



## ***BSCI 353: Principles of Neuroscience***

### ***Summer 2020***

#### Instructor:

**Dr. Dave Sandstrom**

**Office:** Shady Grove IV 4108

**Email:** sandstrd@umd.edu

**Phone:** (301) 738-6167

**Office Hours:** Monday and Wednesday 1 – 2 pm (via Zoom), or by appointment

#### Course Description:

Principles of nervous system function. Topics include molecular and cellular basis of neuron function, sensory and motor systems, development, plasticity and regeneration.

#### Course Objectives:

Upon successfully completing this course, students will be able to:

- Predict the function and behavior of nerve cells based on their biophysical properties.
- Understand how the molecular, cellular, and network properties of sensory systems contribute to the specificity, sensitivity of the senses, and extract environmental features necessary for health and survival.
- Apply knowledge of the how higher brain centers initiate, modulate, and fine-tune the movements generated by motor systems to disease states and artificial systems.
- Understand the molecular mechanisms of nervous system development, experience-dependent change, and the response to injury and disease.

#### Required Resources:

**Textbook:** *Neuroscience, 6<sup>th</sup> Edition*, by Purves *et al.*

ISBN: 978-1-60535-380-7

**Canvas Website:** All documents will be posted here, including:

- Important course announcements
- Copies of lecture presentations
- Panopto recordings of lectures
- Chapter assignments and supplementary reading
- Online quizzes
- Midterm and Final Exams

#### Course Structure

##### **Lectures:**

Available on the Canvas Website. Lectures will be **asynchronous**, so you can consume the material at your own pace. To test comprehension, each lecture will have one or more quiz questions embedded in it.

A detailed schedule of topics for lectures and quizzes, along with chapter assignments, can be found in the document “BSCI353 Lecture Schedule sum2020” on the Canvas page. Because the schedule can

change, due to weather and other unforeseen events, please refer to the Canvas calendar for the most current schedule.

**Quizzes:**

Eleven online quizzes, posted roughly twice per week. Students will have three days to complete a quiz once it is posted. Once started, a quiz must be completed within one hour, with the best of two attempts accepted. Quizzes close at midnight on the due dates, to provide incentive to keep up with the material.

**Exams:**

Four exams (three midterms and a final) will be given on Canvas between 2:00 p.m. and 6:00 p.m. EDT on the scheduled day of the exam. Each midterm exam is expected to be completed in 75 minutes. Exams will remain open for 90 minutes, with a penalty for time taken beyond 75 minutes. The final exam will be open for two hours. Note that exams will close promptly at 6 pm, and cannot be reopened. You will need a desktop or laptop computer (not a phone or tablet) with “LockDown Browser” installed. You will complete your exam like an online quiz, but will not be able to access the internet or your digital materials during the exam. A webcam will not be necessary.

**Study Questions:**

Questions highlighting important topics in the lectures will be posted at the same time as lecture slides. These questions are intended to guide you through the lectures, and answers will not be posted.

**Online Discussions:**

Unless a student explicitly requests a private answer from the professor, questions should be directed to discussions to allow everyone to benefit from the answers.

**Office Hours:**

Office hours will be held via Zoom, twice per week. Unless a participant objects, sessions will be recorded and posted for the benefit of all in the class. Office hours will end after 15 minutes if nobody shows up.

Grading:

**Three midterm exams:** 100 points each

- Cellular Neurobiology
- Sensory Systems
- Motor Systems

**Final Exam:** 100 points

- Development, Plasticity and Regeneration

**Eleven Online Quizzes:** 100 points (Due twice weekly; 10 points each, lowest Score Dropped)

- Quiz 1: Introduction and Cellular Neurobiology 1\*
- Quiz 2: Cellular Neurobiology 2
- Quiz 3: Cellular Neurobiology 3
- Quiz 4: Sensory 1
- Quiz 5: Sensory 2
- Quiz 6: Sensory 3
- Quiz 7: Motor Systems 1
- Quiz 8: Motor Systems 2
- Quiz 9: Development 1

- Quiz 10: Development 2
- Quiz 11: Injury & Repair

**\*Quiz topics may shift due to schedule adjustments**

**Test Quiz for Lockdown Browser: 5 points (extra credit)**

**Questions Embedded in Panopto Lectures: 50 points**

**Total = 550 points**

**Grades are based on raw scores**

A+ = $\geq 97.000\%$	C+ = 77.000-79.999%
A = 93.000-96.999%	C = 73.000-75.999%
A- = 90.000-92.999%	C- = 70.000-72.999%
B+ = 87.000-89.999%	D+ = 67.000-69.999%
B = 83.000-85.999%	D = 63.000-65.999%
B- = 80.000-82.999%	D- = 60.000-62.999%
F = $< 60.000\%$	

**Prerequisites:**

Either BSCI 330 or BSCI 207 (as listed in the UMCP Undergraduate Catalog).

