

Course Syllabus - TRBIO 510

Course Number:	TRBIO 510
Course Name:	Drugs of Today
Quarter:	SP
Year:	2017
Start Date:	03/27/2017
End Date:	06/16/2017
Credits:	3.0
Last Date To Add This Course:	04/07/2017
Last Date To Drop This Course:	04/07/2017
Last Date To Change Grading Option:	04/07/2017
Minimum Class Size:	3

Meeting Days and Times

Day	Start	End	Location	Description
M	1:00 pm	2:30 pm	CA Campus	Graduate Office Large Conference Room
M	4:00 pm	5:30 pm	FL Campus	B214
T	1:00 pm	2:30 pm	CA Campus	Large Conference Room (4/11 only)
T	4:00 pm	5:30 pm	FL Campus	B382 (4/11 only)
W	3:00 pm	4:30 pm	FL Campus	B382 (Time change for 4/19 Only)
W	4:00 pm	5:30 pm	FL Campus	B214
W	1:00 pm	2:30 pm	CA Campus	Graduate Office Large Conference Room
W	12:00 pm	1:30 pm	CA Campus	Large Conference Room (Time change for 4/19 Only)
F	10:00 am	11:30 am	CA Campus	Large Conference Room (4/7 only)
F	1:00 pm	2:30 pm	FL Campus	A116 (4/7 only)

Course Managers

Role	Last Name	First Name	Department	Mail Code	Phone	Email	Organization Name (non-TSRI personnel)
Course Director	Bohn	Laura			(561) 228-2227	lbohn@scripps.edu	
Admin	Clark	Pamela	Department of Molecular Therapeutics	2A2	(561) 228-2029	paclark@scripps.edu	
TA	Adrados Moran	Isabel	Department of Molecular Medicine	2A2	(561) 228-3518	iadrados@scripps.edu	

Course Description

This course is proposed as an advanced molecular pharmacology course for graduate students. The goal of this course is to examine the intricate functional signaling mechanisms that underlie common and blockbuster drug actions. We will evaluate pharmacological principles in the context of cellular signaling mechanisms that underlie conventional and unconventional drug actions associated with current therapeutic treatments. The focus of the course will be to showcase the intricacy of cellular signaling and how this can be manipulated in order to affect whole body physiological responses. Diseases and drugs will be chosen to reflect the state of the art in pharmacotherapies targeting cellular signaling mechanisms. The goal of this course is not to teach per se the mechanism, but to provide the students with advanced knowledge in order to develop novel approaches for considering cellular targets in treating human disease.

There are complementary courses taught at TSRI that cover drug development and drug actions in humans (Medicinal Chemistry, Drug Discovery and Development: Translating basic research discoveries into novel therapeutics, and Molecular Medicine for example). This course differs in that it showcases current therapeutics for how they utilize molecular mechanisms at the cellular level to produce physiological effects.

Background Preparation (Prerequisites)

Exposure to one or more of the following courses is helpful, but not required.

- Molecular and Cellular Biology Boot Camp
- Molecular Biology
- Cell Biology
- Basics of Chemistry

Texts and Journal References

Type	Title	Author	Date	ISBN/ISSN
Required	Required reading will be generated by selecting current journal articles that exemplify the subject matter of each lecture.			

Course Learning Outcomes

By the end of this course, students will be able to:

1. Demonstrate knowledge of intricate functional signaling mechanisms that underlie common and blockbuster drug actions.
2. Demonstrate understanding of the intricacy of cellular signaling and how this can be manipulated in order to affect whole body physiological responses.
3. Demonstrate understanding of the state of the art in pharmacotherapies targeting cellular signaling mechanisms.
4. Present advanced knowledge in order to propose novel approaches for considering cellular targets in treating human disease.

