Psy 2710: Brain and Behavior
Fall 2024

Instructor	
Email	(please use canvas for all class-related matters, but you may also email me direction and I will try to respond 1-2 days)
Phone	(text if necessary about a pressing issue, but may still take me several hours to respond and generally not on weekends)
Hours	by appointment

Course Description. How does our brain affect our mood, behaviors, personality? How does chemistry relate to how we feel, move, and behave? What is the anatomy that lies behind our senses, memory, consciousness, motivations, personality, and emotions? How do genetics and evolutionary adaption interact with the environment to affect how an organism behaves? How do we as scientists study the underlying mechanisms of the mind and behavior? These are among the questions we will explore in this course.

Brain and Behavior is a one semester three credit course (credits are designed to be 2-3 hours of work outside of class for every hour of work in class). This course examines the biology of mind and behavior; emphasizing underlying molecular and cellular mechanisms, the anatomy of the nervous system, the interaction between genes and environment, and evolutionary pressures. These together play a role in such topics within psychology such as animal behavior, perception, emotion, learning, cognition, consciousness, addiction, and disorders to name a few. You will engage in reading, video lectures and other video demonstrations, discussions, and other application activities to enable you to better understand these various topics.

Course Learning Objectives. By the end of this course You should be able to:

1) Explain the structure and function of the nervous system on anatomical, cellular, and molecular levels.
2) Relate the structure and function of the nervous system to many of the behaviors and mental processes covered Introduction to Psychology courses.
3) Demonstrate knowledge of the more common techniques and methods used to study the structure and function of the nervous system understanding the strengths and limitation of the scientific method as it relates to brain and behavior.
4) Identify the means by which the nervous system adapts itself to the environment throughout development.
5) Comprehend evolution by natural selection and how that relates to brain and behavior.
6) Apply how physiology and biology relates to mental health issues.
7) Outline a brief history of philosophy regarding the nature of mind.
8) Evaluate the ethics around research and technological innovations in biopsychology.

Textbook/Readings.

Biopsychology: Fundamentals and Contemporary Issues v1.0
Selection: Rent Digital
Author: Shapiro
ebook ISBN: 9781453392942 (You can get this from the bookstore) **Print ISBN: 9781453392935**
https://students.flatworldknowledge.com/course/2595775.

There will be additional required reading/viewing assignments provided on canvas
As part of your critical thinking development, I want you to be aware that we may be discussing controversial topics and that there will be other people, both in this class and outside in the world, who have ideas that are different from yours. ***Please, be respectful in your comments.*

Grading & Evaluation.

Tests: There will be three non-cumulative exams during the semester plus one cumulative final. Your lowest score will be dropped. The unit exams will cover material only from the previous test (both from the book and other material), although many concepts build upon each other. Each will contain multiple choice, short answer, and essay questions. The tests will be completed at home and submitted online, and you may use your prepared notes and have access to your textbook. Material that is covered in *both* readings and lecture materials will be emphasized, but either are free game.
50 points x 3 = 150 points

Weekly Quizzes: You will have weekly quizzes to ensure comprehension of the reading. These will be open book and open notes and you will have two attempts, but you must take them independently. Your lowest score(s) will be dropped.
5 points x 12=60 points

Weekly Application/Depth Assignments: You will have a weekly application assignment and/or discussion that is related to the reading material. Only your top 10 scores will be kept, so you can select the ones that most appeal to you (or do extra and your top 10 will be counted).
5 points x 10 = 50 points

Weekly Discussion Assignments: You will engage with both the textbook as well as supplemental material and have an opportunity to engage in critical thinking about various (sometimes controversial topics). We will discuss these topics sensitively and respectfully and primarily through the lens of psychology as a science for this particular course. Please focus on posting early and responding to your peers on-time so that we can have an engaging discussion.
5 points x 12 =60 points

Final Project: Written Critique & Presentation (50 points)

***Late Work Policy –5 late "freebie" assignments are accepted, but it is very easy to fall behind, so I recommend following the timeline according to the due dates.*

Final Project

2 options – 50 points each

Part 1: Written Critique

Option 1 - Book Critique & Application: This is book critique (you can listen to the book on audible, but you need to somehow "read" the entire book) that focuses on how the brain (and its functioning) relates to a "wicked problem" (one that is very difficult to solve and inherent complex and integrated). Think critically about the book and its claims. What is their evidence? Is it scientifically sound? Are some of the claims well supported, but others not? (This may be completed in a group)

1) Write a summary of the book, focusing on the aspects that apply to the wicked problem of your choice (books are long, so it cannot contain all of the details, but focus on key aspects that apply to the problem you have chosen – this should be about 1-2 pages).
2) Critique the book. I want you to critically think about the research and the books claims – what scientific evidence do they rely on? Are some claims more supported than others? (about 3 Pros and 3 cons – about a page for each pros and cons).
3) Apply the research to your chosen wicked problem. This should be about 1-2 pages (what are the real-world applications/take-aways from this book that apply to the wicked problem you have chosen).
4) Lastly provide a concluding paragraph about your reaction to the book, if you think it's important, or interesting, or what some of the applications might be. This is where you get to be personal about your thoughts about the study, a personal application and your own overall conclusions.
5) Also include a reference page with the book's reference in APA format.

