FLORIDA ATLANTIC UNIVERSITY

# COURSE CHANGE REQUEST
## Graduate Programs

**Department** Psychology

**College** Science

UGPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

| ***Current* Course Prefix and Number** | ***Current* Course Title** |
|---|---|
| PSB 6345 | Neuroscience 1 |

*Syllabus must be attached for **ANY** changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.*

**Change title to:**
Cellular and Molecular Neuroscience

**Change prefix**
**From:** **To:**

**Change course number**
**From:** **To:**

**Change credits***
**From:** **To:**

**Change grading**
**From:** **To:**

*Review Provost Memorandum

**Change description to:**
This is a graduate course in Neuroscience that covers the structure and function of neurons and glial cells including electrophysiology, neurotransmitter systems, and synaptic function/plasticity. It is given in conjunction with Systems and Integrative Neuroscience (PSB 6346).

**Change prerequisites/minimum grades to:**
none

**Change corequisites to:**
none

**Change registration controls to:**
none

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.

| **Effective Term/Year for Changes:** | **Terminate course? Effective Term/Year for Termination:** |
|---|---|
| Fall, 2021 | |

**Faculty Contact/Email/Phone** Robert Vertes, rvertes@fau.edu, 7-2362

| ***Approved by*** | ***Date*** |
|---|---|
| Department Chair: Robin Vallacher | |
| College Curriculum Chair: Christopher Beetle Date: 2021.03.05 13:21:27 -05'00' | |
| College Dean: William David Kalie | 03/09/21 |
| UGPC Chair: | |
| UGC Chair: | |
| Graduate College Dean: | |
| UFS President: | |
| Provost: | |

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

# Course Title: CELLULAR AND MOLECULAR NEUROSCIENCE, PSB 6345 (3 credits)

**Logistics:** **Fall Semester, 2019**
**Class will be given remotely online via Webex**
**Tues & Thurs 11:00 AM-12:20 PM**

***Course Coordinator/Instructor of Record (Office Hours via remotely)***
Dr. Robert P. Vertes, Behavioral Science 521, 7-2362; rvertes@fau.edu (Tues & Thurs 9:30-10:30 AM)

## ***Required Course Materials for distance learning:***

- **Instructional Method: Online, live lecture via Canvas-Zoom. Attendance Required and Graded**

**Requirements:** computer, webcam with microphone, Respondus LockDown Browser and Respondus Monitor (for exam proctoring).

More on tools for online classes and proctoring: https://www.fau.edu/keep-learning/proctoring/

***Course Description:*** This course is intended for Graduate Students and is the first of a two-part core sequence (6 credits total), which together provide in-depth coverage of the principles of neuroscience. Neuroscience 1 topics include neural cell and molecular biology, genetics of behavior, fundamentals of electrical and chemical signaling of neurons, post-synaptic mechanisms, neural development and synaptic plasticity. Interested undergraduates should consult instructors.

***Course Objectives:*** This foundation course prepares the graduate student for courses that are more intensive and for training in brain science. Neuroscience is a vast discipline; the topics to be covered are extensive, and so we will not be able to cover them all in great depth in class. However, as a graduate student you are expected to complete all of the assigned readings provided as well as research additional material as necessary to achieve a mastery of the subject matter. We recommend reading textbook chapters before class. The course will follow a lecture format with in-class discussion of the topics presented. Questions and discussion are actively encouraged.

***Required Text:*** Kandel, Schwartz, Jessell et al. (2013) *Principles of Neural Science*, 5th edition, McGraw-Hill Co, (**KSJ**)

***Readings for In-class Discussions:*** Readings will also be assigned from the primary literature to reinforce topics covered in lecture. Each paper will be discussed in class on the respective date indicated on the schedule. You are expected to read each paper and then be prepared to discuss it in class. There will also be exam questions based on these readings.

***Course Evaluation Method:*** Course grade will be based on (i) three equally weighted (30% each) exams; (ii) participation in class discussions of readings (5%); and (iii) attendance (5%). The exams will be comprised of multiple-choice and short essay style questions to test your understanding of course topics. **Exams will be based on material from lecture and assigned readings.** No extra credit will be given. As a graduate course, final grades fall on a scale of A – C, with a grade of C representing insufficient mastery of the material. An incomplete grade (I) will not be given in lieu of a grade of C.

