

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	WAV 366
003: Tuesday	4:55pm-6:10pm	Silver 206
004: Wednesday	4:55pm-6:10pm	Meyer 102
005: Thursday	4:55pm-6:10pm	WAV 369
006: Friday	11:00am-12:15pm	Tisch LC4

TA:

Bas van Opheusden
Bas van Opheusden
Mel Win Khaw
Alex Berardino
Alex Berardino

Graduate Teaching Assistants □

□ Mel Win Khaw (head TA)
mwk247@nyu.edu
(520) 907-5828

Alex Berardino
agb313@nyu.edu
(412) 951-1571

Sebastiaan “Bas” van Opheusden
svo213@nyu.edu

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:
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 17th from 2PM-3:50PM.
122 Meyer

Course Syllabus

PART 1: Cellular and Molecular Foundations of Neuroscience

Week 1

Sept 3: Historical Foundations of Neuroscience
Readings: Chapter 1

No Recitations This Week: **First Week of Classes**

Week 2

Sept 8: The Cells of the Nervous System, Introduction to Potentials
Readings: Chapter 2
In Class Exercise: Flash Cards

Sept 10: The Resting Potential, Introduction to the Action Potential
Readings: Chapter 3
In Class Exercise: Question Sheet

Recitation Goal: Understanding the Resting Potential

Week 3

Sept 15: The Action Potential, The Refractory Period, Conduction Velocity
Readings: Chapter 4
In Class Exercise: Conduction Velocity

Sept 17: The Action Potential II
Readings: Chapter 5

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

Week 4

Sept 22: Basics of Synaptic Transmission

Readings: Chapter 5

Sept 24: Neurotransmitters and Drugs

Readings: Chapter 6

Recitation Goal: **Review for Midterm I**

Exam Covers Sept 3 – Sept 25 Lectures and Readings

Note: You are free to attend any recitations you want this week.

IF YOU ARE OBSERVING ROSH HASHANAH AND ARE IN THE THURSDAY OR FRIDAY RECITATION, PLEASE ATTEND ONE OF THE OTHER RECITATIONS THIS WEEK

Week 5

Sept 29: Midterm I

Oct 1: Neuroanatomy

Readings: Chapter 7

Recitation: **Sheep Brain Dissection, wear ‘workclothes’**

PART 2: Sensory and Motor Neuroscience

Week 6

Oct 6: Chemical Senses, Sensory Transduction, The Function of Sensation.

Readings: Chapter 8

Additional Reading: “The Molecular Logic of Smell” and “Making Sense of Taste”

Scientific American Articles from Website

Oct 8: 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

Week 7

Oct 13: NYU Recess, No Class

Oct 15: Vision 2, Low Level Cortex

Readings: Chapter 10

No Recitations This Week

Week 8

Oct 20: Vision 3, High Level Cortex and Perceptual Experience

Readings: "Vision A Window On Consciousness" Sci Am Article from Website

Oct 22: 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

Oct 27: The Touch System

Readings: Chapter 12

In Class Exercise: Discrimination Thresholds

Oct 29: Movement 1

Readings: Chapter 13

Recitation Goal: Understanding All General Principles of Sensory Systems

Week 10

Nov 3: Movement 2

Readings: Chapter 14

Nov 5: Drugs and the Autonomic Nervous System

Readings: Chapter 15

Recitation Goal: **Review for Midterm II**

Exam Covers Oct 1 – Nov 5 Lectures and Readings

Note: You are free to attend any recitations you want this week.

Week 11

Nov 10: Midterm II

Midterm II, covers Part 2 of Class only. Oct 1 – Nov 5 Lectures and Readings.

Part 3: Cognitive Neuroscience

Nov 13: Development in the Nervous System

Readings: Chapter 23

Recitation Goal: Understanding Development

Week 12

Nov 17: LECTURE CANCELED – NO LECTURE THIS DAY

Nov 19: Learning and Memory: Structure and Anatomy
Readings: Chapter 24

Recitations Wednesday, Thursday and Friday ONLY
Goal: Learning and Memory

Week 13

Nov 24: Learning and Memory: Molecular Biology
Readings: Chapter 25

Nov 26: Emotion I
Readings: Chapter 18

Recitations Monday and Tuesday ONLY
Goal: Learning and Memory

Thursday and Friday are Thanksgiving Break

Week 14

Dec 1: Emotion II
Readings: No Readings

Dec 3: Neurobiology of Language
Readings: Geshwind Article on Website

Recitation Goal: Understanding Emotion and LTP

Week 15

Dec 8: Neurobiology of Decision
Readings: 'Tahoe 5' Article on website

Dec 10: 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 15: Final Exam