Course program and reading list
Semester 1 Year 2023

School:  Baruch Ivcher School of Psychology

Psychology and Neuroscience: An Interdisciplinary Approach A

Lecturer:
Dr. Limor Shtoots  slimor@runi.ac.il

Tutors:
Ms. Baillie Sarah Shuster  baillie.shuster@post.runi.ac.il

Teaching Assistant:
Ms. Baillie Sarah Shuster  baillie.shuster@post.runi.ac.il

Course No.: 9067  Course Type : Lecture  Weekly Hours : 2  Credit: 4

Course Requirements : Final Exam  Group Code : 231906720  Language: English

Prerequisites
Students who took one of the courses listed below will not be allowed to register to the course Psychology and Neuroscience: An Interdisciplinary Approach A (9067):

8891 - Biological Basis of Behavior A
8935 - Biological Basis of Behavior A

Course Description
This course provides a vital introduction to the connection between brain and mind. In the first semester, we will learn about the life of the cell, and the structure (anatomy) and function (physiology) of the neuron. We will then survey the architecture of the brain and nervous system, and learn about the neurotransmitter and hormone chemicals required for its operation (as well as those that alter it...). Along the way, we will learn about the techniques used to study the brain, such as event-related potentials and functional magnetic resonance imaging.

Course Goals

The goals of the course are:

1. To introduce students to the principles of cellular neurophysiology, systems neuroanatomy, and neurobiological signaling.
2. To acquaint students with key methods of cognitive, affective, and behavioral neuroscience research such as electroencephalography and magnetic resonance imaging.

Grading

Course requirements: Attendance of lectures and recitations (will be enforced in accordance with RUNI policy), reading all assigned material, writing quizzes and exams.

Grade components for the semester: 3 quizzes (6.66% each), semester exam (80%).

Make up quizzes – only for students that could not attend the quiz on the original date and with approval from the lecturer.

Learning Outcomes

Students should be able to:

1. Explain the principles of cellular neurophysiology, systems neuroanatomy, and neurobiological signalling.
2. Demonstrate an understanding of electroencephalography and magnetic resonance imaging.
Lecturer Office Hours
By appointment through e-mail: slimor@idc.ac.il

Tutor Office Hours
By appointment through e-mail: baillie.shuster@post.idc.ac.il

Teaching Assistant
By appointment through e-mail: baillie.shuster@post.idc.ac.il

Additional Notes
The required textbook chapters (noted below) will be supplemented by articles and other materials assigned by the instructor, which will be available on the course website. It is the responsibility of the student to check that website weekly (at least) for updates, changes and assignments.

Reading List


[+ = additional reading material posted on website]

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<thead>
<tr>
<th>Date</th>
<th>Recitation</th>
<th>Lecture</th>
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<tbody>
<tr>
<td></td>
<td>(Sunday 13:45-15:15)</td>
<td>(Wednesday 08:00-09:30)</td>
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<tr>
<td>30 Oct</td>
<td>Course Overview.</td>
<td>Thinking Biologically about the Mind.</td>
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<td>2 Nov</td>
<td>The Cell</td>
<td>Neurons &amp; Glia – Structure</td>
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<td></td>
<td>Alberts et al., Essential Cell Biology Chapter 1</td>
<td>Freberg pp. 2-3; 64-76</td>
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<td>(pp. 1-6; 11-23)</td>
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6,9  Review (Neurons & Glia – Structure)  
Nov  

13,16  Review (Resting & Action Potentials)  
Nov  

20,23  General Review for Quiz 1  
Nov  

*QUIZ 1.*  
27,30  Orientation, CSF, Meninges, Vascular, BBB  
Nov  

Freberg pp. 25–32  

1. Freberg pp.12-15; 86  
2. EEG handout  

4,7  Thalamus, Hypothalamus, Basal Ganglia, Amygdala, Hippocampus  
Dec  

Freberg pp. 39–43  

CNS–PNS, Spinal Cord, Cranial Nerves, Brainstem  
Freberg pp. 33–39; 51–57  

Cerebral Cortex  
Freberg pp. 43–51  

11,14  General Review for Quiz 2  
Dec  

Neuroimaging (MRI, fMRI, PET, CT)  
1. Freberg pp. 9–11  
2. Ward, Student's Guide to Cognitive Neuroscience, chapter 4  

18,21  QUIZ 2.  
Dec  Review (Neuroimaging)  

Glutamate & GABA  
Freberg pp. 101–104; 110–112  

25,28  No Recitation  
Dec  (Hanukkah Vacation)  

ACh, Monoamines  
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<thead>
<tr>
<th>Topic</th>
<th>Pages/Range</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Neuropeptides, Gases. Review</td>
<td>Freberg pp. 105-110</td>
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<td>Drug Action, Pharmacokinetics &amp; Pharmacodynamics</td>
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<td>Psychoactive Drugs.</td>
<td>Freberg pp. 113-115</td>
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<td>Hormones and Autonomic Nervous System</td>
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<tr>
<td>General Review for Quiz 3</td>
<td>Freberg pp. 128-133;135-137</td>
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<td>Coffee, Cigarettes, and Alcohol</td>
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<tr>
<td>QUIZ 3.</td>
<td>Freberg pp. 126-128; 133-134</td>
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<tr>
<td>General Review for the Final Exam</td>
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<td>Laterality</td>
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<tr>
<td>Make Up Quizzes (only for students with approval)</td>
<td>Freberg pp. 443-456</td>
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