Course Requirements and Assignments

1. Midterm Exam (25% of overall grade)

Learning Purpose: Supports learning outcomes 1, 2, and 3, and allows assessment of mastery of course material

2. Final Exam (25% of overall grade)

Learning Purpose: Supports learning outcomes 1, 2 and 3, and allows assessment of mastery of course material

3. Presentations (40% of overall grade)

Learning Purpose: Supports learning outcomes 1, 2, 3, and 4, and involves active learning, and allows assessment of mastery of course material

4. Participation in class discussions (10% of overall grade)

Learning Purpose: Supports learning outcomes 1, 2, 3, and 4, and involves active learning, and allows assessment of mastery of course material

Other Information

It is expected that this course would meet on Mondays and Wednesdays. The first lecture will be introductory with no assigned paper for presentation, starting on Monday. The first faculty lecture will be on Wednesday, with an assignment made for a presentation the following Monday. Faculty lectures will follow such that lectures are on Wednesday presentations are on Mondays. An extra day for Dr. Bohn's lecture has been included in order to return to this cycle following the midterm. Classes will last 1.5 hours. Student presentation distributions will be determined by the number of students enrolled. It is expected that each student would make one presentation with two presentations given on each presentation day. Since there are 9 presentation days, if the number of students exceeds 18, then we would have to split presentations or add presentations on the days that the midterm and the final are given out (the exams will be take home- we've left those days open to accommodate extra presentations if the course exceeds 18). If the course has less than 18 students, then faculty will be given the opportunity to assign only one presentation, and extend a facilitate discussion around a manuscript. Students will be graded on presentations and participation in discussion. They will also be graded on the two exams which will be take-home, short essay exams that require the students to propose ways to improve therapeutics or to project drug liabilities.

Attendance Statement

Students are expected to attend all classes. Students who are unable to attend class must seek permission for an excused absence from the course director or teaching assistant. Unapproved absences or late attendance for three or more classes may result in a lower grade or an "incomplete" for the course. If a student has to miss a class, he or she should arrange to get notes from a fellow student and is strongly encouraged to meet with the teaching assistant to obtain the missed material. Missed extra-credit quizzes will not be available for re-taking.

Scientific and Professional Ethics

The work you do in this course must be your own. Feel free to build on, react to, criticize, and analyze the ideas of others but, when you do, make it known whose ideas you are working with. You must explicitly acknowledge when your work builds on someone else's ideas, including ideas of classmates, professors, and authors you read. If you ever have questions about drawing the line between others' work and your own, ask the course professor who will give you clear guidance. Exams must be completed independently. Any collaboration on answers to exams, unless expressly permitted, may result in an automatic failing grade and possible expulsion from the Graduate Program.

Course Grading Statement

The take-home midterm and final exams are distributed on 5/8/2017 and 5/31/2017.

Letter Grade Descriptions

Letter Grade	Grade Point	Description	Learning Outcome
A	4.00	Outstanding achievement. Student performance demonstrates full command of the course subject matter and evinces a high level of originality and/or creativity that far surpasses course expectations.	
A-	3.67	Excellent achievement. Student performance demonstrates thorough knowledge of the course subject matter and exceeds course expectations by completing all requirements in a superior manner.	
B+	3.33	Very good work. Student performance demonstrates above-average comprehension of the course subject matter and exceeds course expectations on all tasks as defined in the course syllabus. There is notable insight and originality.	
B	3.00	Satisfactory work. Student performance meets designated course expectations and demonstrates understanding of the course subject matter at an acceptable level.	
B-	2.67	Marginal work. Student performance demonstrates incomplete understanding of course subject matter. There is limited perception and originality.	
C+	2.33	Unsatisfactory work. Student performance demonstrates incomplete and inadequate understanding of course subject matter. There is severely limited or no perception or originality. Course will not count toward degree.	
C	2.00	Unsatisfactory work. Student performance demonstrates incomplete and inadequate understanding of course subject matter. There is severely limited or no perception or originality. Course will not count toward degree.	
P	0.00	Satisfactory work. Student performance demonstrated complete and adequate understanding of course subject matter. Course will count toward degree.	
F	0.00	Unacceptable work/Failure. Student performance is unacceptably low level of knowledge and understanding of course subject matter. Course will not count toward degree. Student may continue in program only with permission of the Dean.	
I	0.00	Incomplete is assigned when work is of passing quality but is incomplete for a pre-approved reason. Once an incomplete grade is assigned, it remains on student's permanent record until a grade is awarded.	
W	0.00	Withdrew from the course with Dean's permission beyond the second week of the term.	

