Division: Kinesiology, Health, and Sport Studies
Program Area: Kinesiology
Course Ref. #: 17877
Course Title: KIN 8530 - Motor Learning
Section #: 002
Term/Year: Fall 2013
Course Location: 0116 MAIN
Schedule: Thursday 5:30 PM – 8:15 PM
Instructor: Qin Lai, Ph.D.
Office Address: 10 Main Annex
Office Hours: T/Th: 2:30 PM – 5:00 PM
Office Phone #: 313-577-4246
e-mail: qin_lai@wayne.edu Website: http://coe.wayne.edu/kinesiology/index.php

Course Description:
Examination of research in motor learning and performance. Relation of the nervous system and other physiological mechanisms to motor behavior and other conditions which affect the acquisition of motor skill: perception, motivation, psychology of motor behavior.

Course Topics:
1. Motor Learning and Control: An Introduction
   a. Basic concepts
   b. Origins of the field
   c. Classification of motor skills

2. Research Methods
   a. Considerations in measurement
   b. Measure motor behavior

3. Human Information Processing
   a. Information processing model
   b. Anticipation
   c. Signal detection

4. Attention and Performance
   a. Attention theories
   b. Attention during movement
   c. Focus of attention
   d. Attention and anxiety

5. Sensory Contributions to Motor Control
   a. Closed-loop control system
   b. Vision
   c. Proprioception
d. Feedforward on motor control

6. Central Contributions to Motor Control
   a. Open-loop control system
   b. Central control of rapid movements
   c. Generalized motor program

7. Principles of Speed and Accuracy
   a. Fitts’ Law and speed-accuracy trade-off
   b. Temporal speed-accuracy trade-off
   c. Correction model

8. Coordination
   a. Discrete tasks
   b. Continuous tasks

9. Learning, Retention, and Transfer
   a. Motor learning concepts and measure
   b. Retention and motor memory
   c. Transfer of learning

10. Practice Condition
    a. Practice variability and specificity
    b. Distribution of practice and whole-part practice
    c. Demonstration and modeling of practice
    d. Mental practice

11. Augmented Feedback
    a. Classifications
    b. Knowledge of results
    c. Knowledge of performance

**Course Outcomes:**
Upon completion of this course, students should be able to:
2. Demonstrate the acquisition of human nervous system functions on motor behavior.
3. Demonstrate the acquisition of motor control theories and principles.
4. Demonstrate the understanding of human memory and motor learning.
5. Demonstrate the understanding of the variables optimizing motor skill acquisition, retention, and transfer.
6. Demonstrate the skill proposing and designing human motor behavior research.
7. Demonstrate the skill of the computation and presentation of scientific data.
8. Demonstrate the understanding of advanced motor control and learning research literatures.

**Required Text(s):**
Additional References:

Method of Instruction:
Lecture, discussion, Presentation, and lab

Course Assignments:
A lab and a research assignment are required for the class. The lab will involve data collection and analysis at motor behavior lab, 10 Main Annex. The evaluation of the lab will focus on participation and lab report. The research assignment will involve a paper with extensive literature review and presentation on current topics in motor control and learning. The evaluation of the research will focus on the qualities of paper and presentation.

Course Examinations:
Two exams and three quizzes will be scheduled during the semester. The exams will cover the first half or second half of the materials for the semester, respectively. Each quiz is based on objective questions for selected chapters.

Class Policy:
(1) All the students are asked to participate in classes. A student will receive a grade of “F” for this class if he/she misses more than 1/3 of the total classes.
(2) Lab should be attended on time. A makeup is only available for emergent situations (e.g., medical, family, car accident).
(3) All the exams and quizzes should be attended on time. A make-up can be provided for midterm exam and quizzes only for emergent situations. In case of emergency, it is the student’s responsibility to contact the instructor immediately to schedule a make-up. However, no make-up is available for the final exam.

Class Schedule:
See the separated page.

Grading System:
The following will be used to determine grades in this course:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>30%</td>
</tr>
<tr>
<td>Final</td>
<td>30%</td>
</tr>
<tr>
<td>Quizzes (@ 3 x 5%)</td>
<td>15%</td>
</tr>
<tr>
<td>Research Assignment</td>
<td>20%</td>
</tr>
<tr>
<td>Lab</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
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</tbody>
</table>
EXTRA CREDIT: Students who have full class participation will be awarded 2% extra credits.

