Introduction to Cognitive Science (Fall 2014)

(All *Intro to CogSci* lectures will be presented in live 3D, but only some will require special viewing glasses!)

What, When, & Where

Course #s	:	Cognitive Science 110a, Psychology 130a
When	:	Fall 2014, Mondays & Wednesdays, 2:30 - 3:45 pm
Where	:	Yale Art Gallery Auditorium (Entrance on High Street just north of Chapel Street)
Webpage	:	https://webspace.yale.edu/cgsc110_f14/

Instructor Info

Professor	:	Brian Scholl (Professor, Department of Psychology and Cognitive Science Program)
Office	:	SSS 304 (at the corner of College/Prospect Streets & Grove Street)
Email	:	brian.scholl@yale.edu
Web	:	http://www.yale.edu/perception/
Phone	:	432 - 4629 (but email is strongly preferred, and I often forget that I even have voicemail)
Office Hours	:	Thursdays 4:30 - 5:30 pm, just after many classes, or by appointment

Teaching Fellows

Note: This list may change as the semester begins. Check the class webpage for up-to-date information!

Adam Bear	:	adam.bear@yale.edu	(*Mind & Development Lab*)	OHs = Mon 5:30 pm	[SSS 206]
Katie Duchscherer	:	katie.duchscherer@yale.edu	(*Intergroup Relations Lab*)	OHs = Thu 11 am	[Dunham 238A]
Cory Gordon	:	cory.gordon@yale.edu	(*School of Public Health*)	OHs = Mon 1 pm	[TBA]
Matt Jordan	:	matthew.jordan@yale.edu	(*Comparative Cognition Lab*)	OHs = Wed 1 pm	[SSS 211]
Bud Lambert	:	robert.lambert@yale.edu	(*Automaticity Lab*)	OHs = Tue 1 pm	[SSS 414]
Justin Mendoza	:	justin.mendoza@yale.edu	(*School of Public Health*)	OHs = Mon 9 am	[Bass Library Cafe]
Stefan Uddenberg	:	stefan.uddenberg@yale.edu	(*Perception & Cognition Lab*)	OHs = Thu 10 am	[SSS 312]

Course Description

Welcome! The goal of cognitive science — and of this course — is to understand ***how the mind works***. Trying to understand our own minds is perhaps the most ambitious and exciting (and difficult) project in all of science, and this project requires tools drawn from fields including experimental psychology, computer science, linguistics, vision science, philosophy, anthropology, behavioral economics, and several varieties of neuroscience (among others). This course will introduce you to the major tools and theories from these areas, as they relate to the study of the mind. We will employ these perspectives while exploring the nature of mental processes such as perception, reasoning, memory, attention, imagery, language, intelligence, decision-making, morality — and even love and attraction. In sum, this course will expose you to cognitive science, the assumptions on which it rests, and the most important results obtained so far. By the end of the course, you should have gained important new insights into ***what you are*** and ***how you work***!

Expected Work and Grading

1. **(20%)** Questions on Daily Readings

   To get the most out of this course, it is essential that you carefully and critically study the readings associated with each lecture. To encourage this — and to give the instructor feedback as to what you thought of the material — you will be asked to respond to a brief question concerning most readings. A sample (if boring) question might be: "Which of the two theories discussed in this article do you think is right, and why?" Your answers to each question — which you must email to your specified TF no later than one hour before the start of the class wherein that reading will be discussed — need be no longer than 1 or 2 paragraphs, and should take no longer than 15 minutes to write after you have read the material. The questions due for each class will be assigned at the end of the previous class. I will use these comments to gauge your reactions to (and understanding of) the ideas we'll discuss, and I will occasionally spend the first part of the following class responding to some of the issues you raise in these comments. Note that a significant portion of your grade (20%) will be based on these questions, and that late submissions will not be accepted for any reason.

