

# Course Syllabus

## Spring 2015

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### PHAR 322

3 Credit Hours

## DRUG DELIVERY SYSTEMS II: PHARMACEUTICAL DOSAGE FORMS AND DRUG DELIVERY SYSTEMS

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Course Coordinator: Thomas Tolhurst

Office: Rm. 241

Phone: (312) 413-7832

E-mail: tolhurst@uic.edu

#### CLASS MEETINGS:

#### Lecture:

Monday 9:30 – 10:20 am Rm. 134-3 Chicago (14756) Rm. E230 Rockford (31236)

Wednesday\* 8:30 – 10:20 am Rm. 134-3 Chicago (14756) Rm. E230 Rockford (31236)

\* The Wednesday lectures which are one hour in length will begin at 9:30.

#### Laboratory:

Tuesday 1:30 – 4:20 pm Rm. 134-3 Chicago (14753) Rm. 230 Rockford (31237)

Wednesday 1:30 – 4:20 pm Rm. 134-3 Chicago (14754)

Thursday 1:30 – 4:20 pm Rm. 134-3 Chicago (14755) Rm. 230 Rockford (31238)

#### Required Texts:

1. Martin's Physical Pharmacy and Pharmaceutical Sciences, 6<sup>th</sup> Ed., Sinko PJ
2. Physicochemical Principles of Pharmacy, 5<sup>th</sup> Ed., Florence AT, Attwood D
3. Pharmaceutical Dosage Forms and Drug Delivery Systems, 10<sup>th</sup> Ed., Ansel HC, Allen Jr. LV, Popovich NG, Lippincott Williams & Wilkins
4. Remington: The Science and Practice of Pharmacy, 22<sup>nd</sup> Ed. (**NOT REQUIRED**)

Department Offering the Course:  
Department of Biopharmaceutical Sciences  
College of Pharmacy  
The University of Illinois  
Chicago, IL 60612

**Note:** Enrollment in this course means you are agreeing to all rules set forth in this syllabus. Please read it carefully. The coordinator, the department offering the course, the college, nor the University of Illinois will be held responsible for a student not fulfilling the obligations, expectations, and rules set forth in this syllabus.

**Class Rules:**

**Contacting the Coordinator:** The course coordinator, Thomas Tolhurst, can be contacted by phone (3-7832), e-mail (tolhurst@uic.edu), or in person (Rm. 241) as needed. For general correspondence, please use e-mail as the first choice. Office hours are on Tuesdays and Thursdays from 12:30 to 1:30 pm, and by appointment.

**Lecture Attendance:** Attendance is expected for all lectures, unless specified as optional. Exam questions will cover reading assignments, material covered in lectures and some material from the laboratory sessions. Attendance in lectures will greatly increase your understanding of the material. **There is the possibility of unannounced quizzes throughout the semester.** If you are not present for a quiz, you will receive a score of zero. Therefore, all excused absences from class must be approved by the instructor and/or course coordinator. Lectures will be recorded on the Video Capture System and posted to Blackboard for student review. Every effort has been made to make the lectures available to the student, however, there are no guarantees- the Video Capture System is not fail safe.

**Laboratory Attendance:** Attendance in laboratory sessions is mandatory. **Any unexcused absence will result in the deduction of 25 points, for each lab session missed, from your total points accumulated during the semester.** Laboratory preparations and /or laboratory write-ups must be submitted at the conclusion of each lab session. For this reason, all excused laboratory class absences must be approved by the instructor conducting the specific laboratory class missed. **Laboratory sessions will not be recorded.**

**All students are expected to take exams during scheduled periods.** Make up exams will only be given under extraordinary circumstances and must be pre-approved by the course coordinator. Contact the course coordinator, in person or phone, prior to the exam being missed. In case of emergency, contact the coordinator at the earliest opportunity (no more than 72 hour after the exam) with an explanation. Only the course coordinator can approve missing an exam and schedule a make-up exam. When given, the make-up exam format is at the discretion of the course coordinator: oral, written, multiple-choice, or any combination. The date and time of the exam will be chosen by the coordinator.

