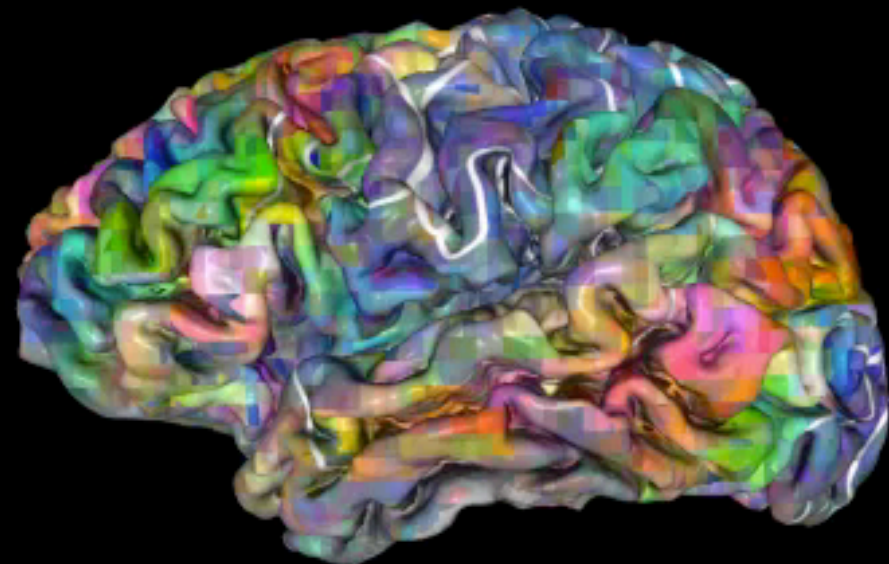
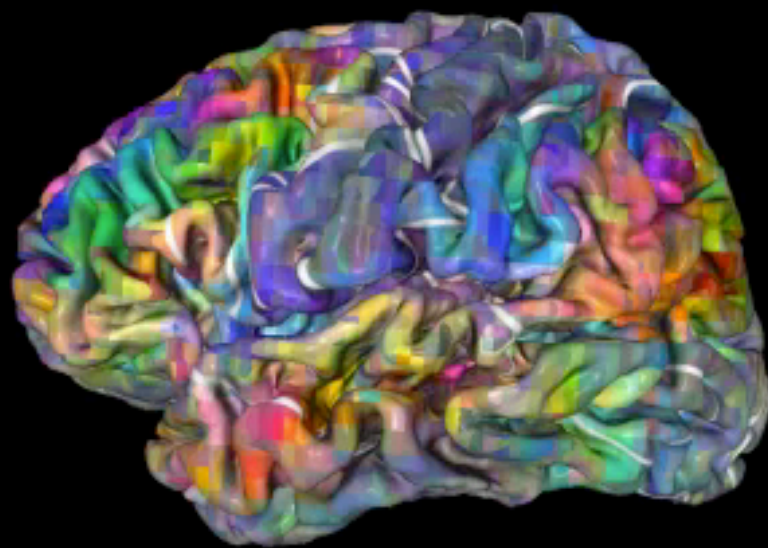
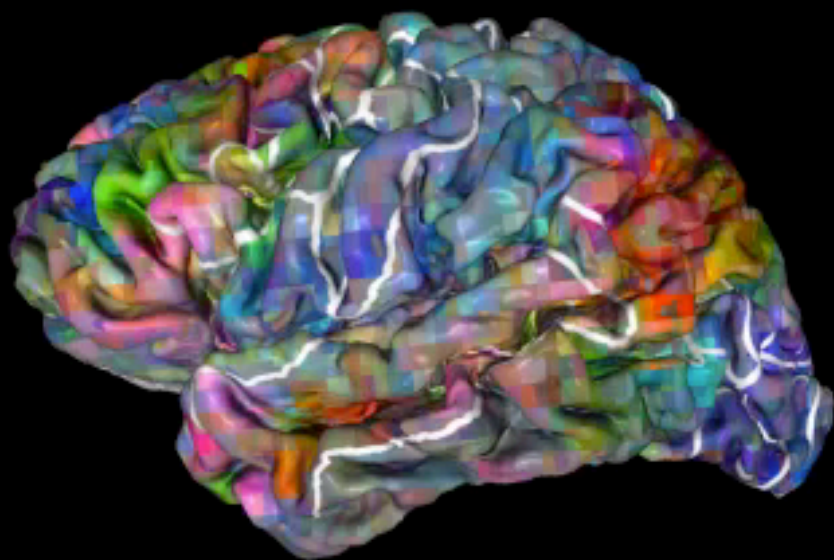


NEU365P: PROGRAMMING & DATA ANALYSIS IN MODERN NEUROSCIENCE

Prof. Alexander Huth
8/22/2022



SYLLABUS

- * The syllabus is available on the course
Canvas page

FORMAT

- * We will meet MWF 11am-12pm in WEL 2.306
- * Meetings will be a combination of:
 - * Lectures
 - * Demonstrations (you watch me try to write flawless code live)
 - * Labs (your turn!)

FORMAT

- * Slides will be posted on the course **Canvas** page before class begins
- * For labs the relevant code will also be posted on canvas prior to class

ZOOM

- * Class will also be streamed on **Zoom**
- * (Find the Zoom links on Canvas)
- * If you're feeling unwell, please join us virtually so that your classmates & me stay healthy! 🙏

GRADED MATERIAL

- * 6 homeworks (60% of grade)
- * in-class quizzes (15% of grade)
- * take-home final exam (25% of grade)

NECESSITIES

- * For this class, *you will need frequent access to a computer that can run Python*
- * This computer need not be fast or new
- * But it will need to run a standard OS (MacOS, Windows, or Linux), *not* a mobile OS (Android, iOS)
- * Please email me if this is an issue for you, and we will find a solution!

NECESSITIES

- * On quiz days (Mondays), you will also need to bring a web-capable device (computer or smart phone) to class to do the quiz

PROFESSOR

- * Alex Huth
- * Depts. of Neuroscience & Computer Science

TA

- * Suna Guo

- * Office hours: TBD

OTHER MATERIALS

- * Two **free (!)** books

- * <https://www.inferentialthinking.com/>

- * <https://jakevdp.github.io/PythonDataScienceHandbook/>

BACKGROUND

- * What do you need to know for this class?
- * Well.. what do you know already?
- * Let's take the ***BACKGROUND SURVEY!***
- * Please login to the course **Canvas** site and find it under “Quizzes”
- * I'll give you 10 minutes!

TOPICS

- * What are you going to learn in this class?
- * My goal is to supply you with a basic toolkit for computationally analyzing neuroscience data
- * *(A lot of these tools also work for non-neuroscience data)*

TOPICS

- * What are you going to learn in this class?
- * Python (*numpy, matplotlib, etc.*)
- * Statistical methods (*bootstraps*)
- * Data visualization
- * Timeseries analysis (*spectrogram, filtering*)
- * (Un/)Supervised learning methods (*regression, clustering, etc.*)

TOPICS

- * And you'll be using these tools to analyze neuroscience data such as
 - * Spiking neural data
 - * fMRI data
 - * EEG data

***THAT'S ALL FOR
TODAY!***