2. **(60%)** Two Exams

   60% of your course grade will be determined by two exams. The first exam will be on *Monday, October 13th*, and will cover material from August 27th through October 8th. The second exam will be on *Wednesday, December 3rd* (aka our last class meeting), and will cover material from October 15th through December 1st. The exam on which you do the best will count for 35% of your grade; the other will count for 25%. There will be no exam during the final exam period. The nature of these exams will be described more fully in class. Make-up exams will be given only in exceptional circumstances, and in all cases may involve completely new questions, possibly in other formats. (Advice: you really want to avoid having to take a make-up exam.) To do well on these exams, you'll have to attend the lectures — especially since our readings and lectures will rarely overlap by more than ~ 25% (since just rehearsing the readings during our class time wouldn't be very fun).

3. **(20%)** Short Paper

   You will be required to write one short (7 - 8 page) paper for this course, on an assigned topic that is discussed near the end of this syllabus. This paper is due no later than one hour before class on *Wednesday, November 19th* (aka our last class before the break).

Readings

I have a low opinion of all extant introductory cognitive science textbooks. But even if there was a good one, I probably still wouldn't like it — since textbooks have always struck me as intrinsically unexciting and watered-down ways to discover a new field. As a result, the readings for this course have been drawn from many different sources, including textbook excerpts, selections from popular books, articles from popular-press venues such as the *New Yorker*, and many articles from the primary scientific literature (and an *OK Go* music video). All of the readings will be posted on our class webpage, for you to view or print as you wish. (There is nothing to buy!) Using readings from the primary literature will help us to capture the vitality and excitement of scientific discovery. (This includes work that hasn't yet filtered into textbooks, including readings published only a few months ago!) These readings will also be challenging, though: they will use terms and refer to ideas with which you are unfamiliar, and they'll sometimes leave you with more questions than answers. This is okay! Though the readings have been carefully chosen to be accessible, I don't expect you to fully understand every aspect of them, and I will frequently provide guidance about what you should try to get out of especially challenging readings. In the end, these challenges will pay off, as you get a direct look at the science of mind in the making.

Preliminary Course Outline

Here's a preliminary outline of the material that we'll cover in this course. The full references for these readings are listed at the very end of the syllabus. We'll start out by spending a few weeks on the major assumptions and themes of cognitive science as a whole, after which we'll branch out to a representative selection of the various tools cognitive scientists use, and the aspects of the mind that we study. The exact timing of these lectures (and the exact readings that we end up using) are subject to change. We may end up spending more time than is listed here on topics that strike you as especially interesting or difficult. Please interact with me regarding the course: If there are topics you would like to add, or cover in more depth, let me know!

Wed 8/27: An Introduction to Your Mind

[No Readings]

Fri 8/29: Foundations of Cognitive Science

Bisson (1991), "They're Made Out of Meat" (*Omni*)
Carandini (2012), "From Circuits to Behavior: A Bridge Too Far?"

(Mon 9/1: No Class: Labor Day)

Wed 9/3: Crossed Wires (*The Architecture of the Mind*)

Rafal (2001), "Bálint's Syndrome"
Sacks (2004), "Speed" (*New Yorker*)

Mon 9/8: What's Within? (*How Nature Supports Nurture*)

Bouchard (2008), selection from "Genes and Human Psychological Traits"
Sugita (2008), "Face Perception in Monkeys Reared with No Exposure to Faces"
Hershberger (1970), "Attached-Shadow Orientation Perceived as Depth by Chickens in an Environment Illuminated from Below"

Wed 9/10: Pieces of Mind (*Modularity and 'Mental Organs'*)

Carston (1996), "The Architecture of Mind: Modularity and Modularization"
Gallistel (2000), selection from "The Replacement of General-Purpose Learning Models with Adaptively Specialized Learning Modules"

Mon 9/15: Mental Circuitry (*Computation and Cognitive Science*)

Pinker (1997), selection from "Standard Equipment"
Pylyshyn (1999), "What's In Your Mind?"
Watch this strange movie: http://www.youtube.com/watch?v=E3keLeMwfHY