

PHR 187P
Fall 2016
Physical and Chemical Principles of Drugs
Laboratory Syllabus

Class Time and Location

M	1-2 PM	PHR 2.110	Pre-laboratory lecture	(EVERYONE)
M	2-5 PM	PHR 2.110	Laboratory Section #1	unique number: 59800
T	2-5 PM	PHR 3.106	Laboratory Section #2	unique number: 59805

Instructors:

Dr. Debadyuti (Rana) Ghosh

Office:

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Office hours:

W 1-3 PM and by appointment

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Teaching Assistants

Irnela Bajrovic
Xianquan Liu
Sophie Peng

Xu (Ray) Liu
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Academic Assistant

Tiffany Wu (P2)

Course Objectives

The laboratory section of this course is designed to provide the pharmacy student with a forum in which they can apply theoretical principles described in the lecture portion of the course to situations they will encounter as a pharmacist and/or pharmaceutical scientist. Upon completion of the laboratory assignments, students will develop superior problem solving skills and understand the role that physical pharmacy plays in the daily practice of pharmacy.

Lab Format

All students enrolled in PHR 187P are **required** to attend the pre-lab lecture session held Mondays from **1-2 PM**. At the beginning of this lecture period, a **10 minute quiz** on the material covered from the previous weeks laboratory exercise will be given. Thus, it is **very important** that you arrive **on time** for the pre-laboratory lecture. If a student arrives after the quiz has been handed out, they will not be allowed to take the quiz and receive a zero for that day. The remaining lecture time will introduce the students to the laboratory activity for the week and provide direction for completing that week's assignment.

Course Prerequisites

Prior to enrolling in the course, students will have successfully completed the prerequisite mathematics and chemistry courses including algebra, calculus, and general chemistry and will be held responsible for understanding the concepts presented in the previous courses. In addition, students must also be enrolled in PHR 387M Physical and Chemical Principles of Drugs.

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Required Texts

As for the lecture segment of the course, **there are no required textbooks for the laboratory section of the course.** However, if a student would like additional information relative to the subjects covered in lab, they are referred to the following texts:

**Sinko, P.J. Martin's Physical Pharmacy, 6th edition, Lippincott Williams & Wilkins, 2011
ISBN 0-7817-9766-7

Amiji, M.M., Cook, T.J., and Mobley, W.C. Applied Physical Pharmacy, 2nd edition, McGraw Hill Education, 2014 ISBN: 978-0-07-174750-9

Dash, A.K., Singh, S. and Tolman, J. Pharmaceutics: Basic Principles and Application to Pharmacy Practice. Elsevier Academic Press, 2014 ISBN: 978-0-12-386890-9

Tro, N.J. Chemistry: A Molecular Approach, 3rd edition, Prentice Hall, 2014 ISBN 978-0-32-180471-6

Atkins, P. and de Paula, J. Physical Chemistry for the Life Sciences, W.H. Freeman, 2011
ISBN 978-1-42-9231145

Required Materials

The content of this course will require students to assess data and perform calculations. Thus, all students **must** have a **Texas Instruments TI-36X-Pro calculator**. There are **no exceptions** to this requirement. This calculator must be brought to all pre-laboratory lecture sessions in order to complete the quiz problems and to the laboratory in order to complete the assigned activities. Calculators will not be provided. **Students that arrive with any other type of calculator will be turned away from all exams and quizzes.**

Computer Use

Students are required to have access to computers. Although you are not **required** to use a computer for this course, it may be useful for some of the laboratory assignments. **Lab assignments must be submitted as scanned PDF files and uploaded under the appropriate Assignment tab in Canvas by 5 PM on the Thursday after your laboratory session. Do NOT use your mobile device to take and send a picture!** KIC scanners capable of doing this are located in the Life Science, PCL, Fine Arts, Geology and PMA libraries on campus. **Any assignment turned in after 5 pm on Thursday will receive a zero for the assignment, no exceptions.**

To get the most out of this course

- a. Attendance of the pre-lab and laboratory sessions is expected.
- b. Work/solve the problems associated with the lab **prior** to going to your laboratory session.
- c. Review lecture notes, quizzes and lab assignments and come armed with questions about the lecture and lab material. Your teaching assistants are here to help you understand the material and this is the prime time to ask them questions!

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- d. If you find that you do not understand specific concepts after attending your assigned laboratory session, solving problem sets and reviewing your notes, **make time to visit Dr. Ghosh and your Teaching Assistants during their office hours!** Students that have not done well in the course have not followed this last suggestion and, as a result, did not address deficiencies in understanding concepts until it was too late.

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Course Grading

There are no midterm examinations associated with this course! Instead, three "Expanded Quizzes" will be given during the pre-lab sessions. Each of the "expanded quizzes" will be of equal value and will count as 20% of the course grade. **There will not be a final exam for the lab course.**

Weekly laboratory assignments and quizzes will be given and graded. Quizzes will count as 15% of the course grade. Laboratory assignments will also contribute to 25% of the final grade. Grades will be based on the calculated semester average according to the following formula:

$$\text{Semester average} = (\text{Expanded Quiz I})(0.20) + (\text{Expanded Quiz II})(0.20) + (\text{Expanded Quiz III})(0.20) + (\text{Quizzes})(0.15) + (\text{Assignments})(0.25)$$

Grade assignments will be as follows:

A = 93-100%	A- = 90-92%	
B+ = 87-89%	B = 83-86%	B- = 80-82%
C+ = 77-79%	C = 73-76%	C- = 70-72%
D+ = 69-67%	D = 66-60%	
F < 60%		

Dates for Expanded Quizzes

Expanded quizzes for PHR 187P will be given on the following dates at the following times:

September 26, 2016	Expanded Quiz I	1:00-2:00 PM	Monday Lab	BUR 130*****
			Tuesday Lab	BUR 216
October 17, 2016	Expanded Quiz II	1:00-2:00 PM	Monday Lab	BUR 130*****
			Tuesday Lab	BUR 216
December 5, 2016	Expanded Quiz III	1:00-2:00 PM	Monday Lab	BUR 130*****
			Tuesday Lab	BUR 216

*******NOTE** - Those enrolled in the Monday lab session will report to BUR 130 to begin the Expanded Quiz at 1 PM. Those enrolled in the Tuesday will report to BUR 216 to begin the Expanded Quiz at 1 PM.

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PHR 187P Laboratory Schedule

Week	Laboratory
8/29	No lab!
9/5	No lab – Happy Labor Day!
9/12	Concentration, Milliequivalents, Dilution Problems, and Beer's Law
9/19	Solubility Experiment (Quiz #1)
9/26	Expanded Quiz #1/ NO LAB! Review for upcoming 387M midterm with TAs
10/3	Colligative Properties Workshop
10/10	Drug Complexation and Binding (Quiz #2)
10/17	Expanded Quiz #2/ NO LAB! Review for upcoming 387M midterm with TAs
10/24	The Common Ion Effect
10/31	Solving Acid Base Problems (Quiz #3)
11/7	Effect of pH on Solubility and Partitioning of Drugs (Quiz #4)
11/14	No Lab—AAPS!
11/21	No Lab—Thanksgiving!
11/28	Chemical Kinetics: Problem Solving and Data Analysis (Quiz #5)
12/5	Expanded Quiz #3