

Introduction to Neuropsychology Psychology 146

Instructor	Marilyn Hartman, Ph.D.	How to Reach Me:
Class Meeting Time	Tuesday & Thursday 9:30 - 10:45	Office: Davie Hall 256
Class Meeting Place	Saunders Hall 112	Telephone: 962-3987
		E-mail: hartman@email.unc.edu

How to Find Me Outside of Class --

- a. **Office Hours: Thursday** 3:00 – 5:00. I am frequently free immediately after class as well.
- b. If my scheduled office hour doesn't work, just set up an appointment with me for another times.
- c. **PLUS --** You may always send me e-mail with questions or comments.

Pre-requisites: Either Cognitive Psychology (Psyc 20), Biopsychology (Psyc 23), or permission of the instructor. Please come talk to me asap if you have not met the pre-requisite.

Course Description:

We can speak, understand information that we take in through our senses, find our way in new places, think, plan, solve problems, remember the past, and learn new skills, all without much awareness of how we do these cognitive tasks. We also make errors in carrying out these tasks sometimes, again without any awareness of the how the mistakes come about. Of course we know the brain is necessary for all of this, but how does it actually work? How is it organized?

In order to answer these questions, we will study **neuropsychology**, a branch of psychology that examines the relationships between brain and behavior. By the end of you course you should be able to:

- (1) demonstrate knowledge of the way the brain is organized to carry out the activities that make up the 'mind.'
- (2) analyze examples of behavior in terms of brain function.
- (2) describe common patterns of impairment that occur after brain damage.
- (3) read, understand, and integrate information from a variety of scholarly sources of information about neuropsychology, including case studies and empirical research.

Required Readings

Our textbook will be: Banich, M. T. (1997). Neuropsychology: The Neural Bases of Mental Function. New York: Houghton Mifflin. Additional required readings, including book chapters and articles taken from psychology journals, will be on reserve at the Undergraduate Library Reserve Desk. Assignments for each class meeting are listed with the attached class schedule.

Exams and Grading

1. **Class preparation and participation.** The course will be highly interactive. You will all get a chance to participate! In general, there will be no lectures in which you simply sit and take notes. Instead, we will use discussion to clarify information that is difficult, to integrate information from different parts of the course, and most importantly, to develop your skills in analyzing observable behavior in terms of neuropsychological concepts.

This type of class requires thorough preparation on your part ahead of time. Study guides will be distributed ahead of time for many of the classes to facilitate your preparation for each class meeting. From the first day I will expect participation of all students in the class. **For discussion of case studies and journal articles, you are expected to come to class with the articles and your notes.**

2. **Exams.** Exams will cover both the reading assignments and material covered in class. There will be four exams. The exams will consist of factual questions, as well as essay questions requiring integration of material that you have studied.

Make-up Exams. The only acceptable excuses for missing an exam are illness, family emergencies, and out-of-town university activities. You must obtain permission from the instructor ahead of time whenever possible. As with all final exams, the final exam for this course can only be made up with permission of the Dean.

3. **Written assignments** are of two types:

a. **Two typewritten critiques of empirical articles discussed in class.** The syllabus contains 5 such articles (indicated with an *). Each of you will select one of the first two articles and one of the second three articles. Please write a critique of the article; it will be due at the class meeting following the class discussion of the article. More information will be provided later about the format for the critiques. **Late papers will not be accepted.**

b. **Research Paper on Functional Neuro-imaging.** A short research paper (8-10 pages) based on outside reading of articles on functional neuro-imaging is also required. A one-paragraph description of the topics plus a complete bibliography are due **Tuesday, November 16**. Feedback will be provided on Tuesday, November 23. If revisions are necessary, the revised topics and bibliographies must be submitted on **Tuesday, November 30**. The final paper is due on the last day of class, **Tuesday, December 7**. More information will be provided later about the paper.

4. **Grades:**

The three exams together will count for 60% of your grade. Of these, your best score will count 25%, your worst 15%, and the other 20%.

The research paper will be worth 20% of your grade.

The two written critiques will be worth 15% of your grade.

Class participation and preparedness will be worth 5% of your grade.

NOTE: Although this class may include both graduate and undergraduate students, grades for each type of student will be calculated separately, so that undergraduates will not be at any disadvantage.