**Ethics:** Students enrolled in this class are expected to act in a civil manner toward the coordinator, lecturers, teaching assistants, staff, and fellow students.

**Academic Dishonesty**

The University of Illinois, College of Pharmacy Student Handbook (<http://www.uic.edu/pharmacy/offices/osa/handbook.htm>) contains guidelines for academic integrity and dishonesty. **All infractions related to academic dishonesty or integrity will result in failure of the course.** For information about your rights and procedures concerning UIC Student Disciplinary Procedures please visit <http://www.uic.edu/depts/sja/cover.htm>

**Disabilities:** The coordinator will attempt to make accommodations for students with disabilities unless such accommodations have the end result of fundamentally altering a program, service, or place an undue hardship on the operation of the University. Students with disabilities should contact the office of disability services (<http://www.uic.edu/depts./counselctr/disability/disability/diswebpg.htm>) for information regarding accommodations. **It is your responsibility to consult that Office and obtain written instructions for appropriate accommodations to be given to the course coordinator at least one week prior to the first midterm examination.**

**Examinations and Quizzes:**

Midterm Exam I	7 Lectures (11 hours)	275 points	Feb. 25	8:30	10:20
Midterm Exam II	8 Lectures (11 hours)	275 points	Mar. 18	8:30-	10:20
Final / Lab Exam	8 Lectures (10 hours)	250 points	May 6	2:00-	4:00
	Dr. Pluta's 7 labs	175 points			
Lab Reports	3 Lab Report (25 pts each)	75 points	Weeks 5, 9, and 10		
Unannounced quizzes – as necessary		10 points each			

**Grading System:** The total points earned by the top ten-percent of the class will be averaged and used as the basis for assignment of final letter grades as follows:

- Average of top 10% x .95 = cut off for A
- Average of top 10% x .85 = cut off for B
- Average of top 10% x .75 = cut off for C
- Average of top 10% x .65 = cut off for D

Occasionally, the distribution of examination scores of a class is atypical and necessitates change in the format for assigning grades. The coordinator reserves the right to change the grading procedure if unusual class distributions occur.

**Type of Examination Questions:** Matching and/or multiple choice forms, as well as short answer and problem-solving questions requiring concise answers, may be used. Bring a non-graphing calculator to all exams

**Participating faculty:**

Hayat Onyuksel, Ph.D.	<a href="mailto:hayat@uic.edu">hayat@uic.edu</a>
Paul Pluta, Ph.D.	<a href="mailto:paul.pluta@comcast.net">paul.pluta@comcast.net</a>
William Porter, Ph.D.	<a href="mailto:porterwr@uic.edu">porterwr@uic.edu</a>
Seungpyo Hong, Ph.D.	<a href="mailto:sphong@uic.edu">sphong@uic.edu</a>
Debra Tonetti, Ph.D.	<a href="mailto:dtonetti@uic.edu">dtonetti@uic.edu</a>

**TA's:**

Dulari Jayawardena	<a href="mailto:djayaw2@uic.edu">djayaw2@uic.edu</a>
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Xiaoyu Hu	<a href="mailto:xhu25@uic.edu">xhu25@uic.edu</a>

