - ways that practice conditions and the frequency and format for knowledge of results and feedback influence both skill acquisition and retention
   - explicit versus implicit memory and learning for motor skills
   - the role of attentional focus, in particular internal versus external focus
   - proprioception, vision, and visual dominance
   - spatial frames of reference
   - experts and domain specific knowledge
   - the consequences too much “help” during skill acquisition, negative imagery, over-thinking, and explicit learning and choking
   - sequence learning
   - coordination
   - the role of reflexes in motor control, feedforward, fine tuning, and correction
   - posture and voluntary movements

2. The research designs and methods employed to address problems in three different but related areas: 1) the factors that influence skill acquisition and retention, 2) the role of perception and cognitive factors in motor control and learning, and 3) motor production and the central and sensory components of motor control.
UNIT I. Learning and Memory for Motor Skills (10 sessions)
UNIT II. Perception, Memory, Attention and Action (9 sessions)
UNIT III. Motor Control (8 sessions)

Students will also have opportunities to practice and improve scientific writing skills. Class members will write short descriptions of the results for mini-experiments conducted as part of the course. In addition, they will write, with revision, a short literature review paper.

Some students may be able to apply the motor control and learning principles they learn to their own sport, music, or dance performance or to instructional setting such as teaching, coaching and physical and occupational therapy.

Required Textbook:

Required Articles: We will also read research articles. These materials are available from the UW Libraries as e-journals.
**Psych428 Course Web Page:** We have a bare-bones UW course Web Page with copies of the syllabus and assignments and the outlines for lectures. I will post messages as needed and make a point to post a reminder/updates message sometime each Monday. Please check these messages. The address is: http://courses.washington.edu/psych428/

**Psych428 Course email list.** Psych428a_sp11 This email list permits me to send the same message to the entire class. The list is updated daily to include UW email addresses for all enrolled students. Be sure to have a way to receive messages that come to your UW account.

**Course Requirements:**

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<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Test 1</td>
<td>50</td>
<td>Wednesday, April 20</td>
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<tr>
<td>Test 2</td>
<td>50</td>
<td>Monday, May 16</td>
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<tr>
<td>Final Exam</td>
<td>50</td>
<td>Wednesday, June 8 8:30 (Comprehensive)</td>
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<tr>
<td>Article analysis 1*</td>
<td>5</td>
<td>Friday, April 15</td>
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<tr>
<td>Article analysis 2*</td>
<td>5</td>
<td>Friday, April 29</td>
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<tr>
<td>In-Class Exercise***</td>
<td>15</td>
<td>Friday, April 1 (data collection); due Friday, April 8</td>
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<td>Review paper</td>
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<tr>
<td>Prepaper due</td>
<td>5</td>
<td>(for points) Monday, April 25</td>
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<tr>
<td>Peer Review 1**</td>
<td>10</td>
<td>Papers for exchange due in class Friday, May 6</td>
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<td>Peer review in class Monday, May 9</td>
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<tr>
<td>Peer Review 2**</td>
<td>10</td>
<td>Papers for exchange due in class Friday, May 20</td>
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<td>Peer review in class Monday, May 23</td>
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<td>Final Paper</td>
<td>40</td>
<td>Friday, May 27</td>
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<td>TOTAL</td>
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There will be separate handouts for the article analyses, in-class exercise, and review paper

*Bring the written analysis at the start of class and take part in class discussion in order to earn points (Max possible 2 points if you don't take part in the class discussion)

** Provide paper drafts on time AND take part in classroom peer review in order to earn points

*** Students earn points for taking part in data collection and for the written portion

**Grades will be based on total points.**

115 points guarantees a 0.7.
120 points (50%) guarantees a 1.0.
156 points (65%) guarantees a 2.0.
174 points (72.5%) guarantees a 2.5.
192 points (80%) guarantees a 3.0.
210 points (87.5%) guarantees a 3.5.
228 points (95%) guarantees a 4.0.

Exams will include multiple choice, matching, problems, questions that require interpreting tables and figures, and short-answer questions. Exams cover lectures, required articles, assignments, and the assigned reading in the textbook. Test 1 will cover Unit 1. Test 2 will focus on Unit 2. The final exam will be comprehensive with more focus on Unit 3 than the two prior units. It will include some questions that will ask you to pull material in the course together. Students are not permitted to make up exams unless excused ahead and due to special circumstances.

**ACCOMMODATIONS**

If you would like to request academic accommodations due to a disability, please contact Disability Resources for Students, 448 Schmitz, (206) 543-8924 (V/TTY). If you have a letter from Disability Resources for Students indicating that you have a disability that requires academic accommodations, please present the letter to me as soon as possible so we can discuss the accommodations you might need for this class.
UNIT 1: LEARNING AND MEMORY FOR MOTOR SKILLS

Textbook: Chapters 2, 10, 11, and 12

Required research articles:


Optional background reading (on reserve OUGL):


UNIT 2: PERCEPTION, MEMORY, ATTENTION, AND ACTION

Textbook: Chapters 3, 4, and 5

Required research articles:


Optional background reading (on reserve OUGL):


UNIT 3: MOTOR CONTROL

Textbook: Chapters 5, 6, 7, 8

Required research articles

Optional background reading (on reserve OUGL):


PSYCHOLOGY WRITING CENTER

Students may sign up for appointments on the writing center webpage (http://web.psych.washington.edu/writingcenter/). Drop-ins are fine too if a tutor is available. Check out the Psychology Writing Center web page for writing handouts and hours.

MISSING HANDOUTS

If you miss a printed handout or assignment provided in class, see me in the classroom before or after the next class to get a copy. If you need a handout given out more than one session “back,” you are welcome to come to my office for it. Assignments are available on the course web page for you to copy.