Intro to Neural Science
V80.0100 (001) – Neural Science
V23.0100 (001) - Biology

Prof. Paul Glimcher
4 Washington Place, 809

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

Recitations:
002: Monday 4:55pm-6:10pm 405 Silver Brett Vintch
003: Tuesday 4:55pm-6:10pm C-13 25W4th Brett Vintch
004: Wednesday 4:55pm-6:10pm 407 Silver Kevin Jarrett
005: Thursday 4:55pm-6:10pm 403 Silver Kevin Jarrett

Graduate Teaching Assistants
Kevin Jarrett
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Brett Vintch
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212-998-3920

Texts

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

Recommended as a background text for those who find the main text too intense:

Grading

Exams:
Midterm I 25%
Midterm II 25%
Course Syllabus

PART 1: Cellular and Molecular Foundations of Neuroscience

Week 1

Sept 9: Historical Foundations of Neuroscience
Readings: Chapter 1

No Recitations This Week: First Week of Classes

Week 2

Sept 14: The Cells of the Nervous System, Introduction to Potentials
Readings: Chapter 2
In Class Exercise: Flash Cards

Sept 16: The Resting Potential, Introduction to the Action Potential
Readings: Chapter 3
In Class Exercise: Diffusion Demo at 2 Temperatures

Recitation Goal: Understanding the Resting Potential

Week 3

Readings: Chapter 4
In Class Exercise: Conduction Velocity

Sept 23: The Action Potential II
Readings: Chapter 5


Week 4

Sept 28: Yom Kippur, No Class
Note: Recitations will be held this week but you are free to attend any you want.

Sept 30: Basics of Synaptic Transmission
Readings: Chapter 5

Recitation Goal: Review for Midterm I
Exam Covers Sept 9 – Oct 5 Lectures and Readings
Week 5
Oct 5: Neurotransmitters and Drugs I
Readings: Chapter 6

Oct 7: Midterm I
Recitations: Monday and Tuesday Recitations open to all students for general review, Wednesday and Thursday Recitations Canceled.

PART 2: Sensory and Motor Neuroscience

Week 6
Oct 12: Neuroanatomy
Readings: Chapter 7

Oct 14: Chemical Senses, Sensory Transduction, The Function of Sensation Vision 1
Readings: Chapter 8
Additional Reading: “The Molecular Logic of Smell” and “Making Sense of Taste”
Scientific American Articles from Website

Recitation: Sheep Brain Dissection, wear ‘workclothes’

Week 7
Oct 19: Vision 1, The Eye
Readings: Chapter 9
In Class Exercise: The Blindspot

Oct 21: Vision 2, Low Level Cortex
Readings: Chapter 10

Recitation Goal: Understanding the Principles of Sensory Systems and the engineering problems they solve.

Week 8
Oct 26: Vision 3, High Level Cortex and Perceptual Experience
Readings: “Vision A Window On Consciousness” Sci Am Article from Website

Oct 28: The Auditory System
Readings: Chapter 11 up to page 375
Additional Reading: “Listening With Two Ears” Sci Am Article from Website
In Class Exercise: Frequency Limits

Recitation Goal: Understanding the Visual System

Week 9
Nov 2: The Touch System  
Readings: Chapter 12  
In Class Exercise: Discrimination Thresholds

Nov 4: Movement 1  
Readings: Chapter 13

Recitation Goals: **Review for Midterm II**  
*Exam Covers Oct 12 – Nov 9 Lectures and Readings*

**Week 10**  
Nov 9: Movement 2  
Readings: Chapter 14

**Nov 11: Midterm II, covers Part 2 of Class only**

Recitations: Monday and Tuesday Recitations open to all students for general review, Wednesday and Thursday Recitations Canceled.

**Part 3: Cognitive Neuroscience**

**Week 11**  
Nov 16: Drugs and the Autonomic Nervous System  
Readings: Chapter 15

Nov 18: Motivation and Reward  
Readings: Chapter 16

Recitation Goal: Understanding the parasympathetic and sympathetic nervous systems

**Week 12**  
Nov 23: Emotion I  
Readings: Chapter 18

Nov 25: Emotion II  
Readings: No Readings  
In Class Exercise: Q&A

No Recitations This Week: **Thanksgiving Vacation**

**Week 13**  
Nov 30: Development in the Nervous System  
Readings: Chapter 23

Dec 2: Learning and Memory: Structure and Anatomy
Readings: Chapter 24

Recitation Goal: Understanding Development

**Week 14**
Dec 7: Learning and Memory: Molecular Biology
Readings: Chapter 25

Dec 9: Neurobiology of Sex
Readings: Chapter 17
In Class Exercise: To Be Determined…

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

**Week 15**
Dec 14: The Neurobiology of Love
Readings: No Readings

**Dec 17 - 23: Final Exam Period**