PHAR 7402: Pharmaceutics

Spring Semester 2022

Course Description
A study of the applications of physical, chemical, and biopharmaceutical principles in pharmacy and pharmaceutical sciences, especially in designing and evaluating various stable pharmaceutical dosage forms.

Additional Course Description
This course introduces applications of physicochemical and biopharmaceutical principles in designing various pharmaceutical dosage forms. Discussions may include but are not limited to pertinent mathematical concepts, development issues, processes, regulatory issues, and compendial methods of evaluation of commonly administered dosage forms. This course also offers foundational knowledge to enable rational decision-making about drug therapy based on the principles of the drug delivery system.

Course Credit
4 credit hours

Pre-Requisites
PHAR 7201: Pharmaceutical Calculations

Co-Requisites
Completion or current enrollment in PHAR 7192 (Non-sterile Compounding Lab)

Class Meeting Days, Time & Location
Wednesday: 2:00 pm to 4:00 pm and Friday: 11 am to 1 pm
Room: WTB 235

Course Coordinator
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Fisch College of Pharmacy (FCOP) and UT Tyler Policies
This is part 1 of the syllabus. Part 2 contains UT Tyler and the FCOP course policies and procedures. These are available as a PDF at https://www.uttyler.edu/pharmacy/academic-affairs/files/fcop-syllabus-policies.pdf. For experiential courses (i.e., IPPE and/or APPE), the Experiential Manual contains additional policies and instructions that supplement the Syllabus Part 1 and 2. Please note, the experiential manual may contain policies with different deadlines and/or instructions. The manual should be followed in these cases.

Required Materials

1. Most class materials will be posted on the course Canvas site. The site address is uttyler.edu/canvas.

2. Allen LV, and McPherson Timothy (2021). Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems. 13th ed. ISBN: 978-1975171773. Wolters Kluwer (Available online through the Robert R. Muntz Library).

Recommended Materials

1. Shelly Janet Prince Stockton (2021). Stoklosa and Ansel's Pharmaceutical Calculations 16th Edition. ISBN-13: 978-1975128555. Wolters Kluwer (Available online through the Robert R. Muntz Library)

2. USP – NF (Available online through the Robert R. Muntz Library)

3. Martin's Physical Pharmacy and Pharmaceutical Sciences. 7th Ed. Patrick Sinko. Wolters Kluwer Health. ISBN: 978-0781797665 (Available online through the Robert R. Muntz Library)

4. Aulton's Pharmaceutics: The Design and Manufacture of Medicines. 3rd Ed. Michael E. Aulton. Elsevier. ISBN: 9780443101083.

Course Format

The course may include, but are not limited to, the following activities:

1. Independent study of selected readings
2. Individual readiness assessment tests (iRATs)
3. Team-based learning, active learning strategies may include:
    a. Team readiness assessment tests (tRATs)
    b. Team application of contents and concepts
    c. Project

Course Learning Outcomes (CLOs)

CLOs	Related PLO(s)	Assessment Methods	Grading Method	JCPP Skill(s) Assessed	ACPE Std. 11 & 12
1. Explain the basic physicochemical, mathematical, and biopharmaceutical principles involved in designing a drug product	1	1	ES	NA	4
2. Explain the nature of selected pharmaceutical dosage forms, including how they are designed, formulated, manufactured, or compounded, and stability and quality are tested	1	1	ES	NA	4
3. Describe the delivery techniques and recommended accessories needed for administering selected drug products	1	1	ES	NA	4
4. Develop and describe patient counseling tips on selected drug delivery systems	1	1, 2	ES,	NA	4

Course Assessment Methods

	Assessment Method	Description *A brief description of each summative assessment that may be used in this course (This is to allow the college to identify which ACPE standards are being assessed)*
1	Exams in ExamSoft or other electronic platforms or paper-based.	Standard MCQ, fill in the blank and select all that apply questions. 2nd midterm and final exams are cumulative.

Grading Policy & Grade Calculation

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), individual and team cumulative assessment tests (iCATs, tCATs), midterm examinations, final examinations, application assignments, participation in team-based projects, peer evaluations, and other assessment methods that may include. Examinations, RATs, and CATs may consist of, but are not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions.

When the course is in progress, students whose cumulative course percentage falls below 70.0% may receive an academic alert and be subject to periodic course content review in special sessions with the course instructor(s). The student's faculty advisor may receive an academic alert to act upon on the student's behalf.

All examinations, tests, and assignments, including the final examination, are **cumulative.** Students are responsible for material presented in the prior courses. The grading scale for all graded material is below. The final course grade will be assigned according to the calculated percentage, and the percentages will not be rounded upward or downward. For additional information, see the examination/assessment policy.

Standard Grade Calculation*

Individual Component	**95%**
iRATs/Other Individual Activities	10%
Exam-1	25%
Exam-2 (Comprehensive)	25%
Final Exam (Comprehensive)	35%
Team Component	**5%**
t-RATs/Team Application (s)/Project	5%
Total	**100%**

The final course letter grade will be determined according to the following grading scheme:

A	90 - 100 %
B	80 - 89.999 %
C	70 - 79.999 %
D	65.0 - 69.999 %
F	< 65.0 %

PHAR 7402: Pharmaceutics Class Schedule (Spring 2022)			
Date	**Topic**	**CLO**	**WSOP**
1/12	Introduction Biopharmaceutic Considerations in Drug Product Design*	1	S20.99
1/14	Biopharmaceutic Considerations in Drug Product Design*	1	S20.99
1/17	MLK Day: No Class		
1/19	Preformulation-1*	1, 2	S20.99
1/21	Preformulation-2*	1, 2	S20.99
1/26	Solution*	1, 2	S20.99
1/28	Solution*	2, 4	S20.99
2/2	Suspension*	2, 4	S20.99
2/4	Emulsion*	2, 4	S20.99
2/9	Powders & Granules (Including Inhalers) *	3, 4	S20.99
2/11	Creams, Ointment, Pastes, Gels*	3, 4	S20.99
2/16	Exam-1		
2/18	Rectal Drug Delivery (Suppositories, Inserts, etc.) *	2, 4	S20.99
2/23	Capsules*	2, 4	S20.99
2/25	Tablets*	1, 2	S20.99
3/2	Controlled Release Systems*	1, 2	S20.99
3/4	Controlled Release Systems*	3, 4	S20.99
	3/07 – 3/11: Spring Break		
3/16	Transdermal Systems*	3, 4	S20.99

3/18	Sterile Preparations*	3, 4	S20.99
3/23	Sterile Preparations*	1, 2	S20.99
3/25	Radiopharmaceuticals*	1	S20.99
3/30	Exam – 2 (Comprehensive)		
4/1	Guest Speaker (date may change)	1	S20.99
4/6	Biologics & Biotechnology Based Drugs*	1	S20.99
4/8	Biologics & Biotechnology Based Drugs*	1	S20.99
4/13	FDA Requirements & Drug Approval Process*	1	S20.99
4/15	Novel Drug Delivery Systems* (**Dr. S. Aryal**)	1, 2	S20.99
4/20	Novel Drug Delivery Systems* (**Dr. S. Aryal**)	1, 2	S20.99
4/22	Review		
5/3 (9 am – 12 pm)	Final Exam (Comprehensive)		

* iRATs & may be tRATs

Please note that dates, topics, and assignments are subject to change. In the event of a change, you will be given notification of the change.