***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 campuses – in Boca Raton, SU 113 (561-297-3880); in Davie, MOD (954-236-1222); and in Jupiter, SR 117 (561-799-8585); however, disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/

***Code of Academic Integrity Policy:*** 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. If your college has particular policies relating to

cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.

***Reasonable Accommodation for Makeups:*** Reasonable accommodation will be made for students participating in a religious observance or in University-approved activities, including athletic or scholastics teams, musical and theatrical performances and debate activities. Unjustifiable reasons for missing an exam, or in-class paper discussion, will result in zero points for the exam missed, or zero points for the respective journal article discussion. Appropriate documentation must be presented for justifiable absence from an exam.

***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/

***Credit Hour Definition:*** This course involves 50 minutes of in class instruction for each credit hour per week, and a minimum of two hours of out of class assignments each week for 15 weeks.

## *Course Schedule / Assigned Readings:*

The following topics will be covered; however, we may spend more time on one than another.

| | |
|---|---|
| 08-25 (T): | Course Overview -- Varela |
| 08-27 (R): | Historical perspective and neural basis of behavior (KSJ: 1) -- Varela |
| 09-01 (T): | Cellular & molecular basis of the nervous system (KSJ: 2, 4) – Varela |
| 09-03 (R): | Cellular & molecular basis of the nervous system (KSJ: 2, 4) -- Varela |
| 09-08 (T): | Neurons and glia (KSJ: 4) – Quan |
| 09-10 (R): | Neurons and glia (KSJ: 4) – Quan |
| 09-15 (T): | Ion channel structure/function (KSJ: 5) – Varela |
| 09-17 (R) | Membrane potential, passive properties (KSJ: 6) – Vertes |
| 09-22 (T) | Membrane potential (KSJ: 6) -- Vertes |
| **09-24 (T)** | **Exam 1** |
| 09-29 (T) | Action potential (KSJ: 7) – Vertes |
| 10-01 (R) | Action potential (KSJ: 7) – Vertes |
| 10-06 (T): | Action potential, conduction (KSJ: 6) – Vertes |
| 10-08 (R): | Overview of synaptic transmission (KSJ: 8) – Zhang |
| 10-13 (T) | Overview of synaptic transmission (KSJ: 8) – Zhang |
| 10-15 (R) | Neuromuscular junction (KSJ: 9) – Vertes |
| 10-20 (T) | Neuromuscular junction (KSJ: 9) – Vertes |
| 10-22 (R) | Central synapses (KSJ: 10) – Vertes |
| 10-27 (T) | Factors controlling transmitter release (KSJ -12) – Vertes |
| **10-29 (R)** | **Exam 2** |
| 11/03 (T) | Neurotransmitters and neuromodulation (KSJ: 11, 13) – Toll |
| 11-05 (R) | Neurotransmitters 2 (KSJ: 11, 13) – Toll |
| 11-10 (T): | Receptors and molecular signaling cascades (KSJ: 11, 13) – Toll |
| 11-12 (R) | Receptors and molecular signaling cascades (KSJ: 11, 13) – Toll |
| 11-17 (T): | Neurotransmitter transporters – (KSJ: 11, 13) -- Blakely |
| 11-19 (R): | Synaptic plasticity – short-term forms (Purves, Ch. 8) -- Varela |

| | |
|---|---|
| 11-24 (T) | Synaptic plasticity – long-term forms (Purves, Ch. 8 -- Varela |
| **11-26 (R):** | **No class, *Thanksgiving Day*** |
| 12-01 (T): | Synaptic plasticity -- relevance to behavior -- Varela |
| 12-03 (R) | *Discussion paper*: Hasegawa et al., 2020 – Varela |
| 12-08 (T) | Reading day |
| **12-10 (R)** | **Exam 3** |

