

NSCI 428/628 Advanced Neuropharmacology  
Fall, 2018  
Tuesdays and Thursdays 12:30-1:45 pm  
208 Willard Hall

Professor Jeffrey Rosen, Ph.D.  
Office: 227 Wolf Hall Tel: 831-4209  
E-mail jrosen@udel.edu  
Office Hours: Mondays 11-12 and 3-4, other times by appointment

**Course Description**

The course is a survey of the biochemical, cellular, molecular and behavioral principles of neuropharmacology. The goal of the course is to learn basic neuropharmacology, basic grant writing, and learning to read and present original research and review articles in neuropharmacology.

The course is taught in a seminar style as much as possible, that is, participation of everyone in the class. There will be a multiple-choice quiz at the start of each class. In most classes, we will then have a discussion on the book chapter for about 30 minutes. Following this, pre-formed groups will discuss the assigned article for 15 minutes. One student from each group will then form an article presentation group which will lead the class through the article for about 15 minutes. Students should formulate questions from the week's chapter and one from the reading to help facilitate discussion of the material. Each student will participate in a group leading two to three discussions of assigned readings throughout the semester (see Schedule below).

**Readings**

Main Textbook: Molecular Neuropharmacology: A Foundation for Clinical Neuroscience, 3<sup>rd</sup> edition, Nestler, Hyman, Holtzman and Malenka, McGraw-Hill, 2015.

Additional Readings: We will also read book chapters, reviews and original research papers found below in the Syllabus (listed by first author). PDF versions of these readings can be found in class day folders in Files in Canvas. The same readings in colored type and underlined on the syllabus are linked to the original digitized online version. The online versions are useful for copying figures and graphs into Powerpoint, and there are supplemental materials with many of the articles not included in the PDF version.

Additional Device: **Clickers will be used for quizzes.** Please bring a clicker to every class.

**Grading**

There are **daily multiple-choice quizzes, group/presentation grade, and two essay-type assignments** (Specific Aims for two research projects) **for the course grade.**

Quizzes are worth 25%

Mid-term and Final Specific Aims are worth 25% each

Presentations, questions and participation in discussions are worth 25%

Presentations are graded on Content, Clarity, Style, and Answering questions

Grading Scale	B+	87-89
A 95-100	B	83-86
A- 90-94	B-	80-82

C+ 77-79  
 C 73-76  
 C- 70-72  
 D+ 67-69

D 63-66  
 D- 60-62  
 F < 60

### Academic Honesty

Students must be honest and forthright in their academic studies. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance. Any violation of this standard must be reported to the Office of Student Conduct. See <http://www1.udel.edu/stuguide/18-19/code.html> for the University policy on Student Code of Conduct.

### Readings Schedule for Each Class

Class date	Nestler et al. Chapter	Presentation Article
Aug 28	Pharmacokinetics (not in Nestler) – <b>Pages 7-21</b>	Chapter found in Files on Canvas
Aug 30	Chapter 1 - Basic Principles of Neuropharmacology – <b>read whole chapter</b>	
Sept 4	Basic Principles continued – <b>read articles</b>	<a href="#">Schmid et al and Negus</a>
Sept 6	Chapter 2 - Cellular Basis of Communication – <b>Pages 18-36</b>	<a href="#">Rusakov et al.</a>
Sept 11	Chapter 2 – Communication continued – <b>Pages 36-54</b>	<a href="#">Holm et al.</a>
Sept 13	Chapter 3 - Synaptic Transmission	<a href="#">Rice &amp; Patel</a>
Sept 18	Chapter 4 - Signal Transduction in the Brain – <b>Pages 76-93</b>	<a href="#">Ma et al</a>
Sept 20	Chapter 4 - Signal Transduction continued – <b>Pages 94-116</b>	<a href="#">Van Eps et al.</a>
Sept 25	Chapter 5 - Excitatory & Inhibitory Amino Acids	<a href="#">Ferreira et al</a>
Sept 27	Chapter 6 - Widely Projecting Systems – <b>Pages 147-170</b>	<a href="#">Lottem et al</a>
Oct 2	Chapter 6 - Widely Projecting Systems continued – <b>Pages 170-182</b>	<a href="#">Uematsu et al.</a>
<b>Oct 4</b>	<b>No Class – Pavlovian Society</b>	
Oct 9	Chapter 7 - Neuropeptides	<a href="#">Parreiras-e-Silva et al</a>
Oct 11	Chapter 8 - Atypical Neurotransmitters	<a href="#">Bluett et al</a>
<b>Oct 16</b>	<b>No Class- 1<sup>st</sup> Specific Aims Due</b>	
Oct 18	Chapter 9 - Autonomic Nervous System	<a href="#">Wang et al</a>

Oct 23	Chapter 10 - Neural and Neuroendocrine Control	<a href="#">Asok et al.</a>
Oct 25	Chapter 11 - Pain	<a href="#">Spahn et al.</a>
Oct 30	Chapter 12 - Neuroinflammation	<a href="#">McDougle et al.</a>
Nov 1	Chapter 13 - Sleep & Arousal	<a href="#">Vu et al.</a>
<b>Nov 6</b>	<b>No Class – Society for Neuroscience</b>	
Nov 8	Chapter 14 - Higher Cognitive Function & Control	<a href="#">Bieszczad et al.</a>
Nov 13	Chapter 15 - Mood & Emotion	<a href="#">Canuso et al</a> <a href="#">Liu et al</a>
Nov 15	Chapter 16 - Reinforcement & Addictive Disorders	<a href="#">Scofield et al.</a>
<b>Nov 20</b>	<b>No Class - Thanksgiving break</b>	
<b>Nov 22</b>	<b>No Class - Thanksgiving break</b>	
Nov 27	Chapter 17 - Schizophrenia & Bipolar Disorders	<a href="#">Stachowiak et al.</a>
Nov 29	Chapter 18 - Neurodegeneration	<a href="#">Cherry et al.</a>
Dec 4	Chapter 19 - Seizure Disorders	<a href="#">Kaplan et al.</a>
Dec 6	Chapter 20 - Stroke & Migraine	<a href="#">Melo-Carrillo et al</a>
<b>Dec 11</b>	<b>2<sup>nd</sup> Specific Aims due</b>	