

Mind, Brain and Behaviour, PSYC400, 3KU (6AKTS)

Fall semester 2026

Instructor Information

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Office Hours: By appointment

Class Session

Thursday 18:40 – 20:00 *Extra classes or changes to the schedule will be announced

Textbook

1. *The Mind's Machine: Foundations of Brain and Behavior, 5th edition*
2. Watson, N.V. & Breedlove, M.S. (2024). Oxford University Press

Course Description

In this course you will be introduced to the field of cognitive science and biological psychology by studying brain mechanisms and exploring the relationships between the brain, the body, and the mind. This course is designed to make you familiar with the field of behavioral and cognitive neuroscience. We will look at novel methodologies to study brain and behaviour and the latest research in the field. We will also examine psychological, psychiatric, and neurological disorders, and the brain's role in their manifestation and treatment.

Course Objectives

This course is designed to expose students to the biological aspects of behavior. Upon completion of the course, students will recognize and understand the fundamental biological principles that underlie normal and disordered development, behavior, and mental and physical health. Students will be able to apply information from this course to personal and social issues within human behavior and to draw meaningful connections between the course material and the real world.

Assignments

- (1) **Weekly Learning Tasks:** Complete eight tasks based on lectures, readings, or short videos. Each has three brief questions. At the start of the next online class, answer one related question before discussion, then submit a one-sentence explanation or revision. Attempt each task independently. AI may clarify terms or provide feedback but may not generate your analysis. Include one sentence disclosing AI use. Each task: completion (1), scientific understanding (2), and next-class application or revision (2).
- (2) **Response Paper/Presentation:** Find a new research work from Google Scholar regarding some kind of mental disorder and neuroscientific findings related to it. Write down a summary on the highlights of the research work you read.
 1. What is the research question?
 2. What is the hypothesis?

3. What kind of methodology did they use?
4. What are the main results?
5. Conclusions, implications, and future directions

Your report must be:

- 12-point font. Maximum 2 pages

Present the research work in a 5–10-minute presentation to the class.

- (3) **Exams:** There will be two examinations in this course: a midterm examination and a final examination. Both examinations will be held in the classroom.

Cheating and Plagiarism

Just a friendly reminder about cheating and plagiarism—don't do it. **Any student who is caught cheating on an exam, writing another student's project, or copying from another source (e.g., a website, a magazine, a published research article) without proper citations will automatically receive 0 points for that project and be disciplined under the University's regulations for academic honesty.** Students who violate the academic principles of the University may receive a failing grade on the assignment, receive a failing grade in the course, or be suspended from the University.

Grading Guidelines

	% of grade
Attendance/Participation	5
Weekly Learning Tasks	20
Midterm Exam	25
Response Paper / Presentation	15
Final Exam	35
TOTAL	100

Proposed Course Schedule

Required readings consist only of the selections listed below. Other chapter material is optional unless it is explicitly assigned.

Week	Weekly topic	Textbook selections	Required focus
Week 1	Introduction to mind, brain, and behavior	Introduction: behavioral neuroscience; research objectives; selected discussion of interdisciplinary discovery and neuroplasticity	Define behavioral neuroscience. Compare questions about behavior. Distinguish observation from explanation. Introduce the interaction of biology and experience.

Week	Weekly topic	Textbook selections	Required focus
Week 2	Functional brain anatomy	Chapter 1, sections 1.2-1.3	Central and peripheral nervous systems; somatic and autonomic divisions; cerebral lobes; selected subcortical structures and brainstem; functional specialization within networks.
Week 3	Neural communication	Chapter 1, section 1.1; Chapter 2, sections 2.1-2.2; brief selection from Chapter 3, section 3.4	Neuron structure and glia; action potentials at a conceptual level; chemical synaptic transmission; excitation, inhibition, receptors, and one example of drug action.
Week 4	Investigating brain and behavior	Chapter 1, sections 1.5-1.6; Chapter 2, section 2.3	Lesion evidence, EEG, structural MRI, and fMRI; what each method measures; research design; association, causation, limitations, and basic ethics.
Week 5	Development and plasticity	Chapter 4, selected material from sections 4.1-4.4	Overview of brain development; synapse formation and rearrangement; experience and gene expression; change across the lifespan; possibilities and limits of plasticity.
Week 6	Perception and attention	Chapter 14, sections 14.1 and 14.3; Chapter 7, section 7.4 as a selected visual example	Limits and deployment of attention; attention capture and attention networks; perception as selective processing; introductory what-versus-where distinction.
Week 7	Learning and memory	Chapter 13, sections 13.1-13.3, selected material	Declarative and nondeclarative memory; Patient H.M.; encoding, consolidation, and retrieval; multiple memory systems; neural plasticity without detailed molecular mechanisms.
Week 8	Midterm examination	Required material from Weeks 1-7	Midterm examination held in the classroom. The examination covers the announced learning outcomes, selected readings, and applications practiced in class.

Week	Weekly topic	Textbook selections	Required focus
Week 9	Sleep and biological rhythms	Chapter 10, sections 10.1-10.3, selected material	Circadian rhythms and the hypothalamic clock; light input; basic REM and non-REM stages; sleep need, recovery, and selected effects on psychological functioning.
Week 10	Emotion and stress	Chapter 11, sections 11.1, 11.2, and 11.4, selected material	Bodily responses, appraisal, and context; selected lesion and amygdala evidence; the stress response, individual differences, prolonged stress, and regulation.
Week 11	Motivation, reward, and habits	Chapter 3, section 3.7; Chapter 13, section 13.2; Chapter 14, section 14.4, selected material	Reinforcement and reward learning; goal-directed and habitual behavior; planning, monitoring, and risk-benefit decisions; one integrated behavioral example.
Week 12	Social cognition	Introduction: social neuroscience; Chapter 11, section 11.1; one instructor-selected article	Interpretation of social information; emotional communication and context; evaluation of one study, its measures, and limits on generalization.
Week 13	Understanding psychological disorders	Chapter 12, selected material from sections 12.2-12.3	Depression and PTSD as two cases; biological findings alongside experience and context; treatment evidence; limits of applying group findings to an individual.
Week 14	Integration and review	Previously assigned selections	Apply concepts to unfamiliar cases; compare hypotheses; interpret findings; identify limitations; revise unsupported claims; prepare for the final examination.
Exam period	Final examination	Previously announced examination scope	Final examination held in the classroom according to the university calendar.