PHAR 322 - SPRING 2015 Lecture Schedule				
Week	Day	Date	Subject	Lecturer
1	M	Jan 12	Tablets, Capsules, and Solids	Dr. Porter
	W	Jan 14	Tablets, Capsules, and Solids (2 hours)	Dr. Pluta
2	M	Jan 19	<b>NO CLASS HOLIDAY</b>	
	W	Jan 21	Tablets, Capsules, and Solids (2 hours)	Dr. Pluta
3	M	Jan 26	Tablets, Capsules, and Solids	Dr. Pluta
	W	Jan 28	Polymers (2 hours)	Dr. Hong
4	M	Feb 2	Suspensions Theory	Dr. Porter
	W	Feb 4	Suspensions/Aerosols Products (2 hours)	Dr. Pluta
5	M	Feb 9	Liposomes	Dr. Onyuksel
	W	Feb 11	Liposomes (2 hours)	Dr. Onyuksel
6	M	Feb 16	Emulsions Theory	Dr. Porter
	W	Feb 18	Emulsions Products (1 hour)	Dr. Pluta
7	M	Feb 23	Review Session	Dr. Pluta / Porter
	W	Feb 25	<b>MIDTERM EXAM I (8:30-10:20 am)</b> <b>(rms 32 and 36 Chgo and E207B Rkfd)</b>	
8	M	Mar 2	Creams, Ointments, Transdermal Theory	Dr. Porter
	W	Mar 4	Creams, Ointments Products (2 hours)	Dr. Pluta
9	M	Mar 9	Transdermal Products	Dr. Pluta
	W	Mar 11	Suppositories Theory/Products (2 hours)	Dr. Porter / Pluta
10	M	Mar 16	Review Session	Dr. Porter
	W	Mar 18	<b>MIDTERM EXAM II (8:30-10:20 am)</b> <b>(rms 32 and 36 Chgo and E207B Rkfd)</b>	Dr. Pluta / Porter
11	M	<b>Mar 23</b>	<b>SPRING BREAK</b>	<b>HAVE FUN</b>
	W	<b>Mar 25</b>	<b>SPRING BREAK</b>	<b>HAVE FUN</b>
12	M	Mar 30	Eye, Ear, Nose Products	Dr. Pluta
	W	April 1	Absorption and G.I. Physiology and Drug Metabolism & Pharmacogenetics in Absorption (2 hour)	Dr. Tonetti
13	M	April 6	Miscellaneous Products	Dr. Pluta
	W	April 8	Dissolution / Bioavailability (1 hour)	Dr. Porter
14	M	April 13	Dissolution / Bioavailability	Dr. Porter
	W	April 15	Stability: Degradation Pathways (1 hour)	Dr. Porter
15	M	April 20	Stability Kinetics	Dr. Porter
	W	April 22	Stability Testing/Self-Life Dosage Forms (1hour)	Dr. Porter
16	M	April 27	Compounding Process	Dr. Pluta
	W	April 29	Lecture Review (1 hour)	Dr. Pluta / Porter
17	M-F	May 4 -8	Finals Wk / Final Exam Wed. May 6 <sup>th</sup> 2-4 pm	GOOD LUCK

<b>PHAR 322 - SPRING 2015 Laboratory Schedule</b>			
<b>Week</b>	<b>Dates</b>	<b>Subject</b>	<b>Instructor</b>
1	Jan 12-16	<b>OVERVIEW / INTRODUCTION ATTENDANCE REQUIRED</b>	<b>~ 30 MIN</b>
2	Jan 19-23	<b>Solids Techniques</b>	Dr. Pluta
3	Jan 26-30	<b>Solids Calculations</b>	Dr. Pluta
4	Feb 2-Feb 6	<b>Capsules and Powders</b>	Dr. Pluta
5	Feb 9-13	<b>Lab 9 Surface Tension</b>	Dr. Onyuksel
6	Feb 16-20	<b>Suspensions</b>	Dr. Pluta
7	Feb 23-Feb 27	<b>TBA</b>	
8	Mar 2-Mar 6	<b>Liquid Emulsions</b>	Dr. Pluta
9	Mar 9-13	<b>Lab 11 Colloids</b>	Dr. Onyuksel
10	Mar 16-20	<b>Lab 14: Adsorption</b>	Dr. Onyuksel
<b>11</b>	<b>Mar 23-27</b>	<b>SPRING BREAK</b>	<b>HAVE FUN</b>
12	Mar 30-Apr 3	<b>Topicals</b>	Dr. Pluta
13	April 6-10	<b>Suppositories &amp; Trochees</b>	Dr. Pluta
14	April 13-17	<b>Suppositories &amp; Trochees</b>	Dr. Pluta
15	April 20-24	<b>Open Lab</b>	Dr. Pluta
16	April 27-May 1	<b>Lab review</b>	Dr. Pluta
17	May 4 - May 8	<b>FINALS WEEK: NO LAB</b>	