

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW COURSE PROPOSAL</b> <b>Undergraduate Programs</b>		UUPC Approval <u>10-12-20</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	<b>Department</b>  <b>College</b> Honors College (To obtain a course number, contact <a href="mailto:erudolph@fau.edu">erudolph@fau.edu</a> )		
<b>Prefix</b> PSB  <b>Number</b> 4243	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)  <b>Lab Code</b>	<b>Type of Course</b> <input type="text" value="Lecture"/>	<b>Course Title</b> Honors Neuroscience of Addiction
<b>Credits</b> (Review Provost Memorandum)  3	<b>Grading</b> (Select One Option)  <b>Regular</b> <input checked="" type="radio"/> <b>Pass/Fail</b> <input type="radio"/> <b>Sat/UnSat</b> <input type="radio"/>	<b>Course Description</b> (Syllabus must be attached; Syllabus Checklist recommended; see <u>Guidelines</u> ) This is an advanced course designed for students who have a background in neuroscience. The course is divided in three modules. The first module provides a basic understanding of the biochemistry, pharmacology, physiology and behavior underlying addiction. Module 2 focuses on the genetics and epigenetic aspects of addiction, and module 3 covers the mechanism of action of drugs such as cocaine, amphetamines opioids and alcohol.	
<b>Effective Date</b> (TERM & YEAR)  Fall 2020	<b>Prerequisites, with minimum grade*</b>  8 credits in Neuroscience or Biology		<b>Corequisites</b>  <b>Registration Controls</b> (Major, College, Level)  College
<b>*Default minimum passing grade is D-. Prereqs., Coreqs. &amp; Reg. Controls are enforced for all sections of course</b>			
<b>WAC/Gordon Rule Course</b>  <input type="radio"/> Yes <input checked="" type="radio"/> No  WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See <u>WAC Guidelines</u> .		<b>Intellectual Foundations Program (General Education) Requirement</b> (Select One Option)  None  General Education criteria must be indicated in the syllabus and approval attached to the proposal. See <u>GE Guidelines</u> .	
<b>Minimum qualifications to teach course</b> PhD in Neuroscience related disciplines			
<b>Faculty Contact/Email/Phone</b> Lucia Carvelli lcarvelli@fau.edu/561.799.8115		<b>List/Attach comments from departments affected by new course</b>	
<b>Approved by</b> Department Chair <u>[Signature]</u> College Curriculum Chair <u>M.A. [Signature]</u> College Dean <u>Tenje [Signature]</u> UUPC Chair <u>Jerry Hakey</u> Undergraduate Studies Dean <u>Edward Pratt</u> UFS President _____ Provost _____		<b>Date</b> <u>9/3/20</u> <u>4/24/20</u> <u>9/3/20</u> 10-12-20 10-12-20 _____ _____	

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

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**Honors Neuroscience of Addiction (PSB 4243) – Syllabus**

Number Credit Hours: 3

Fall 2020

Class Meeting Days: Monday and Wednesday from 08-17-2020 to 11-25-2020

Room: EC 101/102

Time: 9:30 AM to 10:50 AM

Office hours: request an appointment from Monday-Friday via email

**Course Director:** Lucia Carvelli, Ph.D.  
MC17 Room 104, Jupiter Campus  
Office Hours: 8:00 am – 4:00 pm  
Phone: 561.799.8115  
[lcarvelli@fau.edu](mailto:lcarvelli@fau.edu)

**Course Description:** This is an advanced course designed for students who already have a background in neuroscience and/or biology. The course directive is to first provide a brief review by didactic lectures of the central nervous system with emphasis at the areas of the brain involved in addiction. The course is divided in three modules. The first module provides a basic understanding of the biochemistry, pharmacology, physiology and behavior underlying addiction. Module two focuses on the genetics and epigenetic aspects of addiction, whereas module three covers the mechanism of action of drugs, such as cocaine, amphetamines, opioids, nicotine and alcohol.

**Objectives:** This course intends to provide students with a solid knowledge in neuropharmacology and neurophysiology. It uses addiction research as a platform to teach students different strategies used for understanding the molecular mechanisms involved in neurotransmission using both *in vitro* and *in vivo* models. Students will gain advanced knowledge in how drugs of abuse work at the cellular and molecular level and how drug-mediated effects alter neurotransmission and behaviors. By completing this course, students will learn I) where and how drugs of abuse affect the central nervous system, II) the mechanism of action of different types of addictive drugs, III) research strategies to study addiction in the effort to prevent addiction and/or design IV) therapeutic treatments.

