PSY 4011 – Cognitive Psychology

**Class Meetings**: MWF 1:05-1:55, 250 Coon

**Instructor:** Paul Verhaeghen, Ph.D.

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Office hours: 1-2 pm Monday, or by appointment (make your appointment preferably by email)

**Teaching Assistant**: Didem Pehlivanoglu (email for appointment: dpehlivanoglu3@gatech.edu)

**Lab**: Savannah Cookson (savannah.cookson@gatech.edu)

**Required text:** Matlin, M. *Cognition, 8th edition*, Wiley.

And here’s a **secret**: Textbooks tend to be greatly interchangeable, and the Web is a great resource.

**Additional readings (made available on T-Square):**

Wegner, D. M. (2004). Précis of *The illusion of conscious will*. *Behavioral and Brain Sciences, 27*, 649-692. [Note: The pdf contains much more than just Wegner’s paper.]

Loftus, E. (1993). The reality of repressed memories. *American Psychologist, 48*, 518-537.

Steele, C. (August 1999). Thin ice: “Stereotype threat” and black college students. *Atlantic Monthly*, *284*, 44-54.

**Important dates**

Exam 1: Monday, September 22

Exam 2: Monday, October 27

Exam 3: Either Friday, December 5, or Friday, December 12 at 2:50 pm

**T-Square:**

The class will be internet-enabled (T-Square). T-Square will be used for announcements and potential uploads.

**Course description:**

This course is a survey course, providing an overview of the most important topics in cognitive psychology. Cognition can roughly be defined as mental activity, and it involves the acquisition, storage, transformation, and use of knowledge. This covers topics such as attention, memory, imagery, the structure of knowledge, problem solving, and creativity. Cognitive psychology is a fundamental discipline in psychology – its main goal is to *understand* the mind. We will, however, also discuss some applications, such as in the field of eyewitness testimony, recovered memory, and ethnic bias in the measurement of intelligence.

**Course objectives:**

This course will enable students to understand the basics of cognitive psychology. The goal of the course is both to provide a knowledge base about the human cognitive system and to stimulate critical thinking about how researchers in the field have acquired this knowledge base. Specific objectives include:

* an understanding of top-down and bottom-up cognitive processing;
* an understanding of general topics in cognitive psychology, including attention, memory, imagery, knowledge, and intelligence;
* an understanding of some of the neural bases for these aspects of cognitive functioning;
* an understanding of the methodologies used in cognitive psychology.

**Course requirements and organization:**

Evaluation of course performance is based on (a-b-c) ***three examinations***, and (d) ***the lab***. Each of those four evaluative moments will be given equal weight for the final grade.

Exams cover the readings and the topics discussed in class up from the previous exam on (or from the start of the class, for Exam 1). Exams are not cumulative. The level at which you should study is the level at which we covered the materials in class.

***Exams*** will consist of 35 multiple-choice (MC) questions (one point for each) and a short take-home essay question (15 points). The essay questions will be distributed in the class immediately preceding the exam, and they will also be posted on T-Square. You can email me the answers before the MC exam is over, or hand me a hardcopy of your answers when you hand in your MC test. Handing in the answers to the essay questions late, but on the day of the exam, will automatically result in a deduction of 5 points. No answers to essay questions will be accepted after the day of the exam.

The last exam is not a final exam, that is, it is not cumulative – it’s just the third exam.

Sample questions from last year are attached to this syllabus. Put them to good use!

You can bring a **letter-size (**8½ in × 11 in) **crib sheet** to the exam. It can be printed or handwritten or photocopied, but its total surface area should not exceed that of both sides of a letter-size sheet of paper (e.g., no folding flaps and other such cleverly engineered ingenuities). You will hand in the crib sheet at the end of the exam. The purpose of the crib sheet is (a) to take away some of the anxiety associated with testing, and (b) to help you study for the exam (often the act of making a smart crib sheet makes the crib sheet itself superfluous).

For the approximate schedule of events, see below. (We can go slower or more in-depth on certain topics, or skip topics in the interest of time, etc.) Students are not expected to have read the assigned materials prior to coming to class. Class attendance is encouraged. We will do a number of in-class demos which may help you understand concepts and methods better. Note that the classes marked with an asterisk in the time schedule contain substantial amounts of material that is not available in the textbook or the readings.

Up to 2.5% **extra credit** can be earned by participating in Subject Pool experiments. You will earn 0.5% extra credit for each hour volunteered (5 hours maximum). Sign up for experiments through the SONA website: gatech-psych.sona-systems.com. See the instructions in the pdf in the Resources tab on T-Square.

A pared-down version of the **PowerPoint** presentations will be posted on T-Square, topic by topic as we finish it. Do note that you learn better if you extract the information yourself – taking notes in class may be a worthwhile endeavor.

It is my intention to make the class quite interactive. I do have a tendency to ‘lecture’, though, so you might have to just stop me and jump in.

Important note: There are no ‘stupid’ questions/comments. If you do not understand something, or have no idea why we are talking about it, chances are somebody else has the same problem. Things that are not clear are always the fault of the instructor, except at exam time, so please ask any questions about the materials before the exams.

In compliance with section 504 of the Rehabilitation Act and the Americans with Disabilities Act (ADA) Georgia Tech is committed to ensure that no otherwise qualified individual with a **disability** shall, solely by reason of disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity. If you feel that you may need academic accommodations due to a disability, then you should immediately register with the ADAPTS program (<http://www.adapts.gatech.edu>).

**Make-up exams** are given only in case of proven emergency and at the discretion of the instructor. Please remember that being granted a make-up exam is a privilege, not a right. If a foreseeable conflict arises, please notify the instructor **before** test time. If an emergency arises, **provide documentation** of the emergency.