**Subject: Neuroscience Certificate support memo**

From: William Kalies - To: cbeetle@fau.edu - Cc:  - Date: February 7, 2021 at 11:13 PM

Charles E. Schmidt College of Science
Department of Biological Sciences
777 Glades Road
Boca Raton, FL 33431
tel: 561.297-3320
fax: 561.297-2749

MEMORANDUM

**To:** **William Kalies, Associate Dean for Graduate Studies, Charles E. Schmidt College of Science**
**Christopher Beetle, Chair, College Graduate Programs Committee, Charles E. Schmidt College of Science**

**From:** **Sarah L. Milton, Chair, Department of Biological Sciences**

**Cc:** **Teresa Wilcox, Interim Dean, Charles E. Schmidt College of Science**
**Randy Blakely, Executive Director, FAU Brain Institute**
**Robin Vallacher, Interim Chair, Department of Psychology**
**Gary Perry, Director, Center for Complex Systems**

**Date:** **March 5, 2021**

**Re:** **Course Title Changes for Neuroscience 1 & 2**

**Dear Bill and Chris,**

**The Department of Biological Sciences has reviewed and endorse the changes to Neuroscience 1 (PSB 6345, now Cellular and Molecular Neuroscience) and Neuroscience 2 (PSB 6346, now Systems and Integrative Neuroscience). We have prepared and attach requests to update the catalog program description accordingly.**

**Sincerely,**

SL Milton

**Sarah L. Milton**
**Professor and Chair**
**Department of Biological Sciences**

Center for Complex Systems and Brain Sciences
& Department of Psychology
Charles E. Schmidt College of Science
777 Glades Road
Boca Raton, FL 33431-0991

Gary W. Perry, PhD
Behavioral Science (BS 12); Room 309
Email: perryg@fau.edu

# MEMORANDUM

To: William Kalies, Associate Dean for Graduate Studies, Charles E. Schmidt College of Science
Christopher Beetle, Chair, College Graduate Programs Committee, Charles E. Schmidt College of Science

From: Gary W. Perry, Director, Center for Complex Systems and Brain Sciences

Cc: Teresa Wilcox, Interim Dean, Charles E. Schmidt College of Science
Randy Blakely, Executive Director, FAU Brain Institute
Robin Vallacher, Interim Chair, Department of Psychology
Sarah Milton, Chair, Department of Biological Sciences

Date: February 9th, 2021

Re: Course Title Changes for Neuroscience 1 & 2

Dear Bill and Chris,

The faculty in Complex Systems and Brain Sciences have reviewed and endorse the changes to Neuroscience 1 (PSB 6345, now Cellular and Molecular Neuroscience) and Neuroscience 2 (PSB 6346, now Systems and Integrative Neuroscience). We have prepared and attach requests to update the catalog program description accordingly.

Sincerely,

Gary W. Perry, PhD
Professor of Neuroscience & Director

Charles E. Schmidt College of Medicine
777 Glades Road
Boca Raton, FL 33431
(561) 297-2910
Fax: (561) 297-2221

To: Dr. Bill Kalies
Re: Changes to Neuroscience 1 (PSB 6345, now Cellular and Molecular Neuroscience) and Neuroscience 2 (PSB 6346, now Systems and Integrative Neuroscience).

February 6, 2021

Hi Bill,

The name changes to Neuroscience 1 (PSB 6345, now Cellular and Molecular Neuroscience) and Neuroscience 2 (PSB 6346, now Systems and Integrative Neuroscience) have been reviewed and endorsed.

Sincerely,

Marc Kantorow, Ph.D.
Associate Dean for Graduate Programs
Professor of Biomedical Science
Charles E. Schmidt College of Medicine
Florida Atlantic University
Room 207, Biomed Building
777 Glades Rd.
Boca Raton FL 33431
561-297-2910
mkantoro@fau.edu

**Subject: Re: Course Name Updates in Biomedical Engineering Programs**

From: Hanqi Zhuang - To: cbeetle@fau.edu - Cc: Mihaela Cardei, Randy Blakely, William Kalies, Carmen Varela, Robert Vertes, Robin Vallacher - Date: February 7, 2021 at 11:31 AM