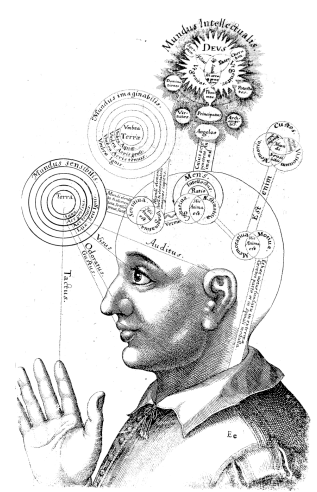


Introductory Neuroscience

“Real-World” Curriculum

Fall 2012 - 3 credits

Monday, Wednesday, & Friday 1:05-1:55 in ES&T L1205



Instructor

Prof. Steve Potter, Ph.D.: steve.potter@bme.gatech.edu; office hours: immediately after class, or by appointment. Office: 3110 Whitaker 404 385-2989

TAs: Amit Parekh <aparekh3@gatech.edu>; Velcho Nanchev <nvelcho3@gatech.edu> office hours by appointment.

Welcome to BMED/BIOL 4752, Introductory Neuroscience! Despite the word "introductory" in the title, this is not an easy class, but it is fun and you will learn a lot. Since this course is an elective, I will assume you are here because you are highly interested and motivated to learn. Drop now if you are not. My philosophy is that *real-world assignments* are much more meaningful, and will serve you better in the future, than memorizing a lot of facts and details that you can easily look up. All of the homework assignments will be preparation for the Big Assignment: writing a Wikipedia article about a neuro topic. There are a lot of homework assignments and a lot of reading, but most students in previous years really enjoyed them, and felt they were well worth the effort. I value in-class discussions and welcome any questions. My motto: **"No question is too dumb to ask."**

Course Objectives

1. Get introduced to the components of the nervous system and how they functionally interact.
2. Appreciate the complexity of higher-order brain functions and begin to understand their biological basis.
3. Synthesize new connections, ideas and approaches about neuroscience research, drawing from examples given in lectures, readings and the textbook.
4. Independently obtain, report, and share with the Real World, in written and oral form, topical neuroscience information.
5. Appreciate neuroscience research in the Real World, and how much we don't know about the nervous system, and learn to be skeptical of what is claimed.

(I am always open-minded to making the course better, so feel free to make suggestions for improvement.)

NOTE!

1. Attendance at each class session and participation in class activities are required. Why? Because the textbook and slides are not a substitute for lecture material. Our class discussions will comprise most of what you will be tested on. Several sessions will be presented by other Special Guest neuroscientists who have donated their valuable time to educate you. Attendance will be taken using Turning Technologies clickers. Make sure you are on time, and know how to use yours. See: <http://www.cetl.gatech.edu/it/clicker/student>
2. Regarding class participation, If you are the quiet type, you must make a *special effort* to contribute by asking questions and bringing up items for discussion. Come see me if you need help on that. I will learn your names and take notes on who has participated. I may call on random people to ask their opinion on something or get them involved in a discussion. Come talk to me if you are uncomfortable with this.
3. Please bring your ResponseCard NXT clicker and spare batteries to **every** class. TurningTechnologies ResponseCard NXT clickers are available at the bookstore. Remove and discard the screw that prevents you from quickly replacing the two AAA batteries (right now!). There will be random short clicker quizzes, usually worth a fraction of one point (unless you are absent or late and miss the quiz, see below). As listed in the

Schedule, there will be special invited experts. Discipline yourself to be on time and awake for these Special Guest speakers, out of respect for the effort they made to come to Tech and educate you.

4. If you have a planned absence, see me in advance to make arrangements. All absences require a written note from your doctor, the Dean, prospective employer, or school you may be visiting **with their phone number**. Please schedule interviews and your travel on weekends or on Tuesdays and Thursdays, if at all possible. **Each unexcused absence will deduct 2 percent from your grade**. If you are late and miss attendance taking, you will be marked absent unless you have an excuse. If you feel you need or deserve unexcused absences, then it is up to you to make up for them up by doing extra credit. An observant teacher noticed, "Education seems to be the one thing people are willing to pay for and not get." I promise to help you make the most of your tuition and fees, but only with your cooperation.

Required Reading

Textbook: Purves, et al.. Neuroscience, 5th Edition, Sinauer Associates, Sunderland, MA.

This textbook is available as an eBook, and as a looseleaf book from Sinauer. <http://www.sinauer.com/detail.php?id=6953> It has a Companion Website: <http://sites.sinauer.com/neuroscience5e/> which includes downloadable Sylvius4 (neuroanatomy study tool, <http://www.sinauer.com/sylvius4/>). Please use the 5th Edition of the book.

You will have to take responsibility for finding what is most important within this large book. Make use of the Table of Contents, Glossary, Index and online materials. All exams will be primarily based on the lectures (and other assignments), and *textbook reading is to support concepts discussed in class or in other readings*. Some chapters will be skipped entirely or mentioned only briefly. You don't need to read every word in the chapters listed in the Schedule. Intelligently select the material you need to read!

Additional required reading will be assigned, including three enjoyable and useful books:

1. "Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School" by John Medina, only \$10.20, less than two Starbucks Venti Frappuccinos. <http://amzn.com/0979777747>
2. "The Brain That Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science" by Norman Doidge, a steal at \$11.32 on Amazon: <http://amzn.com/0143113100> .
3. A neuro book of your own choosing, usually something that will help you write your Wiki article.