Grades will be determined on a straight scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93 – 100%</td>
<td>4.00</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89.9%</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>80 – 82.9%</td>
<td>3.00</td>
</tr>
<tr>
<td>C</td>
<td>73 – 76.9%</td>
<td>2.00</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 70%</td>
<td>0.00</td>
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Course Drops/Withdrawal Policy:
Course Drops and Withdrawals: In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at:
http://reg.wayne.edu/pdf-policies/students.pdf

The last day to withdraw will be at the end of the 10th full week of classes (Nov. 9, 2013 for Fall, 2013).

Academic Dishonesty – Plagiarism and Cheating:
Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (http://www.doso.wayne.edu/student-conduct-services.html). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

Attention Students with Disabilities:
If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services’ mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.
Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

**Religious Observance Policy:**
Because of the extraordinary variety of religious affiliations represented in the University student body and staff, the Wayne State University calendar makes no provision for religious holidays. It is University policy, however, to respect the faith and religious obligations of the individual. Students who find that their classes or examinations involve conflicts with their religious observances are expected to notify their instructors well in advance so that alternative arrangements as suitable as possible may be worked out.

**Student Services:**
The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit [www.success.wayne.edu](http://www.success.wayne.edu) for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).

The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit [http://claswebclaswayneedu/writing](http://claswebclaswayneedu/writing) to obtain information on tutors, appointments, and the type of help they can provide.

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**KIN 8530 CLASS SCHEDULE – Fall 2013**  
**Dr. Qin Lai**

<table>
<thead>
<tr>
<th>Date</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/29</td>
<td>Class Orientation&lt;br&gt;Chapter 1 Introduction&lt;br&gt;<strong>Reading: Ch 1</strong></td>
</tr>
<tr>
<td>Week 1</td>
<td></td>
</tr>
<tr>
<td>9/5</td>
<td>Chapter 2 Research Methods&lt;br&gt;<strong>Reading: Ch 2; Shadmehr &amp; Holcomb (1997); Shea, Lai, Black, &amp; Park (2000)</strong></td>
</tr>
<tr>
<td>Week 2</td>
<td></td>
</tr>
<tr>
<td>9/12</td>
<td><strong>Quiz 1 (Ch. 2)</strong>&lt;br&gt;Chapter 3 Human Information Process&lt;br&gt;<strong>Reading: Ch 3; Stenekes et al. (2008)</strong></td>
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<tr>
<td>Week 3</td>
<td></td>
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<tr>
<td>9/19</td>
<td>Chapter 4 Attention and Performance&lt;br&gt;<strong>Reading: Ch 4; Wulf, et al. (2010); Lohse, et al. (2010)</strong></td>
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<td>Week 4</td>
<td></td>
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<tr>
<td>9/26</td>
<td>Chapter 5 Sensory Contributions to Motor Control&lt;br&gt;<strong>Reading: Ch 5; D’Hondt, et al. (2011); Lawrence, et al. (2011)</strong></td>
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<tr>
<td>Week 5</td>
<td></td>
</tr>
<tr>
<td>10/3</td>
<td>Chapter 6 – Central Contributions to Motor Control&lt;br&gt;<strong>Reading: Ch 6; Pruszynski, et al. (2011); Shea &amp; Wulf (2005)</strong></td>
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<tr>
<td>Week 6</td>
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<tr>
<td>10/10</td>
<td>Midterm Exam (Ch 1-6)&lt;br&gt;Research Assignment Information</td>
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<tr>
<td>Week 7</td>
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<tr>
<td>10/17</td>
<td><strong>Lab</strong></td>
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<tr>
<td>Week 8</td>
<td></td>
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<tr>
<td>10/24</td>
<td>Chapter 7 - Principles of Speed and Accuracy&lt;br&gt;Chapter 8 - Coordination&lt;br&gt;<strong>Reading: Ch 7 &amp; 8; van Veen, et al. (2008)</strong></td>
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<tr>
<td>Week 9</td>
<td></td>
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<tr>
<td>Week</td>
<td>Quiz/Activity</td>
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<td>---------------------------------------------------</td>
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<tr>
<td>10/31</td>
<td>Quiz 2 (Ch. 8)</td>
</tr>
<tr>
<td>11/7</td>
<td>Quiz 3 (Ch. 9)</td>
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<tr>
<td>11/14</td>
<td>Chapter 11 Augmented Feedback</td>
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<tr>
<td>11/21</td>
<td>Optional Quiz (Ch. 11)</td>
</tr>
<tr>
<td>11/28</td>
<td>University Holiday</td>
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<tr>
<td>12/5</td>
<td>Student research presentation &amp; discussion</td>
</tr>
<tr>
<td>12/12</td>
<td>Final Exam (Ch 7-11)</td>
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</tbody>
</table>

Note: The chapter number on a quiz or exam = the chapter number of the lecture
The chapter number on the reading = the chapter number of the textbook