

Advanced Cellular Neuroscience BIOL 610
Fall 2018 Tues, Thurs 2:00-3:20, Huestis 31

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Office hours: email for appt.

Please consult the class website on Canvas regularly for reading assignments

Topics:

The class will focus first on classic papers/principles in cellular neuroscience, including how action potentials and synaptic potentials are generated. From there we will move to a number of contemporary topics in synaptic function and plasticity, while still highlighting classic findings that have shaped our understanding, as well as recent exciting advances in the field.

Learning Goals:

First, students will become acquainted with a broad set of concepts and methods in cellular neuroscience. This will include gaining historical perspective on the development of ideas and methods in neuroscience, as well as obtaining a deeper understanding of the neuronal processes that allow brains to learn and adapt. **Second**, students will learn to critically assess scientific data from the primary literature, and to evaluate controversies in the field, a set of skills that are critical for becoming a scientifically literate citizen. **Third**, students will develop a basic competence to think about cellular physiology quantitatively.

Readings:

Most of the hard work for this class is in the reading, which will consist primarily of original research articles. In some cases these articles will require multiple readings to fully understand. *Readings should be completed before coming to class.* Students will be asked to describe findings presented in figures from the papers and answer questions. Please print out and bring the readings to class.

In addition, topic reviews, review articles and web-videos may provide perspective and background. In most cases, these are not required, but you may find them helpful (and in some cases entertaining). The format for discussing the papers will vary, but in general I will ask someone to come to the board and lead the class through a particular figure. We will continue through each figure in the paper in turn with lecture and discussion to increase our understanding of the broader implications. All articles are available for download through Canvas.

Statement on academic honesty:

Students are expected to adhere to the highest standards of academic honesty. Plagiarism is a serious breach of academic ethics and as per University of Oregon policy (<http://conduct.uoregon.edu>) is potential grounds for failure in the course. While discussion amongst students is encouraged, all written work must reflect each student's own ideas and writing. All referenced material, quoted material, or paraphrasing must be cited appropriately. Students are encouraged to consult the Instructor if there are any questions about appropriate citation.

Disabilities:

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center (formerly Disability Services) in 164 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu