

# PHAR 7402: Pharmaceutics

## Spring Semester 2021

### 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

Monday and Wednesday: 10:00 am to 12:00 Noon (Content delivery may be made via Zoom or face to face, but all exams will be offered in a classroom face to face. **During zoom sessions, students must turn their cameras on. If a student does not turn on the camera during a session, he/she will receive zero on that day's iRAT**)

### Course Coordinator

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Office hours: Monday & Friday: 9 am to 10 am

Preferred method of contact: Email

### 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 of the class materials will be posted on the classes' Canvas site. The site address is [uttyler.edu/canvas](http://uttyler.edu/canvas).
2. Allen LV, Popovich NG, Ansel HC, et.al. (2013). Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup> ed. Lippincott Williams & Wilkins. (2013). ISBN: 978-0-78-177934-0 (Available online through the Robert R. Muntz Library).

## Recommended Materials

1. Howard C. Ansel and Shelly Janet Prince Stockton (2017). Pharmaceutical Calculations 15<sup>th</sup> Edition. ISBN-13: 978-1496300713. Lippincott Williams & Wilkins, Philadelphia, Pennsylvania. (Available online through the Robert R. Muntz Library)

## 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 content 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

	<b>Assessment Method</b>	<b>Description</b> <i>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)</i>
1	Exams in ExamSoft or other electronic platforms or paper based.	Standard MCQ, fill in the blank and select all that apply questions. 2 <sup>nd</sup> 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, skills assessments, graded application assignments, participation in team-based projects, peer evaluations and other assessment methods that may include, but not limited to, Objective Structured Clinical Examinations (OSCE). Examinations, RATs, and CATs may consist of, but not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions.

During the time 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, may be **cumulative**. Students are responsible for material presented during 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\*

<b>Individual Component</b>	<b>95%</b>
iRATs/Other Individual Activities	15%
Exam-1	20%
Exam-2	25%
Final Exam (Comprehensive)	35%
<b>Team Component</b>	<b>5%</b>
t-RATs/Team Application (s)/Project	5%
<b>Total</b>	<b>100%</b>

***\*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 2021)

Date	Topic	CLO	WSOP
1/11	Introduction Biopharmaceutic Considerations in Drug Product Design*	1	S19
1/13	Biopharmaceutic Considerations in Drug Product Design*	1	S19
1/18	MLK Day: No Class		
1/20	Preformulation-1*	1, 2	S19
1/25	Preformulation-2*	1, 2	S19
1/27	Preformulation-3*	1, 2	S19
2/1	Solution*	2, 4	S19
2/3	Solution*	2, 4	S19
2/8	Suspension*	2, 4	S19
2/10	Emulsion*	3, 4	S19
2/15	Powders & Granules (Including Inhalers)-1*	3, 4	S19
2/17	Exam-1 (Face to face in a classroom)		
2/22	Powders & Granules (Including Inhalers)-2*	2, 4	S19
2/24	Creams, Ointment, Pastes, Gels*	2, 4	S19
3/01	Rectal Drug Delivery (Suppositories, Inserts, etc.) *	1, 2	S19
3/03	Capsules*	1, 2	S19
	3/08 – 3/12: Spring Break		
3/15	Tablets*	3, 4	S19
3/17	Controlled Release Systems*	3, 4	S19
3/22	Controlled Release Systems*	3, 4	S19
3/24	Transdermal Systems*	1, 2	S19
3/29	Sterile Preparations*	1	S19
3/31	Exam – 2 (Comprehensive, Face to face in a classroom)		
4/5	Sterile Preparations	1	S19
4/7	Radiopharmaceuticals*	1	S19
4/12	Biologics & Biotechnology Based Drugs*	1	S19
4/14	Biologics & Biotechnology Based Drugs*	1	S19
4/19	Novel Drug Delivery Systems*	1, 2	S19
4/21	Novel Drug Delivery Systems*	1, 2	S19
4/26	FDA Requirements & Drug Approval Process*	1	S19
TBD	Final Exam (Comprehensive, Face to face in a classroom)		

\* 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.***