

**SEMINAR IN PSYCHOBIOLOGY**  
PSY U656 Course outline

**Course Number:** PSY U656  
**Key Number:** 51425  
**Semester Offered:** Spring 2006  
**Total Credit Hours:** 4 credits

**Instructor:** Professor Jay McLaughlin  
**Office:** 114 Lake Hall  
**Phone:** (617) 373-2361  
**E-mail:** j.mclaughlin@neu.edu

**Office Hours:** Wednesday and Thursday, 8:30 – 10:00 a.m., or by appointment

**Class meets:** Mondays and Thursdays from 11:45 – 2:40 p.m. in 245 Ryder Hall

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**COURSE GOALS:**

- Understanding and application of biological mechanisms to psychological questions
- Skills preparation for future psychobiology research career, including critical reading, analysis and discussion of primary literature and presentation skills

**COURSE STRUCTURE:**

Class will be divided between weekly lectures, review of articles and student presentations.

Lectures will be given for approximately 90 minutes of each Monday class. These are intended to provide the background necessary to understand and analyze the following week's articles.

Review of articles will comprise the majority of time spent in class. Each Thursday class, students will be randomly selected to present material from the assigned readings and lead discussion of relevant points. Please note that students are responsible for all reading material assigned each week. Review of articles and participation counts significantly towards the final grade.

Throughout the course, each student will make one oral presentation of a complete psychobiological research project. Choice of subject material is at the discretion of the presenter, but must be cleared by me no less than two weeks beforehand. Oral presentations are to be performed in the context of a scientific meeting, i.e., a 10 minute presentation followed by up to five minutes of questions and answers. PowerPoint is the preferred presentation medium.

**TEXTS:**

**None required.** Materials used to develop the PowerPoint lectures for this course come from various texts and manuscripts. Weekly reading of two to four primary literature articles will be assigned (see below). These articles will be provided. Please note that lecture notes and assigned articles will be the source of material for all exams.

PowerPoint presentations and research articles covered in class each week will be made available online through Blackboard. Copies will also be available in the Psychology Main Office (125 Nightingale Hall) for photocopying.

However, if further references are desired, I recommend:

- 1) Biological Psychology, 8th edition. JW Kalat, Wadsworth Publishing, Belmont, CA (2004).
- 2) Principles of Neural Science, 4<sup>th</sup> edition. ER Kandel, JH Schwartz and TM Jessell, McGraw-Hill, NY (2000).

These may be of assistance to you, but ARE NOT REQUIRED. Both are available at Amazon.com or through the Northeastern University library. These texts provide excellent overviews, but often with much more material than needed for this course.

## GRADING EVALUATION:

Final course grades will be computed using the following point system:

- 45 pts.** Midterm exam (held 2/23; covers material from 1/9 – 2/23)
- 48 pts.** Final exam (held 4/25; covers material from 2/27 – 4/19)
- 30 pts.** Oral presentation
- 77 pts.** Presentation and discussion in weekly review of articles

To be clear: **every class, each of you** will be reviewing **something** from the assigned articles, as determined by random selection. Keeping up with the assigned reading and attending each week is therefore critical to passing this class! **Each week's review is worth 7 pts.** Scoring is based on covering the following points in the assigned material:

- Background
- Hypothesis of experiment and relevance to paper presented
- Experimental data, fully detailed
- Conclusions, with analysis and Q&A

Additionally, a student can earn an extra credit point each class by posing relevant questions to their fellow reviewers. All students are encouraged strongly to participate on a regular basis.

## STANDARD RULES AND PROCEDURES:

Students are expected to attend each class. In case of illness or scheduling conflicts resulting in a missed class, students are responsible for obtaining lecture materials from other students. Up to two missed reviews of articles may be made up with me during scheduled office hours **within 2 weeks of the missed review.** Students are to demonstrate respectful, professional behavior. Users of cell phones, pagers and PDAs are asked to minimize disruptions by stepping outside of the classroom. If you have a special circumstance in this regard, please see me. Likewise, if you have specific disabilities that you believe may require accommodations for this course, please meet with me at your earliest convenience to discuss appropriate measures to assist you. The Disability Resource Center on campus (20 Dodge Hall, x2675) may also prove helpful. Bear in mind that the University requires that you provide documentation of your disability to the DRC.

There are six key concepts that will help you succeed in this course:

1. Attend class. Everything you need to know will be presented there.
2. Ask questions! Note that I give points for this, so clearly I **want** questions.
3. Keep up with the assigned readings. You **will** be asked to present something at random each week. If you maintain the pace of assigned readings, I promise this will not be a problem for you.
4. Review the lecture notes. This will give you the information to understand the articles.
5. Form study groups. Much of this material makes more sense when approached in a team.
6. Ask for help. I am always available for a student in need.

## SEMINAR IN PSYCHOBIOLOGY- PSY U656- SYLLABUS SPRING 2006:

January:

- 9 Introduction. Example article review and presentation
- 12 Lecture: **Cells, receptors and signal transduction**
- 16 NO CLASS, MARTIN LUTHER KING JR.'S BIRTHDAY OBSERVED**
- 19 Review of articles: **Drug characterization**
  
- 23 Lecture: **Neurobiology of sensory systems**
- 26 Review of articles: **Sensory perception**
  
- 31 Lecture: **Neurology and pharmacology of pain**

February:

- 2 Review of articles: **Pain I**
- 6 Lecture: **Pain and Inflammation**
- 9 Review of articles: **Pain II**
- 13 Lecture: **LTP and Hebbian learning**  
**Presentations 1, 2, 3**
- 16 Review of articles: **LTP**
- 20 **NO CLASS, PRESIDENT'S DAY OBSERVED**
- 23 MIDTERM EXAM (covers material from 1/9 – 2/16)
- 27 Lecture: **Memory**  
**Presentations 4, 5, 6**

March:

- 2 Review of articles: **Learning and memory**
- 6 **NO CLASS, SPRING BREAK**
- 9 **NO CLASS, SPRING BREAK**
- 13 Lecture: **Neurobiology of stress**  
**Presentations 7, 8, 9**
- 16 Review of articles: **Stress**
- 20 Lecture: **Neurobiology of reward and motivation**  
**Presentations 10, 11, 12**
- 23 Review of articles: **Reward**
- 27 Lecture: **Neurobiology of drug addiction**  
**Presentations 13, 14, 15**
- 30 Review of articles: **Drug addiction**

April:

- 3 Lecture: **Neurobiological mechanisms of affective disorders**  
**Presentations 16, 17, 18**
- 6 Review of articles: **Depression**
- 10 Lecture: **Neurobiological mechanisms underlying disorders of mood and thought**  
**Presentations (all remaining)**
- 13 Review of articles: **Disorders of thought and mood**
- 17 **NO CLASS: PATRIOT'S DAY OBSERVED**
- 24 FINAL EXAM (held during finals week; covers material from 2/27 – 4/17)  
Location TBA; exam is at 8 a.m.