Why Study the Brain?
- Control center for thoughts, feelings, and actions
- Determine biological/psychological causes of brain disorders and potential treatments
- Understand the framework of cognitive decline in older adults

Dr. Nielson’s Aging, Imaging, and Memory (AIM) Laboratory
- Undergraduate Research Assistant
- Conducted statistical analyses of existing data from previous experiments
  - Data was from the Go/No-Go task and the Famous Names Task
  - Go/No-Go Task for response inhibition: (Scroll down and click “run the demo” to try a similar task)
    https://www.psytoolkit.org/experiment-library/go-no-go.html
  - Famous Names Task for semantic memory recall: Task consisted of presenting real and fake famous names to participants. Subjects had to determine if name was famous or not
    - Look for significance in oscillatory activity (Theta, Alpha, Beta waves)
    - Analyze influence of age and underlying factors on executive functioning and memory

Recording Brain Activity
- Various instruments and techniques used to record neural activity within the brain
- Primarily focused on electroencephalogram (EEG) technique in AIM Lab
  - Event-Related Potentials (ERPs) are markers of electrical activity in response to a stimulus
  - An EEG records ERPs and their oscillatory activity through electrodes placed on the subject’s scalp
  - Videos on ERPs and EEG information: (Must create free account to access content)
    https://courses.erpinfo.org/

Research from the Perspective of an Undergraduate
- The brain is complex, and the research behind understanding it is necessarily complex as well
- Learning terminology and methodology takes time. Learn as you work
- People normally see the final product of research in presentation form. The maturation of research from the hypothesis to the conclusion takes time and effort

Personal Future Direction
- Analyze the influence of emotion and age on semantic memory networks in Dr. Nielson’s laboratory
  - Semantic memory is a type of long-term memory that relates to the recall of concepts or facts
  - This research could lend itself to better understanding the mechanisms involved in cognitive decline

Works Consulted


