PHAR 7402 Pharmaceutics

Spring 2026

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 evaluation methods 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
Tuesday & Thursday: 10:30 am to 12:30 pm, Room: WTB 133

Office Hours: Tuesday and Thursday, 12:00 pm to 1 pm

Course Coordinator
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Fisch College of Pharmacy (FCOP) and UT Tyler Policies
Above is Part 1 of the syllabus. Part 2 contains UT Tyler and the FCOP course policies and procedures. These are available at https://www.uttyler.edu/offices/student-conduct-and-intervention/student-conduct/policies/. 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 that 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.

Using Artificial Intelligence (AI)

"Students can use AI platforms to help prepare for assignments and projects. You can use AI tools to revise and edit your work (e.g., identify flaws in reasoning, spot confusing or underdeveloped paragraphs, or correct citations). When submitting work, students must identify any writing, text, or media generated by AI. In this course, sections of assignments generated by AI should appear in a different colored font, and the relationship between those sections and student contributions should be discussed in a cover letter that accompanies the assignment when submitted.
Because AI-generated content is not necessarily accurate or appropriate, you must assess the validity and applicability of any submitted AI output. You will not earn full credit if inaccurate, invalid, or inappropriate information is found in your work." (UT Tyler Academic Affairs, 2024)

Course Format

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

1. Independent study of selected readings
2. Individual readiness and other examinations
3. Individual application of content and concepts
4. In-class lectures and Team activities.

Course Learning Outcomes (CLOs)

CLOs	Related PLO(s)	Assessment Methods	Grading Method	NAPLEX (1.A.1 – 5.D)	ACPE Appendix 1 (names)
1. Explain the basic physicochemical, mathematical, and biopharmaceutical principles involved in designing a drug product	1, 2	1	ES	1.A.3 1.C.5	P'Ceutics
2. Explain the nature of selected pharmaceutical dosage forms, including how they are designed, formulated, manufactured, or compounded, and how stability and quality are tested	1, 2	1	ES	1.A.3 1.C.6 1.D	P'Ceutics
3. Describe the delivery techniques and recommended accessories needed for administering selected drug products	1	1	ES	1.A.3 3.G	P'Ceutics
4. Develop and describe patient counseling tips on selected drug delivery systems	1	1, 2	ES	1.A.3 3.E.2	P'Ceutics

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 are in ExamSoft or other electronic or paper-based platforms.	Standard MCQ, fill-in-the-blank, and select all that apply questions. The 2nd midterm and final exams are cumulative.

Grading Policy & Grade Calculation

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

Examination-2 is cumulative, while the final examination is comprehensive**.** Students are responsible for the material presented in the prior courses. The grading scale for all graded materials is below. The final course grade will be assigned based on the calculated percentage, and the percentages will not be rounded up or down. For additional information, please refer to the examination/assessment policy.

Standard Grade Calculation*

Individual Component	**98%**
iRATs/Other Individual Activities	3%
Exam-1	25%
Exam-2 (Cumulaive)	30%
Final Exam (Comprehensive)	40%
Team Component	**2%**
t-RATs/Team Application (s)/Project	2%
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 %

Students are encouraged to review the remediation policy.

PHAR 7402 Pharmaceutics Course Schedule (Spring 2026)			
Date	**Topic**	**CLO**	
01/13	Biopharmaceutic Considerations in Drug Product Design*	1	
01/15	Biopharmaceutic Considerations in Drug Product Design*	1	
01/20	Preformulation-1*	1, 2	
01/22	Preformulation-2*	1, 2	
01/27	Powders & Granules (Including Inhalers) *	1,2,3,4	
01/29	Solution*	1,2,3	
02/03	Solution*	1,2,3,4	
02/05	Suspension*	1,2,3,4	
02/10	Emulsion*	1,2,3,4	
02/12	Interfacial Phenomena* (**Dr. S. Aryal**)	1	
02/17	Exam-1		
02/19	Creams, Ointments, Pastes, Gels*	1,2,4	
02/24	Rectal Drug Delivery (Suppositories, Inserts, etc.) *	1,2,3,4	
02/26	Capsules*	1,2,4	
03/03	Tablets*	1,2,3	
03/05	Controlled Release Systems*	1,3,4	
	Spring Break (03/9 – 03/13)		
03/17	Controlled Release Systems*	3,4	
03/19	Transdermal Systems*	3,4	
03/24	Sterile Preparations*	1,2	
03/26	Sterile Preparations*	1,2	
03/31	Radiopharmaceuticals*	1,2	
04/02	Exam – 2 (Cumulative)		
04/07	Novel Drug Delivery Systems* (**Dr. S. Aryal**)	1,2	
04/09	Novel Drug Delivery Systems* (**Dr. S. Aryal**)	1,2	
04/14	Biologics & Biotechnology-Based Drugs*	1,2	
04/16	Biologics & Biotechnology-Based Drugs*	1,2	
04/21	FDA Requirements & Drug Approval Process*	2	
04/23	FDA Requirements & Drug Approval Process*	2	
04/28	Review		
	Final Exam (Comprehensive)		

* iRATs & may be tRATs

Note: *Dates, topics, and assignments are subject to change. In the event of a change, you will be given a notification.*

Tuesdays & Thursdays from 10:30 am to 12:30 pm in room 133