Psychology 435 (Section 01)
Advanced Neuroscience and Behavior
Fall 2020, Blackboard

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Online office hour: T. W. 2 – 3 pm or by appointment on Blackboard Collaborate at the following link: https://us.bbcollab.com/guest/81e1189e07c24cd3bba42459996d1de2

If you don't have internet access during my office hours, you may dial in at the following number: +1-571-392-7650 PIN: 214 760 0722

Texts:

Required: Carlson, N.R. (2017). Physiology of Behavior (12th ed.), Pearson.

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

Course description:

This course will examine the physiological basis of behavior in depth. Among topics to be covered are the following: the nervous system, psychopharmacology, research methods used to study the physiological basis of behavior, and the neural mechanisms involved in perceptual and motor processes, ingestive behaviors, learning and memory, language, and neurological and psychiatric disorders. The topics already covered in Psy 330 will be covered in depth in this course. Video 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 330.

Learning objectives:

Upon successful completion of this course, students will be able to:
- Describe the process of action potential, including how and why they occur
- Explain in detail the steps of neurotransmission
- Identify the behavioral function of major brain chemical systems
- Critique original research in behavioral neuroscience
- Discuss current topics in behavioral neuroscience research

Course delivery/method of instruction:

This course is taught under the **online designation**, meaning that the entire course is delivered online through Blackboard, including at least one synchronous session (where we will meet at the same time) using Blackboard Collaborate Ultra. Instructional strategies include lectures (as recorded video lectures) and online activities. Video lectures will be uploaded to the course blackboard. **You will find video lectures under "Weekly Content" in the course blackboard.** Students are expected to watch video lectures and read textbook chapters weekly following the "**Course Schedule"** below. When you first login to our Blackboard course site, you will see an initial announcement inviting you to click on the "Begin Here" button. In that area you will find an orientation to our course site including where you will find what content. Students are expected to finish watching video lectures for the week by Thursday of the week, and are given quizzes or/and assignments on Thursday and Friday.

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, and fill-in the blank questions. Exams and final will be given in the course blackboard, and will magically appear in the folder named **"Exams"** in the course blackboard on

their scheduled dates **(**see **"Course Schedule"** below for their scheduled dates). **Exams and final require the use of LockDown Browser** (see **"LockDown Browser + Webcam Requirement**" below for details). In the final computation of your grade, the class participation 50 points described below will be included. 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 250).

Class participation: Class participation including quizzes, online activities including assignments and group presentation will be worth 50 points. Quizzes and assignments will be given in the course blackboard, and are open-book and open-notes. You will receive email announcements and instructions when those are given. Early in the semester, students will form groups of 4 people and choose a topic regarding neurological disorders. Each group will then make a presentation online during the last week of the semester. The group will be evaluated by the class and the instructor on a scale of 1 to 10 with 1 being poor and 10 being excellent. The rating will then be converted into points. The group presentation will be worth 20 points, and other class participation together will be worth 30 points. **Note:** No individual students will be given any opportunity to earn extra points. Students with test anxiety usually do well on Class participation, so please participate. We will have one **synchronous session using Blackboard Collaborate Ultra**. This will be during the second week. I will ask you to provide some input into the scheduling, and after compiling that information, I will post the date and time. This synchronous meeting will be an interactive session where I will provide content and we will have discussion, including a Q&A about the course requirements, assignments and the group presentation. Plan for about 60 minutes, and I anticipate it may be a little less depending on your questions.

Make-up exams: Any within semester 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. Students with legitimate reasons for missing a scheduled exam will receive prorated points according to the performance on the final exam. You must notify me in writing of your reason for missing the exam within a week of the missed exam. If I do not receive a written legitimate reason within a week of the missed exam, you will receive "0".

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

Course Schedule: (Underlined dates are exam dates)

Date	Topic	Reading textbook chapters and watching video lectures
Week of Aug. 31	Neurons and synapses	Chapter 2
Week of Sept. 7	Anatomy of the nervous system	Chapter 3
Week of Sept. 14	Psychopharmacology	Chapter 4
Week of Sept. 21	Methods and strategies of research	Chapter 5
Oct. **1** (2-5)	**Exam I**	
Week of Oct. 5	Vision	Chapter 6
Week of Oct. 12	Audition, somatosenses, and chemical senses	Chapter 7
Week of Oct. 19	Control of movement	Chapter 8
Week of Oct. 26	Ingestive behavior	Chapter 12
Nov. **5** (6-8, 12)	**Exam II**	
Week of Nov. 9	Learning and Memory	Chapter 13
Week of Nov. 16	Human communication	Chapter 14
Week of Nov. 23	Psychiatric/mental disorders	Chapters 16 & 17
Week of Nov. 30	Psychiatric/mental disorders con't	Chapters 16 & 17

Week of Dec. 7 Neurological disorders (student presentations) Chapter 15

Dec. 15, Tue.: Final Exam (2, 3, 4, 13, 14, 15, 16, 17)

Drop deadline - grade of "W" - Fri., Oct. 30, 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 wondering 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.

