CRN 34933, 4 credits

PSY430: Cognitive Science

Spring 2004, MW 14:00-15:20, 142 Straub

Instructor	Office	E-mail	Phone	Office Hours
Chuck Tate	356 Straub	ctate1@uoregon.edu	346-1060	Mondays 11:30-12:30 Wed 15:30-16:30
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Class Blackboard site: http://blackboard.uoregon.edu/

Course Overview:

Cognitive science, as field, emerged in the late 1950s and continues today in reaction to the psychological behaviorism (which started in 1910s in America and dominated psychology until the 1950s). The goal of cognitive science is to understand mental functioning by examining the presumed structures and mechanisms that make this phenomenon possible. In principle, cognitive science is concerned with everything from writing powerfully moving prose to tying one's shoes—that is, all mental functioning of whatever importance. Many different disciplines participate in this endeavor, including linguistics, philosophy, anthropology, artificial intelligence, computer science, neuroscience, exercise and movement science, communication, social psychology, developmental psychology, and cognitive psychology. The interdisciplinary nature of the field will lead us to explore many different kinds of methodologies, theories, and conceptual approaches. One of the major tasks of this course will be to coordinate among the various (and sometimes rather different) approaches, methods, and theories from these different disciplines.

Course Goals:

This course is designed to acquaint you with the philosophical assumptions and orientation of cognitive science as field and some central concepts within this discipline. You will also participate in this field by collecting data, answering questions about what you have learned, and providing insights about the topics and our methods of investigation. Overall, it is our hope that this course sharpens your analytical reasoning skills, improves your ability to identify phenomena from different perspectives and different levels of analysis, and relates these phenomena to substantive issues in your chosen field of study (e.g., psychology, philosophy, etc.). By the end of the course you should be able to:

- Think critically about psychological concepts, with a broader appreciation of how these issues can be framed and studied
- Understand more fully how data analysis plans relate to how psychological issues are studied
- Present your own ideas about and reactions to cognitive science topics in writing

Writing Skills: Assignments in this course will include writing your thoughts (including feelings) about different topics discussed in lecture and synthesizing these ideas with ideas from lectures and course readings. Strunk & White's *The Elements of Style* can help you write concise, precise sentences, which are good for communicating scientific information. Review the eight elementary rules of usage and the ten elementary principles of composition at http://www.columbia.edu/acis/bartleby/strunk/index.html

Learning Adjustments: Please contact Chuck right away (first week of class) if you have been diagnosed with a learning disability (confirmed by the Academic Learning Center), if American English is not your first language, or if you have some other special needs that may require adjustments for you to learn/understand the material.

Class Requirements and Activities:

1. Readings.

Main Text:
Thagard, P. (1996). *Mind: Introduction to cognitive science*. Cambridge, MA: MIT Press.

Supplemental Readings: (See last page for readings assignments.)

1. Sloman, S. (1996). The empirical case for two reasoning systems. *Psychological Bulletin, 119,* 3-22.

2. Cheng, P. W. & Holyoak, K. J. (1985). Pragmatic reasoning schemas. *Cognitive Psychology, 17,* 391-416.

3. Medin, D. L. (1989). Concepts and conceptual structure. *American Psychologist, 44,* 1469-1481.

4. Medin, D. L., Coley, J. D., Storms, G., & Hayes, B. K. (2003). A relevance theory of induction. *Psychonomic Bulletin & Review, 10,* 517-532.

5. Markman, A. B., & Ross, B. H. (2003). Category use and category learning. *Psychological Bulletin, 129,* 592-613.

6. Gentner, D. & Markman, A. B. (1997). Structure mapping in analogy and similarity. *American Psychologist, 52,* 45-56.

7. Markman, A. B., & Gentner, D. (1997). The effects of alignability on memory. *Psychological Science, 8,* 363-367.

8. Kosslyn, S. M. (1995). Mental imagery. In D. Oschner (Ed.), *Visual cognition: An invitation to cognitive science* (Vol. 2, pp. 267-296). Cambridge, MA: MIT Press.

9. Byrne, R. M. J. (2002). Mental models and counterfactual thoughts about what might have been. *Trends in Cognitive Science, 6,* 426-431.

10. Tate, C. & Malle, B. F. (under review). *An explanation-based account of prediction.* Unpublished manuscript, University of Oregon.

11. Pinker, S. (1994). *The language instinct*. New York: William Morrow.
--Read: Ch. 1 (pp. 13-24); Read Ch. 2 (pp. 25-54)

12. Tomasello, M. (1995). Language is not an instinct. *Child Development, 10,* 131-156.

13. Saffron, J. R., Aslin, R. N., & Newport, E. L. (1996). Statistical learning by 8-month old infants. *Science, 274,* 1926-1928.

14. Saffron, J. R. (2003). Statistical language learning: Mechanisms and constraints. *Current Directions in Psychological Science, 12,* 110-114.

15. German, T. P., & Leslie, A. M. (2000). Attending to and learning about mental states. In P. Mitchell & K. J. Riggs (Eds.) *Children's reasoning and the mind* (pp. 229-252). London?, UK: Psychological Press.

16. Bloom, P., & German, T. P. (2000). Two reasons to abandon the false belief task as a test of theory of mind. *Cognition, 77,* B25-B31.

17. Malle, B. F., & Knobe, J. (1997). The folk concept of intentionality. *Journal of Experimental Social Psychology, 33,* 101-121.

18. Malle, B. F. (1999). How people explain behavior: A new theoretical framework. *Personality and Social Psychology Review, 3,* 23-48.

