Course Title: Cellular and Molecular Mechanisms of Learning and Memory (NS181)

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/
Class rooms: MRL Rm 2740

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. Neurogenesis and structural changes during synaptic plasticity and learning
Wk 6. The role of local protein synthesis in synaptic plasticity and memory  
   Professor James A. Waschek: Genetic and Molecular Approaches to Learning and  
   Memory*  
   Student presentation
Wk 7. Student presentations
Wk 8. Student presentations
Wk 9. Professor Bruce Kagan: Alzheimer’s dementia *  
   Student presentation
Wk 10. Student presentations

**Reading Assignment:**
Students can choose a research article from the following list 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**  (Page numbers shown as in the reader)


**Research Articles**

**LTP: induction, expression and early phase**


LTP: late phase


LTD and depotentiation


Neurogenesis and structural changes during synaptic plasticity and learning


Local protein synthesis: role in synaptic plasticity 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