SCHEDULE OF CLASSES

Thursday August 19

Introduction to Neuropsychology

Tuesday August 24

Organization of Brain and Behavior - I

1. Banich: pp. 2-26

2. Four views of the brain. Locate all structures labeled with an asterisk on the study guide.

Thursday August 26

Organization of Brain and Behavior - II

1. Banich: pp. 26-37 [up to Frontal Lobe section]

2. Four views of the brain. Locate all structures labeled with an asterisk on the study guide.

3. Ramachandran, V. S., & Blakeslee, S. (1998). 'Knowing where to scratch.' In Phantoms in the brain: Probing the mysteries of the human mind. New York: William Morrow. **Bring to class with notes.**

Tuesday August 31

Organization of Brain and Behavior - III

1. Banich: pp. 37-47

2. Sacks, O. (1995). The last hippie. In An Anthropologist on Mars (pp. 42-77). New York: Vintage Books. **Bring to class with notes.**

Thursday September 2 Organization of Brain and Behavior - IV

1. Luria, A. R. (1987). Excerpts from The man with a shattered world: The history of a brain wound (pp. 3-22, 36-61, 76-82; 157-160). Cambridge, MA: Harvard University Press. **Bring to class with notes.**

Tuesday September 7 Neurological Disorders - I

1. Kolb, B., & Whishaw, I. Q. (1996). First part of 'Neurological disorders' (pp. 566-576). In Fundamentals of Human Neuropsychology (4th Ed.). W. H. Freeman: New York.
2. Diagrams of distribution of arteries and circle of Willis (3 pages).

Thursday September 9 Neurological Disorders – II

1. Kolb, B., & Whishaw, I. Q. (1996). Next part of 'Neurological disorders' (pp. 576-585). In Fundamentals of Human Neuropsychology (4th Ed.). W. H. Freeman: New York.
2. Wilson, B. A., & Wearing, D. (1995). Prisoner of consciousness: A state of just awakening following herpes simplex encephalitis. In R. Campbell & M. A. Conway (Eds.), Broken Memories (pp. 14-28). Cambridge, MA: Blackwell. **Bring to class with notes.**

Tuesday September 14 Neurological Disorders – III and Methods in Neuropsychology

1. Banich: pp. 51-59; 61-74.
2. Petersen, S. E., Fox, P. T., Posner, M. I., Mintun, M., & Raichle, M. E. (1988). Positron emission tomographic studies of the cortical anatomy of single-word processing. Nature, **331**, 585-589. **Bring to class with notes.**

Thursday September 16 Hemispheric Specialization - I

1. Banich: pp. 91-103.
2. Ogden, J. A. (1996). Split Brain, Split Mind? Case L. B. In Fractured Minds (pp. 232-251). New York: Oxford Press. **Bring to class with notes.**

Tuesday September 21 Hemispheric Specialization - II

1. Banich: pp. 103 - top 116.
2. Drawing assignment.

Thursday September 23 EXAM # 1

Thursday September 30 Visual Perception and Agnosia - I

1. Banich: pp. 165-175.
2. Sacks, O. (1987). The man who mistook his wife for a hat. In The man who mistook his wife for a hat and other clinical tales (Chapter 1, pp. 8-22). New York: Harper & Row. **Bring to class with notes.**

Tuesday October 5 Visual Perception and Agnosia - II

1. Banich. pp. 175-181
2. Excerpts from Humphreys, G. W., & Riddoch, M. J. (1987). To see but not to see. Hillsdale, New Jersey: Erlbaum. **Bring to class with notes.**
 - a. The history of a case of visual agnosia. (pp. 25-36).
 - b. Some experimental investigations (pp. 59-81)

c. Living with agnosia. (pp.109-113).

Thursday October 7 Face Recognition and Prosopagnosia

1. Banich: pp. 181-193.
- * 2. Farah, M. J., Wilson, K. D., Brain, H. M., & Tanaka, J. R. (1995). The inverted face inversion effect in prosopagnosia: Evidence for mandatory, face-specific perceptual mechanisms. Vision Research, 35, 2089-2093. **Bring to class with notes.**

Tuesday October 12 ** UNIVERSITY DAY – NO CLASS *******

Thursday October 14 ** FALL BREAK ! NO CLASS ! *******

Tuesday October 19 Spatial Perception - I

1. Banich: pp. 203 - 220.
2. Ungerleider, L. G., & Haxby, J. (1994). 'What' and 'where' in the human brain. Current Opinion in Neurobiology, 4, 157-165.

