

**CR1.212, Tuesday and Thursday 10AM-11:15AM**

***Instructor Contact Information***

**Dr. Alice J. O'Toole**

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**Prerequisites:** None

**Course Description:**

This course is an introduction to the study of the brain and behavior from the point of view of cognitive science, including approaches from psychology, philosophy, neuropsychology, and computational modeling. Phenomena involving sensory systems, memory, decision-making, language, and communication are discussed.

**Student Learning Objectives:**

After completing the course, students should be able to:

1. Describe and explain the nature of the relevant psychology and cognitive science-related fields and scientific disciplines.
2. Describe and analyze major theoretical perspectives and overarching themes of psychology and other cognitive science-related fields and discuss their historical development.
3. Locate, accurately summarize, and evaluate bodies of scientific literature in psychology.
4. Use critical thinking to evaluate scholarly literature.
5. Describe basic components of the laws of nature as developed in the various scientific courses in the core program.
6. Set up scientific problems in feasible and solvable ways as illustrated in the various subjects in the core curriculum.
7. Make reasoned arguments about major issues of a scientific nature.

**Required Readings:**

The readings and a study guide are available on the eLearning class website.

**Exams and Assignments:**

**Exams:** There are three non-cumulative exams based on the lectures and reading. The exams include multiple-choice, matching, and short-answer questions. Material from lectures and readings will be included on each exam. For each assigned reading, there will be a study guide. Exam questions on the readings will be chosen from these study guides.

**Essays:** There is also a 5-page essay assignment to be completed on a summary of a TED talk. Details of this assignment will be available on E-learning.

**Homework/Attendance.** Homework will be given in the form of pass-fail study guides on the readings, due on the date of article discussion (see next page). Homework is an attendance grade. **NO CREDIT will be given to homework not handed in during the class period.** Electronic submissions of homework will not be accepted. Students are responsible for all material presented in class, including directives about exams. **There is no assigned book for the class, and so missed materials from class lectures cannot be obtained from readings.**

**Research Exposure Credits:** All students enrolled in this core class must earn research exposure credits. Details about this requirement appear on the separate *Research Exposure Credit Requirement* handout distributed on the first day of class. This handout is also posted on the BBS Forum eLearning site.

**Grading Policy**

Grading is based on a set of a priori criteria: 90% correct for A's, 80% for B's, 70% for C's, 60% for D's. I reserve the right to alter these criteria based on the distribution of grades for an individual test that might be particularly difficult or easy. Grades will be based on the total number of points across the course. Each exam counts for 25% of the final grade, the essay 15%, homework will contribute the final 10%.

**Course & Instructor Policies**

**DON'T MISS AN EXAM!** Make-up exams will be given only if: (a) you were seriously ill and have verifiable documentation from a physician, or (b) you were detained the day and time of the exam, or (c) you made arrangements prior to the exam to attend an urgent family affair. In any of these cases, you must notify the professor in advance of the scheduled time of the exam (call and leave a voice-mail message if you can do nothing else). Otherwise, you will receive an F. It is the student's responsibility to make sure that an exam is made up within one week of the scheduled time. Beware that make-up exams are designed to be more comprehensive to compensate for having more study time.

**UTD – Policies and Procedures**

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

## Assignments & Academic Calendar (topic dates approximate)

Class Dates	Lecture Topic (approximate)	Reading to be presented
Aug. 23	Business and Introduction	
Aug. 25	History of Cognitive Science	R1-Cullen & Smith
Aug. 30	Methods in Neuroscience	R2-Nicolelis & Ribeiro
Sept. 1		R3-Upson
Sept. 6	Brain Structure	R4-Hogan
Sept. 8	Mind and machine	R5-Fields
Sept. 13	Real and Artificial Neural Networks	R6-Bower
Sept. 15	Hemispheres of the Brain	R7-Copeland
Sept. 20		R8-Gazzaniga
Sept. 22	Seeing and perceiving	R9-Skaggs
Sept. 27		Exam I
Sept. 29		R10-De Gelder
Oct. 4		R11- Rizzolatti
Oct. 6		Essay Topic Approval Due
Oct. 11	Audition and Speech	R12-Hickok
Oct. 13		R13-Stickgold
Oct. 18		Essay Due
Oct. 20	Language	R14-McGaugh
Oct. 25		R15-Treffert
Oct. 27		Exam II
Nov. 1		R16-Ross
Nov. 3	Memory	R17-Giedd
Nov. 8		R18-Chialdini
Nov. 10		R19-Abu-Mostafa
Nov. 15		R20-Koch (first of two)
Nov. 17	Reasoning, judgment, decision-making	R21-Nowak
Nov. 22-24	Thanksgiving break week	
Nov. 29	Emotion	R22-Solms
Dec. 1	Consciousness	R23- Koch (second of two)
Dec. 6		Exam III

