

APPROVED

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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="Independent Study"/>	<input type="text" value="Web Assisted Instru"/>
b. Minimum Credit Hours *	<input type="text" value="1"/>	<input type="text"/>	<input type="text"/>
Maximum Credit Hours *	<input type="text" value="1"/>	<input type="text"/>	<input type="text"/>
c. Weekly Contact	<input type="text" value="1"/>	<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

PHCL 4140 or 5140 with a minimum grade of B-

PIN (Permisson From Instructor) PDP (Permission From Department)

Co-requisites (must be taken together):

PHCL-5140, if the pre-requisite course has not been completed

12. Catalog Description* (75 words Maximum)

The basic statistical techniques learned in PHCL 4140/5140 will be further explored using research articles and real data sets to conduct statistical analyses. The use of different software programs will be used to provide students with hands-on practice in conducting statistical analyses.

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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	View

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:

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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."

Syllabus

Current Topics in Interpretation of Pharmaceutical Data

PHCL-5440/7440

1 Credit Hour

Instructor: Dr. Caren L. Steinmiller, Ph.D.
Department of Pharmacology
HEB 280B, Telephone 419-383-1912
Email: Caren.Steinmiller@utoledo.edu
Office hours: *To be determined*

Class hours: *To be determined*

Location: *To be determined*

Primary Communication Method: Lecture slides will be available on the course website. If you have any questions, please email or call my office. Homework assignments will be provided in class as handouts and also available on the course website. Articles for review/discussion will have links provided on course website and copies available.

Course Description: The basic statistical techniques learned in PHCL 4140/5140 will be further explored using research articles and real data sets to conduct statistical analyses. The use of different software programs will be used to provide students with hands-on practice in conducting statistical analyses.

Course Pre-/Co-Requisite: Acceptance into the Master's or Ph.D. program in Experimental Therapeutics in the Department of Pharmacology, College of Pharmacy and Pharmaceutical Sciences, University of Toledo and completion (or current enrollment in) of PHCL 4140/5140. Students should be familiar with and able to use the following mathematical concepts and software programs:

- 1) Calculation and differences between averages, means, and medians
- 2) Calculation and differences between standard deviation and standard error of the mean
- 3) Normal distributions
- 4) Use of excel to calculate simple statistical formulas and graphs

Course objectives:

- 1) To familiarize students with the fundamentals of statistical analyses.
- 2) To foster an understanding of how pharmaceutical data are collected, handled and interpreted.
- 3) To help students become adept at processing and presenting data.
- 4) To gain an appreciation for probability and sampling distributions.

- 5) To gain insight into the appropriate design of experiments in order to collect and analyze meaningful sets of pharmaceutical data.
- 6) To review current literature on statistical analyses
- 7) To familiarize students with how to use various software programs to conduct statistical analyses and graph data

Recommended Text: There is no required textbook for this course. The following textbook will be helpful in providing reference material for topics covered in PHCL 4140/5140: The Basic Practice of Statistics, (5th edition) by David S. Moore, W.H. Freeman and Company, New York, 2010.

Program Competencies: Completion of this course should assist the student in the following Learning Outcomes:

- 1 – Apply principles of physical, biological, and administrative sciences to successfully solve problems in the pharmaceutical sciences.
 - (a) Interpret the results of studies as presented in reviews and in the primary literature
 - (b) Apply the concepts of controlled experimentation and evidence-based practice
 - (d) Be able to begin a process of critical evaluation of technical issues related to the pharmaceutical sciences
- 3 – Work cooperatively as part of both disciplinary and interdisciplinary teams
- 4 – Understand the basic principles of chemistry, life science, medicinal chemistry, pharmacology and biochemistry as they apply to the activity of drugs, biological, and toxins
- 6 – Apply computer technology to the collection, processing, and analysis of data appropriate to a student's specialty
- 8 – Develop skills to carry out duties in accordance with accepted legal, ethical, social, economic, and professional practices and interact in a professional manner with managers, colleagues, and subordinates
- 9 – Develop the skills necessary to maintain professional competence and incorporate new developments and technologies into practice

Course Policies:

General- Students are expected to attend lectures and participate in class discussions. Please refer to the University of Toledo Missed Class Policy for accepted absences. http://www.utoledo.edu/facsenate/missed_class_policy.html

Computer Software- Each student should have access to a computer with Excel software on it. Computers are available on the Health Science Campus in the Danna S. Fitzsimmons Student Resource Lounge (HEB 150A) and on Main Campus in the Pharmacy Student Resource Center (WO 1269).