Thursday October 21 Spatial Perception - II

1. Banich: pp. 220 - 233.
- * 2. Goodale, M. A., Milner, A. D., Jakobson, L. S., & Carey, D. P. (1991). A neurological dissociation between perceiving objects and grasping them. Nature, 349, 154-156. **Bring to class with notes.**

Tuesday October 26 Spatial Perception - III: Hemineglect (or Contralateral Neglect)

1. Banich: pp. 235-top of 236; 255-271
2. Sacks, O. (1987). Eyes right! In The man who mistook his wife for a hat and other clinical tales (pp. 77-79). New York: Harper & Row. **Bring to class with notes.**
3. McGlinchey-Berroth, R. (1997). Visual information processing in hemispatial neglect. Trends in Cognitive Sciences, 1, 91-97. **Bring to class with notes.**

Thursday October 28 Language and Aphasia - II

Banich: pp. 275-295

Tuesday November 2 Language and Aphasia - III

- * Caramazza, A., Berndt, R. S., Basili, A. G., Koller, J. J. (1981). Syntactic processing deficits in aphasia. Cortex, 17, 333-348. **Bring to class with notes.**

Thursday November 4 EXAM # 2

Tuesday November 9 Memory and Amnesia: I

1. Banich: pp. 315 – 344
2. Review reading and notes on Clive, as an example of a person with the amnesic syndrome

Thursday November 11 Memory and Amnesia: II

1. Banich: pp. 344 - 354
- * 2. Graf, P., Squire, L. R., & Mandler, G. (1984). The information that amnesic patients do not forget. Journal of Experimental Psychology: Learning, Memory and Cognition, 10, 164-178. **Bring to class with notes.**

Tuesday November 16 Frontal Lobes: Social and Emotional Functioning

PAPER TOPIC AND BIBLIOGRAPHY DUE TODAY!!

1. Malloy, P., Bihle, A., Duffy, F., & Cimino, C. (1993). The orbitomedial frontal syndrome. Archives of Clinical Neuropsychology, 8, 185-201.
- * 2. Bechara, A., Damasio, A. R., Damasio, H., & Anderson, S. W. (1994). Insensitivity to future consequences following damage to human prefrontal cortex. Cognition, 50, 7-15. **Bring to class with notes.**

Thursday November 18 Frontal Lobes: Social and Emotional Functioning

1. Review Kolb & Whishaw (see 9/7) on head injuries
2. Osborn, C. L (1998). In Over My Head (pp. 1-6). Kansas City: Andrews McMeel Publishing.

Tuesday November 23 Frontal Lobes and Executive Function: I

Banich: pp. 369 - 390

Thursday November 25 *** THANKSGIVING BREAK! NO CLASS! *******

Tuesday November 30 Frontal Lobes and Executive Function: II

REVISED PAPER TOPIC AND BIBLIOGRAPHY DUE TODAY!!

1. Banich: pp. 390 - 396, plus pp. 222 - 223 (short-term spatial memory), and pp. 361 - 364 (working memory, strategic memory)
2. Buckner, R. L, & Petersen, S. E. (1996). What does neuroimaging tell us about the role of prefrontal cortex in memory retrieval? Seminars in the neurosciences, 8, 47-55. **Bring to class with notes.**

Thursday December 2 Diffuse Disorders - Dementing Illnesses: I

1. Banich: pp. 518-530, 536-538
2. DSM-IV Dementia Criteria

Tuesday December 7 Diffuse Disorders - Dementing Illnesses: II

RESEARCH PAPERS DUE TODAY!

Baddeley, A., Logie, R., Bressi, S., Della Sala, S., & Spinnler, H. (1986). Dementia and working memory. Quarterly Journal of Experimental Psychology, 38A, 603-618. **Bring to class with notes.**

******* FINAL EXAM TUESDAY December 14 at 8 A.M. *******