

Syllabus: PSB4240 – Neuroscience of Mental Health Spring 2025

Instructor: Laura Ahumada-Hernandez, Graduate Instructor, Department of Psychology

Class Location: PSY 0130

Time: Tuesday, Period 4 (10:40 AM - 11:30 AM)

Thursdays, Periods 4-5 (10:40 AM - 12:35 PM)

Office Hours: Friday (11:00 AM - 12:00 PM), Zoom link: (provide in class)

(If students need to meet at a different time/date, let me know in advance via Canvas or email so that we can schedule a time)

Address: Building 720, located at Innovation Plaza 720 SW 2nd Ave Suite 570, Gainesville, FL 32601, 5th floor.

Credits: 3.0

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Description:

This course aims to study the biological basis of psychological disorders (represented in the current version of American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders), from the anatomical, neurochemical, and genetic aspects that characterize the balanced and unbalanced function of the central nervous system to the specific neurobiological profile of each of the most common psychological disorders.

The first part of the course will review the basics of the central nervous system. First, we will study the types of cells that comprise the nervous system. We will also take a look at the nervous system divisions and its structures. Later, we will discuss the genetic aspects that are important in the emergence of some mental conditions. We also will focus on the principles of psychopharmacology, looking at how cells' neurochemical communication is related to the emergence, maintenance, and reduction of psychological symptoms.

In the second part of the course, we will review the most common psychological disorders. In general, we will describe each disorder's symptoms, the brain structures behind these alterations, their particular neurochemical profile, and the treatments associated with each psychological alteration.

By the end of this course, it is expected that students will be able to:

- Identify the brain structures involved in the development of psychological disorders. As well as what the functions are of those structures in non-patient population.
- Comprehend the role of genetic commands in the emergence of psychological disorder and the relationship between genes and the environment.
- Understand how the neurochemical communication between neurons works and how changes in the synaptic connections lead to psychological disturbances.
- Characterize the most common psychological disorders and describe neuroanatomical and neurochemical profiles, as well as the treatments associated with each disorder.
- Discuss the current controversies that surround psychology and neuropsychiatry fields based on new findings and the advances of the mental health technology.

Required Textbook:

The Biology of Psychological Disorders (2nd Edition), by David Linden

Course Website:

There is an accompanying UF e-learning site (<http://elearning.ufl.edu>) for this class, which contains the slides for each class and the information about the course. The slides will be posted before each class, and it is highly recommended that students review the slides before class.

Exams:

There will be two exams: The first exam will cover the first part of the course: all the aspects of neuroanatomy, neurophysiology, neurochemistry, neuroendocrinology, genetics, and psychopharmacology. The second exam will cover the second part of the course: all the specifications of the most common psychological disorders.

The dates for both exams can be checked in the weekly schedule table below. A maximum of 100 points can be earned in Exam 1, while a maximum of 200 points can be earned in Exam 2 (since we will cover more content in the second part of the course, which are the core topics of this course). Each exam will consist of one essay-style question and several multiple choice questions. The essay-style question will account for 30% of the exam grade. All questions will be based on the content from the required textbook. For that reason, it is highly recommended to read the chapters for each class to succeed in the examinations.

Makeup Exams: can be arranged if there are convincing reasons. The further ahead you contact me, if possible, the easier it is to arrange makeups.

Assignments:

On some Thursdays during the semester (see weekly schedule) an in-class discussion will be held by the students based on controversial topics stated in the textbook. Groups of 2 or 3 students will be formed by the end of the first week of class, and each group will be responsible for holding one discussion. The selection of groups and topics will be random. A maximum of 100 points can be earned for this assignment. Each discussion will be evaluated based on the accuracy of the topic content, the level of analysis and extrapolation, and the participation of each member of the leading group.

These are the topics for each controversy:

Controversy 1: Should we abandon current psychiatry diagnoses? (page 112)

Controversy 2: Mental illness – genetic or environmental? (page 202)

Controversy 3: Is depression a serotonin deficiency syndrome? (page 218)

Controversy 4: What is the impact of cannabis on mental health? (page 280)

Controversy 5: Are rates of childhood mental disorders really increasing? (page 303)

Controversy 6: Can we prevent dementia through changes in diet and lifestyle? (page 339)

Controversy 7: Will psychiatry eventually amalgamate into neurology? (page 363)

If for any personal or medical reason a student cannot participate in their assigned in-class discussion, the student will have to join another group to complete the assignment. If this option is not possible, an alternative activity will be assigned by the professor. Remember that the absence has to be well justified in order to have the opportunity to complete the assignment.

