

Course Syllabus
BISP152 – The Healthy and Diseased Brain
Spring 2013

Instructor Information

Instructor: Andrew D. Huberman, Ph.D.
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Course Identification

Course Number: BISP152
Course Name: The Healthy and Diseased Brain
Course Location:
Class Time: Wednesdays and Fridays 5-6:20pm

Course Description/Overview/Prerequisites

This course will combine basic lectures and readings on nervous system development, function and disease, with reading and balanced critique of primary research articles (reports of original data). A basic understanding of cell biology, genetics and neurobiology is necessary to digest the course material and perform well.

Course Learning Objectives

The purpose of this course is to compare established principles in the field of translational neuroscience with critical readings of the research literature that led to those principles. We will also review current data on the possible origins of common diseases of the nervous system such as autism, schizophrenia and dementia for which theories are still emerging.

Course Resources/Timing

Course Website(s):

- Primary papers will be available as downloadable word documents PDFs on the course website.
- *Your TA's will provide tutorials on how to read and digest the paper information. It is extremely important you attend that section and ask questions if confused!*

Course Schedule

Week 1

W 4/3: Course overview and essential background material: Nervous system structure and function and “The four-question rule”.

F 4/5: Neural induction and neural tube closure; spina bifida, cyclopsia

Week 2

W 4/10: Cell proliferation and migration

F 4/12: Microcephalic and lissencephalic disorders in humans (Lecturer: Matt Hunt)

Week 3

M 4/17: Axon guidance

F 4/19: Movement and sensory disorders that originate from “wiring errors”

Week 4

M 4/24: Synapse formation and hand out of practice exam (*due next discussion section*)

F 4/26: “Known” diseases of synapse formation. Review practice exam answers

Week 5

M 5/1: Synapse strengthening and weakening

F 5/3: Acute and chronic pain; the placebo effect

Week 6

W 5/8: Circuit modifications that underlie skill learning; learning disorders

F 5/10: Midterm

Week 7

M 5/15: Memory

F 5/17: Alzheimers and Savant memory

Week 8

M 5/22: Autism

F 5/24: Schizophrenia

Week 9

M 5/29: OCD, ADD, ADHD

F 5/31: Depression

Week 10

W 6/5: Anorexia, bulimia

F 6/7: Customized neural repair and rewiring

Test Format and Grading Scheme

Grading System

Grades will be based on 2 exams:

- 1) Midterm (40 points)
- 2) Final exam (60 points) June 14th

Grades will obey the following distribution from a maximum possible score of 100:

A+ 98-100; A 94-97; A- 90-93; B+ 87-89; B 84-86; B- 80-83; C+ 77-79; C 74-76;

C- 70-73 ; D+ 68-69 ; D 64-67 ; D- 50-63 ; F 0-50

Late Assignments/Missed Exams

There is no “homework”, but students are expected to attend all lectures/course hours and discussion/review sessions to keep abreast of the readings.

No make-up exams will be offered. In the case of an absence, the grade will be set to 0 for that exam. The only exceptions are written, **official** email notice of debilitating illness from a board certified MD. (The AMA has a designated form for qualified work absence due to medical leave; you must obtain that form, and not simply a “doctors note”). In those instances, a replacement exam will be given that bears no overlap to the in-class exam.

University Policies

Academic dishonesty cases will be handled in accordance the University's policies.

If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me or one of the course TAs as soon as possible so that we can make appropriate arrangements.