Intro to Neural Science
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:  
002: Monday 4:55pm-6:10pm  7E12 129  Long Sha
003: Tuesday 4:55pm-6:10pm  7E12 123  Long Sha
004: Wednesday 4:55pm-6:10pm  7E12 129  Adrienne Santiago
005: Thursday 4:55pm-6:10pm  7E12 LL27  Will Adler
006: Friday 11:00am-12:15pm  194Mercer 201  Adrienne Santiago

Graduate Teaching Assistants
Will Adler (head TA)
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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:

Recommended as advanced reading for those who find the main text not intense enough:
Grading

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

Date and Time of Final:
Monday, December 21th from 2PM-3:50PM.
122 Meyer

Course Syllabus

PART 1: Cellular and Molecular Foundations of Neuroscience

Week 1
Sept 2 (Wednesday): Historical Foundations of Neuroscience
Readings: Chapter 1 (either edition)

No Recitations This Week: First Week of Classes

Week 2 (No Class Monday – Labor Day)
Sept 8 (Wednesday): The Cells of the Nervous System, Introduction to Potentials
Readings: Chapter 2 (either edition)
In Class Exercise: Flash Cards

Recitations This Week: There will be Recitations Tues -> Friday
(We know this stinks for Monday! But wait, it gets worse.)

Week 3
Sept 14 (Monday): Rosh Hashana, No Lecture. (Not again? oy vay!)
Sept 16 (Wednesday): The Resting Potential, Introduction to the Action Potential
Readings: Chapter 3 (either edition)
In Class Exercise: Question Sheet

Recitations This Week: There will be Recitations Monday -> Friday
For Monday, this will be the first class.
People observing Rosh Hashana, try to go to one of the other recitations for just this week
Recitation Goal: Understanding the Resting Potential

Week 3 (it gets better from here – mostly)
Readings: Chapter 4 (either edition)
In Class Exercise: Conduction Velocity
Sept 23: The Action Potential II  
Readings: Chapter 4, continued (either edition)


Week 4
Sept 28: Basics of Synaptic Transmission  
Readings: Chapter 5

Sept 30: Neurotransmitters and Drugs  
Readings: Chapter 6

Recitation: Sheep Brain Dissection, wear ‘workclothes’

Week 5
Oct 5: Neuroanatomy  
Readings: Chapter 7 in both editions but focus on the first section of the chapter, “Gross organization” and the appendix.

Recitation Goal: Review for Midterm I  
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

Oct 7: Midterm I

PART 2: Sensory and Motor Neuroscience

Week 6
Oct 13: (Tuesday – but officially a “Monday” at NYU):  
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 14: Vision 1, The Eye  
Readings: Chapter 9  
In Class Exercise: The Blindspot

Recitation Goal: Understanding the basics of sensory coding: Transduction, Encoding, Pathways, Topographic Maps and Receptive Fields. People in the Tuesday Recitation are encouraged to
attend one of the other recitations. Both the Monday and Tuesday recitations will meet on Tuesday – if you can make it. Room Location for ‘Tuesday’ to be announced. (Sorry about that, but what choice do we have?)

**Week 7**

Oct 19: Vision 2, Low Level Cortex  
Readings: Chapter 10

Oct 21: 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 8**

Oct 26: 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

Oct 28: The Touch System  
Readings: Chapter 12  
In Class Exercise: Discrimination Thresholds

Recitation Goal: Understanding All General Principles of Sensory Systems

**Week 9**

Nov 2: Movement 1  
Readings: Chapter 13

Nov 4: Movement 2  
Readings: Chapter 14

Recitation Goal: **Review for Midterm II**  
**Exam Covers Oct 13 – Nov 4 Lectures and Readings**  
Note: You are free to attend any recitations you want this week.

**Week 10**

Nov 9: Midterm II  
Part 3: Cognitive Neuroscience
Nov 11: Drugs and the Autonomic Nervous System
Readings: Chapter 15

Week 11

Nov 16: Development in the Nervous System (Paul may be away)
Readings: Chapter 23, also Chapter 7 – the section labeled: Understanding CNS Structure Through Development.

Nov 18: Learning and Memory: Structure and Anatomy
Readings: Chapter 24

Recitation Goal: Understanding Development and Memory

Week 12

Nov 23: Learning and Memory: Molecular Biology
Readings: Chapter 25

Nov 25: TBA

Thursday and Friday are Thanksgiving Break
No Recitations This Week

Week 13

Nov 30: Emotion I
Readings: Chapter 18

Dec 2: Emotion II
Readings: Additional Reading by LeDoux on Website

Recitation Goal: Understanding Emotion and Molecular Memory/LTP!

Week 14

Dec 7: Neurobiology of Language
Readings: Geshwind Article on Website

Dec 9: Neurobiology of Decision
Readings: ‘Tahoe 5’ Article on website

Recitation Goal: Review for Final Exam – Final is Cumulative but stresses CogNeuro
Week 15

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

Dec 21: Final Exam