Psychology 431 (Section 01)
Introduction to Neuropsychology
Fall 2018, T. Th. 11:30 am – 12:45 pm in ASH 1204

Instructor: Xandra Xu, Ph.D.
Office: 2211 Au Sable Hall
Phone: 331-2411 (Students' phone calls will be returned within two business days, while students' emails will be replied within seven to ten business days)
Secretary Phone: 331-2195

Office hour: T. Th. 12:45 – 2:15 pm or by appointment

Texts:

Required: Kolb, B. and Whishaw, I. Q. (2015). Fundamentals of Human Neuropsychology (7th ed.), Worth Publishers: New York.

Recommended: Materials on reserve in the Mary Idema Pew Library.

Course description:

This course will introduce students to the physiology and functions of the human brain. The course first provides students with necessary background information, including neural communication, neuroanatomy, and sensory and motor system, needed to the study of the brain. The course then focuses on the cerebral asymmetry, and the anatomical functions of occipital, parietal, temporal, and frontal lobes. Finally, the course emphasizes higher functions, such as memory and language, which require continual interaction of the different lobes; and examines abnormalities of the brain. Lectures will focus on selected concepts and theories. Students will be responsible for all materials presented in the texts as well as lectures. Prereq. Psy 101 and Psy 300.

Learning objectives:

Upon successful completion of this course, students will be able to:
- Identify the structure and function of the major parts of the nervous system
- Describe the process of action potentials
- Describe the process of neurotransmission
- Explain the sensory and motor systems
- Analyze and think critically about basic research regarding cerebral asymmetry
- Discuss functions of the four lobes of the cerebral hemispheres
- Analyze neuropsychological concepts with respect to their relationship to everyday behavior

Course evaluation:

Exams and the Final Exam: There will be two within semester exams and a final exam. Each exam will be worth 50 points and the final exam 100 points. Exams and the final will consist of identification of brain structures, multiple choice, true-false, matching, fill-in the blank, and essay questions. Multiple choice, true-false, and matching questions must be answered on the scantron sheet in order to receive any points for those questions. In the final computation of your grade, the lower grade of within semester exams may be modified with the class participation points described below. The final grades will be based upon your percentage of total points (number of points you earned divided by total number of points possible, which is 200).

Grading:
A - to A = 90 - 100 %
B - to B + = 80 - 89 %
C - to C + = 70 - 79 %
D to D + = 60 - 69 %
F = below 60 %

Make-up exams: Any within semester exam or the final exam that any student cannot take as scheduled in this syllabus is considered as a missed exam. A score of "0" will be given in any missed exam. Make-up exams for within semester exams will be given on the day of the final exam to students with documentations that substantiate legitimate reasons for missing a scheduled exam. Make-up exams will be in Essay format. You must notify me in writing of your reason for missing the exam and the exam number you intend to make-up. You must turn in the note and documentations to me within a week of the missed exam. If I do not receive a written notification and documentations, there will not be a make-up exam for you. The make-up final will be in Essay format and will be given to only those students with documentation that can substantiate a medical reason for missing the final exam.

Class participation: Class participation including group activities, quizzes, and answering questions in class will be worth 50 points. Some students do not feel they are best able to demonstrate their learning on objective examinations. These students and any others who are not doing as well on the exams as they would like may ask for the class participation points to be averaged with the lower grade of within semester exams.

Cell phones and disrupting behavior: Cell phones are to be turned off and kept out of sight – no exceptions. Disruptive behavior, such as talking to other students during my lectures or any cell phone related activity/ringing in class, should be avoided. First offense for disrupting behavior in class is a dirty look. Each subsequent occurrence of disrupting behavior will result in a 5% reduction of your total points for the semester.

Course Schedule: (Underlined dates are exam dates)

Date	Topic	Reading assignments
Aug. 28, 30	Development of neuropsychology	Chapters 1 & 4
Sept. 6	Neural communication	Chapters 5 & 6
Sept. 11, 13	Neuroanatomy	Chapter 3
Sept. 18, 20	Sensory systems	Chapter 8
Sept. 25, 27	Motor system	Chapter 9
Oct. **2** (1, 3-6, 8-9), 4	Cerebral asymmetry	Chapters 11 & 12
Oct. 9, 11	Occipital lobes	Chapter 13
Oct. 16, 18	Parietal lobes	Chapter 14
Oct. 23, 25	Temporal lobes	Chapter 15
Oct. 30, Nov. 1	Frontal lobes	Chapter 16
Nov. **6** (11-16), 8	Learning and memory	Chapter 18
Nov. 13, 15	Language	Chapter 19
Nov. 20	Neurological disorders	Chapter 26
Nov. 27, 29	Psychiatric disorders	Chapter 27
Dec. 4, 6	Neuropsychological assessment	Chapter 28

Dec. 12, Wed. 12 – 1:50 pm: Final Exam (3, 4, 5, 6, 18, 19, 26, 27, 28)

Drop deadline - grade of "W" - Fri., Oct. 26, 5 pm.

This course is subject to the GVSU policies listed at http://www.gvsu.edu/coursepolicies/.

