
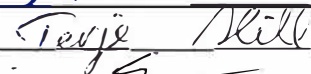
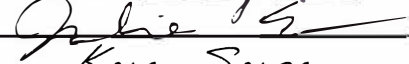


 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>COURSE CHANGE REQUEST</b> <b>Undergraduate Programs</b>		UUPC Approval <u>11-03-25</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department <u>N/A</u> College <u>Wilkes Honors College</u>		
<b>Current Course Prefix and Number</b> <u>PCB 4841</u>		<b>Current Course Title</b> <u>Honors Cellular Neuroscience</u>	
Syllabus must be attached for <b>ANY</b> changes to current course details. See <u>Template</u> . Please consult and list departments that may be affected by the changes; attach documentation.			
<b>Change title to:</b>  <b>Change prefix</b> <b>From:</b> <b>To:</b> <b>Change course number</b> <b>From:</b> <b>To:</b> <b>Change credits*</b> <b>From:</b> <b>To:</b> <b>Change grading</b> <b>From:</b> <b>To:</b> <b>Change WAC/Gordon Rule status**</b> Add <input type="checkbox"/> Remove <input type="checkbox"/> <b>Change General Education Requirements***</b> Add <input type="checkbox"/> Remove <input type="checkbox"/> <small>*See <u>Definition of a Credit Hour</u>.</small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See <u>WAC Guidelines</u>.</small> <small>***GE criteria must be indicated in syllabus and approval attached to this form. See <u>Intellectual Foundations Guidelines</u>.</small>		<b>Change description to:</b>     <b>Change prerequisites/minimum grades to:</b> <u>PCB 3063 Honors Genetics or PCB 3840 Honors Intro to Neuroscience with a minimum grade of "C".</u> <u>(adding new course as prereq.)</u>  <b>Change corequisites to:</b>     <b>Change registration controls to:</b>   <small>Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).</small>	
<b>Effective Term/Year for Changes:</b>		<b>Terminate course? Effective Term/Year for Termination:</b>	
<b>Effective Term/Year</b> <u>Summer 2026</u>			
Faculty Contact/Email/Phone <u>Casey Spencer/Cspenc27@fau.edu/5617998555</u>			
<b>Approved by</b> Department Chair <u></u> College Curriculum Chair <u></u> College Dean <u></u> UUPC Chair <u></u> Undergraduate Studies Dean <u></u> UFS President _____ Provost _____		<b>Date</b> <u>10/29/25</u> <u>10-24-2025</u> <u>10/24/25</u> <u>11-03-25</u> <u>11-03-25</u> _____ _____	

Email this form and syllabus to [mjenning@fau.edu](mailto:mjenning@fau.edu) seven business days before the UUPC meeting.

**PCB 4841 CRN-x**  
**Honors Cellular Neuroscience**

T/Th 12:30-1:50pm; AD 202

3 credits

Spring 2026

Instructor: Dr. Casey Spencer

Email: [Cspenc27@fau.edu](mailto:Cspenc27@fau.edu)

Office hours: SR 247, T/Th- 8-9am, 2-3pm

**Course description**

This course is designed for upper-level undergraduates looking to further expand upon their understanding of the cellular mechanisms that make up the nervous system. This course will use a combination of the textbook (From Neuron to Brain, 6<sup>th</sup> Edition, A. Robert Martin), assigned scientific literature, and a neurophysiology modeling/simulation software (NeuroSim5). We will explore the cells that make up the nervous system, the unique properties neurons possess, how neurons communicate, integrate signaling and more. The simulation software will be used in class and “experiments” will be performed and used as a discussion to offer students an alternate learning tool. Students will complete a brief in-class scientific presentation and write a review paper on a topic of choice at the end of the semester.

**Note of Honors Distinction**

This course differs substantially from a non-Honors version. First, and most importantly, the course is an agreement between the student and instructor that they will work together collaboratively to ensure a significantly enriched learning experience in a manner consistent with other Honors-designated courses at FAU. This means the course will produce substantive work that reflects interdisciplinarity and connections among academic fields, research and direct access to sources of knowledge pertinent to the field, leadership, creative and critical thinking, and engagement with the world outside the university. Secondly, the writing component of the course will be much more demanding and will prepare students for upper-division college writing and for work on the Honors Thesis.

