Intro to Neural Science, Fall 2016
NEURL-UA 100 (001) – Neural Science
BIOL-UA 100 (001) - Biology

Prof. Paul Glimcher
4 Washington Place, 809

Lectures

Monday and Wednesday 2:00pm-3:15pm
Meyer 122

Recitations:		**TA:**
002: Monday	4:55pm-6:10pm	7E12 123
003: Tuesday	4:55pm-6:10pm	WAVE 421
004: Wednesday	4:55pm-6:10pm	WAVE 435
005: Thursday	4:55pm-6:10pm	GCASL 361
006: Friday	11:00am-12:15pm	12WV L113

Graduate Teaching Assistants

Silvia Lopez-Guzman
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Texts

Required:
Neuroscience: Exploring the Brain. Bear, Connors and Paradiso.
(Fourth edition – *or* – *Third edition*)

Recommended as a background text for those who find the main text too intense:
Biological Psychology. Rosenzweig, Breedlove and Leiman. Sinauer Associates.

Recommended as advanced reading for those who find the main text not intense enough:
Fundamental Neuroscience. Squire et al. Academic Press.

Grading

Exams:

Midterm I 25%
Midterm II 25%
Final Exam 50%

Date and Time of Final:
Monday, December 19th from 2PM-3:50PM.
122 Meyer

Course Syllabus

PART 1: Cellular and Molecular Foundations of Neuroscience

Week 1

Sept 7 – ***NO CLASS on the first Wednesday of classes.***

No Recitations This Week

Week 2

Sept 12 (Monday): Historical Foundations of Neuroscience
Readings: Chapter 1 (either edition)

Sept 14 (Wednesday): The Cells of the Nervous System, Introduction to Potentials
Readings: Chapter 2 (either edition)

In Class Exercise: Flash Cards

Recitation Goal*: Cells of the Nervous System*

Week 3

Sept 19 (Monday): The Resting Potential, Introduction to the Action Potential
Readings: Chapter 3 (either edition)

Sept 21 (Wednesday) The Action Potential, The Refractory Period, Conduction Velocity
Readings: Chapter 4 (either edition)
In Class Exercise: Conduction Velocity

Recitation Goal: Understanding the Resting Potential

Week 4

Sept 26 (Monday) The Action Potential II
Readings: Chapter 4, continued (either edition)

Sept 28 (Wednesday) Basics of Synaptic Transmission
Readings: Chapter 5

Recitation Goal: Understanding the Action Potential, The Refractory Period and Conduction Velocity

Week 5

Oct 3: (Monday) Rosh Hashanah Day 1
Neurotransmitters and Drugs
Readings: Chapter 6
Note: Lecture will be Available Online after it is given
If your are in Monday or Tuesday's Recitation and Observing Rosh Hashanah, try to attend Wednesday's, Thursday's or Friday's Recitation or talk to your TA

Oct 5 (Wednesday): Neuroanatomy
Readings: Chapter 7 in both editions but focus on the first section of the chapter, "Gross organization" and the appendix.

Recitation: **Prep for Exam, Review Sessions**
Exam Covers Sept 2 – *Oct 5* Lectures and Readings
Note: You are free to attend any recitations you want this week.
We will also schedule additional recitations before the exam!
Recitations after the exam won't be held

Week 6
NOTE: This week we will be giving the 1st midterm.
Students Observing Yom Kippur May take it Tuesday or Friday by advance arrangement.

Oct 10 (Monday) Fall Recess, No Classes

Oct 12 (Wednesday) Yom Kippur: **Midterm 1**

PART 2: Sensory and Motor Neuroscience

Week 7

Oct 17(Monday) Chemical Senses, Sensory Transduction, The Function of Sensation.
Readings: Chapter 8 (either edition)
Additional Reading: "The Molecular Logic of Smell" and "Making Sense of Taste"
Scientific American Articles from Website

Oct 19 (Wednesday) Vision 1, The Eye
Readings: Chapter 9

In Class Exercise: The Blindspot

Recitation: **Sheep Brain Dissection, wear 'workclothes'**
Printout and Read the Dissection Guide on the Class Website

Week 8

Oct 24 (Monday) Vision 2, Low Level Cortex
Readings: Chapter 10

Oct 26 (Wednesday) Vision 3, High Level Cortex and Perceptual Experience
Readings: "Vision A Window On Consciousness" Sci Am Article from Website

Recitation Goal: Understanding the Visual System

Week 9

Oct 31 (Monday – Halloween, Dress up as your favorite neuron) The Auditory System
Readings: Chapter 11 up to page 375 in 3rd Edition. Chapter 11 up to page 403 in 4th Ed.
Additional Reading: "Listening With Two Ears" Sci Am Article from Website
In Class Exercise: Frequency Limits

Nov 2 (Wednesday) The Touch System
Readings: Chapter 12
In Class Exercise: Discrimination Thresholds

Recitation Goal: Understanding All General Principles of Sensory Systems

Week 10

Nov 7: Movement 1
Readings: Chapter 13

Nov 9: Movement 2
Readings: Chapter 14

Recitation Goal: **Review for Midterm II**
Exam Covers Oct 17 – *Nov 9* Lectures and Readings
Note: You are free to attend any recitations you want this week.

Week 11

Nov 14 (Monday) Midterm II
Midterm II, covers Part 2 of Class only. Oct 17 – Nov 9 Lectures and Readings.

Part 3: Cognitive Neuroscience

Nov 16 (Wednesday) Drugs and the Autonomic Nervous System
Readings: Chapter 15

Week 12

Nov 21 (Monday) Development in the Nervous System
Readings: Chapter 23, also Chapter 7 – the section labeled: *Understanding CNS Structure Through Development*.

Nov 23 (Wednesday) Thanksgiving Break

No Recitations this Week

Week 13

Nov 28 (Monday) Learning and Memory: Structure and Anatomy
Readings: Chapter 24

Nov 30 (Weddnesday) Learning and Memory: Molecular Biology
Readings: Chapter 25

Week 14

Dec 5 (Monday) Emotion I
Readings Chapter 18

Dec 7 (Wednesday) Emotion II
Readings: Additional Reading by LeDoux on Website

Recitation Goal: Understanding Emotion and Molecular Memory/LTP!

Week 14

Dec 12 (Monday) Neurobiology of Language
Readings: Geshwind Article on Website

Dec 13 **(Tuesday)** Neurobiology of Decision (This is an NYU "Monday")
Readings: 'Tahoe 5' Article on website

Dec 14 (Wednesday) The Neurobiology of Love
Readings: No Readings
In Class Exercise: To Be Determined…

Recitation Goal: Review for Final Exam – Final is Cumulative but stresses CogNeuro

Dec 19: Final Exam