Winter 2011

BI 23 Neuroeconomics: Decision making and the brain

Instructor:

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Office hours: by appointment

Class meetings: Tuesday 4-6pm (tentative)
Organizational meeting: Wednesday, January 5th, at 4-5pm. Broad Center, #67 (basement)

Grading: Pass/Fail, 60% homework, 30% presentation and 10% class participation. You must receive 50% of the grade to pass the course.

Course material:

Glimcher, Camerer, Fehr, Poldrack, Neuroeconomics: decision making and the brain
Relevant review papers

Course description:

Neuroeconomics is a new highly promising research field to understand the neurobiology of decision making and how it affects cognitive/emotional or explicit/implicit social interactions between humans and societies/economies. It has been determined that preferences for Coke or Pepsi are different dependent on whether the tasting was blinded or not. Brand knowledge, thus, had a dramatic influence on expressed behavioral preferences and on MRI measured brain responses. This course should be of interest to following students:

1. who would like to know how a deeper understanding of brain process can enrich and refine economic theories of decision making,
2. who would like to know how economic theory can inform research in neuroscience,
3. who has ever wondered about the mechanisms of how decisions are made in the brain, and what it says about human nature.

Topics (subject to change):

Games in humans and non-human primates: scanners to single units

Prospect theory and the brain

Values and Actions in aversion

Behavioral game theory and the neural basis of strategic choice

Social preference and the brain

The study of emotion in neuroeconomics

Understanding others: brain mechanisms of theory of mind and empathy

Neuroeconomics of charitable giving and philanthropy

Midbrain dopamine neurons: a retina of the reward system?

Theoretical and empirical studies of learning

The neurobiological foundations of valuation in human decision making under uncertainty

Multiple forms of value learning and the function of dopamine

Representation of subjective value in the striatum