Psychology W1010; Monday & Wednesdays 2:40-3:55, Northwest Corner Building # 501

TAs: Erin Kendall Braun, Bruce Dore,
Email for class: MBB.TAs@gmail.com
Office Hours: Monday 12:30-2:30 (510 Schermerhorn), Tuesday 2-4 (324C), Thursday 2-4 318C, Fridays 10-12 (200b and 318C), and by appointment.

Note: this syllabus is subject to change. Please check website for the most current version.

Course Description
This course will provide an introduction to what we know, and what we are still figuring out, about the intriguing link between the brain, the mind, and behavior. We will start with a basic review of the brain as a biological organ, including its basic structure and operations. Next, we will discuss how the brain gives rise to a wide variety of complex behaviors, from the ability to sense and perceive what is happening in the world, to the ability to learn, think, remember, and control our environment.

Readings
The main textbook will be Principles of Cognitive Neuroscience, by Dale Purves et al., (Sinauer Press, 2012, 2nd edition). This textbook will provide the primary reading source. Additional supplements from articles and other book chapters will be available online as discussed in class. This information will be posted on Courseworks, in a folder called "Readings" under “Files & Resources”. Slides will be posted on Courseworks after each class, in a folder called “Class Slides”, under “Files & Resources”.

Exams
Format: Multiple choice, fill-in and short essay questions.
Make-up exams: Will be allowed only with written justification and will be given only at a single date.

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<thead>
<tr>
<th>Date</th>
<th>Topics Covered</th>
<th>% Grade</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>Feb. 16th Section 1 - Basics of neuroscience: how the brain works</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>April 8th Section 2 - Cognitive Neuroscience I: how the brain supports perception and memory</td>
<td>30%</td>
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<tr>
<td>Final Exam</td>
<td>May 13th All sections covered in the course</td>
<td>50%</td>
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Self Tests
Optional quizzes made up of questions that integrate the most important material from the lectures and book. Self-tests can:
1) help you to keep up with and reinforce key points in the reading and lectures
2) help your grade. Each test can earn you up to 1 point, for a maximum of 3 points (3 perfect self tests) to be added to that section’s exam grade.

• Posting New Self-Tests: Self-tests are posted by us on-line by noon on Thursdays.
• Turning in Answers: Self-tests are due before the start of class the following Monday (2:40 pm). You should submit them through Courseworks (Tests & Quizzes). Answers are limited to 140 characters. I recommend that you first write out your response and spell check it in Word (or other text editor) and then paste it into Courseworks. Late self-tests will not be counted.
• Posting Answers to Self-Test: Answers will be posted on the website by the following Tuesday.

Experiments: Participation in the experiment subject pool can earn you up to 6 credits, each worth 1/2 a point towards your final grade (for a maximum of 3 points to your final grade).
Class Schedule

**Wednesday, January 21st:** What is this course about?
Introduction to the study of mind, brain and behavior

**Monday, January 26th:** What is the brain?
Introduction to the brain, its architecture and basic functional features
  Required reading: Chapter 1 (1st edition, PDF available on Courseworks)

**Wednesday, January 28th:** What are neurons?
From general architecture to cell structure and function
  Required reading: Chapter 1 (1st edition, PDF available on Courseworks)

**Monday, February 2nd:** What do neurons do?
Action potentials, neuronal firing and neurotransmitters
  Required reading: Chapter 1 + appendix (1st edition, PDF available on Courseworks)

**Wednesday, February 4th:** How do we study the link between brain, mind, and behavior?
Methods I: Perturbing the brain
  Required reading: Chapter 3

**Monday, February 9th:** How do we study the link between brain, mind, and behavior?
Methods II: Observing the brain in action
  Required reading: Chapter 3

**Wednesday, February 11th:** Summary and review
Brain organization, neurotransmission and methods

**Monday, February 16th:** Exam #1 (20% of grade)

**Wednesday, February 18th:** How is sensory information processed in the brain?
Organization of sensory processing
  Required reading: Chapters 3&4

**Monday, February 23rd:** How does the brain process visual input?
Perception of visual stimuli
  Required reading: Chapters 3

**Wednesday, February 25th:** How does the brain process auditory sensation?
Perception of sounds (Guest speaker: Joe Schumacher)
  Required reading: Chapters 4

**Monday, March 2nd:** How does the brain control movement?
Motor systems and motor control
  Required reading: Chapter 5

**Wednesday, March 4th:** What are the neural processes underlying attention?
Neural and cognitive mechanisms of attention
  Required reading: Chapter 6&7

**Monday, March 9th:** (class cancelled)
Wednesday, March 11\textsuperscript{th}: How does the brain create memories?
I. Declarative memory and patient H.M.
   Required reading: Chapter 8&9

\textit{Spring Break}

Monday, March 23\textsuperscript{rd}: Class Movie (Memory)

Wednesday, March 25\textsuperscript{th}: How does the brain create memories?
II. Different kinds of memory; From cells to systems
   Required reading: Chapter 8&9

Monday, March 30\textsuperscript{th}: The emotional brain
   Required reading: Chapter 10

Wednesday, April 1\textsuperscript{st}: Summary + Review

Monday, April 6\textsuperscript{th}: Exam #2 (30\% of grade)

Wednesday, April 8\textsuperscript{th}: The social brain (Chapter 11)

Monday, April 13\textsuperscript{th}: How is cognition controlled?
   Executive function and the frontal lobes
   Required reading: Chapter 13

Wednesday, April 15\textsuperscript{th}:

Monday, April 20\textsuperscript{th}: How do we make decisions?
   Reward, feedback and neuroeconomics
   Required reading: Chapter 14

Wednesday, April 22\textsuperscript{nd}: How does experience change the brain?
   Cognitive and neural development
   Required reading: Chapter 15

Monday, April 27\textsuperscript{th}: The bilingual brain
   Required reading: Assigned readings

Wednesday, April 29\textsuperscript{th}: How does psychiatric illness impact motivation?

Monday, May 4\textsuperscript{th}: Summary + Review

Wednesday, May 13\textsuperscript{th}: Final Exam (50\% of grade)