The university has a clear policy on **academic dishonesty**. Students caught cheating on exams or projects (and this includes plagiarism) will be subject to the university’s policy. The policy is viewable online at *http://www.deanofstudents.gatech.edu/integrity*. If you cheat on an exam or a lab assignment, you will get a score of zero for that exam or project.

### Grading:

The traditional dividing line of 90/80/70/60 for the A/B/C/D range of grades will be used. The instructor reserves the right to alter criteria if necessary (popularly known as ‘grading on the curve’), with the restriction that alterations will always be to the advantage of the students. *All grades are final*. If you are one point short of a particular grade, you are one point short of that particular grade.

###### Postings of results of the exams:

Results will be posted on T-Square, as soon as I have them. For security and privacy reasons, results are not sent out through email or by telephone.

**SCHEDULE OF COURSE TOPICS**

The readings should be read in the order given below. The schedule has to be taken as tentative; it is quite possible that deviations and changes of pace are necessary to accommodate the needs of the class. (It is almost certain that in the beginning we will go much slower than advertised; we may have to skip some parts.) Asterisks indicate that topics will be covered more extensively than the textbook does.

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|  | Week | Topic | Reading | Notes |
| 1 | Aug 18 | Introduction and methods | Chapter 1 |  |
| 2 | Aug 25 | (Visual) perception, object/pattern recognition | Chapter 2 |  |
| 3 | Sept 1 | Attention | Chapter 3 |  |
| 4 | Sept 8 | Attention, consciousness\* | Chapter 3, Wegner |  |
| 5 | Sept 15 | Working memory | Chapter 4 | No class F |
| 6 | Sept 22 | Long term memory | Chapter 5 | Exam M |
| 7 | Sept 29 | LTM (cont.)/ Eyewitness testimony\* | Chapter 5 |  |
| 8 | Oct 6 | Repressed memories\*/memory strategies | Loftus/Chapter 6 |  |
| 9 | Oct 13 | Mental imagery | Chapter 7 |  |
| 10 | Oct 20 | General knowledge/Semantic memory | Chapter 8 |  |
| 11 | Oct 27 | Problem solving | Chapter 11 | Exam M, No class F |
| 12 | Nov 3 | Intelligence and diversity\* | Steele |  |
| 13 | Nov 10 | Creativity\* | Chapter 11 + notes |  |
| 14 | Nov 17 | Decision making | Chapter 12 |  |
| 15 | Nov 24 | Decision making | Chapter 12 | No class F |
| 16 | Dec 1 | Buffer (e.g. language/expertise) |  | First opportunity for third Exam F |
|  |  |  |  |  |
| Dec 12, 2:50 pm: second opportunity for third exam | | | | |

**SAMPLE QUESTIONS FROM PAST YEARS’ FIRST MULTIPLE CHOICE**

**EXAM**

1. Given what you know about the word-superiority effect and top-down processing, who would be the better person to read your term paper for typos (a typo is a typo, not a grammatical or reasoning mistake)?

1. A classmate;
2. A roommate who knows nothing about psychology;

c. Yourself.

2. When you flash a message during one frame of a movie (about 40 ms), e.g., ‘Read more psychology books’, what is the most likely effect on the moviegoers?

1. They will read more books on psychology.
2. They will read less books on psychology.
3. Their reading behavior regarding psychology books will not change.
   1. Suppose you walk past your friend Chris’s house. Standing in front of the house is someone, and you yell your friend’s name: ‘Hi, Chris!’. Then you look more closely, and you see it’s not Chris at all, but another friend, who does not resemble Chris at all. This error can be traced to:
4. bottom-up processing;
5. parallel processing;
6. top-down processing.

4. Assume you are watching an SU football game. The quarterback has just passed the ball on (or maybe not), and lots of Orange players are running around faking that they have the ball. You are confused as to where the ball really went. What phenomenon are you experiencing?

a. Divided attention.

1. Sustained attention.
2. Varied mapping.

5. Which of these variable combos influences reaction time in memory search under varied mapping conditions?

a. Exposure time only.

b. Frame size and exposure time.

c. Frame size, target set size and exposure time.

6. People generally take longer distinguishing 'P' from 'p' than 'P' from 'm'. Which theory explains this phenomenon?

a. The distinctive-features model.

b. The recognition-by-components theory.

c. The template matching theory.

1. Suppose you want to buy square-shaped red earrings. You are staring at the window display of a jeweler, and she has four kinds of earrings there: square blue, round blue, round red, and square red. What do you expect?
   1. It would take less time to find that the square red earrings are *not* there than to find that they *are* there.
   2. The number of other square earrings and the number of other red earrings influences the time taken to find the red square earrings.
   3. You would find the square red earrings faster than you would find any earrings that are red.
2. Suppose you are just beginning to learn to type. In your typing, it is likely that you would use:
   1. automatic processing;
   2. controlled processing;
   3. parallel processing.

9. If we suppose that depressive patients are ‘drawn’ to words that denote negativity, and we give them a Stroop test (naming the ink color of words) with neutral (e.g., water, mushroom, face) versus negative words (e.g., death, down, suicide), what would you expect?

1. They would be faster to name the ink color of negative words than of neutral words.
2. They would be slower to name the ink color of negative words.
3. There would be no latency difference in naming the ink color of negative words versus positive words.

10. Behaviorism:

1. Has been primarily interested in studying images and thought processes.
2. is an approach that relies on objective, observable reactions.
3. is historically the first attempt at scientific psychology.