Summary: 9 points
Critique: 8 (4 points for strengths, 4 for weakness)
Application: 5 points
Conclusion: 4 points
Writing style (right amount of information, clearly presented, APA reference): 4 points
30 points

Here are some books to choose from (if you find another that you want to read, please have me check it for approval). Let me know if acquiring the book is an issue and we can try to find a solution:

Why We Sleep by Matthew Walker
High Price: A Neuroscientist's Journey of Self-Discovery That Challenges Everything You Know About Drugs and Society by Carl Hart
Keep Sharp: Build a Better Brain at Any Age by Sanjay Gupta
Unbroken Brain by Maia Szalavitz
Phantoms in the Brain by V.S. Ramachandran & Sandra Blakeslee
An Anthropologist on Mars: Seven Paradoxical Tales by Oliver Sacks
Crashing Through: The Extraordinary True Story of the Man Who Dared to See by Robert Kurson
Connectome: How the Brain's Wiring Makes Us Who We Are by Sebastian Seung.
Behave: The Biology of Humans at Our Best and Worst (2017) by Robert Sapolsky

Behavioral Genetics by Knopik et al
The Myth of Mirror Neurons: The Real Neuroscience of Communication and Cognition by Gregory Hickok.

Option 2 - Article Critique Paper: Find a *peer-reviewed primary* peer-reviewed journal article about how the brain and its functioning relates to a "wicked problem" that is of interest to you (one that is very difficult to solve and inherently complex and integrated). Second, write a detailed summary of the article. Your summary should (in your own words, not a copy of the abstract) describe what type of study they conducted (i.e. survey, observation, experiment, etc), the purpose of the study/hypotheses, methods (what and how the researchers measured), results, and what *their* conclusions were. This should be about 1-2 pages (double-spaced). Then, I want you to critically think about the research and critique the article (review its positive aspects/strengths and flaws/weaknesses or alternative explanations for the results). Every article has both pros and cons – discuss at least 3 pros and at least 3 cons about HOW (methods, analyses, biases, etc) they conducted the research/made their conclusions (not about writing quality). This should be the bulk of your critique (1-2 pages double spaced; a paragraph for strengths and a paragraph for weaknesses). Then, apply the research regarding the brain to your chosen wicked problem. This should be about a page (what real-world implications does this article have). Lastly provide a concluding paragraph about your reaction to the study, if you think it's important, or interesting, or what some of the applications might be. This is where you get to be personal about your thoughts about the study, a personal application and your own overall conclusions (are the researcher's conclusions justified, why or why not). Also include a reference page with the article's reference (again, even if you got full points on the citation before) in APA formatting and provide either a paper or electronic copy of the article.

Article Critique:
Summary: 9 points
Critique: 8 (4 points for strengths, 4 for weakness)
Application to "wicked problem": 5 points
Conclusion: 4 points
Writing Style/APA reference: 4 points
30 points

Part 2: Presentation

Create a presentation that addresses how the brain is related to a wicked problem with reasonable solutions that are well supported with scientific evidence. You will "present" your findings to the class on a discussion board (any visual media is fine – ppt, poster, video, etc, but it needs to provide good details). You will also create a "tips" sheet for your peers regarding applications that are relevant to them regarding this potential wicked problem (make sure you include the reference in APA format). When you post your project to the discussion, you need to ask a thought-provoking discussion-generating question, respond to at least 2 of your peers questions and engage in a discussion with anyone who comments on your post. *(you may work in a group, but each person needs to post their presentation and tips sheet– which can be the same – but you will need to write your own discussion generating question)*

You will "present" your findings to the class on a discussion board (any visual media is fine – ppt, poster, video, etc) and provide a "tips" sheet for your peers regarding your findings. When you post

your project to the discussion, you need to ask a thought-provoking discussion generating question, respond to at least 2 of your peers questions and engage in a discussion with anyone who comments on your post.

