

**Mind, Brain, & Behavior  
Psychology W1010  
Spring, 2016**

***Tentative Syllabus – Subject to Change***

**Dr. Caroline Marvin**

**Mondays & Wednesdays, 2:40-3:55pm, 501 Schermerhorn Hall**

***Course Description:***

This course will provide an introduction to what we know – and what we are still figuring out – about the fascinating link between the brain, the mind, and behavior. The material in this course is designed to give you an introductory understanding of the concepts and methods of neuroscience. We will examine brain function at multiple levels of analysis – from gene expression, to neuronal communication, to the functional organization of brain circuits, and to behavior. We will start by learning about the brain as a biological organ, its structure, its development, and its basic operations, including vision, audition, and other senses. We will then discuss how the brain gives rise to a variety of complex behaviors, including learning, memory, social cognition, and decision-making. Finally, we will discuss broader issues, including how brain structure and function might change based on experience, enhancement, and in aging and disease, and how knowledge of mind, brain, and behavior can bear on societal issues.

***Readings:***

The primary text for this course will be Principles of Cognitive Neuroscience (Second Edition), by Purves et al., (Sinauer Press, 2013). Textbook reading will be supplemented with empirical and review articles and other book chapters, all of which will be made available on CourseWorks (*Files & Resources/ Readings*).

***Teaching Assistants & Office Hours:***

TBD

***Schedule:***

NB: The schedule below is tentative and subject to change. The textbook readings for each topic are provided. Where there is a “TBD,” there will be supplementary empirical and review articles assigned.

| <i>Date</i>           | <i>Topics &amp; Assignments</i> | <i>Readings</i>  |
|-----------------------|---------------------------------|--|
| Wednesday, January 20 | Introduction                    | Chapter 1<br><br>Introduction. Brain Facts: A Primer on the Brain and Nervous System, (2012) <i>Society for Neuroscience</i> , 4-13. |

|                        |                                |                               |
|------------------------|--------------------------------|-------------------------------|
| Monday, January 25     | Neurons                        | Appendix, pp. 539-543<br>TBD  |
| Wednesday, January 27  | Neuron Communication           | TBD                           |
| Monday, February 1     | Brain Development              | TBD                           |
| Wednesday, February 3  | Neuroanatomy                   | Appendix, pp. 549-563<br>TBD  |
| Monday, February 8     | Methods: Perturbation          | Chapter 2, pp. 17-29<br>TBD   |
| Wednesday, February 10 | Methods: Observation           | Chapter 2, pp. 29-52<br>TBD   |
| Monday, February 15    | Epigenetics                    | TBD                           |
| Wednesday, February 17 | <b>Exam I</b>                  |                               |
| Monday, February 22    | Intro to Perception & Audition | Chapter 4, pp. 93-110<br>TBD  |
| Wednesday, February 24 | Vision                         | Chapter 3, pp. 55-90          |
| Monday, February 29    | Smell & Taste                  | Chapter 4, pp. 119-128<br>TBD |
| Wednesday, March 2     | Touch & Pain                   | Chapter 4: pp. 110-119<br>TBD |
| Monday, March 7        | Hormones & Stress              | TBD                           |
| Wednesday, March 9     | <b>Exam II</b>                 |                               |
| Monday, March 14       | Spring Recess                  |                               |
| Wednesday, March 16    | Spring Recess                  |                               |
| Monday, March 21       | Attention                      | Chapter 6<br>Chapter 7        |

|                     |                                    |            |
|---------------------|------------------------------------|------------|
| Wednesday, March 23 | Learning & Memory                  | Chapter 8  |
| Monday, March 28    | Learning & Memory                  | Chapter 9  |
| Wednesday, March 30 | Emotion                            | Chapter 10 |
| Monday, April 4     | Social Cognition                   | Chapter 11 |
| Wednesday, April 6  | Social Brain                       | TBD        |
| Monday, April 11    | Language                           | Chapter 12 |
| Wednesday, April 13 | Decision-making                    | Chapter 14 |
| Monday, April 18    | <b>Exam III</b>                    |            |
| Wednesday, April 20 | Psychiatric Disorders              | TBD        |
| Monday, April 25    | The Aging Brain                    | TBD        |
| Wednesday, April 27 | Neuroplasticity & Neuroenhancement | TBD        |
| Monday, May 2       | Neuroscience & Society             | TBD        |
| TBD                 | <b>Final Exam</b>                  |            |

***Course Requirements:***

Exams: Exams will comprise primarily fill-in-the-blank, diagram labeling, and short-answer questions. Make-up exams will only be allowed with written justification and will only be given at a single date and time. The final exam will be cumulative. The other exams will not.

iClickers: iClickers are required for this course. They are intended to encourage your active participation in class, which – research demonstrates – can help facilitate your learning. They will also help you to gauge your own understanding of the material and help me to identify times when concepts require more explanation or discussion. You can earn a total of 100 points for clicker participation. If you respond to at least 90% of the clicker questions in a given class period, you will earn 5 points for that class period. If you respond to more than 50% but fewer than 90% of clicker questions, you will earn 2 points for that class period. If you are absent, if you forgot your clicker, if you answer fewer than 50% of questions, or if your clicker isn't working for some reason, you will earn 0 points for that class period. There are 24 total class periods during which you can earn clicker points. I will use your 20 highest participation scores to calculate your total clicker points. There are no “make-ups” in clicker participation.

