Neuroscience & Neuroeconomics

Educational Goals:

The human brain contains hundreds of billions of neurons with an unfathomable amount of connections amongst these eclectically excitable cells. On a molecular level, the chemicals fired between neurons are responsible for our actions, lives, and the world we choose to create. We know our brains control the decisions we make, albeit we still have much to discover regarding the underlying neuromechanisms of such processes. The objective of a concentration in neuroscience and neuroeconomics is to examine, study, and explain the essence of human decision making - the ability to process multiple alternatives and determine an optimal route of action - from both biological and social vantage points.

Given the interdisciplinary nature of this subject, such a concentration would draw from a range of academic departments to cover both the empirical science aspect and the humanism component. Courses in Biology and Psychology lay the scientific foundation for understanding the anatomy of the nervous system. Economics and Statistics then predict and model human judgment and decision making due to the chemical processes in the brain. Finally, business classes represent real world applications of how the information we receive affects the daily decisions we make. Ultimately, BDIC will provide me with knowledge and skill sets in the interdisciplinary fields of Neuroscience & Neuroeconomics that will be conducive to understanding and applying decisions in the working world.

Experiential Background:

In Professor Andrew Cohen's Perception and Cognition Lab I have been examining the
relationship between available information and executed decision using eye-tracking, behavioral, and modeling techniques. Meanwhile, classes in Psychology, Chemistry, Physics, and Biology supplement my lab time and contribute to my working knowledge of Neuroscience. Science, though, is not entirely about lab work; ideas and discoveries must be shared. By curating TEDxUMassAmherst I have gained firsthand experience from pioneers in their fields who can effectively communicate their ideas worth spreading. I believe in discovering knowledge through research, sharing ideas, and creating value with innovative thinking and entrepreneurship.

**Continuing Aims:**

A major in cognitive neuroscience and neuroeconomics would prepare me for a job with strong critical thinking and analytical reasoning requisites in a field dealing directly with human beings. These jobs could range from medical practice in neurology or anesthesiology to neuroscientific research and from business management and administration to advertising and other creative realms. My goal is to combine my understanding of science and business/entrepreneurship to pursue a dual degree through an MD/MBA program.

**Exceptions:**

**Retroactive Class:**

*Psychology 330: Behavioral Neuroscience*

Through Behavioral Neuroscience I have learned how nerve connectivity and neurotransmitters in different areas of the brain produce normal and abnormal behavior. This
course applies principles of biology to psychological research in order to better understand brain circuitry.

**Independent Study**

*Management 396: Independent Study*

This course has provided me with the opportunity to be a Senior Teaching Assistant for SCH-MGMT 397A: Introduction to Entrepreneurship where I have been able to evaluate Executive Summaries, design and lead group discussions, and correspond with guest speakers. This experience has been a great way to use judgment and decision making in the Isenberg community without having a major in the School of Management.

**200-level:**

*Biology 283: General Genetics*

Because my concentration is based in the sciences many appropriate classes fall in the 200-level range. I would like to include, an aspect of biology that is becoming increasingly important in neuroscience. Current research suggests that much of our behavior is determined by genetic markers, and projects examining genetics and neuroeconomics are receiving funding.

*Res Econ 212: Intro Statistics*

This class places an 'emphasis on application to decision making.' This course will be vital to a concentration in neuroeconomics by demonstrating tools to perform statistical analysis on data obtained in the lab.
Sponsor:

Dr. Andrew Cohen is a research professor at the University of Massachusetts Amherst where he teaches Cognitive Psychology while investigating the behavioral side of neuroeconomics: information integration, feature induction, model selection, categorization, dynamics perception, and knowledge integration. Professor Cohen has published over fifteen pieces of work in his field and leads the Perception and Cognition Lab at the University. With experience in the field of neuroeconomics during his sabbatical at Duke University, Professor Cohen proves the best fit as sponsor for my Bachelor's Degree in an Individual Concentration.

Professor Cohen has experience mentoring research assistants, honors students' capstone projects, and doctorate students. His laboratory also collaborates with other Neuroscience faculty on projects which gives him access to different aspects of the field necessary for advising an integrated major.