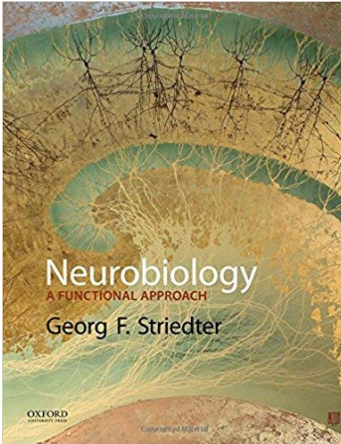


<b>Syllabus: PSY 562-02 Cognitive and Behavioral Neuroscience II, Fall 2018</b>
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**We 4:00 - 6:50, Psych A-256**

**Professor: Turhan Canli, Ph.D.**

Office: Psychology B 214

Office hours: Mo, We 1-2:30

e-mail: turhan.canli@stonybrook.edu

### **COURSE DESCRIPTION:**

Welcome! This is the second part of a 2-part series in Cognitive and Behavioral Neuroscience, based on Striedter's textbook on Neurobiology. In this part, we will cover the foundations of Integrative Neuroscience, starting with the molecular basis of the resting and action potentials, and covering the organization, development, and protection of the brain, sensory processing and muscle functions. Wherever appropriate, I will add material that is relevant to clinical or other functional implications of the learned material. We will also discuss the primary literature, with students' assigned presentations of selected papers.

#### Required Reading

Striedter, Georg F. (2016). *Neurobiology - A Functional Approach*. Oxford University Press.

### **COURSE LEARNING OBJECTIVES:**

1. Gaining an understanding of the foundations of neurobiology.
2. Developing critical and scientific thinking skills through discussion of research methods and the primary literature.
3. Creative Problem-solving through essay exam questions.

### **COURSE REQUIREMENTS:**

#### **ACTIVE PARTICIPATION:**

This course will feature 2 key components of active participation:

##### Journal Club

In "journal club" you will be assigned to present and discuss some part of a peer-reviewed primary research article. Usually, you will work with a group of 2-3 other students to present the paper. You can expect that everyone else will have read the paper, too, and **you will be expected to prepare discussion questions for the class. This may require additional background reading to have a better understanding of the larger context of the study!**

##### NIH Talks

The NIH had an incredible library of recorded talks by the leading scientists in their respective fields. These are full-lengths seminar presentations. I will use this library to get you socialized to attending and participating in research seminars, which will become a critical part of your scientific professional skillset. In that spirit, we won't just passively watch these videos. Instead,

***I will assign background reading that I expect you all to do prior to class. We will pause the talk and I will ask you to bring up questions that you would ask the NIH presenter, and discuss these questions with you, based on your background reading. So these NIH talks will be very active experiences, to help you get comfortable asking questions in real-life seminars.***

### **GRADING:**

#### **4 Take-home exams**

All exams will be take-home. You are allowed to collaborate with others in answering the questions. The last exam will be given out on the day of the final exam, but will follow the same format as all other quizzes and have as much weight as the others. Each quiz covers the material since the previous one.

Exams will contain multiple-choice, true/false, and short answer questions, as well as more in-depth essay questions, based on the textbook, assigned additional readings, NIH video lectures, and group discussions. Each exam will be scored to earn a maximum grade of 100%, plus 5% extra credit, for a total max score of 105%.

**If you have a known conflict ahead of an exam date (e.g. conference attendance), or a sudden medical emergency (with documentation), I will work with you to come up with an alternative exam date. For other reasons, as a general rule, alternative scheduling of exams will always be in compliance with SUNY SB's policy for university events.**

*Assignment of Letter Grades, based on the average % score of 4 take-home exams (with extra-credit, the max possible average score is 105%).*

<u>% score</u>	<u>Letter grade</u>
> 92	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
< 63	F

#### **Verbal Participation**

Verbal participation is expected for everyone and reflected in assigned presentations of research articles and participation in class discussions. In the case of exceptional high levels and quality of participation, I reserve the right to raise your final grade by 1/3, relative to your arithmetic exam average. In the case of exceptionally poor levels and quality of participation, I reserve the right to lower your grade by 1/3, relative to your arithmetic exam average.

