PSB 4434 - Schwendt

PSB 4434 Neurochemistry, Pharmacology and Behavior (sect 3631)
Fall 2016: Tu7 and R7-8, in MAEA 0303

Instructor: Dr. Marek Schwendt (schwendt@ufl.edu), Psychology Bldg Rm326, Office Hours: Tue 3-4PM, or by appointment

Teaching Assistant: Peter Hamor (puhamor@ufl.edu), Psychology Bldg Rm374, Office Hours: Wed 3-4PM

Course Description: This course is a comprehensive coverage of chemical signaling in the brain and its relationship to normal and abnormal behaviors. Included are the details of endogenous neurotransmitters, drugs that impact specific transmitters, and the interpretation of pharmacological data. Clinical syndromes associated with dysfunction in these systems, and their therapy, are discussed. Students should have completed PSB3004 or 3340 or have a strong background in biology/chemistry.

The course is divided into 3 main sections:
1. An overview of basic principles of pharmacology and neuroscience, with an emphasis on function of key neurotransmitters and their receptors
2. Overview of drug abuse and addiction, covering commonalities and differences among drug classes, neural systems involved, addiction processes, possible treatment avenues.
3. Overview of symptomology of major psychiatric disorders and current pharmacotherapies available.

Textbook: Meyer, Quenzer – Psychopharmacology – Drugs, the Brain, and Behavior (2nd edition, 2013)
ISBN-13 978-0-87-893510-9 (one copy will be available in Marston Science Library for 2hr checkout).

Class schedule and summary of approximate topics
Aug 23  Course introduction, Chapter 1 – What is pharmacology?
Aug 25  Chapter 1  Principles of Pharmacology
Aug 30  Chapter 2  Structure and Function of the Nervous system
Sept 1  Chapter 2  Structure and Function of the Nervous system (cont.)
Sept 6  Chapter 3  Signaling by Neurotransmitters and Hormones
Sept 8  Chapter 3  Signaling by Neurotransmitters and Hormones (cont.)
Sept 13  Chapter 5  Catecholamines
Sept 15  Chapter 5, 6  Catecholamines (cont.), Serotonin
Sept 20  Chapter 7  Acetylcholine
Sept 22  Chapter 7, 8  Acetylcholine (cont.), Amino acids
Sept 27  Chapter 8  Amino acids (cont.), *Q&A
Sept 29  Ch 1-8  First Exam (30%)
Oct 4  Chapter 9  Drug Abuse and Addiction – Introduction
Oct 6  Chapter 10  Alcohol
Oct 11  Chapter 11  Opioids
Oct 13  Chapter 11  Opioids (cont.)
Oct 18  Chapter 12  Psychostimulants
Oct 20  Chapter 13  Psychostimulants (cont.)
Oct 25  Chapter 14  Cannabinoids
Oct 27  Chapter 14, 15  Cannabinoids (cont.), Hallucinogens  [data blitz sign-up deadline!]
Nov 1  *Research data blitz (8 slots), *Q&A
Nov 3          Ch 9-15  Second Exam (20%)
Nov 8          Chapter 18  Anxiety disorders, Stress, OCD
Nov 10         Chapter 19  Affective disorders

Nov 15         Chapter 19  Affective disorders (cont.)
Nov 17         Chapter 20  Schizophrenia, Antipsychotics

Nov 22         *Research data blitz (8 slots)
Nov 24         Thanksgiving – no class

Nov 29         *Research data blitz (8 slots)
Dec 1          Chapter 21  Neurodegenerative disorders
Dec 6          *Research data blitz (8 slots),

Dec 16         everything  Final exam (35%) (12:30-2:30pm MAEA 0303)

Grading:
Exams (85%) - Three in-class examinations (including the final) will each count 30, 20 and 35% to your grade. The first two exams will be non-cumulative, while the final exam will cover the whole course. Each exam will be comprised of multiple choice, short answer, and short essay questions. Final exam is scheduled for Thursday December 15th at 3-5pm and will last for two periods. There will be no make-up final.

Research Paper (15%) - You will write a 5-7 page-long, double-spaced, research paper on one of the emerging “cutting-edge” treatments for neuropsychiatric disorders that have not been covered during the class. You are expected to describe and discuss a) why there is a need for this novel treatment b) what is the proposed neurobiological mechanism of action, c) available preclinical and clinical findings supporting efficacy and potential benefits of this novel pharmacotherapy. Presentation should be based on a recent empirical research paper that you select (with my approval) from the top neuroscience or psychopharmacology journal. (such as: Neuropsychopharmacology, Biological Psychiatry, Psychopharmacology, Journal of Neuroscience, Journal of Pharmacology and Experimental Therapeutics etc., but also in Science, Cell and Nature). Besides the main source, I expect you to cite at least 8-10 other literature sources. I strongly recommend that you submit a topic of your choice for my approval & comments (this will improve your chances of getting a good grade). Research papers are due on December 6.

Research data blitz (3% extra credit).
Three times during this semester you will have a chance to present a 5 min-long PPT presentation broadly related to the field of psychopharmacology. I encourage you to pick an engaging maybe even controversial topic. Again, I recommend that you submit a topic of your choice for my approval & comments (the deadline is October 27). I can accommodate up to 32 presentations on first-come, first-serve basis. If there is a greater interest, I will adjust the schedule to make additional slots possible.

Attendance:
This is a fast-paced course, so first and foremost you need to keep up with the topics. If you don’t understand something, ask during class or come see me during office hours. PPT slides for each class will be posted beforehand, and it is strongly advised that you have these in front of you in hard or electronic form during classes for annotation. The slides are not all from the text book, so in order to fully understand them it best that you plan to attend each class.

Grading
Three in-class examinations (including the final) will each count 25, 25 and 35% to your grade (85% total). The first two exams will be non-cumulative, while the final exam will cover the whole course. Each exam will be comprised of
short essay questions, of which you will be asked to answer about 4 from a choice of about 5 or 6. The other 15% of your grade is a research paper.

**Grading scale**

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<th>Grade</th>
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<td>90 - 92.9</td>
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**Accommodations for Students with Disabilities**

Students requesting classroom or testing accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide you the necessary documentation and you must then provide this documentation to me when requesting accommodation. I am happy to work with both the student and the Dean of Students Office to come to an arrangement that satisfies the requirements of the course while best accommodating the student's individual needs.

**Academic Honesty and Integrity Statement**

When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

Preamble: In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by students at the university, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It should be clear that academic dishonesty, such as cheating, is NOT tolerated at the University of Florida. Cheating is defined in the University Handbook, and it is the student's responsibility to be familiar with its many forms (including plagiarism). The penalties for academic dishonesty may include failure (grade of "E") of the course, appearance before the Honor Court, and ultimately, expulsion from the University. As a result of completing registration at the University of Florida, every student has agreed to the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."