

PHAR 7220: Therapeutic Drug Monitoring (TDM) and Clinical Pharmacokinetics (Clin - PK)
Fall Semester 2022

Course Description

This course prepares the student to apply and incorporate therapeutic drug monitoring and clinical pharmacokinetics into the patient care process.

Additional information about the course

This course introduces representative medications that require monitoring for maximal therapeutic benefits while minimizing potential adverse events. Students apply foundational knowledge of pharmacokinetics acquired in PHAR 7302, Principles of Pharmacokinetics and Biopharmaceutics, to make clinically appropriate, patient-centered therapeutic drug dosing and monitoring recommendations.

Course Credit

Two (2) credit hours

Pre-requisites

PHAR 7302

Co-requisites

None

Class meeting days, time, and location

Monday 2:00 PM to 4:00 PM CST

Location: TBD

Course Coordinator

David Romerill, Pharm.D., BCNSP

W.T. Brookshire Hall, Room #127

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Office hours: Mondays 4:00 AM – 5:00 PM CST

Fridays 9:00 AM – 11:00 AM CST

Alternative times or via Zoom by appointment

Walk-ins only for quick questions, when available

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 instructions. The manual should be followed in these cases.

Required materials

Most course-required materials are available through the Robert R. Muntz Library. These materials are available either online (<http://library.uttyler.edu/>) or on reserve.

1. *Winter's Clinical Pharmacokinetics, 6 e.* Beringer PM, ed. Wolters Kluwer, ISBN-13: 978-1496346421, 2018. Available at: <https://pharmacy.lwwhealthlibrary.com/book.aspx?bookid=2276>. Access to Muntz online library resources is required.
2. *Pharmacotherapy: A Pathophysiologic Approach, 11e.* DiPiro JT, Yee GC, Posey LM, Haines ST, Nolin TD, Ellingrod V, eds. McGraw-Hill Education, ISBN-13 978-1260116816, 2017. Available at: <https://accesspharmacy.mhmedical.com/book.aspx?bookID=257726979>. Access to Muntz online library resources is required.
3. Lexi-Drugs Online [database on the Internet]. Hudson (OH): Lexicomp, Inc.; 2021. Available from <https://libguides.utt Tyler.edu/c.php?g=861925&p=6177398>. Access to Muntz online library resources is required.
4. Other required materials will be posted on the course Canvas site.

Course format

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

1. Independent study of selected readings
2. Active learning strategies:
 - a. Team drug class PK monograph
 - b. In and out of class applications

Course Learning Outcomes (CLOs)

CLOs	Related PLO(s)	EPAs	Assessment Methods	Grading Method	AACP Std 11 & 12 (1-4)
1. Define basic pharmacokinetic parameters including volume of distribution, clearance terms, extraction ratio, elimination half-life, and unbound fraction.	1	N/A	1,2	ES	4
2. Identify and explain the clinical significance of linear and non-linear pharmacokinetic profiles of representative medications.	1,2,5	N/A	1,2	ES	4
3. Given a patient scenario, apply pharmacokinetic principles to recommend initial dosing regimens and monitoring parameters for medications in the following medication classes: <ol style="list-style-type: none"> a. cardiac glycosides b. antibiotics c. antifungals d. anti-epileptics 	1,2,6	1.1,1.2,1.5, 3.2	1,2	ES	4
4. Recommend dose adjustments and monitoring parameters based on renal function, plasma drug concentrations, and other laboratory results.	1,2,6	1.1,1.2,1.5, 3.2	1,2	ES	4
5. Document medication dosing and monitoring recommendations with appropriate lab assessments in SOAP format consult note.	2,6,9	1.3, 1.5, 3.2	2	RUB	1

Course assessment methods

	Assessment method	Description <i>Please provide a brief description of each summative assessment that you plan to use in this course to allow us to identify which ACPE standards are being assessed</i>
1	Exams may include multiple choice and multiple selection questions	Standard MCQ, true/false, matching, and select all that apply
2	Exams may include open-ended questions	Fill-in-the-blank, essay, and handwritten calculations.

Grading policy & grade calculation

Grades will be determined by graded in-class applications, assigned practice problems, a team drug class PK monograph, midterm examinations, a structured pharmacokinetic consult note, and a cumulative final examination. Examinations may consist of, but are not limited to, multiple-choice, true/false, fill-in-the-blank, short-answer, essay, and problem-based questions.

During the course, 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 on the student's behalf.

All examinations, tests, and assignments, including the final examination, may be cumulative. Students are responsible for material presented during previous 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 below.

Standard Grade Calculation	
Individual component	95%
Individual applications In Class Example Problems = 5% Take Home Practice Problems = 5%	10%
Pharmacokinetic consult note	5%
Major assessments (Midterms/Final exams) Midterm 1 = 20% Midterm 2 = 25% Final Exam = 35%	80%
Team component	5%
Team Monographs for Azole Antifungals	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	65-69.999%
F	<65%

PHAR 7220: TDM + Clin PK

Fall 2022

Date	Topic	Instructor	CLO	Disease State
08-22-2022	PK: Foundational Review	Romerill	1,2	S18.09 S18.14
08-29-2022	TDM + Clin PK: Dosing Considerations for Renal Dysfunction and Renal Replacement Therapy	Romerill	1,3,4	S04.04 S04.08 S04.12
09-05-2022	<i>LABOR DAY – No Classes</i>			
09-12-2022	TDM + Clin PK: Digoxin	Romerill	1,2,3,4	S01.11
09-19-2022	<i>Midterm Examination 1 – assessment of 08-22 through 09-12 material</i>			
09-26-2022	TDM + Clin PK: Vancomycin	Romerill	1,3,4	S15.16
10-03-2022	TDM + Clin PK: Aminoglycosides 1	Romerill	1,3,4,5	S15.16
10-10-2022	TDM + Clin PK: Aminoglycosides 2	Romerill	1,3,4,5	S15.16
10-17-2022	TDM + Clin PK: Azole Antifungals	Romerill	1,3,4	S15.16
10-24-2022	<i>Midterm Examination 1 – assessment of 02/15 through 3/15 material</i>			
10-31-2022	TDM + Clin PK: Phenytoin I	Romerill	1,2,3,4,5	S05.08
11-07-2022	TDM + Clin PK: Phenytoin II	Romerill	1,2,3,4,5	S05.08
11-14-2022	TDM + Clin PK: Phenobarbital	Romerill	1,2,3,4	S05.08
11-21 to 11-25	<i>THANKSGIVING BREAK – No Classes</i>			
11-28-2022	TDM + Clin PK: Valproic acid	Romerill	1,2,3,4	S05.08
12 -05 to 12-09	<i>Comprehensive Final Examination – assessment of 08-22 through 11-28 material</i>			