**Instructional Method**

In-Person. There is no remote option for this course.

Anything covered on this syllabus is subject to change and that changes will be announced through Canvas. Enable all notifications in Canvas so you receive announcements related to this course. Students are also required to check their FAU e-mail regularly. If you have any technical issues or questions about Canvas or other technical issues, be sure to contact OIT (<http://www.fau.edu/oit/index.php>). The instructor cannot provide tech support.

PowerPoints and other readings will be posted to Canvas.

Please note that in the unlikely event that a portion of the course must temporarily be moved online (for example, if the instructor is isolating/quarantined and temporarily cannot teach in person or if changes are mandated by the university), Zoom would be used as the videoconferencing tool for the course. As such, students should have a computer and reliable internet access to access materials in Canvas (and Zoom if needed).

### **Prerequisites**

PCB 3063 (Honors Genetics) or PCB 3840 (Honors Intro to Neuroscience)

### **Course Objectives**

In this course, students will:

- Learn different neuron types, morphologies, and cell components.
- Learn about cell types that support neurons (glia) and their many roles.
- Understand the unique properties neurons possess and how signaling is integrated.
- Understand how neurons develop, degenerate, regenerate, and repair.
- Use a neurophysiology simulation software (NeuroSim5) to further develop an understanding of the role ions, channels, receptors, and ligands have in the electrical/chemical cascades necessary for neuronal function.
- Use primary studies and literature reviews to complete an assessment of a topic covered during the semester and communicate it to the class to further develop scientific communication skills.

### **Grading-**

3 exams:	100 points each
Review paper:	50 points
Presentation:	50 points
In-class discussions (extra credit):	(up to 20 points)
Final exam:	100 points
<b>Total:</b>	<b>500 points</b>

### **GRADING SCALE:**

Grade	Percentage (%)
A	>93%
A-	>90% - 93%
B+	>87% - 90%
B	>83% - 87%

B-	>80% - 83%
C+	>77% - 80%
C	>73% - 77%
C-	>70% - 73%
D+	>67% - 70%
D	>63% - 67%
D-	>60% - 63%
F	<60%

## Policy on Makeup Tests, Late Work, and Incompletes

Make-up exams or research discussion activities will be given only if the student contacts the instructor either before the exam or discussion activity or within 48 hours after the exam or discussion activity and arranges to provide appropriate documentation (such as a doctor's note, e-mail advisory from Student Health, a walk-in clinic, etc. to isolate, etc.). **DO NOT COME TO CLASS** if you are feeling ill. You have the opportunity contact student health, go to a walk-in clinic (there are two right near campus) or other doctor's office, and/or schedule a telehealth appointment with SHS or another clinic if you feel ill and need documentation, so there are many options available to you to get appropriate documentation. If you miss a lecture due to illness, the class materials will be posted to Canvas, and I'd be happy to discuss the material with you by appointment during office hours if you have questions about what you missed.

**Please remember that even though the clinic on the Jupiter campus is only open a few days per week, you can call the MAIN SHS number 561-297-3512 during business hours on weekdays for assistance or to request a telehealth appointment.**

**Please contact the instructor if you have questions or concerns about your specific situation.** If a conflict (such as a medical school interview) is known in advance, please contact your instructor immediately with a written excuse, and alternate plans may be arranged. Reasonable accommodation will be made for students participating in a religious observance. Please note that scheduled vacations are not a valid reason for an excused absence. If a student is unable to complete the required coursework for health or family reasons, an 'incomplete' may be issued for the course following approval. Note that an incomplete cannot be given to students who have less than a C- in the course.

The University policy states that a student who is passing a course but has not completed all work due to exceptional circumstances, may, with consent of the instructor, temporarily receive a grade of incomplete ("I"). The assignment of the "I" grade is at the discretion of the instructor but is allowed only if the student is passing the course with a C- or better.

## Classroom Etiquette Policy

Disruptive behavior is defined in the FAU Student Code of Conduct as “... activities which interfere with the educational mission within classroom.” Students who disrupt the educational experiences of other students and/or the instructor’s course objectives in a face-to-face or online course are subject to disciplinary action. Such behavior impedes students’ ability to learn or an instructor’s ability to teach. Disruptive behavior may include but is not limited to non-approved use of electronic devices (including cellular telephones); cursing or shouting at others in such a way as to be disruptive; or, other violations of an instructor’s expectations for classroom and online conduct.

For more information, please see the [FAU Office of Student Conduct](#).

## Policy on the Recording of Lectures

Students enrolled in this course may record video or audio of class lectures *for their own personal educational use*. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. *Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University’s Student Code of Conduct and/or the Code of Academic Integrity.*

## AI Prohibited Policy:

**The use of AI to assist in any work assigned in this specific course is prohibited.**

## AI Policy

FAU recognizes the value of generative AI in facilitating learning. However, output generated by artificial intelligence (AI), such as written words, computations, code, artwork, images, music, etc., for example, is drawn from previously published materials and is not your own original work. FAU students are not permitted to use AI for any course work unless explicitly allowed to do so by the instructor of the class for a specific assignment.

Class policies related to AI use are decided by the individual faculty. Some faculty may permit the use of AI in some assignments but not others, and some faculty may prohibit the use of AI in their course entirely. In the case that an instructor permits the use of AI for some assignments, the assignment instructions will indicate when and how the use of AI is permitted in that specific assignment. It is the student’s responsibility to comply with the instructor’s expectations for each assignment in each course. When AI is authorized, the student is also responsible and accountable for the content of the work. AI may generate inaccurate, false, or exaggerated

information. Users should approach any generated content with skepticism and review any information generated by AI before using generated content as-is.

If you are unclear about whether or not the use of AI is permitted, ask your instructor before starting the assignment.

Failure to comply with the requirements related to the use of AI may constitute a violation of the Florida Atlantic Code of Academic Integrity, Regulation 4.001.

## **Attendance Policy**

*Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.*

## **Counseling and Psychological Services (CAPS) Center**

*Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>*

## **Disability Policy**

*In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at [www.fau.edu/sas/](http://www.fau.edu/sas/).*

## **Code of Academic Integrity**

*Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it*

*interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).*

Plagiarism is unacceptable in the University community. Academic work must be an original work of your own thought, research, or self-expression. When students borrow ideas, wording, or organization from another source, they must acknowledge that fact in an appropriate manner. Plagiarism is the deliberate use and appropriation of another's work without identifying the source and trying to pass off such work as one's own. Any student who fails to give full credit for ideas or materials taken from another has plagiarized. If in doubt, cite your source.

Wilkes Honors College Honor Code: All students agree to adhere to the honors code, available online at: <http://www.fau.edu/honors/academics/honor-code.php>

## **Required Texts/Readings**

### ***From Neuron to Brain 6<sup>th</sup> Edition***

Author(s): A. Robert Martin; David A. Brown; Mathew E. Diamond; Antonino Cattaneo; Francisco F. De-Miguel

Publisher: Sinauer Associates is an imprint of Oxford University Press

ISBNs- 1605359335, VENX0YKM7X, 9780197533635, 9781605359335, 9781605354392

Powerpoint slides and additional materials, such as activities, review sheets, and research articles will be posted to Canvas. A “Resources” module will contain helpful material including resources to support students, and as the semester progresses, it will be updated with information on scholarships, research, scientific lectures, and other professional development opportunities. I will review the use of Canvas and expectations for the course with you during the first day of class.

## **Time Commitment per Credit Hour**

This course has 3 credit hours. For traditionally delivered courses, one (1) hour of classroom or direct faculty instruction each week for fifteen (15) weeks per Fall or Spring semester, and a minimum of two (2) hours of out-of-class student work per week (including reading and studying) is expected *for each credit hour*. Equivalent time and effort are required for Summer Semesters, which usually have a shortened time frame. Fully Online courses, hybrid, shortened, intensive format courses, and other non-traditional modes of delivery will demonstrate equivalent time and effort.

