NEPR 208, Intro. to Computational Neuroscience - 1st Year Neuroscience Core, 2020

April 20 - May 8, M W F 9:45 am – 11:35 am Lectures are in ~~LKSC209~~ cyber space!

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This module will introduce students to computational and theoretical approaches in neuroscience. Emphasis will be on specific questions and how those questions can be answered with computational methods.

Monday and Wednesday classes will be lecture, and Friday students will work on and discuss problems sets.

Week 1, April 20 – 24
Neural response properties and single-neuron computation
April 20. Introduction, the perceptron model and perceptron learning (Druckmann)
April 22. Neural oscillations, computational approaches and insights (Huguenard)
April 24. Work on Problem set 1 in "class"

Week 2, April 29 – May 3
Single neuron and population encoding and decoding
Apr 27. Neural encoding and decoding (Baccus)
Apr 29. Population activity and latent variable models (Linderman)
May 1. Work on Problem set 2 in "class"

Week 3, May 6 - 10
Representations, learning and memory
May 4. Adaptation and synaptic plasticity (Baccus)
May 6. Hopfield model of associative learning (Druckmann)
May 8. Work on Problem set 3 in "class"