PHYS 122, PHYS 132, PHYS 142, or PHYS 332 (can be taken concurrently)

**Computer Requirements**

You will need a desktop or laptop computer with an up-to-date browser and operating system (capable of opening/creating MS Word/PowerPoint – based documents) on your computer to take this class. Lecture recordings will be posted using the ELMS Panopto feature. Many of the documents in this course will be available to you in PDF form. If you do not have Adobe Acrobat Reader software on your computer, you can download it by going to <http://get.adobe.com/reader/> or via UMD Terpware: <https://terpware.umd.edu/>.

Taking exams will require the Respondus Lockdown Browser. If you need help finding or downloading the software, please contact the IT helpdesk at (301) 405-1500. It is strongly recommended that exams be taken via wired Ethernet connection, rather than through a wireless network, if possible.

Office hours and meetings will be held using Zoom software. Students at the University of Maryland are assigned a Zoom Pro account that also allows them to host Zoom meetings external to ELMS-Canvas.

**Work Missed Because of Absence:**

Absences caused by recognized religious observances or participation in a University activity at the request of University authorities may be excused if Dr. Sandstrom is notified of the conflict **ahead of time**. Absences caused by illness may be excused if a **verifiable** letter from a physician indicating the nature of the illness and the necessity of absence is provided within 3 days of the absence. Refer to the Undergraduate Catalog for a complete description of University policy.

Students who miss a scheduled examination for any of the above reasons should request and will be given the opportunity to take a make-up examination covering the same material. The make-

up examination must be taken within **3 days** of the original exam date. Students must present a valid, documented excuse for missing a scheduled lecture examination. After contacting Dr. Sandstrom, presenting your documentation, and securing his approval, you should plan on taking the make-up exam at the date and location determined by Dr. Sandstrom.

**Note that vacations scheduled during class time are NOT valid excuses for missing an exam or lab.** If you have made plans that would cause you to miss any exam or lab period then you should change these plans or consider dropping the course.

### Regrade policy:

Regrade in this course will be rare. If you feel that a question was graded incorrectly, then you should attach a **neatly written or typed** note to the exam justifying your request and give the exam to Dr. Sandstrom. Regrades must be submitted within **3 days** of the exam being returned to the class. Exams submitted after the deadline will not be considered. Dr. Sandstrom will review the entire exam and either endorse or not endorse the change. Following the review, points may be added or subtracted, or there may be no change in the grade. **Dr. Sandstrom's judgment is final!**

### Academic Integrity

Although most or all of the assessments in this course are unsupervised, all submitted work is expected to be yours alone. The Honor Code states that all students of the University community have been equally entrusted by their peers to conduct themselves honestly on all academic assignments. The students of this college understand that having collective and individual responsibility for the ethical welfare of their peers exemplifies a commitment to the community. Students who submit materials that are the products of their own minds demonstrate respect for themselves and the community in which they study. On your writing assignments, all outside resources or information should be clearly acknowledged. If there is any doubt or question regarding the use and documentation of outside sources for academic assignments, Dr Sandstrom should be consulted. For all assignments, assume that the only person you may consult with is the instructor (and not fellow students), unless told otherwise. For exams, any suspicion of cheating will be treated seriously, and will be forwarded to the Honor Council for consideration immediately and without warning. Any violations of the Honor Code will be handled by the Honor Council. In this class, the standard penalty for cheating is a grade of XF.

All students will be asked to sign the following statement on each examination: "I pledge on my honor that I have not given or received any unauthorized assistance on this examination."

For more information, please review the university policies on academic integrity at the following address:

[www.inform.umd.edu/CampusInfo/Departments/jpo/code\\_acinteg.html](http://www.inform.umd.edu/CampusInfo/Departments/jpo/code_acinteg.html)

### Students with Disabilities:

The University of Maryland is committed to providing appropriate accommodation for students with recognized disabilities. If you have been evaluated by Disability Support Services (DSS) and qualify for specific service, please inform Dr. Sandstrom at the beginning of the semester. If you think that you may qualify for some accommodation but have not yet been evaluated, then

please contact DSS immediately to arrange for a consultation. Students who have not been evaluated by DSS will not be eligible for any alternative arrangement.