UC San Diego Spring, 2022
Terrence Sejnowski

MW 4:00-4:50 PM - Pepper Canyon Hall
F 4:00-4:50 PM - Zoom

BIPN 146: Computational Cell Neurobiology

Course Goals:

This course will provide an introduction to a variety of computer modeling techniques being used to study brains at the cellular and molecular levels. Topics covered include models of passive membrane properties, gating of ionic channels, initiation of action potentials, dendritic integration of synaptic inputs, and neuromodulation.

Course Requirements:

Students are expected to have a basic background in both neurobiology and mathematics; although no background in computer modeling is required, some experience with computers is desirable. The material covered in BIPN 140 and BIPN 142 is a good background for the neurobiology requirement. Calculus is an essential mathematical background and experience with differential equations in a physics or chemistry class is desirable.

Exams and Grading:

There will be a midterm exam, a final exam, problems that will be covered in the sections, and a critique:

Midterm	30%
Final	30%
TA Section	20%
Project	20%

Attendance at TA section meeting is mandatory and the course TA, will determine 20% of the grade. The instructor will discuss with the students the models introduced in the lectures and the course readings.