Attendance:

To encourage the assistance and participation of students in this course, attendance will be taken in each class and depending on the percentage of attendance students may earn a maximum of 4 extra points by the end of the course. Students attending at least 90% of the classes will earn 4 extra points, while students attending at least 70% of the classes will earn 2 extra points.

Course Grades are based on the following:

In-class activity	-	100 pts
Exam 1	-	100 pts
Exam 2	-	200 pts

Important! Grades are based on a max of 400 points (see above for 4 EXTRA points). The table below indicates percentages of points out of 400. Grade points follow the UF regulations: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
% points	94-100	87-93	80-86	73-79	66-72	59-65	52-58	45-51	38-44	31-37	24-30

Grades will be rounded to the nearest hundredth of a point and the stated letter grade cutoffs will be applied without exception. Class attendance is highly encouraged and will make preparation for exams easier than non-attendance.

Weekly Schedule

	Dates	Tuesday	Thursday	Thursday's In-class Activity
Week 1	01/14/2025 - 01/16/2025	Introduction to the course/ Neuroanatomy (Chapter 1)	Neurophysiology and Basic Neurochemistry (Chapter 2) Neuroendocrinology (Chapter 3)	
Week 2	01/21/2025 - 01/23/2025	Genetics (Chapter 5)		
Week 3	01/28/2025 - 01/30/2025	Animal Models of Human Behavior and Mental Disorders (Chapter 6)	Environmental Influences on Brain and Mental Health (Chapter 7)	Controversy 1 (page 112)

Week 4	02/04/2025 - 02/06/2025	General Principles of Psychopharmacology (Chapter 8)	Neurotransmitter Receptors and Postsynaptic Signaling Pathways (Chapter 9)	Controversy 2 (page 202)
Week 5	02/11/2025 - 02/13/2025	Physical Therapies (Chapter 10) Biological Effects of Psychotherapy (Chapter 11)	Exam 1	
Week 6	02/18/2025 - 02/20/2025	Schizophrenia (Chapter 12)		
Week 7	02/25/2025 - 02/27/2025	Depression (Chapter 13)		Controversy 3 (page 218)
Week 8	03/04/2025 - 03/06/2025	Anxiety (Chapter 15)	Mania and Bipolar Disorder (Chapter 14)	
Week 9	03/11/2025 - 03/13/2025	Biology of Substance-related Disorders (Chapter 17)		Controversy 4 (page 280)
Week 10	03/18/2025 - 03/20/2025	Spring Break		
Week 11	03/25/2025 - 03/27/2025	Eating Disorders and Disorders of Impulse Control (Chapter 18)	Biology of Personality Disorders (Chapter 16) Biology of Sleep Disorders (Chapter 21)	
Week 12	04/01/2025 - 04/03/2025	Mental Disorders of Childhood and Adolescence (Chapter 19)		Controversy 5 (page 303)
Week 13	04/08/2025 - 04/10/2025	Aging and Dementia (Chapter 22)		Controversy 6 (page 339)
Week 14	04/15/2025 - 04/17/2025	Neuropsychiatry (Chapter 23)		Controversy 7 (page 363)

Week 15	04/22/2025 - 04/24/2025	Q & A	Preparing Exam	
Week 16	04/29/25	Exam 2		

Accommodations for Students with Disabilities: Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Contact the Disability Resources Center (<http://www.dso.ufl.edu/drc/>) for information about available resources for students with disabilities.