## *Extra Credit Opportunities*

Self-tests: Research demonstrates that one of the best ways to learn is to test yourself. Study after study has shown that people who study by testing themselves repeatedly on the material do significantly better in exams than those who study by highlighting the textbook and rereading their notes. To help encourage a habit of self-testing, I will provide several self-tests throughout the semester. The self-test questions will be posted to CourseWorks and will comprise short-answer questions similar to those that may be found on exams. Completing these self-tests is entirely optional, though you are strongly encouraged to do so. All self-tests should be uploaded to the CourseWorks Assignments page. Please include your last name and the number of the self-test in the title of your submission, e.g., LastName\_SelfTest1. No late self-tests will be accepted. Successful completion of self-tests can earn you up to 30 points of extra credit.

Participation in Experiments: Participation in the experiment subject pool can earn you up to 6 experiment credits (1 credit per 30 minutes of participation). Each experiment subject pool credit will count for 5 points of extra credit, for a total of up to 30 points of extra credit. (If you are under the age of 18, you are not eligible to participate in the experiment subject pool. If this is the case, please see me and we can work out an alternate extra- credit opportunity.)

Extra credit points can improve your grade, with one exception: Extra credit points cannot be used to increase grades from A to A+.

### ***Grading:***

Your grade will be determined based on the total amount of points that you earn on the various assessments in this course. There are a total of **1000** points you can earn in this course, and the point cut-offs for each grade range are set in advance. There is no curve. The goal is to create as objective and transparent a grading process as possible such that you should be able to calculate for yourself what your grade will be. The potential points you can earn are as follows:

|   |                   |
|---|-------------------|
| <b>Exam I</b> (February 17 <sup>th</sup> ) .....            | <b>180</b> points |
| <b>Exam II</b> (March 9 <sup>th</sup> ).....                | <b>180</b> points |
| <b>Exam III</b> (April 18 <sup>th</sup> ) .....             | <b>180</b> points |
| <b>Final Exam</b> (date to be determined by Registrar)..... | <b>360</b> points |
| <b>iClicker Participation</b> .....                         | <b>100</b> points |

### ***Class policies:***

As members of this academic community, we are responsible for maintaining the highest level of personal and academic integrity, which includes presenting only our own work on assignments and exams. You can find detailed definitions and examples of academic dishonesty in Columbia's Guide to Academic Integrity (<http://www.college.columbia.edu/academics/academicintegrity>). The semester progresses very quickly, and there is a lot of material to learn. If you find yourself in a situation – e.g., starting an assignment late or not having enough time to study for an

exam – in which it seems like the best option might be to cut some corners, please see me. Together, we can work out a solution. It is far better to have a few points deducted from an assignment than to compromise your academic integrity and potentially put your academic standing in jeopardy.

Attendance: The lectures will cover a great deal of material, some of which is not included in the readings. I will do my very best to make lectures as engaging and interactive as possible, so please do your very best to attend every lecture. I will provide pdfs of my lecture slides for each class. However, you'll find that I tend to use slides to display graphs and pictures; I include less in the way of text. So, without the notes you take in lecture, these slides might be hard to decipher. If you miss a class, please try to borrow notes from a classmate and/or come to office hours to review any questions you might have about the lecture.

You cannot make up clicker participation credit for classes you missed, even if the absences are excused. You also cannot make up clicker participation credit if you forgot your iClicker or if it has run out of batteries or is otherwise malfunctioning. But, given that we'll only count your top 20 participation days, you get four free passes. So, you can miss a day of class or have a clicker malfunction, and it will not adversely affect your grade.

Class Etiquette: Research shows that many of us think we're good multi-taskers. Research also shows that most of us are not. If you typically take notes on a laptop, you can, of course, use the laptop in class. But, out of respect for your classmates and in the interest of your own learning and ability to actively participate in class discussions, please refrain from using your laptop inappropriately.

Students with Disabilities: Students with special needs who may require classroom/test accommodations should make an appointment with me before or during the first week of class. You should also contact the Office of Disability Services (ODS) in Lerner Hall before the start of the course to register for these accommodations. The procedures for registering with ODS can be found at <http://health.columbia.edu/services/ods> or by calling (212) 854-2388.

Syllabus is subject to revision. Updates will be posted on CourseWorks.