

Chemistry 474: Neurochemistry

CRN: 39000

Instructor: Dr. Kelly Drew
Office/office hrs: Murie 223F, MWF 10-12:00
Telephone: 474- 7190
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Lecture: TR, 9:45-11:15, Murie room 103

Perusall Create a Perusall account and enter your course code **DREW-63E8X** upon registration.

Homework: Assignments posted on course schedule as **HW** are due at the beginning of the next class unless otherwise indicated. **Late HW is not accepted.**
Homework and reading assignments (other than from the text book) will be posted on blackboard

Home-work make-up: Attend neuroscience seminars. A write-up about a seminar will substitute for one HW assignment (peer-reviews of selected articles). Up to 3 HW assignments can be substituted by a seminar write-up. <https://neuroscience.nih.gov/neuroseries/Home.aspx>

Course Description: Course will cover basic and applied aspects of *inter*-neuronal signaling. Lectures will be based on chapters from assigned text as well as recent and historical literature relevant to these topics. Basic concepts introduced in lectures will be applied through guided discussion of original research papers. Students will learn to prepare “peer reviews” of selected papers.

Course objectives Prerequisite: BIOL F115 and CHEM F322; and PSY F335, or BIOL B417 or CHEM F470
Lectures, exams and quizzes will focus on the following objectives for each neurotransmitter/neuromodulator discussed.

- Know functions and diseases associated with neurotransmitter/neuromodulator
- Recognize structure activity relationships and structural similarities between endogenous neurotransmitter, agonists and antagonists.
- Be able to address detailed mechanisms of neurochemical transmission
- Synthesis
- Storage
- Regulated release
- Receptor subtypes and effectors
- Termination of effect
- Know basic neurochemical anatomy of transmitter system

(Homework) Students will be guided by the instructor through critical evaluation of peer-reviewed papers to achieve the following objectives:

- Know how to decipher a scientific paper
- Know how to interpret data presented in formats typical of scientific papers
- Know how to critically evaluate experimental design, graphical representation of data and conclusions drawn from data shown and defend one’s own interpretation of the data.
- Know how to prepare a peer-review of a submitted manuscript when invited by a journal’s editor.

(Group Project) Students will be guided through oral presentations of original research towards the following objectives:

- Become familiar with data bases and original literature related to a topic of interest in neurochemistry
- Know effective techniques for oral presentation of original research
- Know effective techniques for optimizing positive group dynamics and productivity as a team player and as a group leader.

Total points is calculated from the average of all presentations. Each group will give as many presentations as there are members in the group. Although we try for 3 people per group, sometimes 3 does not divide into class number evenly and we end up with 4/group. Sometimes a group member will drop the class before the end of the semester. Groups may give more presentations than members, but all groups must give at least as many presentations as group members.

Text: Basic Neurochemistry: Molecular, Cellular and Medical Aspects by George J. Siegel (Editor), 8th edition (if you can get it). Otherwise 7th edition should suffice.

Other Required Reading:	Original research and review articles to be assigned
Homework, Exams and Grading:	Exams and quizzes will typically consist of a subset of review questions provided in class. See schedule for when homework is due. Permission to hand-in HW via e-mail may be arranged in advance and will not be accepted without prior arrangements. Late homework will not be accepted unless arrangements are made before the homework is late. There will be no make-up exams or quizzes except under extreme circumstances. If such circumstances arise notify Dr. Drew (474-7190) before the scheduled time of the exam. If a make-up exam is approved it must be completed within 1 week of the original exam. Any student suspected by the instructor of cheating on a quiz or exam may be assigned a course grade of F; course drop forms will not be signed in these cases. The letter grades assigned will be based on the overall performance of the class but will usually be in the range 90-100=A, 80-90=B, 70-79=C, 60-69=D, and below 60 is failing.
Add seminars and drop a quiz option	You may choose to journal your impressions of 3, online seminars at http://neuroseries.info.nih.gov/ and drop one quiz grade. You will be asked to turn in your journal kept while watching the seminars.
Disabilities:	Students with a physical or learning disability are required to identify themselves to Mary Matthews (x 7043) in the Disability Services office, located in the Center for Health and Counseling. The student must provide documentation of the disability. Disability Services will then notify Prof. Drew of special arrangements for taking tests, working homework assignments, and doing lab work.

Assignments for Chemistry 474

2 Exams (100 pts ea.)	200 pts
2 Quizzes	50 pts
2 Presentations of original research papers	100 pts
Comprehensive final exam	100 pts
Homework (Perusall comments) + ~10peer review	~200 pts