NS 191C SYLLABUS
Spring, 2006

Course Title: Cellular and Molecular Mechanisms of Learning and Memory (NS191C)

Instructor: Cui-Wei (Tracy) Xie, M.D., Ph.D.
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Guest Speakers: Dr. Bruce Kagan (bkagan@npih.mednet.ucla.edu)
Dr. James A. Waschek (jwaschek@npih.mednet.ucla.edu)

Prerequisite: M101C preferred, but not an absolute request.

Credits: 4
3 hr class, plus one hr per week for student preparation.

Enrollment: 15

Format: Introductions by the instructor and guest speakers for each topic;
Student presentations and group discussions of selected articles from current literatures

Grading: Letter grades* will be determined as follows:
33% paper reading and participation in the group discussion
33% oral presentation
34% term paper
* Only one integrated grade will be given at the end of quarter.

Course Web site: http://www.lsic.ucla.edu/classes/spring06/

Class rooms: Rm 68-236B

Office hour: Monday, 1-3 pm, NPI 78-168
**Weekly Schedule:** *, lectures by the instructor or guest speakers, the rest is for student presentation and discussion.

Wk 1. Course Introduction *
Wk 2. Long-term potentiation (LTP): induction and expression*  
   Student presentations: early-phase LTP
Wk 3. Late-phase LTP
Wk 4. Long-term depression (LTD)
Wk 5. Structural changes and adult neurogenesis: role in synaptic plasticity and learning
Wk 6. The relation between synaptic plasticity, learning and memory
Wk 7. Professor James A. Waschek: Genetic and Molecular Approaches to Learning and Memory*  
   Student presentation
Wk 8. Professor Bruce Kagan: Alzheimer’s dementia *  
   Student presentation
Wk 9. Student presentations
Wk 10. Student presentations

**Reading Assignment:**

Students can choose a research article from the following list or from current literature for their oral presentations. Review articles in each section (A-C) are required reading materials but not for presentations. Course Reader that includes all the papers listed below is available at COURSE READER MATERIAL, 1141 Westwood Blvd, (310) 443-3303.

**A. LTP and LTD Models (Week 1-6)**

**Review Articles**


**Research Articles**

**Week 2. LTP induction, expression and the early phase**


**Week 3. Late-phase LTP**


**Week 4. LTD and Depotentiation**


**Week 5. Neurogenesis and Structural Changes during plasticity and Learning**


**Week 6. Is LTP or LTD Related to Learning and Memory?**

**B. Genetic and Molecular Approaches to Learning and Memory (week 7, 8)**

**Review Article**


**Research Articles**


**C. Learning, Memory and Behavioral Disorders (week 9, 10)**

**Review Articles**


**Research Articles**


Books or Book Chapters for References: