

APPROVED

RECEIVED

# The University Of Toledo

JAN 16 2013

## New Graduate Course Proposal

COLLEGE OF GRADUATE STUDIES

\* denotes required fields

1. College\*:

Department\*:

2. Contact Person\*:  Phone:  (xxx - xxxx) Email:

3. Alpha/Numeric Code (Subject area - number)\*:  -

4. Proposed title\*:

Proposed effective term\*:  ( e.g. 201140 for 2011 Fall)

5. Is the course cross-listed with another academic unit?  Yes  No

Approval of other academic unit (signature and title)

Is the course offered at more than one level?  Yes  No

If yes, an undergraduate course proposal form must also be submitted. If the undergraduate course is new, complete the New Undergraduate Course Proposal; if the undergraduate course is existing, submit an Undergraduate Course Modification Proposal.

6. Credit hours\*: Fixed:  or Variable:  to

7. Delivery Mode:	Primary*	Secondary	Tertiary
a. Activity Type *	<input type="text" value="Lecture"/>	<input type="text" value="Web Assisted Instr"/>	<input type="text" value="--SelectType--"/>
b. Minimum Credit Hours *	<input type="text" value="3"/>	<input type="text"/>	<input type="text"/>
Maximum Credit Hours *	<input type="text" value="3"/>	<input type="text"/>	<input type="text"/>
c. Weekly Contact	<input type="text" value="3"/>	<input type="text"/>	<input type="text"/>

Hours \*

8.

Terms offered:  Fall  Spring  Summer

Years offered:  Every Year  Alternate Years

9. Are students permitted to register for more than one section during a term?  No  Yes

May the courses be repeated for credit?  No  Yes

Maximum Hours

10. Grading System\*:  Normal Grading (A-F, PS/NC, PR, I)  
 Passing Grade/No Credit (A-C, NC)  
 Credit/No Credit  
 Grade Only (A-F, PR, I)  
 Audit Only  
 No Grade

11. Prerequisites (must be taken **before**): i.e. C or higher in (BIOE 4500 or BIOE 5500) and C or higher in MATH 4200

PIN (Permission From Instructor)

PDP (Permission From Department)

Co-requisites (must be taken **together**):

12.

Catalog Description\* (75 words Maximum)

Hours \*

8.

Terms offered:  Fall  Spring  Summer

Years offered:  Every Year  Alternate Years

9.

Are students permitted to register for more than one section during a term?  No  Yes

May the courses be repeated for credit?  No  Yes

Maximum Hours

10.

Grading System\*:  
 Normal Grading (A-F, PS/NC, PR, I)  
 Passing Grade/No Credit (A-C, NC)  
 Credit/No Credit  
 Grade Only (A-F, PR, I)  
 Audit Only  
 No Grade

11. Prerequisites (must be taken **before**): i.e. C or higher in (BIOE 4500 or BIOE 5500) and C or higher in MATH 4200

PIN (Permission From Instructor)

PDP (Permission From Department)

Co-requisites (must be taken **together**):

12.



Catalog Description\* (75 words Maximum)



The course will expand upon material covered in Experimental Therapeutics I and focus on the drug development process. Practical applications include the design of in vitro and in vivo screens for drug activity, improvement of pharmacokinetic properties and integration of medicinal chemistry with pharmacology in a drug development paradigm.

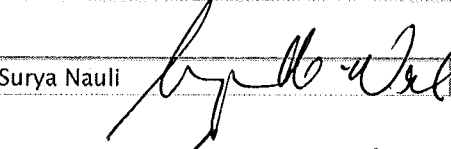

13. Attach a syllabus and an electronic copy of a complete outline of the major topics covered. Click [here](#) for template.



File Type	View File
Syllabus	<a href="#">View</a>



**Course Approval:**



Department Curriculum Authority:  Date  



Department Chairperson:  Date  

College Curriculum Authority or Chair:  Date  


College Dean:  Date  

Graduate Council:  Date  

Dean of Graduate Studies:  Date  

Office of the Provost :  Date  

**Administrative Use Only**

**Effective Date:**   (YYYY/MM/DD)

**CIP Code:**

**Subsidy Taxonomy:**

**Program Code:**

**Instructional Level:**

The University of Toledo • 2801 W. Bancroft • Toledo, OH 43606-3390 • 1.800.586.5336  
© 2006-2007 The University of Toledo. All rights reserved. • Send all feedback / comments to [webMaster](#)

The University of Toledo • 2801 W. Bancroft • Toledo, OH 43606-3390 • 1.800.586.5336  
© 2006-2007 The University of Toledo. All rights reserved. • Send all feedback / comments to [webMaster](#)

**The following requirements will be differentiated for courses that are co-listed for Masters (5000 or 6000) and Ph.D. (7000 or 8000) levels:**

Masters students will need to complete successfully all course requirements as indicated in the syllabus. They should be able to achieve and demonstrate comprehensive understanding of course topics through class discussion, assignments, quizzes and exams.

To complete the course requirements, Ph.D. students will need to demonstrate an extended expertise in the course topics. They also should demonstrate independent scholarly activity and creativity to the class instructor. The ability of the Ph.D. level students to synthesize scientific data/information, develop original ideas/hypotheses and Formulate independent research studies/proposals will be evaluated through additional assignments and readings, or by demonstrating leadership roles in class discussion or other collaborative settings."

