COURSE DESCRIPTION

The course was designed to provide a comprehensive introduction to the principles and methodologies of functional magnetic resonance imaging (fMRI) through a combination of presentations, discussions, and hands-on practice. Topics covered included the history of brain imaging, physical and hemodynamic principles of fMRI, data processing and statistical analyses of fMRI data, applications of fMRI, as well as the future of brain imaging research.

FIELD SITE

Dr. Joe Kable’s Lab at the University of Pennsylvania is a research lab whose mission is to deepen the existing understanding of the human decision-making process. The lab takes an interdisciplinary approach to studying different aspects of decision making, such as individual differences and preference-formation, by employing a variety of innovative statistical and imaging techniques.

LEARNING OBJECTIVES

• Develop a deeper understanding of the strengths and weaknesses of different brain imaging techniques
• Develop a working knowledge of fMRI, fMRI research, and basic approaches to fMRI data preprocessing and analysis
• Acquire basic skills needed to preprocess and analyze raw fMRI data

LEARNING OUTCOMES

PREPROCESSING

1ST LEVEL ANALYSES

2ND LEVEL ANALYSES

STATISTICAL PARAMETRIC MAPPING OF fMRI DATA

Statistical parametric map of the human brain showing BOLD-activity related to belief-updating