



# Success in NEUROBIOLOGY (BioNB2220)

## *Tips for Achieving Success in Neurobiology (BioNB2220) at Cornell*

### **1. Become an Active Learner.**

Psychologists tell us that both humans and experimental animals learn faster and retain longer memories when they are actively engaged in the learning process compared to being passively exposed to sensory stimulation. For example, when a person passes through a maze of hallways and corridors and is asked to retrace the route, they are much less able to do so if they are moved passively through the maze on a cart compared to being allowed to explore the space on their own. You probably know this from your own personal experiences. If you are riding in the back seat of a car driving through a strange city, you will learn less about the route and landmarks than if you would when you are in the driver's seat making observations and decisions about navigation. Take this simple fact and apply it to your approach to learning at every turn. Make learning an active process, not a passive one and you will learn more, retain it longer, and have more fun.

**Attend lectures, sit forward.** Lectures are essential in this course, so make sure you never miss if at all possible. Lectures are your guide to the text and reading and your insight into the professor's attitude and style. Sit forward in the lecture hall and keep alert in your seat. Avoid areas of the lecture hall where students are sleeping or talking. If you do miss a lecture, make sure to listen to the recording on the course website, and take notes while doing so. Some students find that listening to a lecture a second time is a good way to review material, although it can be time consuming.

In lectures, **practice active note taking.** Note taking is one way of making learning active. Good note taking skills require that you formulate the concepts and ideas in your own words. Avoid simply passively copying what is written on a slide or spoken – you have a recording for that. Instead, listen for the key points and make note of them in your own words. Highlight really important concepts that you know you need to come back to for better understanding. Copying slides takes too much time and does not enhance learning. Avoid it. Also, as you will learn in this course when we discuss learning and memory, your short term memory is actually very poor. It will serve you well for about 5 or 6 concepts. By writing things down you have a hope of making the bridge between short and long term memory. When you go through your notes you will be able to recall details that can be used to reconstruct an argument or a point of logic – at your own pace. This will help you learn permanently. Real learning comes when you take a concept apart and see how all the elements work together. Do it on your own. Do not memorize facts and figures but build a logical framework. Challenge the ideas and ask questions. Become an expert learner in this course and you will be successful here and in other courses. Make it a habit and you will have life long success.

**Seek out and question faculty and staff.** Take the time to attend office hours, review sessions, or other opportunities whenever possible. Ask questions about the material that leaves you confused or unsure. Above all remember, there are NO Stupid Questions! Office hours are listed below.

**Prepare.** Come to class prepared. First, look over the Lecture Outlines, available on the Lecture Course website and make note of the learning objectives for the day. Skim the reading assignment by reading the bold headings in the textbook. Review the main concepts outlined at the end of the assigned chapters. Look at the figures carefully and read the legends. After lecture, read the assigned chapter carefully, paying special attention to the topics that have been emphasized. Try to answer the study questions if there are any in the lecture outlines.

**Mine the textbook for information.** Treat the textbook like an encyclopedia filled with information that can be useful to you, then mine it selectively using the index, the chapter summaries, the table of contents and the assigned pages. Do not think of the text as light reading or a short story. If you are unclear about a given topic, search for related topics, or coverage under different subject entries. Build your understanding out of the mined information you have collected.

**Conceptualize, don't memorize.** In this course you must focus on the concepts in Neurobiology rather than the lists of facts and details. Memorization is comparatively easy for some students, but memorization is often for the short term. Conceptualization is more difficult, but will last longer. Save memorization for your phone number and student ID and password, and use your brain power for the hard work of understanding deeper concepts in neurobiology. Of course, you will need to remember some of the basic facts to work with this subject, but as you build a conceptual framework, the detailed facts will be better supported and they will be easier to remember.

**Formulate hypotheses, and then test them by (book) research.** A scientist proceeds by formulating an hypothesis about the natural world and then testing the hypothesis by performing experiments or additional observations. Use this approach when studying biology. Articulate your ideas on paper, or to others, and then verify that you have it just right by looking for information in the text book, on the course website, or using other resources. When you come to the professor with the statement, "This is what I understand....do I have this right", you are on the right track.

**With a compass and map, learn your route by leading, not following.** When you are navigator and guide, you will learn better, faster, and longer.



## 2. Form a Study Group.

We encourage the formation of small groups of students who regularly study together. Study groups provide students with an opportunity to check their thinking about concepts, to speak out, and to work through difficult terrain with others. Find a group of students with whom you can work well and set aside a regular time for review and discussion. Study group work is active learning, and it works well in other courses.

## 3. Do the practice questions and homework.

Each week, starting on the second week of classes, there will be weekly assignments in this class. First, we will assign practice test questions taken from previous exams in this course. Work through these problems on your own or seek help in office hours but make sure that you work by yourself when you answer the questions. These

assignments are designed to review and extend your understanding of the subject matter of the previous week's lecture material. The assignments are an excellent way for you to practice thinking, talking, and writing about the subject of Neurobiology.

Second, do the weekly assignments for the discussion section even if you are not enrolled in the 4 credit version of the course. We know from experience that the sections are important for learning, memory consolidation, and concept clarification. Take the section for credit if you can; if you cannot, do the homework anyway.

### Come to Faculty Office Hours

Name	Office	E-mail	Tel	Office Hours
<b>Carl D. Hopkins</b> Course Coordinator	W263 Mudd Hall	cdh8	5-2259	Tues. 3-5 PM 263 Mudd Hall
<b>Andrew Bass</b>	W239 Mudd Hall	ahb3	4-4372	Tues. 10:30-12 PM
<b>Ronald Booker</b>	W119 Mudd Hall	rb28	4-4358	Wed. 1:30-3:30 PM
<b>Joseph Fetcho</b>	W103 Mudd Hall	jrf49	4-4341	Mon. 3-5 PM
<b>Ronald Hoy</b>	W215 Mudd Hall	rrh3	4-4318	Mon. & Wed. 10-11 AM
<b>Bruce Johnson</b>	W159 Mudd Hall	bjr1	4-4323	Tues. 10:30-11:30 AM Thurs. for exam
<b>Christiane Linster</b>	W245 Mudd Hall	cl243	4-4331	Appt. only

### Section Instructor Office Hours

Name	Office	E-mail	Tel	Hours
<b>Adam Aterbery</b> Head TA	W211 Mudd Hall	asa27	4-4365	Wed. 1:30-2:30 PM Fri. 1:30-2:30 PM
Sam Dillon	W143 Mudd Hall	tsd29	4-4329	Thurs. 2:35-4:45 PM
Hanna Kim	W123 Mudd Hall	hkk23	4-4345	Mon. 4:40-5:40 PM Tues. 12:30-1:30 PM
John Olthoff	W123 Mudd Hall	jco28	4-4338	Tues. 10:10-11:10 AM (Computational) B250 Comstock Thurs. 4:25-5:25 PM W364 Mudd Hall
<b>Tine Rubow</b> Writing in the Majors	W233 Mudd Hall	tkr6	4-4373	Thurs. 2-4 PM