

NSCI/PSYC320-080 - Introduction to Neuroscience

Spring, 2014 Syllabus (Updated 03-25-2014)

Instructor: Dr. Anna Klintsova, 225 Wolf Hall klintsov@udel.edu

Time, place: TR 12:30 pm – 1:45 pm, Purnell Hall (PRN) 328

TA: Sara Westbrook swestbrook@psych.udel.edu

Office hours: Professor – Tu 3-4:30 pm; TA -

Required text: Neuroscience: Exploring the Brain by Bear et al., 3rd edition, Lippincott, Williams & Wilkins

Course web page: <https://sakai.udel.edu/portal>

Course Description

This course is an introduction to the growing and exciting field of neuroscience, which lies at the intersection of biological and psychological science. This broad overview will address topics ranging from the cellular function of neurons to issues of human cognition and mental illness.

Objectives

The objectives for students in this course are to:

- Learn the fundamental principles of the anatomy, development, and physiology of the nervous system
- Understand the structure and function of brain systems
- Understand neurochemical influences on behavior and sex differences in the brain
- Understand several forms of psychiatric and neurological illness
- Learn to interpret experimental approaches and data in neuroscience

Assessment

The outcomes described above will be assessed through:

- Written exams, quizzes, and assignments: scientific / quantitative reasoning, written communication ability
- Discussion and presentations: scientific / quantitative reasoning, oral communication ability, information literacy
- Class participation: oral communication ability

Student Responsibilities

Readings: Assigned text readings must be read BEFORE class. Weekly quizzes are intended to encourage this practice; the quizzes will be very simple if you've done the reading, and very difficult if you haven't.

Attendance: Attendance is not mandatory except when announced (for example, for exams or class discussions). However, it is strongly recommended you attend class material may be covered that is not in your text. You are responsible for class material even if you are absent. If you miss an exam or quiz due to documented illness or emergency, you must contact the instructor as soon as possible to arrange a make-up exam. Make-up exams will not be given for any other reason.

Scholarship and Integrity: You are required to abide by the University of Delaware practices of scholarship and integrity. All writing and other material that you submit must be your own, original work, unless otherwise acknowledged.

- Material that is quoted from another source must be clearly indicated as a quotation and must be followed immediately by a citation to the original source.

Assignments and Evaluation

1. Weekly quizzes, 20%: There will be 11 brief quizzes (3-4 questions, 5-7 minutes) every week which will be based on the reading assigned for that day. The lowest quiz grade will be dropped.

2. Exams, 40 %: Each of the three exams will cover reading and lecture material since the previous exam.

3. Class presentation, 10%: each student will have a chance to present an overview of the interesting topic, relevant to the theme of the Chapter and lecture on that particular day.

Example: For Chapter 6 (Tuesday, March 3rd). Using Internet-based research, write a report on the impact of serotonin on mood, sleep, and relaxation. In the report, focus on the points below. Consult the research paper “Brain Serotonin Content: Physiological Regulation by Plasma Neutral Amino Acids” by J.D. Fernstrom and R.J. Wurtman in *Science* Vol. 178 pp 414-416 for additional help.

What types of food can increase serotonin levels?

What is the mechanism behind the effect of food on serotonin levels?

What is serotonin syndrome?

4. Written assignment “A Beautiful Mind” 15%: - “A Beautiful Mind” is a bestselling book by Sylvia Nasar based on the life of John Nash, Nobel Laureate in Economics. In 2001 biographical film of the same name was released.

- For this paper, you should

- 1) read the book or watch the movie (or both);
- 2) research symptoms (examples from Nash’s life) and causes of schizophrenia (genetics vs environment);
- 3) learn what the treatments for schizophrenia are;
- 4) understand how animal models of schizophrenia help us to study the disease; and
- 5) write 3-4 double-spaced pages (references are NOT included)

5. Case study presentation, 15%: Group project

- One of the most interesting ways to learn about the relationship between brain and behavior is to see what happens when a particular part of the brain is damaged. The focus of the group project, therefore, is to learn more about a specific type of brain damage.

- Each group will be assigned a particular form of brain damage (i.e. damage to the orbitofrontal cortex). The groups will then create a case study, which will be written up and, in part, be presented to the class.

- Generally, the case study will:

briefly address the hypothetical patient's background and cause of the lesion/damage

address the changes that the patient and friends have noticed in behaviors and abilities

(note, in some situations, the patient may be oblivious that any changes have occurred)

discuss any additional changes that could be expected over time with aging or development

Useful Tools: Brain atlas: <http://braininfo.rprc.washington.edu/>

Course Grade: The course grade will be calculated to the nearest 0.1%, and the letter grade determined by the table below. Late assignments will be deducted 1% per calendar day.

| Grade Scale | | | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |
| 93- | 90- | 87- | 83- | 80- | 77- | 73- | 70- | 67- | 60- | <60% |
| 100% | 92.9% | 89.9% | 86.9% | 82.9% | 79.9% | 76.9% | 72.9% | 69.9% | 66.9% | |