### **CLASS PROTOCOL:**

#### **Class interruptions**

Stony Brook University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people.

**CLASS RESOURCES:**Blackboard

**Course documents and important announcements will be posted on the Blackboard site for the class.** Lecture slides will be available on-line before class, if possible. These are not meant as a substitute for class attendance but to assist students who do come to class to follow along with lectures. I recommend that you print the slides in a “notes” format with 3 slides per page and add your own notes during lecture. Due to time constraints, student questions, and last minute changes, material discussed in class may deviate somewhat from the posted slides. You can access class information on-line at: <http://blackboard.sunysb.edu>. If you have used Blackboard in the past, your login information (Username and Password) has not changed. If you have never used Stony Brook's Blackboard system, your initial password is your SOLAR ID# and your username is the same as your Stony Brook username, which is generally your first initial and the first 7 letters of your last name. For help or more information see: <http://www.sinc.sunysb.edu/helpdesk/docs/blackboard/bbstudent.php>  
For problems logging in, go to the helpdesk in the Main Library SINC Site or the Union SINC Site, you can also call: 631-632-9602 or e-mail: [helpme@ic.sunysb.edu](mailto:helpme@ic.sunysb.edu)

Writing Center

What They Do: Assist students with writing essays and class responses  
Location: Humanities Building, Room 2009  
Website: [http://www.stonybrook.edu/commcms/writrhet/writing\\_center/writing.html](http://www.stonybrook.edu/commcms/writrhet/writing_center/writing.html)

Career Center

Career Center 632-6810 Melville Library W0550  
<http://www.career.sunysb.edu>  
Career planning plays an integral role in the academic planning process for all students. From providing guidance on how to write a résumé to helping you narrow down your career choice, to finding internships, the Career Center's services are here to help you succeed.

Pre-Health and Pre-Law Advising Services

What They Do: Advising student regarding Pre-Health and Pre-Law Advising Services  
Location: Melville Library, Room E3310  
Pre-Health Website: <http://studentaffairs.stonybrook.edu/prehealth/>  
Pre-Law Website: <http://studentaffairs.stonybrook.edu/prelaw/>

Others

<http://stonybrook.edu/aadvising/tut.html>  
**DISABILITY SUPPORT SERVICES (DSS):**

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities>.

**ACADEMIC INTEGRITY:**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong.

Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

### **CRITICAL INCIDENT MANAGEMENT:**

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

### **RESPONSIBILITIES IN THE CLASSROOM (AS PER UNIVERSITY POLICY):**

Students are expected to:

- attend class regularly unless other arrangements are made;
- arrive for class on time and leave the classroom only at the end of class;
- engage in class discussions and activities when appropriate;
- exhibit classroom behavior that is not disruptive of the learning environment;
- secure in a closed container (and not, for example, wear on a belt or around the neck) and turn off (and not, for example, simply set to vibration mode) electronic communication devices, including cellular phones, beepers, speakers, and headphones during an examination.

### **COURSE RESPONSIBILITIES (AS PER UNIVERSITY POLICY):**

Students are expected to:

- observe the requirements for the course and consult with the instructor if prerequisites are lacking;
- obtain and understand the course syllabus;
- keep up with the coursework and take all scheduled examinations;
- address any conflicts in syllabus and exam scheduling with the instructor as soon as possible;
- review all graded material and seek help if necessary;
- as soon as possible notify the instructor of any disabilities that might interfere with completion of course work;
- fairly and thoughtfully complete the course evaluation form.

### **ATHLETES:**

Athletes who will need accommodation for exams occurring while they are on the road or who may miss "Check Your Progress" questions due to absences from class, please also see me during the first 2 weeks of the semester with documentation of their status as athletes and their playing schedule.

**FOREIGN SPEAKERS:**

If you are not a native English speaker, you must obtain my permission to use a paper dictionary during exams. We reserve the right to examine your dictionary during the exam. No electronic dictionaries will be allowed under any circumstances.

