

**Introduction to Medicinal Chemistry**  
**PHAR 7203**  
Spring Semester 2022

**Course Description**

This course focuses on introducing medicinal chemistry concepts and few major drug classes to pharmacy students.

**Additional Information on the Course**

This course introduces the students to the general principles of medicinal chemistry and drug-target interactions. Several topics concerning drug discovery, design, and development will be covered. Concepts that explain key functional groups in drugs and how the structure influences activity and pharmacokinetics and, consequently drug choices will be examined. A few selected drug classes that influence major systems will be covered as well.

**Course Credit**

2 credit hours

**Pre-Requisites:** PHAR 7401 and PHAR 7301

**Co-Requisites:** None

**Class Meeting Days, Time & Location**

Mondays, 10:00 am – 12:00 pm; Room WTB 235.

**Course Coordinator**

May H. Abdelaziz, BPharm, MS, PhD

W.T. Brookshire Hall Room 368

Phone number: 903.566.6231

Email: mabdelaziz@uttyler.edu

Office hours: Mondays 8:00 am – 10:00 am, open door, and by appointment

Preferred method of contact: Email

**Course Instructor**

Santosh Aryal, PhD

W.T. Brookshire Hall Room 370

Phone number: 903. 565-6473

Email: santosharyal@uttyler.edu

Office hours: Fridays 12 – 2 pm and by appointment

Preferred method of contact: Email, and face-to-face meeting

**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/>. 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

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

1. An Introduction to Medicinal Chemistry, 6<sup>th</sup> ed. Graham Patrick. Oxford University Press. ISBN-10: 0198749694
2. **Other required materials will be posted on the classes' Canvas site. The site address is [utt Tyler.edu/canvas](http://utt Tyler.edu/canvas).**

## Recommended Materials

The course-recommended materials are on reserve at the Robert R. Muntz Library.

1. Foye's Principles of Medicinal Chemistry, 8th ed. Thomas Lemke et. al. Wolters Kluwer Health ISBN-10: 1496385020.
2. Basic Concepts in Medicinal Chemistry, 1st ed. Marc Harrold and Robin Zavod. American Society of Health-System Pharmacists. ISBN-10: 1585282669

## Course Format

The course may include, but is 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 like team readiness assessment tests (tRATs), and team application of content and concepts

## Course Learning Outcomes (CLOs)

CLOs	Related PLO(s) (1-15)	EPAs (1.1-6.1)	Assessment Methods <sup>1</sup>	Grading Method <sup>2</sup>	PPCP Skill(s) Assessed (1-5)	AACP Std. 11 & 12 (1-4)
1. Identify the array of possible biological drug targets	1	4.1, 4.2	1,2	ES	-	-
2. Clarify the concepts of drug discovery and development	1	4.1, 4.2	1,2	ES	-	-
3. Analyze drug target interactions	1	4.1, 4.2	1,2	ES	-	-
4. Predict activity and metabolic fate based on structure variations	1,6,7	4.1, 4.2	1,2	ES	-	-
5. Investigate selected drug classes	1,7,11	1.2, 4.1, 4.2	1,2	ES	2,3	-

## Course Assessment Methods

	Assessment Method	Description
1	Exam Multiple Choice or Multiple Selection Question(s)	<i>Standard MCQ, T/F and Select All that apply questions.</i>
2	Exam Open Ended Question(s)	<i>Short essay, hot spot and fill in the blank questions</i>

## Grading Policy & Grade Calculation

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), midterm examinations, final written examinations, graded application assignments, participation in team-based projects and other assessment methods. Assessments may consist of multiple-choice, true/false, short-answer, essay, hot spot and problem-based questions. ES: exam soft

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 coordinator**. 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 examination/assessment policy.

**Standard Grade Calculation\***

<b>Individual Component</b>	<b>85%</b>
iRATs/Other Individual Activities	15%
Midterm	35%
Final Written exam	35%
<b>Team Component</b>	<b>15%</b>
tRATs	5%
Team Application(s)/Assignment(s)	10%
<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 7203 Course Schedule

W	DATE (M)	TOPIC	Instructor	CLO	FCOP Category
1	1/9/23	Drugs and Drug Targets	Abdelaziz	1	S20.99
2	1/16/23	MLK Day			
3	1/20/23*	Functional Groups and Stereochemistry	Aryal	4	S20.99
3	1/23/23	Drug Discovery: Finding A Lead	Aryal	2	S20.99
4	1/30/23	Drug Design: Target Interactions	Aryal	2,3,4	S20.99
5	2/6/23	Drug Optimization	Aryal	2,3,4	S20.99
6	2/13/23	Optimizing Access to Target and Prodrugs	Abdelaziz	2,4	S20.99
7	2/20/23	Drug Metabolism and Exam Review	Abdelaziz	4	S20.99
8	2/27/23	Midterm			
9	3/6/23	Adrenergic Agents	Abdelaziz	3,4,5	S01.01, S02.01
	3/13/23	Spring Break			
10	3/20/23	Cholinergic Agents	Abdelaziz	3,4,5	S05.01, S05.09, S12.09
11	3/27/23	Antihistaminic and Ulcer Medications	Abdelaziz	3,4,5	S03.02, S12.01
12	4/3/23	Non-Steroidal Anti-inflammatory and Disease Modifying Antirheumatic Drugs	Abdelaziz	3,4,5	S05.06B, S05.07, S11.01
13	4/10/23	Adrenocorticoids and Gout Medications	Abdelaziz	3,4,5	S02.01, S11.01, S11.03, S13.02, S13.03
14	4/17/23	Diuretics and Exam Review	Abdelaziz	3,4,5	S01.01, S04.05
15		Finals Week			
<i>Please note that dates, topics, and assignments are subject to change. In the event of a change, you will be given ample notification of the change.</i>					

**\*This class will be conducted on Friday 01/20/23 from 2 – 4 pm at the same class meeting room**

***RATs are to be expected every week, please prepare accordingly.***