Neuroscience 201A is a six week course and is the first of three successive courses over the Fall and Winter quarters that constitute your introduction to fundamental neuroscience. 201A will focus on membrane biophysics and synaptic transmission, 201B will focus on developmental neuroscience, and 201C will focus on systems neuroscience. This course is not meant to be comprehensive; rather we will cover many areas broadly and a few areas deeply. The general idea is two-fold: (1) to put you all on to “the same page” and provide you with a foundation for taking more advanced courses, and (2) to give you some of the tools you will need to become life-long learners.

Neuroscience 201A will cover many areas with which you are familiar (or with which you think you are familiar). However, your backgrounds are highly diverse, and each of you will be comfortable with some of the material in the course and challenged by other material. We expect you to help each other out.

There is no single textbook that is suitable for this course. The candidate texts suffer from a combination of faults:
1. They are written for the medical student (larger market!) and have limited value for graduate students,
2. They are out of date,
3. They have one or a few glaring errors, and
4. They don’t cover the topic(s) is sufficient detail.

Thus, you will be expected to bring yourselves up to speed by reading various book chapters and review articles. At the end of this page is a list of six books that should be on 1-day reserve in the library in the Rutter Center that may be of help. The Nicholls book is very well written (any edition!) and always a good place to start. The Johnston and Wu book is great for those with an affinity for problem sets and with an inclination to think quantitatively about things.

The first part of Neuroscience 201A is grounded in basic principles of electrophysiology. The instructors will assume that you are comfortable with concepts from physics such as voltage, potential (or potential difference), current, resistance/conductance, capacitance, etc. If this material is not familiar to you, refer to Chapter 1 of Hille B (2001) Ion Channels of Excitable Membranes, 3rd edition, Sinauer, found here: Chapter 1 (22 pages) or Appendix A of Kandel ER et al. (2013) Principles of Neural Science, 5th edition, McGraw-Hill. If, upon reading this material, you are able to say, “nice review of what I already know,” you should be in good shape. If, instead, you find yourself mystified, then you are going to have to work diligently to keep pace.

UCSF Mission Bay Library Reserve

The following books have been placed on reserve in the UCSF Mission Bay library (ground floor, South side, of the Rutter Center; Hours):