**COURSE EVALUATIONS**

Stony Brook University values student feedback in maintaining the high quality education it provides and is committed to the course evaluation process, which includes a mid-semester assessment as well as an end-of-the-semester assessment, giving students a chance to provide information and feedback to an instructor which allows for development and improvement of courses. Please click the following link to access the course evaluation system: <http://stonybrook.campuslabs.com/courseeval/>

## COURSE SCHEDULE

<u>Day</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>
We	8/29	Regulating Bodily Functions NIH talk (John F. Cryan, Univ College Cork, Ireland): <a href="https://videocast.nih.gov/Summary.asp?Live=17162&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=17162&amp;bhcp=1</a> Readings: Kleinridder Diabetes 2014	Ch. 9
We	9/5	Tiedemann Nat Communicat 2017 Posture and Locomotion NIH talk (2018, Peter Strick, U Pittsburgh): <a href="https://videocast.nih.gov/Summary.asp?Live=24873&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=24873&amp;bhcp=1</a> Readings: Coffman PNAS 2011 and Strata Debate Marien Cerebellum 2014 Guell Neuroimage 2018	Ch. 10
We	9/12	<b>No Class: Take-home Exam 1</b>	
We	9/19	Localizing Stimuli and Orienting in Space Peyrache NatComm 2017 Special Issue Nat Neurosci Oct 2017: Cullen Multiple others in the same issue	Ch. 11
We	9/26	Identifying Stimuli and Orienting in Space NIH talk (Marlene Behrmann, Carnegie Mellon) <a href="https://videocast.nih.gov/Summary.asp?Live=19808&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=19808&amp;bhcp=1</a> Readings: Deny Nat Comm 2017 Beaman Nat Comm 2017 Robertson Nat Rev Neurosci 2017	Ch. 12
We	10/3	<b>No Class: Take-home Exam 2</b>	
We	10/10	Regulating Brain States Readings: Gent Nat Neurosci 2018 Andrillon Nat Comm 2017	Ch. 13
We	10/17	Remembering Relationships NIH talk (Wendy Suzuki, NYU): <a href="https://videocast.nih.gov/Summary.asp?Live=21493&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=21493&amp;bhcp=1</a> Readings: Eichenbaum Nat Rev Neurosci 2014 Eichenbaum Hippocampus 2016 Eichenbaum Neuron 2017	Ch. 14
We	10/24	Entrhinal cortex Nature Neuroscience papers by Julian et al. <sup>1</sup> and Nau et al. <sup>2</sup> b	
We	10/31	<b>No Class: Take-home Exam 3</b> Actions and Goals NIH talk (Bruno Averbeck, NIH): <a href="https://videocast.nih.gov/Summary.asp?Live=26527&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=26527&amp;bhcp=1</a> or Anatol Kreitzer (NIH): <a href="https://videocast.nih.gov/Summary.asp?Live=14817&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=14817&amp;bhcp=1</a> Readings: Shin NatComm 2018	Ch. 15

		Nutt Nat Rev Neurosci 2015	
		Darcq Nat Rev Neurosci 2018	
		Berke Nat Neurosci 2018	
We	11/7	<b>No class: SfN</b>	
We	11/14	SfN Highlight “Roundup”	
We	11/21	<b>No class: Thanksgiving</b>	
We	11/28	Being Different	Ch. 16
		NIH talk (Frances Champagne, NYU)	
		<a href="https://videocast.nih.gov/Summary.asp?Live=10073&amp;bhcp=1">https://videocast.nih.gov/Summary.asp?Live=10073&amp;bhcp=1</a>	
		Readings:	
		Greene Nat Comm 2018	
		Somel Nat Rev Neurosci 2013	
		Vermunt Nat Neurosci 2015	
We	12/5	<b>Take-home Exam 4</b>	

**Withdrawal.** The last day to withdraw from the course without a “W” being recorded on your transcript is **9/10**. Last day to drop a course (with a W appearing on your transcript instead of a grade) is **10/26**. **I RESERVE THE RIGHT TO ALTER ANY ASPECT OF THIS SYLLABUS AT MY DISCRETION.**