

Introduction to Cognitive Science

01: 185: 201

Logistics

- Lecture: TUES 10.20–1.20PM, TILLET HALL, RM 246, LIVINGSTON
- Recitation: TH 10.20–11.40AM, TILLET HALL, RM 246, LIVINGSTON
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Course Description

This course is an introduction to the field of Cognitive Science. To capture the interdisciplinary nature of this field, we will address a range of topics and research programs from a variety of disciplines, including philosophy, computer science, cognitive psychology, behavioral economics, and linguistics. The goals of this course are to introduce you to the foundations of Cognitive Science, help you appreciate the development of this field over the years, and allow you to explore the investigations and lively debates that have taken place within and across the disciplines that make up the field.

The pre- or co-requisite is having successfully completed a course in computer science, linguistics, philosophy, or psychology or being assigned a permission number. The minor requires a minimum of 18 credits and 3 courses in the 185 curriculum. This course counts for 4 credits.

Course Objectives

Upon successful completion of the course, students will:

- Appreciate the interdisciplinary nature of cognitive science, the diversity of viewpoints, the controversies and the areas of nascent consensus.
- Appreciate the contribution of each of the constituent disciplines and be familiar with its methods, key concepts, and focus of investigation.
- Be proficient in the lingua franca of cognitive science the language of information processing.
- Have basic familiarity with brain anatomy and physiology
- Know multiple definitions of the foundational concepts of computation and representation and be able to discuss them from multiple points of view.
- Understand the basic cognitive architecture how perception, memory, language, motor control, and so forth come together to produce behavior.
- Know specific concepts, theories, and experimental results covered in course.
- Be able to read and discuss research papers from multiple disciplines.

Texts

There is not a textbook for this course. Readings consist of articles written on topics in Cognitive Science and chapters from edited books and textbooks on Cognitive Science. The required readings will be available on Sakai for you to download. There are also optional readings that may be helpful or interesting if you find yourself wanting to read more about that topic. **Do not skip or skim the required readings.** Your discussion questions and exam questions will be based on these readings and material addressed in class.

Evaluation

There will be a total of 1000 points possible in this course.

- Weekly Assignments (40%) (400 points): Each week you will receive Discussion Questions based on the reading(s) and lecture. You are to submit a complete answer to **ONE** of the discussion questions; **this should be your own work.** Answers are due via **Sakai under Assignments Thursdays by 9am** and must be submitted as a **.pdf**. Do not email assignments to us. The purpose of the requirement is for you to invest time answering the Discussion Questions **before** recitation. Answers will be coarsely graded using the scale Complete (40 points), Incomplete (30 points), and No Credit (0 points). There are a total of 10 assignments due for 40 points each. Note the due dates are: 9/14 (on Computation), 9/21 (on Brain & Cognition), 9/28 (on Visual Intelligence), 10/5 (on Sensation), 10/12 (on Illusions and Synesthesia), 10/26 (on Language),

11/2 (on Language, Part II), 11/9 (on Social Cognition), 11/16 (on Decision Making), and 11/30 (on Cheating and Morality). *You can miss **two assignments for any reason without penalty**.* Late reaction comments will not be accepted *for any reason*.

- Two Exams (60%) (600 points): The first midterm will cover material in the first half of the course; scheduled in class on **Oct. 17**. The second midterm will cover material in the second half of the course and will be a take home exam due via Sakai by Friday **Dec 22 by 8am**. The take home exam is to be your own work and you will sign an honor's pledge when submitting your exam on Sakai. Please upload a .pdf with your last name in the file name. Format of both exams: 3 short answer and 3 essay questions; questions will come directly from your Discussion Questions.
- 2 options for Extra Credit! (1%) (9 points total): (1) A number of researchers in Linguistics conduct experiments that are relevant to the material covered in this class. You have the opportunity to participate in up to 3 experiments in Linguistics for 3 points for each experiment, added onto your final grade. Information for accessing the subject pool is available on Sakai under Resources. You must select one course to designate as the one for which you will receive the credit. Note: you can only select one course and that will be the one in which you receive the extra credit points. I will be notified about your participation automatically. If you sign up for, but fail to show up for two or more experiments, you may be barred from further participation; so please note the time and location of your experiments, and take your schedule and transportation time into account. OR (2) If this option does not interest you, please contact me as soon as possible for another alternative for extra credit. It will involve a short writing assignment on an article.

Recitation Section

This course has a recitation section that meets each Thursday. You will focus on the Discussion Questions from that week's reading(s) and lecture. Please come prepared to share your answers.

No Computers or Phones

Please turn off all computers, cell phones, and other electronic devices in the classroom. In order to make taking notes easier, I will post my lecture notes for class by Sunday. Note: you will receive an email from Sakai once I post them online. Please see the following article in the Chronicle by Professor Anne Curzan (August 25, 2014) "Why I am asking you to not use laptops"

<http://chronicle.com/blogs/linguafranca/2014/08/25/why-im-asking-you-not-to-use-laptops>

Get Involved with Cog Sci Club!

Find information on the exciting events being organized by the Cognitive Science Club:

<http://ruccs.rutgers.edu/ruccs/index.php/opportunities/cogsci-club>

Like them on Facebook to get updates: <https://www.facebook.com/RUCogSciClub>

Rutgers Policy on Academic Integrity

Rutgers has a very detailed policy on Academic Integrity and Code of Student Conduct:

<http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers>.

Violations include cheating, fabrication, plagiarism, denying information to or misleading others, or facilitating these violations.

Name & Email Addresses of 2 Students

Use the space below to exchange names and email addresses of 2 students to contact and that can contact you with questions about the course.

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Date	Topic	Readings/Assignments Due
September		
5	Introduction	F & S (2006) ch 1 (for recitation on 9/7)
12	Computation and the Mind	F & S (2006) ch 2
19	Brain and Cognition	Bermúdez (2012) ch 3, Corkin (2002)
26	Visual Intelligence	Beaumont (1988); F & S (2006) ch 4
October		
3	Sensation and Perception	Wolfe, <i>et al.</i> (2005); Brugger (1999)
10	Illusions, agnosia, & synesthesia	Ramachandran (2011); Marotta & Behrmann (2002)
17	FIRST EXAM in class	
24	Language	Pinker (1994)
31	Language Part II	Crain & Pietroski (2001)
November		
7	Social Cognition	Bermúdez (2012), ch 12
14	Decision Making	Camerer (2003); Rigdon, <i>et al.</i> (2009)
21	THURSDAY classes	no class/no recitation
28	Cheating & Morality	Mazar <i>et al.</i> (2008)
December		
5	Artificial Intelligence	TBA
12	Memory or Vote on topic	TBA
22	SECOND EXAM	due via Sakai in .pdf height

Bibliography

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