## **Course Communication Policy**

### **EXPECTATIONS FOR STUDENTS**

Announcements/e-mail

You are responsible for reading all announcements and e-mails sent by the instructor. Check the course announcements each time you log in. You are responsible for reading all your course email and responding in a timely manner. Be sure to set up notifications in Canvas so that you receive all notifications for the course. Students should use check their FAU e-mail regularly and use that e-mail address when communicating with the instructor. **Always use your FAU e-mail account or Canvas to e-mail me – do not use other accounts, such as your personal g-mail account.**

### Electronic Communication Policy

In addition to the University's policy, please consider the following:

- Privacy, confidentiality, and security in all electronic communications.
- All electronic communication resources must be used for the course and in alignment with to the University mission.
- Prohibited use of false identity, false identity pseudonyms, or anonymous (sender's name or electronic identification is hidden).
- Access without consent, disruption of services including introducing computer contaminants (viruses), and harassment of any kind are prohibited

Please see the Office of Information Technology's policies on Cyber Security Awareness.

**Office hours:** See the first page of the syllabus for office hours. I encourage students to see me during office hours with any questions or concerns. Appointments are strongly recommended. If your class schedule prevents you from meeting during my posted office hours, let me know, and I will do my best to work something out.

### Course-Related Questions

Questions are welcomed! In addition to asking questions in class, you may also e-mail me at [cspenc27@fau.edu](mailto:cspenc27@fau.edu) or come to office hours with questions. Except weekends and holidays, the instructor will generally answer questions within 48 hours. Please don't hesitate to reach out to me - I'm here to help!

## Course Topical Outline

### Honors Cellular Neuroscience



Textbook: **From Neuron to Brain 6<sup>th</sup> Edition, A. Robert Martin**

Course Outline

\*This outline is subject to change by the instructor and will be updated accordingly during the semester\*

Tuesday, Jan 7	Introduction and overview	Syllabus, Pre-semester assessment
Thursday, Jan 9	Principles of signaling and organization	Ch 1
Tuesday, Jan 14	Ion channels and signaling	Ch 4
Thursday, Jan 16	Structure of ion channels	Ch 5
Tuesday, Jan 21	Ionic basis of the resting potential	Ch 6, NeuroSim5 experiments
Thursday, Jan 23	Ionic basis of the action potential	Ch 7, NeuroSim5 experiments
Tuesday, Jan 28	Exam 1 review	
Thursday, Jan 30	Exam 1	Covers Ch 1, 4, 5, 6, 7
Tuesday, Feb 4	Electrical signaling in neurons (Dr. Ceballos)	Ch 8
Thursday, Feb 6	Ion transport across cell membranes	Ch 9
Tuesday, Feb 11	Neuroglia	Ch 10, assigned reading
Thursday, Feb 13	Mechanisms of direct synaptic transmission	Ch 11
Tuesday, Feb 18	Indirect mechanisms of synaptic transmission	Ch 12
Thursday, Feb 20	Transmitter release	Ch 13
Tuesday, Feb 25	Exam 2 review	
Thursday, Feb 27	Exam 2	Covers Ch 8, 9, 10, 11, 12, 13
March 4 <sup>th</sup> and 6 <sup>th</sup>	Spring Break, No class	
Tuesday, March 11	Transmitters in the CNS	Ch 14
Thursday, March 13	Transmitter synthesis, storage, transport, and inactivation	Ch 15
Tuesday, March 18	Synaptic Plasticity	Ch 16, 17
Thursday, March 20	Synaptic Plasticity Discussion	Assigned literature

Tuesday, March 25	Exam 3 review	
Thursday, March 27	Exam 3	Covers Ch 14, 15, 16, 17, literature
Tuesday, April 1	Sensory Transduction	Ch 21
Thursday, April 3	Regeneration and repair of synaptic connections after injury	Ch 29
Tuesday, April 8	Degeneration and Disease	Assigned literature
Thursday, April 10	Presentations	
Tuesday, April 15	Presentations	
Thursday, April 17	Presentations	
Tuesday, April 22	No class (reading day) <b>Optional Zoom review for final exam during normal class time</b>	Email link will be sent via email
Thursday, April 24	<b>Exam 4 (Final exam)</b> <b>10:30am-1:00pm</b> *Note different time, but same classroom*	Cumulative