Student Assistance and Emergencies

- University support services are available to students who are experiencing significant distress and/or personal emergencies. As appropriate please contact:
- Health and Wellness
 - University Police Department: 352-392-1111 or 9-1-1 for emergencies, <http://www.police.ufl.edu/>
 - U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392- 1575 so that a team member can reach out to the student.
 - Counseling and Wellness Center: <http://www.counseling.ufl.edu>, 392-1575
 - Sexual Assault Recovery Services (SARS): Student Health Care Center, 352-392-1161.
 - Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
- Academic Resources
 - E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.
 - Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <http://www.crc.ufl.edu/>
 - Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
 - Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>
 - Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>

ACADEMIC HONESTY GUIDELINES: The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust and respect. Students are expected to pursue knowledge with integrity. Academic integrity, as a shared value, is dependent on the mutual trust and respect by all members of an academic

community. Cheating threatens all who are part of this shared system, and therefore, it's essential to report any violations to the UF SCCR Office. Please encourage others to act with respect for their community.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Student Honor Code. On all work submitted for credit by Students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

POLICY ON SEXUAL HARASSMENT: Sexual Harassment is not tolerated in this class, in the Department of Psychology, or at the University of Florida. Sexual harassment includes: the inappropriate introduction of sexual activities or comments in a situation where sex would otherwise be irrelevant. Sexual harassment is a form of sex discrimination and a violation of state and federal laws as well as of the policies and regulations of the university. All UF employees and students must adhere to UF's sexual harassment policy which can be found here: <https://hr.ufl.edu/forms-policies/policies-managers/sexual-harassment/>. Please review this policy and contact a university official if you have any questions about the policy. As mandatory reporters, university employees are required to report knowledge of sexual harassment to UF's Title IX coordinator. For more information about UF's Title IX office see: <https://titleix.ufl.edu/>. You can also complete a Sexual Harassment Report online (Title IX) at: <https://titleix.ufl.edu/title-ix-reporting-form/>.



3. Violations of the Student Honor Code

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Student Honor Code. On all work submitted for credit by Students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

A. CHEATING.

A Student cannot use unauthorized materials or resources in any academic activity for academic advantage or benefit. Cheating includes but is not limited to:

- Using any materials or resources prepared by another Student without the other Student's express Consent or without proper attribution to the other Student.
- Using any materials or resources, through any medium, which the Faculty has not given express permission to use and that may confer an academic benefit to the Student.
- Using additional time, or failing to stop working when instructed, on any time-bound academic activity.
- Failing to follow the directions of a proctor of any academic activity, when such conduct could lead to an academic advantage or benefit.
- Collaborating with another person, through any medium, on any academic activity, when Faculty has expressly prohibited collaboration.

B. COMPLICITY IN VIOLATING THE STUDENT HONOR CODE.

Attempting, aiding, encouraging, facilitating, abetting, conspiring to commit, hiring someone else to commit, giving or receiving bribes to secure, or being a participant (by act or omission) in any act prohibited by the Student Honor Code.

C. FALSE OR MISLEADING INFORMATION.

A Student cannot use unauthorized materials or resources in any academic activity for academic advantage or benefit. Cheating includes but is not limited to:

- A Student must not make a false or misleading statement during the investigation or resolution of an alleged Student Honor Code violation.
- A Student must not make a false or misleading statement for the purpose of procuring an improper academic advantage for any Student.
- A Student must not use or present fabricated information, falsified research, or other findings if the Student knows or reasonably should be aware that the information, research, or other finding is fabricated or falsified.

D. INTERFERENCE WITH AN ACADEMIC ACTIVITY.

- A Student must not take any action or take any material for the purpose of interfering with an academic activity, through any means over any medium.
- A Student must not be disruptive to the testing environment or other academic activity.

E. PLAGIARISM.

A Student must not represent as their own work all or any portion of the work of another. Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism, which is the reuse of the Student's own submitted work, or the simultaneous submission of the Student's own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author.

F. SUBMISSION OF ACADEMIC WORK PURCHASED OR OBTAINED FROM AN OUTSIDE SOURCE.

A Student must not submit as their own work any academic work in any form that the Student purchased or otherwise obtained from an outside source, including but not limited to: academic materials in any form prepared by a commercial or individual vendor of academic materials; a collection of research papers, tests, or academic materials maintained by a Student Organization or other entity or person, or any other sources of academic work.

G. UNAUTHORIZED RECORDINGS.

A Student must not, without express authorization from Faculty, make or receive any Recording, through any means over any medium, of any academic activity, including but not limited to a Recording of any class or of any meeting with Faculty. Students registered with the Disability Resource Center who are provided reasonable accommodations that include allowing such Recordings must inform Faculty before making such Recordings.