19. Baldwin, D. A., & Baird, J. A. (2001). Discerning intentions in dynamic human action. *Trends in Cognitive Sciences, 5* , 171-178.

20. Kandel, E. R., & Squire, L. R. (2000). Neuroscience: Breaking down scientific barriers to the study of the brain and mind. *Science, 290,* 1113-1120.

21. Clore, G., & Tamir, M. (2002). Affect as embodied information. *Psychological Inquiry, 13,* 37-45.

22. Norenzayan, A., & Nisbett, R. E. (2000). Culture and causal cognition. *Current Directions in Psychological Science, 9,* 132-135.

23. Tomasello, M. (1999). Cultural cognition. In *The cultural origins of human cognition* (chap 7.; pp. 201-217). Cambridge, MA: Harvard University Press.

24. Plunkett, K. & Elman, J. L. (1997). The methodology of simulations. In *Exercises in rethinking innateness: A handbook for connectionist simulations* (chap. 2, pp. 19-30). Cambridge, MA: MIT Press.

2. Attendance. Attendance during class is not required, but be warned: it will be difficult to learn anything in this course without attending lectures. Participation in the class is required through the weekly written responses (see below for details).

3. Written Responses. Every Monday, you will turn in a short (1 page) ****typed* response to the assigned readings and/or lectures assigned the week before.*** Bring two copies, one

to hand in and one to refer to during class. *Your response will have two parts.* First, identify what you see as the three most important points in the chapters or lectures, and write a sentence explaining each point to the best of your ability. Second, identify up to three issues or points that you find confusing or hard to understand. Write a sentence for each, explaining what you find problematic. We might call upon students to share and explain one or more of their main points in class. ***Late responses earn half credit.***

4. Assignments. Details about the three major assignments for this course will be posted on Blackboard. The three assignments have the same general structure but focus on different topics. In brief, each assignment has two parts. The first part requires you to collect data from two people whom you know in some capacity *and who are not in this class* (e.g., friends, acquaintances, enemies, roommates, etc.). The second part requires you to answer questions about the topic of the assignment. These questions will be in short essay format. **Late homework** earns half credit; quarter credit if more than one week overdue, ****unless other arrangements are made in advance with Chuck or Seraphine.***

5. Final Paper. The final exam for this course will be a theoretical paper on any topic covered in this course. Specific guidelines for writing this paper will be posted on Blackboard. I (Chuck) have also chosen many articles for this course that can serve as excellent templates for the final paper. Briefly, the final paper will have two parts: (a) a review and integration of the conceptual and empirical issues related to your chosen topic and (b) identification of unsolved or yet to be examined issues and suggestions for future theoretical or research directions for this topic. The final paper is due by 2 PM on Wednesday, June 9, 2004. Turn the papers in at Chuck's office, 356 Straub.

Class point breakdown for grades (390 possible points)

Responses to readings: 40 pts (8 satisfactory responses, turned in on time)
Assignments: 150 pts (3 assignments at 50 points each)
Final paper: 200 pts

Course grades based on percentage of points earned			
A+	97-100	C	73-76.9
A	93-96.9	C-	70-72.9
A-	90-92.9	D+	67-69.9
B+	87-89.9	D	63-66.9
B	83-86.9	D-	60-62.9
B-	80-82.9	N	< 70
C+	77-79.9	P	70

Cheating, if detected, will earn **a failing grade** in the course. Cheating = turning in the work of others as your own, copying other people's assignment answers or final paper (in

part or whole). Faking data on the assignments, if detected will earn deductions in points for that assignment, but will not earn a failing grade.

Class Culture (Norms and Expectations)

If you must miss a class or leave early, let Chuck or Seraphine know
Treat your fellow students and your instructors with respect
Turn your cell phone OFF during class (unless you are a doctor on call or have some other legitimate reason)
Ask questions and speak up during class
Ask questions on Blackboard site
Stop by and see Chuck or Seraphine during each person's office hours

Tentative List of Class Activities

Date	**Topic(s)**	**Reading**
Mar. 29	Orientation/Definitions	N/A
Mar. 31	Philosophy of Science Issues	Ch. 1
Apr. 5	Logic	Ch. 2; Rdgs.1
Apr. 7	Rules	Ch. 3; Rdgs.2
Apr. 12	Concepts	Ch. 4; Rdgs. 3,4
Apr. 14	Concepts & Categorization	Ch. 4; Rdgs.5
Apr. 19	Analogies	Ch. 5; Rdgs.6
Apr. 21	**Assignment #1 due**, Analogies	Ch. 5; Rdgs. 7
Apr. 26	Images	Ch. 6; Rdgs. 8
Apr. 28	Mental Simulation (of Past & Future)	Rdgs. 9,10
May 3	Language	Rdgs. 11, 12
May 5	**Assignment #2 due,** Language	Rdgs. 13, 14
May 10	Folk Psychology	Rdgs. 15, 16
May 12	Folk Psychology	Rdgs. 17, 18, 19
May 17	Connections and Neuroscience	Ch. 7; Rdgs.20
May 19	**Assignment #3 due,** more Connections and Neurosci	Ch. 7; Rdgs. 24
May 24	Challenges I-II	Chs. 8-10; Rdgs. 21,22
May 26	Challenges III	Chs. 11-12; Rdg. 23
May 31	*No school – Memorial Day (U.S.)*	---
June 2	Free Day - Ask Seraphine about the final paper	---
June 9	**Final Paper due – 2:00p.m. – Straub Hall 356**	---

Every Monday starting on **April 5, turn in a written response to the readings or lectures.**