Cognitive neuroscience is the study of how the brain enables the mind. It is a relatively new field (since the 1970's, when the term was coined by M. Gazzaniga), and as Gazzaniga says, it is a tricky business. This course embodies the two basic approaches that scientists take to answer the question, how does the brain enable the mind?

The first is the study of neurons, brain structures, and neural function. The assumption is that a low-level account of how neurons, brain structures, and neurochemicals are modified by experience is in fact where the "mind" is. In other words, the mind is not in a singular place in the brain, but is represented through intact connections via neural pathways, whereby a change in the current state of chemicals and firing patterns induces an idea, perception, memory, or thought. This approach is accomplished through animal experiments, computer modeling of brain actions with mental actions, and tracking pathways involved in certain cognitive processes (like perception).

The second approach is called cognitive neuropsychology, and assumes that we can understand best how the mind is enabled by the brain by studying human patients with particular brain damaged sites to track where failures occur. The approach to this class is to balance neuroscientific and neuropsychological evidence, cognitive theory and cognitive demonstrations. There is heavy use of patient data (as reflected by cases presented in class, from Ramachandran's Phantoms in the Brain and by Martha Farah's Visual Agnosia).

Texts for this course include:


An assortment of readings will be included that capture important empirical findings in the area of cognitive neuroscience, generally, and that address these two levels and what each can contribute.

Your assignments to be evaluated in this course are:

- class participation, via questions submitted [10%],
- an exam on neurons and brain structure early in the term [20%],
- scheduled on **Tuesday, Jan 27th**, in class.
- an annotated bibliography of articles which will contribute to your paper [10%].
- Due **Friday, Feb 13th**, end of the day, in the psych offices.
- an oral presentation of your paper idea, which occurs during the last week of term [20%]
  - occurring **Tuesday, March 3, Thurs March 5 or Tues March 10** – sign up sheet will be available later.
- a project/paper due at the end of the term [40%]
  - due **Thursday, March 12**, by 4:00 pm, in the psych offices.