**Textbook:** Drugs, Addiction and the Brain by George F. Koob, Michael A. Arends and Michel Le Moal.

**Prerequisites:** 8-12 credits in Neuroscience and/or Biology

**Note on Honors Distinction:** This Honors course differs substantially from a non-Honors undergraduate course because it has been designed as course for first year graduate students. As a matter of fact, the textbook used in this course is broadly utilized in different graduate schools including Vanderbilt University. Also, the course fulfills the mission of the Honors College to develop in students the concept of combining interdisciplinary expertise with the goal of performing biomedical research. The course teaches how different disciplines such as pharmacology, biochemistry,

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neuroscience, genetics, epigenetics, and electrophysiology are used to study exactly how drugs of abuse hijack the normal functions of the brain and how drugs can be designed to treat/prevent addiction behaviors. As highlighted in the course schedule (see bottom of this document), specific lectures will be delivered by experts in the field of addiction. For example, Dr. Blakely is the director of the Brain Institute at FAU and a worldwide recognized expert in neuropharmacology. Dr. Toll is a leading expert in opioid research, whereas Dr. Anastasio from UT and Dhasarathy from UND are experts in drug relapse and epigenetics, respectively. All invited speakers, and Dr. Carvelli herself, are active scientists and Principals Investigators of research projects funded by the National Institute of Health. Therefore, students not only learn the most recent discoveries in the field of addiction, but have also the opportunity to interact, ask questions and listen the professional experiences of leading scientists in this field. Finally, students are encouraged to perform independent studies to enhance the information they receive in class and are required to give a power point presentation on a topic treated during the course.

**Course Evaluation:** students' grades will be determined on the following criteria

Exam of Module 1	25 maximum points
Exam of Module 2	25 maximum points
Exam of Module 3	35 maximum points
Quizlet/Discussion	10 maximum points
Presentations	5 maximum points

**Exams:**

Each lecture will generate a total of 5-point questions. For example:

2 questions of 2.5 point/each

1 question of 3 points and another of 2

1 question of 4 points and another of 1

5 questions of 1 point/each

This secures a total 25 points for the Exam of Module-1, 25 for Module-2 and 35 points for Module-3

**Final Grades:**

25 points from Module-1 + 25 from Module-2 + 35 from Module-3 + 5 points from presentations + 10 points from class quizlet/discussion = 100

**Course Grading Scale:**

A	100 - 94
A <sup>-</sup>	93 – 91
B <sup>+</sup>	90 – 87
B	86 – 84
B <sup>-</sup>	83 – 81

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C <sup>+</sup>	80 – 77
C	76 – 74
C <sup>-</sup>	73 – 70
D	69 – 60
F	<60

**Policy on makeup quizzes and exams:** Make up exams or quizzes will not be given unless a written and verifiable reason is approved either prior to the exam or within 48 hours of the exam date. Unexcused absence from an exam or quiz will result in a zero score being recorded.

**Classroom Etiquette Policy:** The use of cell phones or other communication devices for talking/texting is prohibited during class. Phones need to be turned off before class begins. Students are permitted to use computers during class for note-taking and other class-related work only.

**Attendance Policy Statement:** *Students are expected to attend all 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.*

**Policy on Accommodations:** *In compliance with the Americans with Disabilities Amendments Act (ADAAA), students who require reasonable accommodation 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, SU 131 (561-297-3880); in Davie, LA 131 (954-236-1222); in Jupiter and all Northern Campuses, SR 111F (561-799-8585). Disability services are available for students on all campuses. For more information, please visit SAS website at [www.fau.edu/sas/](http://www.fau.edu/sas/).*

**Code of Academic Integrity policy statement:** *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 and the WHC Academic Honor Code at <http://www.fau.edu/honors/academics/honor-code.php>.*

### **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/>”*

DATE		TOPIC	
08-24-2019 Mon		Introduction	
08-26-2019 Wed		Anatomy of the Brain	
08-31-2020 Mon		Neuronal Receptors	
09-02-2020 Wed		Chemical Synapses	
09-07-2019 Mon		Labor Day	
09-09-2020 Wed		Neuropharmacology	Randy Blakely (Director of Brain Institute – FAU)
09-14-2020 Mon		Quiz / Discussion	
09-16-2020 Wed		Student Presentations	
<b>09-21-2020 Mon</b>		<b>Exam-Module 1</b>	
<b>Module 2</b>			
09-23-2020 Wed		Model Systems 1	
09-28-2020 Mon		Model Systems 2	
09-30-2020 Wed		Amphetamines/cocaine	
<b>10-05-2020 Mon</b>		<b>Drug Relapse</b>	Invited speaker: Noelle Anastasio (Univ. of Texas)
10-07-2020 Wed		Nicotine	Ceylan Isgor (Biomedical Sciences Dept. – FAU)
10-12-2020 Mon		Student Presentations	
10-14-2020 Wed		Quiz / Discussion	
<b>10-19-2020 Mon</b>		<b>Exam-Module 2</b>	
<b>Module 3</b>			
10-21-2020 Wed		Opioids	Lawrence Toll (Biomedical Sciences Dept. – FAU)
10-26-2020 Mon		Genetics of Addiction	
10-28-2020 Wed		Epigenetics of Addiction	
<b>11-02-2020 Mon</b>		<b>Brain Plasticity</b>	Invited speaker: Archana Dhasarathy (UND)
11-04-2020 Wed		Student Presentations	
11-09-2020 Mon		Quiz / Discussion	
11-11-2020 Wed		Veteran Day	
11-16-2020 Mon		Bioelectrical Transmission	
11-18-2020 Wed		Club Drugs	
11-23-2020 Mon		Quiz / Discussion	
11-25-2020 Wed		Student Presentations	
11-30-2020 Mon		Marijuana	
12-02-2020 Wed		Student Presentations	
<b>12-16-2020 Wed</b>		<b>Exam-Module 3</b>	