- R1 Cullen, D. K. & Smith, D. H. Bionic connections. *Scientific American*, January, 2013, 52-57.
- R2 Nicoletis, M. A. & Ribeiro, S. Seeking the neural code. *Scientific American*, December, 2006, 70-77.
- R3 Upson, S. Cyborg confidential. *Scientific American*, November, 2014, 30-35.
- R4 Hogan J. The forgotten era of brain. *Scientific American*, October, 2005, 66-73.
- R5 Fields, R. White matter matters. *Scientific American*, March, 2008, 54-61.
- R6 Bower, J. & Parsons, L. Rethinking the lesser brain. *Scientific American*, August, 2003, 49-57.
- R7 Copeland, B. J. & Proudfoot, D. Alan Turing's forgotten ideas in computer science. *Scientific American*, April, 1999, 99-103.
- R8 Gazzaniga, M. The split brain revisited. *Scientific American*, July, 1998, 50-55.
- R9 Skaggs, W. New neurons for new for new memories. *Scientific American*, Sept., 2014, 50-55.

### Exam 1

- R10 De Gelder, B. Uncanny sight in the blind. *Scientific American*, May, 2010, 60-65.
- R11 Rizzolatti, G., Fogassi, L., Gallese, V. Mirrors in the mind. *Scientific American*, Nov, 2006, 54-61.
- R12 Hickok, G., Bellugi, U. Klima, E. Sign language in the brain. *Scientific American*, June, 2001, 57-65.
- R13 Stickgold, R. Sleep on it. *Scientific American*, Oct., 2015, 51-57.
- R14 McGaugh, J., LePort, A., Remembrance of all things past. *Scientific American*, February, 2014, 41-45.
- R15 Treffert D. J., Christensen, D. Inside the mind of a savant. *Scientific American*, December, 2005.

### Exam 2

- R16 Ross, P. E. The expert mind. *Scientific American*, August, 2006, 64-71.
- R17 Geidd, J. N. The amazing teen brain. *Scientific American*, July 2015, 31-37.
- R18 Chialdini, R. The science of persuasion. *Scientific American*, February, 2001, 76-81.
- R19 Abu-Mostafa, Y. Machines that think for themselves. *Scientific American*, July, 2012, 78-81
- R20 Koch, C. Intelligence without sentience, *Scientific American*, July, 2015.
- R21 Nowak, M. Why we help. *Scientific American*, July, 2012, 34-39.
- R22 Solms, M. Freud returns. *Scientific American*, May, 2004, 83-89.
- R23 Koch C. and Tononi, G. (2011). A test for consciousness. *Scientific American*, June, 2011, 44-47.

### Exam 3

**Essay** – Full details on the essay assignment will be available on the web. A brief overview is given here. For this assignment you must choose a TED talk, available at [www.ted.com](http://www.ted.com), watch the talk, and write a 5-page essay (double-spaced, Times new roman font size 12) summarizing and critiquing the main points. TED talks are given (mostly) by high profile scientists and academicians and are devoted to a broad range of topics. You should review the list of talks by topic and choose one of these. You should search for a suitable talk among the topics of cognitive science, psychology, computer science, behavioral economics, memory, neuroscience, philosophy, and language. I will pass around a sign-up sheet in class to collect your choices, beginning in late September. I will approve the choice if it is within the scope of the class and if no one else in the class has chosen the talk. All choices must be approved by the date noted on the syllabus. If you do not have a choice approved by then, I will assign you an essay. **The essay is due on October 18<sup>th</sup> at midnight.**

## **Student Conduct & Discipline**

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations, which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

## **Academic Integrity**

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

## **Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

## **Withdrawal from Class**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

## **Student Grievance Procedures**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are

available to assist students in interpreting the rules and regulations.

### **Incomplete Grade Policy**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

### **Disability Services**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:  
The University of Texas at Dallas, SU 22  
PO Box 830688  
Richardson, Texas 75083-0688  
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

### **Religious Holy Days**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

***These descriptions and timelines are subject to change at the discretion of the Professor.***

### **RESEARCH PARTICIPATION REQUIREMENT**

All students enrolled in this course are required to earn two (2) research participation credits (RPCs) by being a participant in two hours of experiments (one credit per hour) or by writing 500-word summaries of professional journal articles (one credit per summary). If you do not satisfy this requirement, you will initially receive a grade of incomplete (X) for the course and eventually your course grade will be lowered by one full grade (e.g., from B+ to C+). For details, see the handout passed out by the instructor the first day of class or visit a BBS academic advisor.

More things to know: Please read the information on the page attached to this link

<http://provost.utdallas.edu/syllabus-policies/>