**PHCL 7200**  
**Experimental Therapeutics II**  
**Course Syllabus Spring 2014**

**Instructor(s):** Dr. William S. Messer, Jr.  
**Office/Office Hours:** HEB 274C, M-W, 3:00 to 5:00 p.m.  
**Phone:** 419-383-1958  
**Email:** william.messer@utoledo.edu

**Class Time and Location:** MWF, 8:00 to 8:50 a.m.

**Primary Communication Method:** Lecture

**Course Description:** The course will expand upon material covered in Experimental Therapeutics I and focus on the drug development process. Practical applications include the design of in vitro and in vivo screens for drug activity, improvement of pharmacokinetic properties and integration of medicinal chemistry with pharmacology in a drug development paradigm.

**Course Objectives:**

- 1) By the end of the semester, students will be able to outline the steps involved in the drug development process and identify critical issues that must be addressed at each step.
- 2) Students will be able to identify suitable targets for drug development and identify primary and secondary assays for evaluating drug activity.
- 3) Students will also be able to develop strategies for modifying lead compounds to enhance pharmacokinetic properties.
- 4) Students will be able to apply advanced principles of pharmacology to the development of new therapeutics by writing a research paper that describes in detail a comprehensive drug development project.

**Required/Recommended Texts:** Goodman & Gilman's The Pharmacological Basis of Therapeutics, 12<sup>th</sup> edition, edited by Laurence L. Brunton, Bruce A. Chabner and Björn C. Knollmann, The McGraw-Hill Companies, Inc., Chicago, IL, 2011. ISBN 978-0-07-162442-8

**Course Policies:**

**General-** Students are expected to attend classes, although attendance is not routinely taken. In the event of absence from class, students will be responsible for completing all assignments.

**Exams-** Two exams will be given during the semester. Each exam will be worth 100 points.

**Research paper-** A research paper (worth 100 points) will be due by Friday of the 15<sup>th</sup> week of class.

**Make-Up Exams-** Make-up examinations will be given only to those students who obtain an excused absence from the instructor prior to the examination or during the first class session following the



examination. Late excuses will not be accepted. Make-up examinations will be scheduled only during the final examination period and may be administered in essay format.

**Academic Dishonesty Statement-** Cheating on exams will not be tolerated. Students guilty of cheating will be prosecuted according to College and University policies.

**Students with Disabilities Statement-** Students with disabilities who believe they may need academic accommodations are encouraged to speak with me after class and to contact the Office of Accessibility (Rocket Hall 1820; 419.530.4981; officeofaccessibility@utoledo.edu) as soon as possible for more information and/or to initiate the process for accessing academic accommodations.

**Course Grade:** Final course grades will be determined as a percentage of the total accumulated points of the two examinations administered during the semester and the research paper (300 possible points).

**Grading Scale:** The following grading scale will be used:

Letter Grade	Numerical average (%)	Quality points
A	90.0-100	4.0
A-	88.5-89.9	3.67
B+	86.5-88.4	3.33
B	80.0-86.4	3.0
B-	78.5-79.9	2.67
C+	76.5-78.4	2.33
C	68.5-76.4	2.0
D+	66.5-68.4	1.33
D	60.0-66.4	1.0
D-	58.5-59.9	0.67
F	0-58.4	0

**Lecture Topics and Exams Schedule:**

Week 1-3	Drug discovery process
Week 4	In vitro testing
Week 5	In vivo testing
Week 6	In silico model design
Week 7	Proteomics/genomics in drug design
Week 8	Physical properties in drug design (Exam I)
Week 9	Structure activity relationship

examination. Late excuses will not be accepted. Make-up examinations will be scheduled only during the final examination period and may be administered in essay format.

**Academic Dishonesty Statement-** Cheating on exams will not be tolerated. Students guilty of cheating will be prosecuted according to College and University policies.

**Students with Disabilities Statement-** Students with disabilities who believe they may need academic accommodations are encouraged to speak with me after class and to contact the Office of Accessibility (Rocket Hall 1820; 419.530.4981; officeofaccessibility@utoledo.edu) as soon as possible for more information and/or to initiate the process for accessing academic accommodations.

**Course Grade:** Final course grades will be determined as a percentage of the total accumulated points of the two examinations administered during the semester and the research paper (300 possible points).

**Grading Scale:** The following grading scale will be used:

Letter Grade	Numerical average (%)	Quality points
A	90.0-100	4.0
A-	88.5-89.9	3.67
B+	86.5-88.4	3.33
B	80.0-86.4	3.0
B-	78.5-79.9	2.67
C+	76.5-78.4	2.33
C	68.5-76.4	2.0
D+	66.5-68.4	1.33
D	60.0-66.4	1.0
D-	58.5-59.9	0.67
F	0-58.4	0

**Lecture Topics and Exams Schedule:**

Week 1-3	Drug discovery process
Week 4	In vitro testing
Week 5	In vivo testing
Week 6	In silico model design
Week 7	Proteomics/genomics in drug design
Week 8	Physical properties in drug design (Exam I)
Week 9	Structure activity relationship

Week 10	Efficacy vs potency vs therapeutic index
Week 11	FDA and drug development process
Week 12	Target selection in drug discovery and development
Week 13	Sources of new drugs
Week 14	Medicinal chemistry vs combinatorial chemistry
Week 15	Design a drug development project