APM 598 / NEU 591
Data Analysis in Neuroscience

Contact Information

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Course

Location: ECG G324
Time: Tuesday/Thursday 12:00 – 1:15 pm

Course Description

Students will apply techniques from computational mathematics to analyze neuroscience data and make conclusions about the data. While this course focuses on neuroscience-specific examples, the tools and techniques learned in this course generalize to other scientific disciplines. No background in Python programming or neuroscience is required. We will use Python code to analyze and visualize data, but the code will be available for students to alter in elementary ways and use.

Major aims:

1) To introduce you to key techniques for analyzing and visualizing complex data sets to find structure in the data. This includes pattern identification, dimensionality reduction, clustering, machine learning, and visualization.
2) To introduce you to the process of assembling analyzed data into a compelling narrative. All data tell a story and learning to tell these stories artfully is of valuable for any future career. Upon completion of this course, you will be able to construct a basic graphical and textual scientific narrative about data.

Other information:

This is a practical course that will focus on learning a few basic approaches, implementing them on publicly-available data, and visualizing and interpreting results. Students will work with provided datasets throughout the semester and also work on projects of their own choice. This graduate course is cross-listed with undergraduate sections.