Academic Integrity

Students will do original work and will not take or receive the efforts of another person on any test or assignment, use unauthorized resources on quizzes or tests, plagiarize, or give/sell other students papers or assignments *not authorized by the instructor*. ***You are responsible*** for not giving the appearance of cheating, such as wandering eyes or talking during exams. ***You are responsible*** for making yourself aware of and for understanding the policies and procedures that pertain to academic integrity. To that end, be sure to familiarize yourself with the GVSU Student Code [Sections 223.00 and 223.01] related to academic integrity.

Disability

If there is any student in this class who has special needs because of a learning, physical, or other disability, please contact me and Disability Support Resources (DSR) at (616) 331-2490. Furthermore, if you have a disability and think you will need assistance evacuating this classroom and/or building in an emergency, please make me aware so that the university and I can develop a plan to assist you. It is the *student's responsibility* to request assistance from DSR.

Supplemental reading on reserve for Psy 431:

Anticevic, A., et al., (2013). Characterizing thalamo-cortical disturbances in schizophrenia and bipolar illness. Cortex, doi: 10.1093/cercor/bht165

Bayley, P. J., O'Reilly, R. C., Curran, T., & Squire, L. R. (2008). New semantic learning in patients with large medial temporal lobe lesions. *Hippocampus*, *18*(6): 575-583.

Burguiere, E., Monteiro, P., Feng, G., Graybiel, A.M. (2013). Optogenetic stimulation of lateral orbitofronto-striatal pathway suppresses compulsive behaviors. *Sciences*, *340*: 1243-1246.

Carlson, N.R. (2013). *Physiology of Behavior*. (11th ed). Boston: Allyn and Bacon. (**Please place following pages on E-reserve: 5, 6, 29, 31, 43, 44, 46, 47, 48, 53, 69, 72, 83, 86, 90, 91, 92, 95, 107, 123, 143, 144, 151, 154, 173, 194, 211, 214, 215, 232, 236, 250, 265, 267, 461, 470, 483, 488, 538, 541, 563)**

Davies-Thompson, J., et al. (2017) Perceptual learning of faces: a rehabilitative study of acquired prosopagnosia. *Journal of cognitive neuroscience*. 29(3): 573-591.

De Sousa, A., McDonald, K., Rushby, J., Li, S., Dimoska, A., and James, C. (2011). Understanding deficits in empathy after traumatic brain injury. *Cortex, 47 (5)*, 526-535.

Duchaine, B., Germine, L., & Nakayama, K. (2007). Family resemblance: ten family members with prosopagnosia and within-class object agnosia. *Cognitive neuropsychology*, *24*(4), 419-430.

Hoban, C., Byard, R.W., and Musgrave, I.F. (2015). A comparison of patterns of spontaneous adverse drug reaction reporting with St. John's Wort and fluoxetine during the period 2000–2013. Clinical and Experimental Pharmacology and Physiology. DOI: 10.1111/1440-1681.12424

Kumfor, F., Irish, M., Hodges, J.R., & Piguet, O. (2013). The orbitofrontal cortex is involved in emotional enhancements of memory: evidence from the dementias. *Brain*, *doi: 10.1093/brain/awt185*

Li, W. et al. (2016). Extensive graft-derived dopaminergic innervation is maintained 24 years after transplantation in the degenerating Parkinsonian brain. *Proceedings of the National Academy of Sciences of the United States of America, 113*(23): 6544-9.

Malm, H. et al (2015). Pregnancy Complications Following Prenatal Exposure to SSRIs or Maternal Psychiatric Disorders: Results From Population-Based National Register Data. The American Journal of Psychiatry. Doi.org/10.1176/appi.ajp.2015.14121575

Meinzer, M., Darkow, R., Lindenberg, R., et al. (2016). Electrical stimulation of the motor cortex enhances treatment outcome in post-stroke aphasia. *Brain : a journal of neurology,* 139(4): 1152-63

Mouro, F.M., et al (2018). Chronic, intermittent treatment with a cannabinoid receptor agonist impairs recognition memory and brain network functional connectivity. *Journal of neurochemistry*, https://doi.org/10.1111/jnc.14549

Oliveri, M. & Vallar, G. (2009). Parietal versus temporal lobe components in spatial cognition: setting the mid-point of a horizontal line. *Journal of Neuropsychology, 3*, 201-211.

Paschke, R.E. & Xu, X. (2000). A CD-ROM of Human Brain Anatomy.

Rantanen, K., Eriksson, K., & Nieminen, P. (2011). Cognitive impairment in preschool children with epilepsy. *Epilepsia*, DOI: 10.1111/j.1528-1167.2011.03092.x

Schmid, M. C, Mrowka, S. W, Turchi, J., Saunders, R. C, Wilke, M., Peters, A. J. et al. (2010). Blindsight depends on the lateral geniculate nucleus. *Nature, 466*(7304): 373-377.

Yang, Z. H., Zhao, X. Q., Wang, C. X., Chen, H. Y., & Zhang, Y. M. (2008). Neuroanatomic correlation of the post-stroke aphasias studied with imaging. *Neurological research*, *30*(4): 356-360.