Homework Assignments

As part of the Real World Curriculum, I have de-emphasized the midterm and final, and emphasized real-world assignments, because once you are out of school, you may not ever take an exam again, but you will always have "assignments" to do. There will be several homework assignments that will help you create your own Wikipedia article. This Real-World assignment will be the culmination of you becoming an expert on a neuro topic of your choice. The #1 advice former students gave you about this assignment was, "Don't procrastinate. Get started on it early." The lead-up assignments were designed from student feedback to make this easy for you. Choose a topic you are interested in, because you will really get into it. The Neuroscience Portal <http://en.wikipedia.org/wiki/Portal:Neuroscience> is a good place to start looking for a missing page or stub that you will create or fix up. In order to become an expert, you will find and read articles, and interview another expert. As mentioned above, there is also an assignment to get a related neuro book, read it, and write a long and useful review on Amazon.

More details about these assignments will be given in class or by emails from me. All emails will be archived on T-square, and most assignments are submitted via T-square.

Grading

Everyone in class can get the grade they wish to get: you will not be graded on a curve, but based on the total number of points you earn. Let me help you get the grade you want: visit me in office hours if you are having troubles or have a question related to this class.

Midterm Exam	15 points
Final Exam (cumulative)	15 points
Weekly homework assignments & quizzes	45 points total
Wikipedia article assignment	20 points
Class participation	5 points
Total	100 points

Grade

A (90+ points) For an A, your work must be *Excellent* and show that you went above and beyond the requirements of the assignments and demonstrated involvement in the discussions.

B (80-89.9 points) = Good work, did what was expected of you well. Occasionally discussed things.

C (60-79.9 points) = Adequate work, generally did the minimum to complete the assignments.

D (40-59.9 points) = Deficient work and involvement.

F (less than 40 points)= Failed.

Earn the grade you want by **getting help** when you need it, and by asking questions. The TAs will hold online chats on Tsquare before the midterm and final, and I created a Piazza site for you to ask your classmates questions: piazza.com/gatech/fall2012/bmedbiol4752 . There are also numerous opportunities to earn extra credit -- See next page.

Policies

1. No question is too dumb to ask, in class or during office hours. Also, feel free to bring up points for discussion in addition to questions.
2. Respect and adhere to the Georgia Tech Honor Code. Please visit the honor code site to remind yourself what this entails (www.honor.gatech.edu). Your grade should reflect your own work; no collaboration is allowed on homework assignments, exams, quizzes, or any other assignments, or on the reports for Extra Credit, unless approved beforehand by me. With respect to the Wikipedia assignment, all writing must be your own, or its source must be cited. Plagiarism, as defined on the honor code site, is not allowed. Again, group efforts must be pre-approved. Piazza can be used to discuss potential cheating issues anonymously.
3. You must use your Real Name for all online assignments, or a username that is publicly traceable to your real name. This is a lesson in how to be accountable for what you say, which is very important in the science world. If this bothers you, come talk to me at the beginning of the semester.
4. Using another student's Clicker or Responseware account, even for attendance, is a violation of the Honor Code. Violators will be reported to the Office of Student Integrity for disciplinary action.
5. Do what it takes to be alert and awake, and ON TIME. Think about this class before you decide to stay up late; go to sleep early enough that you won't be drowsy the next day. Snoozers and late arrivers will be publicly embarrassed. Get some energy drinks and/or a bicycle if needed. **Consider eating lunch *after* class.**
6. All exams are closed book, no notes (unless it's an on-line quiz on Tsquare).
7. Missed exams and quizzes will result in a zero grade for that item. If you know you will miss an exam, speak with me ahead of time to arrange an alternative. If you are an ADAPTS student with special needs, show me your letter from the ADAPTS office during my office hours at the beginning of the semester.
8. Late assignments will not be accepted. Points will be deducted from assignments and exams for poor English, handwriting that is hard to read, and of course, incorrect answers.

BIOL 4752 and BMED 4752

9. Silence and put away all mobile phones, tablets and laptop computers during class time. I don't want people taking notes on their computers because it is too distracting to you and to those around you. I reserve the right to take points from anyone who uses their gadgets in class, or otherwise disrupts class.

Extra Credit

Throughout the course, I will announce opportunities for you to attend a research seminar or other research presentation, on Tech's campus, at Emory, at Georgia State, or another venue. The Atlanta Chapter of the Society for Neuroscience is a good resource to find out about local talks:

ACSFN.org. Feel free to suggest a talk to me if you hear of one that you think is relevant. Recent online talks may also be suggested. All talks must be about the speaker's own research and be approved by me (Dr. Potter) beforehand and announced to the entire class to be eligible as an extra credit assignment. To receive credit for your attendance at these presentations, you must take notes and use them to write a 1-page report on the presentation within two weeks (not more than 1 page, single-spaced). Include:

- a) Your name, the date of the talk, and where it happened, (and URL if online)
- b) an introduction to the speaker (i.e., their name, department, school, title, etc.),
- c) a description of the major focus of the research (i.e., the research question),
- d) an explanation of the conclusions, how it might relate to what we covered in class, and
- e) a critique (i.e., whether you believe the conclusions, and why or why not).

Each presentation and report can earn you UP TO 1% of the final course grade. You may attend as many lectures as you wish, but submit at *most* 10 write-ups for extra credit.

Feel free to suggest other types of extra credit beside talk write-ups. Some students have done group projects, such as learning experiments, charity walks, or YouTube videos, for example. Everyone has different learning styles. Doing extra credit will allow you to make up for missing a class or not doing well on some test or assignment. You may keep track of how many extra credit points you have earned through the semester by visiting the grade book on Tsquare. All extra credit must be submitted by the end of Wednesday of Finals Week.