



Psychology 479

Human Neuropsychology

| | | | |
|----------------------|------------------------|---------------------------|----------------------|
| Instructor: | Dr. Andrea B. Protzner | Lecture Location: | SH 157 |
| Phone: | 403-220-5566 | Lecture Days/Time: | TR 15:30 - 16:45 |
| Email: | protzner@ucalgary.ca | Lab 01: | T 9:00 – 10:50 |
| | | Lab 02: | A 248 |
| | | | R 9:00 – 10:50 |
| | | | A 248 |
| Office: | A 030 | TA: | Ted Slone |
| Office Hours: | By appointment | Email: | etgslone@ucalgary.ca |

Course Description and Goals

This course will review major topics in cognitive neuroscience and neuropsychology with an emphasis on human cognitive function and dysfunction. Initial lectures will consist of a general introduction to neuroanatomy, cortical organization and methods used by cognitive neuroscientists. These will be followed by lectures focusing on specific areas of cognitive functioning and related disorders (e.g., attention and neglect; memory and amnesia; language and aphasia, etc). Case reports will be used to illustrate key points and students will be required to examine the relationships between brain, behaviour and cognitive function.

Prerequisites

Psyc 312 – Experimental Design and Quantitative Methods for Psychology, or
Psyc 375 – Brain and Behaviour

Required Text

Banich, M.T. & Compton, R.J. (2011). Cognitive Neuroscience, 3rd edition. Belmont, California: Wadsworth/Cengage Learning.
Hard copy available at the University Bookstore (eTexbook also exists).

Supplementary readings will be posted on Blackboard. The readings were selected to promote recognition and elaboration of pertinent issues and debates in the field of human neuropsychology.

Evaluation

Course Component: **Weight:**

Lecture

Test 1 15% (Thursday, Feb. 02)

Approaches and Methods

Brain Structure & Function

The Agnosias

Test 2 25% (Tuesday, March 20)

The Apraxias

| | |
|------------------------------------|--------------------------|
| Amnesic Syndromes | |
| Aphasic Syndromes | |
| Neglect Syndromes | |
| Test 3 | 25% (Thursday, April 12) |
| Frontal Lobe Syndromes | |
| Aging | |
| Affective Disorders | |
| Neuropathology and Neuroplasticity | |

Lab

| | |
|------------------------|---|
| Presentation | 15% |
| Experiment Proposal #1 | 5% (Last day to hand in: Tuesday, Feb. 28) |
| Experiment Proposal #2 | 10% (Last day to hand in: Tuesday, Apr. 03) |
| Participation | 5% |

* Students must achieve a passing grade on both the class and lab components to pass this course.

Midterm and Final Exam

Tests will be based on lecture material and textbook readings. The tests will consist of multiple-choice questions, shorter and longer questions, as well as diagrams/brain images requiring you to label brain parts. The shorter and longer questions will require students to integrate knowledge analytically (i.e., you will be required to show that you have not only memorized course material, but that you understand it). The midterm will cover information from the lectures and readings for the first 4 weeks. The final exam will cover material presented after the midterm.

Please refer to *Absence From A Test/Exam* section in case of absence from the midterm.

Experiment Proposals

During the course, you will be required to submit two experiment proposals. You may base your experiment proposal on any of the assigned articles. Your experiment proposal will be due at the beginning of Tuesday's class on the week that your chosen article is covered (**you may hand one in earlier than the week that your chosen article is covered if you prefer**). Acceptable methods of submission are in class or via email. You may write only one experiment proposal per class, and late experiment proposals will not be accepted. If you have not handed in your first experiment proposal by the beginning of class on February 28, and your second experiment proposal by the beginning of class on April 03, you will receive 0% for those portions on your lab mark.

The focus of the experiment proposal should be: 1) a feasible means of fixing a problem that you identify with the article, or 2) a next step experiment based on the article.

Presentations

A topic will be assigned to each of the weekly laboratories. During the first lab session you will choose a partner from your lab section with whom you would like to present (presentations will be done in groups of two), and choose a topic for your presentation. Your presentation date will depend on the topic that you chose, and will be held during the lab. You will be required to discuss your topic in the context of a case study (or two case studies for the purposes of comparison). The presentation should last half an hour.

If you or your partner are absent on the day of your scheduled presentation, the presentation will be rescheduled for the last lab as long as the appropriate documentation is provided (please see *Absence From A Test/Exam* section for documentation to be submitted in case of absence). Your TA will need to

be notified of your absence as early as possible (this should be PRIOR to the start of Lab so he has time to arrange for alternate material to discuss in lab that day).

If one of the presenters was absent from his/her scheduled presentation and the appropriate documentation was not provided, the second presenter will present alone on the same assigned topic during the last scheduled lab (appropriate modifications to the presentation can be discussed with your TA).

