

Introduction to Medicinal Chemistry
PHAR 7203
Spring Semester 2024

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 236.

Course Coordinator

May H. Abdelaziz, BPharm, MS, PhD

W.T. Brookshire Hall Room 368

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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

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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, 6th 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.**

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 (1-13) | Assessment Methods ¹ | Grading Method ² | ACPE Std. 11 & 12 (1-4) |
|--|-----------------------|-------------|---------------------------------|-----------------------------|-------------------------|
| 1. Identify the array of possible biological drug targets | 1 | 4 | 1,2 | ES | - |
| 2. Clarify the concepts of drug discovery and development | 1 | 4 | 1,2 | ES | - |
| 3. Analyze drug target interactions | 1 | 4 | 1,2 | ES | - |
| 4. Predict activity and metabolic fate based on structure variations | 1,6,7 | 4 | 1,2 | ES | - |
| 5. Investigate selected drug classes | 1,7,11 | 4 | 1,2 | ES | - |

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 who obtain less than 75% on any summative assessment or a total course grade of less than 75% during a particular semester will receive an academic alert from the course coordinator and the Office of Academic Affairs and be subject to weekly in-course remediation 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 examination/assessment policy.

Standard Grade Calculation*

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

| W | DATE (M) | TOPIC | Instructor | CLO | Disease State |
|--|----------|---|------------|-------|--|
| 1 | 01/15/24 | MLK Day | | | |
| | TBD* | Drugs and Drug Targets | Abdelaziz | 1 | S20.99 |
| 2 | 01/22/24 | Functional Groups and Stereochemistry | Aryal | 4 | S20.99 |
| 3 | 01/29/24 | Drug Discovery: Finding A Lead | Aryal | 2 | S20.99 |
| 4 | 02/05/24 | Drug Design: Target Interactions | Aryal | 2,3,4 | S20.99 |
| 5 | 02/12/24 | Drug Optimization | Aryal | 2,3,4 | S20.99 |
| 6 | 02/19/24 | Optimizing Access to Target and Prodrugs | Abdelaziz | 2,4 | S20.99 |
| 7 | 02/26/24 | Drug Metabolism and Exam Review | Abdelaziz | 4 | S20.99 |
| 8 | 03/04/24 | Midterm | | | |
| | 03/11/24 | Spring Break | | | |
| 9 | 03/18/24 | Adrenergic Agents | Abdelaziz | 3,4,5 | S01.01, S02.01 |
| 10 | 03/25/24 | Cholinergic Agents | Abdelaziz | 3,4,5 | S05.01, S05.09, S12.09 |
| 11 | 04/01/24 | Antihistaminic and Ulcer Medications | Abdelaziz | 3,4,5 | S03.02, S12.01 |
| 12 | 04/08/24 | Non-Steroidal Anti-inflammatory and Disease Modifying Antirheumatic Drugs | Abdelaziz | 3,4,5 | S05.06B, S05.07, S11.01 |
| 13 | 04/15/24 | Adrenocorticoids and Gout Medications | Abdelaziz | 3,4,5 | S02.01, S11.01, S11.03, S13.02, S13.03 |
| 14 | 04/22/24 | Diuretics and Exam Review | Abdelaziz | 3,4,5 | S01.01, S04.05 |
| 15 | | Finals Week | | | |
| <p><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></p> | | | | | |

***This class will be rescheduled later**

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