Course Syllabus

Instructors:
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Teaching Assistant:
Kelly Varga: SEL 4296, 312-355-1465, email kvarga3@uic.edu

Laboratory Times: Tuesday and Thursday, 1-4pm SEL 4068

Course Description: Bios 489 is a hands-on laboratory course designed to introduce students to current methods used to examine the activity of nerve cells, neuronal networks, and other electrically excitable tissues. The focus of the laboratory is on the use of electrophysiological methods to examine the properties of neuronal proteins, cells and networks. Students will be introduced to key questions about the function of neurons at the cellular level and how these questions can be addressed. Animals will be used in the laboratory.


The following internet site(s) will also be used: https://blackboard/uic.edu/

Office Hours: Dr. Gong will hold office hours Wednesdays 11-12 and 4-5, 4294 SEL. Dr. Malchow has office hours on Wednesdays 8:30-10 outside his lab, 4083 SEL, and Wednesdays 1-2 at the African American Cultural Center, 2nd floor of Addams Hall. Students can also arrange for appointments with instructors and the teaching assistant at a mutually convenient time (preferably via e-mail).

Attendance: Attendance is expected at all scheduled classes. Attendance is REQUIRED at all labs and scheduled exams, except in cases of illness, mandatory religious obligations, or official University activities. To be excused from attending an exam, an official medical certificate or an affidavit is required.

Academic Dishonesty Policy: Any student caught copying others' work on an assignment or exam or cheating in any other way will receive a zero for that assignment or exam and will be referred to the Student Judicial Affairs Committee, the Department Chair and/or Dean. Be sure to give proper attribution when using others' work in laboratory assignments.

Students with disabilities: Students with disabilities who require accommodations for access and participation in this course must be registered
with the Office of Disability Services (ODS); they can be reached at 312-413-2103 (voice) or 312-413-0123 (TTY).

NOTE: We reserve the right to make changes in this syllabus. Any changes will be announced in lecture or posted on Blackboard. Coming to class will be important for keeping current on if and how the syllabus changes.

GRADING:
Quizzes, worksheets, attendance = 30 %
Laboratory Reports = 30%
Oral Presentation of Independent Project = 20 %
Written Report of Independent Project/Final Exam = 20%

***NO MAKE-UP REPORTS OR MAKE-UP EXAMS ALLOWED FOR ANY REASON***

Week 1 (Jan. 13-17):
Lecturers: Drs. Gong & Malchow
Simulation of Nernst and Goldman equations
Laboratory: No lab practice

Week 2: (Jan. 20-24)
Lectures: Drs. Gong & Malchow
Ion and solutions
Laboratory: solution preparations

Week 3: (Jan. 27-31)
Lectures: Dr. Malchow
Introduction to retina as model neural system
Whole cell recording specifics and considerations
Laboratory: Whole-cell recording from retinal neurons

Week 4: (Feb. 3-7)
Lectures: Dr. Malchow
Examples of whole-cell recording from the literature
Laboratory: Whole-cell recording from retinal neurons

Week 5: (Feb. 10-14)
Lectures: Dr. Malchow
whole-cell recording considerations
Laboratory: Whole-cell recording from retinal neurons

Week 6: (Feb. 17-21)
Lecture: Dr. Gong
Single channel recording – recording considerations
Laboratory: Single-channel recording from retinal / chromaffin cells
WHOLE-CELL LAB REPORT DUE ON THURSDAY

Week 7: (Feb. 24-28)
Lecture: Dr. Gong
Single channel recording – analytical considerations
Laboratory: Single-channel recording from retinal / chromaffin cells
Week 8: (Mar. 3-7)
Lecture: Dr. Gong
   Single channel recording – examples from the literature
Laboratory: Single-channel recording from retinal / chromaffin cells

Week 9: (Mar. 10-14)
Lecture: Dr. Alford
   Lamprey as a model system for studying neural cells & circuits
Laboratory: Introduction to Lamprey preparation
SINGLE CHANNEL LAB REPORT DUE ON THURSDAY

Week 10: (Mar. 17-21)
   Dr. Alford
   Recording methodologies for Lamprey
Laboratory: recordings from Lamprey

Week 11: (Mar. 24-28)
Spring break. NO class.

Week 12: (Mar 31 – April 4)
   Dr. Alford
   Recording methodologies for Lamprey
Laboratory: recordings from Lamprey

Week 13: (April 7-11)
Proposal of independent project
   Pursuit of independent research project
LAMPREY LAB REPORT DUE ON THURSDAY

Week 14: (April 14-18)
Independent project research

Week 15: (April 21-25)
Independent project research

Week 16: (April 28-May 2)
Independent project research

Week 17: (May 5-9)
Independent project research oral presentations and written report due