Grading Scale

| | | | | | | | |
|----|---------|----|--------|----|--------|----|--------|
| A+ | 96-100% | B+ | 80-84% | C+ | 67-71% | D+ | 54-58% |
| A | 90-95% | B | 76-79% | C | 63-66% | D | 50-53% |
| A- | 85-89% | B- | 72-75% | C- | 59-62% | F | 0-49% |

As stated in the University Calendar, it is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades. To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

Tentative Lecture Schedule (Lab Schedule will be Similar to the Lecture Schedule.)

| Date | Topic/Activity/Readings |
|----------|---|
| T Jan 10 | Introduction to Cognitive Neuroscience -- Approaches and Methods - Chapter 3 |
| R Jan 12 | Approaches and Methods continued... |
| T Jan 17 | Brain Structure & Function – Cortical Specialization & Behavioural Neuroanatomy - Chapter 1 - Price, C.J. & Friston, K.J. (2002). Degeneracy and cognitive anatomy. Trends in Cognitive Sciences, 6(10), 416-421. |
| R Jan 19 | Brain Structure & Function continued... |
| F Jan 20 | Last day to drop a course with tuition refund. |
| M Jan 23 | Last day for registration/change of registration. |
| T Jan 24 | The Agnosias -- Disorders of Sensory Functioning - Chapter 7 - Ungerleider, L.G., & Haxby, J.V. (1994). 'What and where' in the human brain. Current Opinion in Neurobiology, 4(2), 157-165. |
| R Jan 26 | The Agnosias continued... |
| T Jan 31 | Methods and Brain Structure and Function continued... |
| R Feb 2 | Test 1 (held during class time). |
| T Feb 7 | The Apraxias -- Disorders of Motor Control - Chapter 5 - Price, C.J. et al. (2010). Lesion sites that predict the ability to gesture how an object is used. Archives Italiennes de Biologie, 148(3), 248-253. |
| R Feb 9 | The Apraxias continued... |
| T Feb 14 | Amnesic Syndromes -- Memory Disorders - Chapter 10 |

| | |
|----------|--|
| | <ul style="list-style-type: none"> - Rosenbaum, R.S., Kohler, S., Schacter, D.L., Moscovitch, M., Westmacott, R., Black, S.E., Cao, F., Tulving, E. (2005). The case of K.C.: contributions of a memory-impaired person to memory theory. <i>Neuropsychologia</i>, 43(7): 989-1021. |
| R Feb 16 | Amnesic Syndromes continued... |
| T Feb 21 | Reading days. No lecture. |
| R Feb 23 | Reading days. No lecture. |
| T Feb 28 | <p>Aphasic Syndromes – Language disorders</p> <ul style="list-style-type: none"> - Chapter 9 - Saygin, A.P., Dick, F., Wilson, S.W., Dronkers, N.F., Bates E. (2003). Neural resources for processing language and environmental sounds: Evidence from aphasia. <i>Brain</i>, 126(4): 928-45. <p>Last day to hand in Experiment Proposal # 1</p> |
| R Mar 1 | Aphasic Syndromes continued... |
| T Mar 6 | <p>Neglect Syndromes -- Attention-Based Disorders</p> <ul style="list-style-type: none"> - Chapter 11 - Posner, M., & Petersen, S. (1990). The attention system of the human brain. <i>Annual Review of Neuroscience</i>, 13, 25-42. |
| R Mar 8 | Neglect Syndromes continued... |
| T Mar 13 | <p>Frontal Lobe Syndromes -- Executive Function</p> <ul style="list-style-type: none"> - Chapter 12 - Stuss, D.T., & Alexander, M.P. (2000). Executive functions and the frontal lobes: a conceptual view. <i>Psychological Research</i>, 63(3-4), 289-298. - D'Esposito, M., Cooney, J.W., Gazzaley, A., Gibbs, S.E., & Postle, B.R. (2006). Is the prefrontal cortex necessary for delay task performance? Evidence from lesion and fMRI data. <i>Journal of the International Neuropsychological Society</i>, 12(2), 248-260. |
| R Mar 15 | Frontal Lobe Syndromes continued... |
| T Mar 20 | Test 2 (held during class time). |
| R Mar 22 | <p>Aging</p> <ul style="list-style-type: none"> - Chapter 15, p. 459-464; Chapter 16 p. 471-488 - Grady, C.L., McIntosh, A.R., Beig, S., Keightley, M.L., Burian, H., Black, S.E. (2003) Evidence from functional neuroimaging of a compensatory prefrontal network in Alzheimer's disease. <i>J Neurosci</i> 23, 986–993. - Protzner, A.B., Mandzia, J.L., Black, S.E., & McAndrews, M.P. (2011). Network interactions explain effective encoding in the context of medial temporal damage in MCI. <i>Human Brain Mapping</i>, 32(8): 1277-1289. |
| T Mar 27 | Aging continued... |
| R Mar 29 | <p>Affective Disorders -- Depression & Neuropsychiatric Syndromes</p> <ul style="list-style-type: none"> - Chapter 14 - Holtzheimer PE, Mayberg HS. (2011) Stuck in a rut: rethinking depression and its treatment. <i>Trends Neurosci</i>. 34(1):1-9. - Mayberg HS, Lozano AM, Voon V, McNeely HE, Seminowicz D, Hamani C, et al. (2005) Deep brain stimulation for treatment-resistant depression. <i>Neuron</i>. 45(5):651-60. |
| T Apr 3 | <p>Affective Disorders continued...</p> <p>Last day to hand in Experiment Proposal # 2</p> |
| R Apr 5 | <p>Neuropathology and Neuroplasticity</p> <ul style="list-style-type: none"> - Chapter 15, p.451-459 - Chen, A.J.-W., Novakovic-Agopian, T., Nycum, T.J., Song, S., Turner, G.R., Hills, |