Interesting & Informative Presentation: 10
"tips" sheet: 5 points
Discussion Question & Responding to Peers: 5 points
20 points

Extra Credit. You may also earn up to 2 points by leading discussions on current topics directly related to brain and behavior. Send me the article before class for approval.

Requirements: Total Point Breakdown and Grading Procedure

Your grade will be calculated on the number of points you earn from examinations, attendance, and assignments, divided by the total number of points possible. A general rule of thumb for undergraduate college courses is "2-3 hours of study out of class for every hour in class". A 'C' is an acceptable grade and a 'B' a very good grade, while an 'A' represents an outstanding level of accomplishment even in comparison with peers who are often excellent students. Conversely, we will award grades of C-, D, UW, or E only after individual consideration concerning whether the student's performance in the course merits such a grade.

Tests	150 points
Quizzes	50 points
Weekly Application/Discussions	50 points
Final Project	50 points
Total	300 points possible

You will be graded according to your performance out of total points.

A = 93% - 100%	**C+ = 77% - 79.9%**
A- = 90% - 92.9%	**C = 74% - 76.9%**
B+ = 87% - 89.9%	**C- = 70% - 73.9%**
B = 84% - 86.9%	**D+ = 67%-69.9%**
B- = 80% - 83.9%	**D = 64% - 66.9%**
	D- = 60% - 63.9%

Dates	Topic	Assignments
1. 8/20-8/25	1: Intro to Brain and Behavior	Read Ch 1: History and Introduction Quiz Discussion
8/28 - last day to add classes		
2. 8/26-9/1	2: Functional Anatomy	Read Ch. 2: Functional Anatomy Discussion Quiz
3. 9/2-9/8	3: Neuron Communication	Read Ch. 3: Neuron Communication Quiz Discussion

4. 9/9-9/15	4: Research Methods *Special Topic: Research Methods* *Special Topic: Testwiseness*	Read Ch. 4: Research Methods (selected pages) Quiz Discussion *Supplemental Readings*
9/10– Last Day to Drop Classes		
5. 9/16-9/22	5: Genetics and Evolution *Special Topic: Evolution, Genetics*	Read Ch 5: Genetics and Evolution Supplemental Readings Quiz Discussion **Test 1: 1-5**
6. 9/23-9/29	Senses 6: Vision & Chemoreception (selected sections)	Read Ch 6: Vision & Chemoreception (selected readings)
7. 9/30-10/6	7: Hearing, Language & Lateralization (selected sections)	Ch 7: Hearing, Language & Lateralization (selected readings) Quiz Discussion
8. 10/7-10/13	8: Somatosensory & Motor Movement *Special Topic: Parkinson's*	Read Ch 8: Somatosensory & Motor Movement Quiz Discussion
9. 10/13-10/16	9: Sleep, Dreaming & Circadian Rhythms	Read Ch 9: Sleep, Dreaming & Circadian Rhythms Quiz Supplemental readings Discussion
10-17-10/20: Fall Break		
10/22 – Last Day to Withdraw		
10. 10/21-10/27	10: Homeostasis (selected sections)	Read Ch 10 (selected pages) Quiz Supplemental readings Discussion **Test 2: 6-10**
Oct. 22 – Last Day to Withdraw		
11. 10/28-11/3	11: Hormones, Sex & Love (selected sections) Special Topics: Gender, Orientation & Love	Read Ch 11 (selected sections) Quiz Supplemental readings Discussion
12. 11/4-11/10	12: Emotions & Stress Optional *Special Topic: Health Psychology*	Read Ch 12: Emotions & Stress Quiz Discussion
13. 11/11-11/17	13: Learning & Memory *Special Topics: Memory Enhancement, Conditioning, & Alzheimer's*	Read 13: Learning & Memory Quiz Supplemental Readings Discussion
14. 11/18-11/24	14: Psychopharmacology (selected readings)	Read 14: Psychopharmacology (selected sections) Quiz Discussion
15. 11/25-11/27	15: Addiction, Developmental Disorders & Affective Disorders (selected sections)	15: Addiction, Developmental Disorders & Affective Disorders (selected sections)

	Special Topic: Addiction	Special Topic: Addiction Supplemental readings Quiz Discussion **Test 3: 11-15**
11-28-11/30: Thanksgiving Break		
16. 12/2-12/5	*Supplemental 16: Other Neuropsychiatric Disorders* **Final Project Part 1 Due**	*Supplemental 16: Other Neuropsychiatric Disorders* **Final Project Part 1 Due**
Dec. 6 – Reading Day		
17. 12/7-12/12**– Finals week**	**Final Project Part 2 Due (Presentations)**	**Final Project Part 2 Due (Presentation Discussion)** **Cumulative Final (Ch 1-15)**