Course Policies

All official Grand Valley State University email goes to your student (Gmail) account, including any email sent from Blackboard. I will send email through Blackboard, so it is very important that you check your GVSU Gmail account on a regular basis. Likewise, I would also expect that you check our Blackboard class site on a regular basis (several times per week)

During the workweek (Monday – Friday) I will check my email daily between the hours of 9-5. You will receive a response within 48-hours. I occasionally check my email once during the weekend and reserve the right to limit my email access. Therefore, please do not *expect* that I will return email messages on the weekend. Depending on when you send your message, it may be Monday before you hear back from me.

Please consider the **Three Before Me** rule, where before emailing me concerning technical questions or other class logistics (due dates, assignment clarification, and the like), try learning your answer through three other means first:

1. For technical support, contact the Help Desk by phone (616.331.2101) or email: helpdesk@gvsu.edu. You can also review the support documents in our Blackboard course site or by clicking the "Help" button at the top of your Blackboard window.
2. Refer to course resources such as the syllabus, calendar, assignment details that are posted under Assignments, discussions, including the FAQ forum. Everyone is welcome to post questions and to *answer questions* that are posted there!
3. Email another student in the class and/or post your question on the Question forum (Discussion Board)

LockDown Browser + Webcam Requirement

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be the type that's built into your computer or one that plugs in with a USB cable.
Watch this brief video to get a basic understanding of LockDown Browser and the webcam feature.
https://www.respondus.com/products/lockdown-browser/student-movie.shtml

Download Instructions

Download and install LockDown Browser from this link:

https://download.respondus.com/lockdown/download.php?id=936312756

Once Installed

- Start LockDown Browser
- Log into Blackboard Learn
- Navigate to the test

Note: You won't be able to access tests with a standard web browser. If this is tried, an error message will indicate that the test requires the use of LockDown Browser. Simply start LockDown Browser and navigate back to the exam to continue.

Guidelines

When taking an online test, follow these guidelines:

- Ensure you're in a location where you won't be interrupted
- Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach
- Before starting the test, know how much time is available for it, and also that you've allotted sufficient time to complete it
- Clear your desk or workspace of all external materials not permitted - books, papers, other devices
- Remain at your computer for the duration of the test
- If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in LockDown Browser, run the checks again prior to the exam
- To produce a good webcam video, do the following: Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted
    - Avoid wearing baseball caps or hats with brims
    - Ensure your computer or device is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) are likely to move
    - If using a built-in webcam, avoid readjusting the tilt of the screen after the webcam setup is complete
    - Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)

Getting Help

Several resources are available if you encounter problems with LockDown Browser:

- The Windows and Mac versions of LockDown Browser have a "Help Center" button located on the toolbar. Use the "System & Network Check" to troubleshoot issues. If an exam requires you to use a webcam, also run the "Webcam Check" from this area
- Respondus has a Knowledge Base available from support.respondus.com. Select the "Knowledge Base" link and then select "Respondus LockDown Browser" as the product. If your problem is with a webcam, select "Respondus Monitor" as your product
- If you're still unable to resolve a technical issue with LockDown Browser, go to support.respondus.com and select "Submit a Ticket". Provide detailed information about your problem and what steps you took to resolve it

Supplemental reading on reserve for Psy 435:

Chapters 2, 3, 4, 5

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

Kuypers, K. et al. (2019). Microdosing psychedelics: more questions than answers? An overview and suggestions for future research. *Journal of Psychopharmacology*, DOI: 10.1177/026988119857204.

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

Paschke, R.E. & Xu, X. (2014). Human Brain Anatomy: a video PPT of human brain dissection.

Paschke, R.E. & Xu, X. (2014). Sheep Brain Anatomy: a video PPT of sheep brain dissection.

Pinel, J.P. (2014). Biopsychology (9th ed). Boston: Allyn and Bacon. **(Please place following Pages on E-reserve: 55, 59, 60, 65, 66, 71, 90, 96, 110, 131, 132, 140, 173, 174, 175, 179, 180, 188-202,196, 200, 201, 261, 262, 263, 343, 347,349, 350, 355, 364, 399, 411, 412, 451, 452)**

Chapters 6, 7, 8, and 12

Bilalic, M., Langner, R., Ulrich, R., Grodd, W. (2011). Many faces of expertise: fusiform face area in chess experts and novices. *Journal of Neuroscience*, *31*(28), 10206-10214.

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

Kim, et al (2014). Leptin signaling in astrocytes regulates hypothalamic neuronal circuits and feeding. *Nature neuroscience, 17(7),* 908-910. DOI:10.1038/nn.3725

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.

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.

Chapters 13, 14, 15, 16, 17

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

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

Gruchot, et al (2019). Neural cell responses upon exposure to human endogenous retroviruses, *Frontiers in Genetics*. DOI: 10.3389/fgene.2019.00655

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.

Xu, X., Weber, D., Burge, R., & VanAmberg, K. (2016). Neurobehavioral impairments produced by developmental lead exposure persisted for generations in zebrafish (*Danio rerio*). *NeuroToxicology. 52*, 176-185. DOI:10.1016/j.neuro.2015.12.009