| | |
|----------|---|
| | N.K., Rome, S., Abrams, G.M., D'Esposito, M. (2011) Training of goal-directed attention regulation enhances control over neural processing for individuals with brain injury. <i>Brain</i> 134(5), 1541-1554. |
| T Apr 10 | Neuropathology and Neuroplasticity continued... |
| R Apr 12 | Test 3 (held during class time). |
| F Apr 13 | Lecture ends. Last day to withdraw |

Reappraisal of Grades

A student who feels that a piece of graded term work (e.g., term paper, essay, test) has been unfairly graded, may have the work re-graded as follows. The student shall discuss the work with the instructor within 15 days of being notified about the mark or of the item's return to the class. If not satisfied, the student shall immediately take the matter to the Head of the department offering the course, who will arrange for a reassessment of the work within the next 15 days. The reappraisal of term work may cause the grade to be raised, lowered, or to remain the same. If the student is not satisfied with the decision and wishes to appeal, the student shall address a letter of appeal to the Dean of the faculty offering the course within 15 days of the unfavourable decision. In the letter, the student must clearly and fully state the decision being appealed, the grounds for appeal, and the remedies being sought, along with any special circumstances that warrant an appeal of the reappraisal. The student should include as much written documentation as possible.

Plagiarism and Other Academic Misconduct

Intellectual honesty is the cornerstone of the development and acquisition of knowledge and requires that the contribution of others be acknowledged. Consequently, plagiarism or cheating on any assignment is regarded as an extremely serious academic offense. Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Students should examine sections of the University Calendar that present a Statement of Intellectual honesty and definitions and penalties associated with Plagiarism/Cheating/Other Academic Misconduct.

Academic Accommodation

It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 403-220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than 14 days after the start of this course.

Absence From A Test/Exam

Makeup tests/exams are NOT an option without an official University medical excuse (see the University Calendar). A completed Physician/Counselor Statement will be required to confirm absence from a test/exam for health reasons; the student will be required to pay any cost associated with this Statement. Students who miss a test/exam have 48 hours to contact the instructor and to schedule a makeup test/exam. Students who do not schedule a makeup test/exam with the instructor within this 48-hour period forfeit the right to a makeup test/exam. At the instructor's discretion, a makeup test/exam may differ significantly (in form and/or content) from a regularly scheduled test/exam. Except in extenuating circumstances (documented by an official University medical excuse), a makeup test/exam must be written within 2 weeks of the missed test/exam.

Freedom of Information and Protection of Privacy (FOIP) Act

The FOIP legislation disallows the practice of having student's retrieve tests and assignments from a public place. Therefore, tests and assignments may be returned to students during class/lab, or during office hours, or via the Department Office (Admin 275), or will be made available only for viewing during exam review sessions scheduled by the Department. Tests and assignments will be shredded after one year. Instructors should take care to not link students' names with their grades, UCIDs, or other FOIP-sensitive information.

Evacuation Assembly Point

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The list of assembly points is found at

<http://www.ucalgary.ca/emergencyplan/assemblypoints>

Please check this website and note the nearest assembly point for this course.

Student Organizations

Psychology students may wish to join the Psychology Undergraduate Students' Association (PSYCHS).

They are located in Administration 170 and may be contacted at 403-220-5567.

Student Union VP Academic: Phone: 403-220-3911 suvpaca@ucalgary.ca

Student Union Faculty Rep.: Phone: 403-220-3913 socialscirep@su.ucalgary.ca

Important Dates <http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>

The last day to drop this course with no "W" notation and still receive a tuition fee refund is **January 20, 2012**. Last day for registration/change of registration is **January 23, 2012**. The last day to withdraw from this course is **Apr 13, 2012**.