

# Psych 310: Cognitive Science

## Syllabus: Fall 2004

Dr. A. K. Reid  
Office: RMSC206E  
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Class time: TTh: 1:00-2:20  
Classroom: RMSC302E  
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**Office Hours:** Rather than establishing office hours, I maintain an open door policy. Please come by frequently to talk about the course, your academic and career options, and so we can get to know one another well.

**Note:** I maintain a website dedicated to this course at <http://webs.wofford.edu/reidak/>. This site contains links to pages describing the class schedule, exam schedule, the syllabus, and your grades. These pages are updated several times a week.

**Course Description:** A survey of the experimental analysis of human memory and cognition, including such topics as the organization of the human memory systems, knowledge representation, language, imagery, thinking, attention, problem solving, and connectionist modeling.

### Required Textbooks:

- Ashcraft, M. H. (2002). *Cognition, 3<sup>rd</sup> Ed.* Upper Saddle River, NJ: Prentice Hall.
- Ramachandran, V. S. & Blakeslee, S. (1998). *Phantoms in the Brain: Probing the Mysteries of the Human Mind.* New York: Harper Collins.

**Goals and Objectives:** Students will learn and demonstrate competence in the knowledge of the cognitive foundations of behavior. These foundations include perception, learning and conditioning, memory, thinking, and language. Specifically, students will learn and demonstrate competence in each of the following areas:

1. Humans as information processing systems with memory;
2. Perceptual and attention processes;
3. Types of human memory and their organization:
  - a. Short-term or working memory;
  - b. Episodic long-term memory;
  - c. Semantic long-term memory;
  - d. Interactions between memory systems.
4. Language, linguistic universals, phonology, syntax, and semantics;
5. Cognitive processes in speech and language perception;
6. Language acquisition and cognitive development
7. Thinking: reasoning and deciding, concept formation, and problem solving
8. Cognitive neuroscience: the tools for mapping cognitive function onto brain structure.
9. Connectionist models of cognitive processes.

**Course Format:** This course is designed to be a highly interactive seminar, in which the students share the professor's responsibility of presenting the material from the texts and creating relevant demonstrations for presentation in the classroom. The course material is fascinating because it represents our own memory and attention processes as well as our ability to learn and use language and solve problems. By learning this material, you are learning about yourself. What could be more fascinating than that? Our intrinsic interest in this material will help produce highly stimulating discussion in every class period (assuming you have done the required reading!). If, at any time, you are not having fun learning and using the material in this course, take the responsibility to make the necessary changes! HAVE FUN!

### **Course Requirements and Methods of Evaluation:**

Your grade will be based on the average of a midterm exam, the final exam, and class participation (discussion, presentations & demonstrations). As a part of your class participation, each of you will carry out at least one brief experiment on yourself, using the computer program called CogLab, and presenting your experience (and data) to the class. Generally, one pair of students will complete the experiment each week, so the effort involved will not be excessive.

Working together with the professor, you will create a classroom environment that will stimulate discussion of the reading material and applications to important questions in life. You will have the opportunity to challenge yourself and your classmates about your opinions and your ways of viewing the world. The classroom is an opportunity for active participation and discussion of intriguing questions -- a time to have fun exploring ideas and to learn from others. Therefore, discussion and active participation in class is mandatory -- your contribution will strongly affect your grade. It will become painfully obvious to all concerned if you arrive to class without having completed the assigned reading, and such negligence will lower your final grade. I want to strongly encourage each of you to create a fun academic atmosphere in the classroom. Express your interest and fascination for the course material. If you consistently demonstrate a highly positive attitude that serves as a positive influence on other students and the classroom environment, I will reward you with points added to your grade.

Class attendance is important and mandatory. In accordance with Wofford's policy on class attendance, unexcused absences will lower your final grade. Excused absences include those due to documented medical need or *official* college events. **Written** excuses are required for all excused absences. In every case of missed class, students are ultimately responsible for the material and experiences covered during their absence. If you miss class, never ask the professor if you missed anything important! You did, and other students did not benefit from your ideas and enthusiasm!

You are expected to complete all of the daily reading assignment **before** class. That is, NEVER wait until after the lecture to read the assigned material. The text is fairly easy to understand. Classroom presentations will assume you have completed the assigned reading. Individual students or groups of students will often be required to organize class experiments, demonstrations, or presentations. These projects will require that you have already read the assignments and can discuss the topics with confidence. In this seminar, you share the responsibility of making the class fun and interesting.

### **Study Suggestions and Professor's Expectations**

The study of learning and memory in humans has reliably demonstrated one important fact of relevance to all students. Learning and memory of material from textbooks and lectures are vastly improved by the simple practice of expressing the material in your own words. Typically, learning and recall are best after you have explained the material to another person either orally or in writing. This course, in fact, discusses the mechanisms responsible for this improved memory. You will learn memory techniques that you will have wished you knew years before!

This course is designed to take advantage of this improvement in memory. On a daily basis, you will be required to express the material in your own words, via individual presentations in class or by group discussions. I realize that some students are hesitant to speak up in class, particularly if it requires them to present material individually in front of the class. However, the ability to speak in front of groups is an important skill to learn. Do not let shyness or modesty interfere with your learning. You may be intimidated at first, but with practice you will become more comfortable. Since this is a small seminar, you will be able to feel very comfortable with your peers. I encourage all students to invent new ways of presenting the material to become more comfortable, such as by using humor or other techniques to make the class fun.

The professor reserves the right to make alterations to this syllabus.