

Sheep brain dissection

Readings:

Organization of the nervous system

The main guide that we will use is The Sheep Brain: A Basic Guide

List of sheep brain structures to identify

Other useful guides:

Sheep brain dissection lab

Sheep brain dissection for 9.97

Study Questions:

1. What are the major components of the forebrain?
2. Discuss the members, functions, and major connections of one brain system.
3. In what sense is the nervous system crossed?

Histology

Readings:

Nolte chapter

Histology terms

Study Questions

Handouts: Procedures 1 Procedures 2

Our first lab report will on this laboratory:

How to write a lab report

Sample lab report

Simulation of a simple nervous system: Rhbit program

Readings:

Kandel (1979) Small Systems of Neurons

Rhbit laboratory

Study Questions:

1. What are the mechanisms for habituation in the Aplysia?
2. What are the advantages in studying an animal with a small nervous system?
3. How can you create a neural circuit that produces periodic firing?

Oral presentations

Readings:

How to give a short talk

Tactile sensitive neurons in the Cockroach leg

Readings:

Electrophysiological setup

60 Hz noise

The preamplifier

French (1992) Mechanotransduction

Cockroach lab

Study Questions:

1. What is 60 Hz. interference and how do you get rid of it?
2. What is "total system gain" and how do you calculate it?
3. Briefly describe the mechanoreceptors in the cockroach leg and the process of mechanotransduction.

Compound action potential from the sciatic nerve: simulation and real experiment

Readings:

How do neurons convey information?

The stimulator

Compound action potential lab

Study Questions:

1. What is the electrical polarity of living cells and how is it maintained?
2. What exactly is the compound action potential?
3. What is the refractory period?

Simulated learning - Operant conditioning

Readings:

Study Questions:

1. What is the law of effect?
2. What is the difference between emitted and elicited behaviors?
3. Define positive reinforcement, negative reinforcement, and punishment.

Simulated learning - Classical conditioning

Readings:

Sniffy Chapter 6

Sniffy Chapter 7

Study Questions:

1. Define conditioned stimulus, unconditioned stimulus, unconditioned response, and conditioned response.
2. Define conditioned emotional response