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Make-Up Exams- Unexcused absences resulting in a missed exam will result in a grade of **zero**. Make-up exams will only be administered for *excused* absences. Prior approval for an absence from an examination can only be obtained from **acknowledged direct contact** with Dr. Steinmiller. Post-exam approval for an excused absence from an exam must be sought out immediately upon the student's arrival back to school. Appropriate documentation of why the absence occurred will be required. Make-up exams will be administered either during Finals week or as soon as possible as determined by Dr. Steinmiller.

Homework- Homework will be assigned about once per week. All homework will be collected and leniently graded. Answer keys will be posted after the homework is graded. Unless a documented excuse is provided, late homework will be penalized 25% if handed in before answers are posted, or 75% after answers have been posted. Homework can be done in groups, but everyone must hand in their own work (photocopies are not accepted). *Showing your work is actually worth more points than getting the correct answer*, so be sure to show all work, especially formulas. All work conducted using excel must be turned in electronically (as an email attachment).

Academic Dishonesty Statement- Academic dishonesty **will not** be tolerated, and any student caught in this action will be dealt with according to the Policy Statement on Academic Dishonesty found in the University of Toledo General Catalog. The grade for this course will be reduced to an "F". In addition, the student may be dismissed from the graduate program. Any form of work that is not your own is considered academic dishonesty.

Students with Disabilities-

1. The University will make reasonable academic accommodations for students with documented disabilities. Students should 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.
2. If you are registered with the Office of Accessibility, I have received notification regarding your academic accommodations. Please see me as soon as possible to discuss your accommodations and how I may be of assistance to you throughout the course.
3. The University of Toledo abides by the Americans with Disabilities Act (equal and timely access) and Section 504 of the Rehabilitation Act of 1973 (non-discrimination on the basis of disability). If you have a disability and are in need of academic accommodations but have not yet registered with the Office of Accessibility (OA) (Rocket Hall 1820; 419.530.4981; officeofaccessibility@utoledo.edu) please contact the office as soon as possible for more information and/or to initiate the process for accessing academic accommodations. I also encourage students with disabilities receiving accommodations through OA to discuss these with me, after class or during my office hours, so that I may be better informed on how to assist you during the semester.
4. Any student with a documented disability receiving academic accommodations through the Office of Accessibility is requested to speak with me as soon as possible. All discussions will remain confidential and are intended to assist me with ensuring your accommodations are appropriately implemented throughout the course.

5. Students with disabilities who believe they may need academic accommodations are encourage to speak with me after class and will need 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.

Drop/Withdrawal- The petition for withdrawal must be received in the Office of the Registrar, Rocket Hall, Room 1100, bu the deadline date either: in person, fax, or mail. When mailing, the envelope must be postmarked by the deadline date. For the fall term, it must be filed between the 15th calendar day of the term through Friday of calendar week 10.

Syllabus
Interpretation of Pharmaceutical Data
PHCL-5440/7440

Grading Scale: Your overall average will be rounded to the nearest whole number and subjected to the following grading scale:

92-100 A
90-91 A-
88-89 B+
82-87 B
80-81 B-
78-79 C+
72-77 C
70-71 C-
68-69 D+
62-67 D
60-61 D-

Important Course Dates: list first day of class, exam dates, project due dates, and holidays for the term.

Material to be covered: Experimental Design, Analysis of Variance (ANOVA), Repeated Measure ANOVA, Post-Hoc Testing

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62-67 D
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