- o All courses will be recorded and maintained in the student's permanent academic record; only courses that apply towards the degree will appear on the academic transcript. Non-credit or audited courses will not appear on the transcript.
- o 4 core courses taken for a letter grade (pass = A or B for a core course)
- o 2 elective courses taken pass/fail (pass = A, B, C for an elective)
- o Because students are encouraged to take electives outside their area of expertise, a "C" letter grade is passing.
- o Grading will be based on general attendance/participation, student presentations of the classic and contemporary publications, and

Course Schedule

Date	Type	Topic or Lecture Title	Presenter Last Name	Presenter First Name	Presenter Department	Presenter Mail	Presenter Phone	Presenter Email	Organization Name (non-TSRI personnel)
03/27/2017	Lecture	Introduction- Course objectives, grading, introduction of terminology, general pharmacological principles and analysis	Bohn	Laura			(561) 228-2227	lbohn@scripps.edu	
03/29/2017	No Class								
04/03/2017	No Class								
04/07/2017	Lecture	How Opioid Narcotics Mediate their Effects and the Benefit of Biased Agonism- lessons from Oxycontin and TRV-130	Bohn	Laura			(561) 228-2227	lbohn@scripps.edu	
04/11/2017	Lecture	How Opioid Narcotics Mediate their Effects and the Benefit of Biased Agonism- lessons from Oxycontin and TRV-130	Bohn	Laura			(561) 228-2227	lbohn@scripps.edu	
04/12/2017	Lecture	Monoclonal Antibody Drugs I: General Considerations	Rader	Christoph	Department of Cancer Biology	2C1	(561) 228-2053	crader@scripps.edu	
04/17/2017	Lecture	Monoclonal Antibody Drugs II: Cancer Therapy	Rader	Christoph	Department of Cancer Biology	2C1	(561) 228-2053	crader@scripps.edu	
04/19/2017	Lecture	Neurodegenerative Disorders- Protein misfolding in prion disease Class meets 12:00-1:30p PDT / 3:00-4:30 EDT on this day.	Lasmezas	Corinne	Department of Immunology and Microbial Science	2B2	(561) 228-3456	lasmezas@scripps.edu	
04/24/2017	Lecture	Neurodegenerative Disorders- Protein misfolding in prion disease	Lasmezas	Corinne	Department of Immunology and Microbial Science	2B2	(561) 228-3456	lasmezas@scripps.edu	
04/26/2017	No Class								
05/01/2017	Lecture	Avandia in Diabetes	Griffin	Patrick	Department of Molecular Therapeutics	2A2	(561) 228-2200	pgriffin@scripps.edu	
05/03/2017	Lecture	Avandia in Diabetes	Griffin	Patrick	Department of Molecular Therapeutics	2A2	(561) 228-2200	pgriffin@scripps.edu	
05/08/2017	Exam	Mid-Term	Bohn	Laura			(561) 228-2227	lbohn@scripps.edu	
05/10/2017	Lecture	Regulating lymphocyte trafficking and immune function	Rosen	Hugh	Department of Chemical Physiology	MEM-L55	(858) 784-2396	hrosen@scripps.edu	
05/15/2017	Lecture	Viral Therapeutics I: HCV drug development	Tellinghuisen	Timothy	Department of Immunology and Microbial Science	3C1	(561) 228-3458	tellint@scripps.edu	
05/17/2017	Lecture	Viral Therapeutics I: HCV drug development	Tellinghuisen	Timothy	Department of Immunology and Microbial Science	3C1	(561) 228-3458	tellint@scripps.edu	
05/22/2017	Lecture	Discovery of the growth hormone Ibutameron and the Ghrelin Receptor	Smith	Roy	Department of Metabolism & Aging	3B3	561-228-2950	rgsmith@scripps.edu	
05/24/2017	Lecture	Discovery of the growth hormone Ibutameron and the Ghrelin	Smith	Roy	Department of Metabolism	3B3	561-228-	rgsmith@scripps.edu	

03/24/2017	Lecture	Receptor	Simon	Ray	& Aging	303	2950	rysimon@scripps.edu
05/29/2017	No Class	Memorial Day						
05/31/2017	Lecture	Viral Therapeutics I: HIV drug development	Farzan	Michael	Department of Immunology and Microbial Science	3C1	(561) 228-2300	mfarzan@scripps.edu
			Valente	Susana	Department of Immunology and Microbial Science	3C1	(561) 228-3454	svalente@scripps.edu
06/05/2017	Lecture	Viral Therapeutics I: HIV drug development	Farzan	Michael	Department of Immunology and Microbial Science	3C1	(561) 228-2300	mfarzan@scripps.edu
			Valente	Susana	Department of Immunology and Microbial Science	3C1	(561) 228-3454	svalente@scripps.edu
06/07/2017	Exam	Final						