Course description

This course is designed to be an introduction to a field that asks, ‘How does the mind work?’ Since the best way to understand a question that big is to approach it from multiple angles, the field of cognitive science is interdisciplinary in nature. Cognitive scientists at this and other universities can be found in the departments of psychology, philosophy, neuroscience, anthropology, linguistics, and computer science (to name a few!). In this course, we will review major debates, classic methods, and seminal findings in a variety of disciplines and will discuss how these work together to give us a better understanding of the mind. Topics in this course include, but are not limited to, language, perception, neuroimaging, decision-making, and love.

One way to gain a more thorough understanding of any field is to hear from people who are working to develop that field currently. To this end, you will hear from several guest speakers who will tell you about their field of study, the research they are doing right now, and how their work is informing the great debates and unanswered questions of cognitive science.

In addition to presentations from guest speakers, you should also expect live demonstrations, videos, and other activities that will help you to engage the material.

**This course is meant to give an overview of many of the topics studied by cognitive scientists but will not dive into any one of these topics in great depth. As such, this course is meant for those students who have not yet had much exposure to this material, with the hope that these students leave the course inspired to continue their studies in this and related fields.**

Readings

All readings will be available in electronic format on the classesv2 server. [http://classesv2.yale.edu](http://classesv2.yale.edu)

While some readings will involve book chapters and news articles, many of the readings will be primary sources: scholarly journal articles. This means you will be reading about research and debates in cognitive science right from the people who are shaping the field. While some aspects of these readings might be
challenging, you will gain a greater appreciation for the scientific process and a purer understanding of what is going on in cognitive science than you might gain from reading a textbook author’s interpretation. In fact, you will be reading some material that won’t even make it into textbooks for another couple of years! With the understanding that many of you will not have read material in this format before, we will discuss the basics of reading a journal article during our very first class so that you feel comfortable with the readings.

Exams

There will be three in-class exams during this course. These exams will comprise a mix of multiple choice, short answer (3-5 sentences) questions, and brief essays. Topics covered in the exams will come from the lectures, guest lectures, and the readings.

Exam #1 (October 5th) will cover everything learned 9/2 through 9/28
Exam #2 (November 20th) will mainly focus on material from 9/30 through 10/26.
Exam #3 (December 9th) will mainly focus on material from 10/28 through 12/7.

* A note about exam topics: Although exams #2 and #3 will not be cumulative, per se, it is important to keep in mind that concepts discussed at the beginning of the semester echo in the topics discussed later in the semester. Since these ideas speak to one another as we move throughout the course, Exam #2 and Exam #3 cannot be truly isolated from material covered earlier in the term.

Final paper

Assignment: Current work in cognitive science; Paper due Monday, December 21st at 9:00am EST

*In fairness to all students in the course, any paper submitted late will be graded at a penalty: ten points for the first hour (9:01am-10:00am), and an additional five points for each hour after that. For example, a late paper submitted at 11:45am EST on the deadline day would be graded at a 20-point penalty. It is each student’s responsibility to ensure his/her paper is submitted on time and in the correct, undamaged format by the deadline. A Dean’s Excuse or Temporary Incomplete are the only ways to submit work after the deadline without penalty.*

Find a scholarly journal article that describes a recent (2012 or later) finding in cognitive science that we did not cover in lectures or in assigned readings. Your assignment involves two parts:

PART 1 (2-3 FULL PAGES)
- Explain the research question, and describe the research methods and the main findings (i.e., What were the results, and what do they mean?).
- Explain how the research is interdisciplinary in its motivations, methods, and/or implications (i.e., How is this cognitive science?).

PART 2 (3-4 FULL PAGES)
Propose your own idea for a study to follow up on these findings.
- Explain the background/context for your idea, citing sources when necessary. In other words, walk the reader through why your study would be a good one to build upon the previous work.
- Describe your proposed general research method (e.g., What is being measured? What are the experimental variables?). No need to develop a detailed strategy for data analysis, etc.
- If you conducted this study, what could your results suggest?

Format:
Papers should total 5-7 full pages in length (double-spaced with standard margins and 10- or 12-point font size. See: http://abstrusegoose.com/361). Sources must be cited, and a reference list in APA format must be provided.
*This syllabus is current as of September 14, 2015*

Resources:
Some places to look for relevant news, which could help you to choose a scholarly article to look up:
http://www.nytimes.com/section/science
http://discovermagazine.com/topics/mind-brain
Where to search for scholarly journal articles
http://www.isiknowledge.com/
(You must be logged into a Yale University network to use the Web of Knowledge site. If you are not on campus, you can establish a remote connection through https://access.yale.edu.)

Citing courses (general information and guides for APA and other styles)
http://writing.yalecollege.yale.edu/advice-students/using-sources/principles-citing-sources

Academic honesty (this will be taken seriously)
http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism

Grading

Grades will be determined as follows:
25% - Exam #1: Monday, October 5th
25% - Exam #2: Monday, November 2nd
30% - Exam #3: Wednesday, December 9th
20% - Paper: Due Monday, December 21st at 9:00am

Schedule & Readings
*Please note that this schedule and the readings may be modified as needed*

Wednesday, September 2nd – Introduction, foundational concepts, class policies
Bisson, T. (1991, April). They're made out of meat. OMNI.
(Assigned selection is Chapter 17: Where am I?)

Friday, September 4th – Brain structure and neuroimaging
OPTIONAL:
[For this article, don’t get too bogged down with the technical side of things. Try to focus on the conceptual arguments.]

Monday, September 7th – No class! (Labor Day; Monday classes do not meet)

Wednesday, September 9th – Modularity
Monday, September 14th – Vision
[For this article, don’t get too hung up on the math and technicalities. Pay most attention to the main concepts.]

Wednesday, September 16th – Visual perception 1

Monday, September 21st – Visual perception 2

Wednesday, September 23rd – Attention

Monday, September 28th – fMRI
(Guest lecture from Prof. Marvin Chun)
http://www.wired.com/2014/04/brain-scan-mind-reading/

Wednesday, September 30th – Naïve physics

Monday, October 5th – Exam #1
(Material from 9/2 through 9/28)

Wednesday, October 7th – Language 1

Monday, October 12th – Language 2
(Assigned selection is Chapters 4 & 5. Scans provided by the Yale library; please ignore any markings and margin notes.)

Wednesday, October 14th – Memory 1
Monday, October 19th – Memory 2

Wednesday, October 21st – No class! (October recess)

Monday, October 26th – Number

Wednesday, October 28th – The role of philosophy in cognitive science
(Guest lecture from Prof. Joshua Knobe)

Monday, November 2nd – Exam #2
(Material from 9/30 through 10/26)

Wednesday, November 4th – Reasoning & decision-making 1

Monday, November 9th – Artificial intelligence and social robotics
(Guest lecture from Prof. Brian Scassellati)

Wednesday, November 11th – Reasoning & decision-making 2

Monday, November 16th – Social cognition 1
Wednesday, November 18th – Social cognition 2


Monday, November 23rd and Wednesday, November 25th – No class! (November recess)

Monday, November 30th – Morality


Wednesday, December 2nd – Canine cognition
(Guest lecture from Prof. Laurie Santos)


Monday, December 7th – Sex and love

Wednesday, December 9th – Exam #3
(material from 10/28 through 12/7)