



Jordan University of Science and Technology

Faculty of Pharmacy

Doctor Of Pharmacy (Pharm D.) Department

PHMD323 Medicinal Chemistry 2 - JNQF Level: 7

First Semester 2023-2024

Course Catalog

3 Credit Hours. The course covers the structure-activity relationships, physicochemical properties, and pharmacological activities of drugs used to treat cardiovascular disease, diabetes, allergy, and ulcer. Opioids, non-steroidal, and steroidal anti-inflammatory drugs will be covered as well. Besides, the concept of rational drug design and strategies applied during the drug development process will be covered via discussing selected case studies.

Text Book

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| Title | Foye's principles of medicinal chemistry |
| Author(s) | Thomas L. Lemke, David A. Williams |
| Edition | 8th Edition |
| Short Name | Ref #1 |
| Other Information | |

Course References

| Short name | Book name | Author(s) | Edition | Other Information |
|------------|---|------------------------------|--------------|-------------------|
| Ref #2 | An Introduction to Medicinal Chemistry | Graham Patrick | 7th Edition | |
| Ref #3 | Wilson and Gisvold's textbook of Organic Medicinal and Pharmaceutical Chemistry | John H. Block, John M. Beale | 12th Edition | |

Instructor

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| Name | Prof. Qosay Al-Balas |
| Office Location | P1L-1 |
| Office Hours | Sun : 11:00 - 12:30 Mon : 10:00 - 12:00 Wed : 09:30 - 11:30 Thu : 09:00 - 11:00 |
| Email | qabalas@just.edu.jo |

Instructor

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| Name | Prof. Jamal Al-Jilani |
| Office Location | P1 L1 |
| Office Hours | |
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Instructor

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| Name | Dr. LARA ALFAKHORI |
| Office Location | - |
| Office Hours | Sun : 09:00 - 11:00 Mon : 14:00 - 15:00 Tue : 11:00 - 12:00 Thu : 10:00 - 12:00 |
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Class Schedule & Room

Section 1:

Lecture Time: Sun, Tue : 12:30 - 13:30
Room: M3305

Section 2:

Lecture Time: Mon, Wed : 08:30 - 09:30
Room: P1103

Section 3:

Lecture Time: Sun, Tue : 13:30 - 14:30
Room: PH2104

Section 4:

Lecture Time: Sun, Tue : 12:30 - 13:30
Room: PH2106

Prerequisites

| Line Number | Course Name | Prerequisite Type |
|-------------|-------------------------------|----------------------|
| 312240 | PHMD224 Medicinal Chemistry 1 | Prerequisite / Study |

Tentative List of Topics Covered

| Weeks | Topic | References |
|--------------|---|--------------------------------------|
| Weeks 1, 2 | Antihypertensive drugs_Diuretics | Chapter 22 From Ref #1 |
| Weeks 2, 3 | Antihypertensive drugs_Angiotensin converting enzyme inhibitors | Chapter 23 From Ref #1 |
| Week 4 | Antihypertensive drugs_Angiotensin II receptor antagonists | Chapter 23 From Ref #1 |
| Week 4 | Antihypertensive drugs_Calcium channel blockers | Chapter 23 From Ref #1 |
| Week 5 | Antihyperlipidemic drugs | Chapter 25 From Ref #1 |
| Weeks 6, 7 | Insulin and oral hypoglycemic agents | Chapter 27 From Ref #1 |
| Weeks 7, 8 | H1-Antihistamines | Chapter 32 From Ref #1 |
| Week 9 | H2-Antihistamines | Chapter 32 From Ref #1 |
| Week 9 | Proton pump inhibitors | Chapter 32 From Ref #1 |
| Weeks 10, 11 | Opioid analgesics | Chapter 20 From Ref #1 |
| Weeks 12, 13 | Non-steroidal anti-inflammatory drugs | Chapter 31 From Ref #1 |
| Week 14 | Steroidal hormones and therapeutically related compounds | Chapter 28 From Ref #1 |

| Mapping of Course Outcomes to Program Outcomes and NQF Outcomes | Course Outcome Weight (Out of 100%) | Assessment method |
|---|-------------------------------------|-------------------------------------|
| Predict, based on structure, the pharmacodynamics and pharmacokinetic profiles of cardiovascular drugs, as well as their physicochemical properties-activity relationship. [1PLO1.1] [1L7K1, 1L7S1, 1L7S2] | 39% | First Exam, Second Exam, Final Exam |
| Predict, based on structure, the pharmacodynamics and pharmacokinetic profiles of antidiabetic agents, as well as their physicochemical properties-activity relationship [1PLO1.1] [1L7K1, 1L7S1, 1L7S2] | 14% | Second Exam, Final Exam |
| Predict, based on structure, the pharmacodynamics and pharmacokinetic profiles of antihistamines and peptic ulcer drugs, as well as their physicochemical properties-activity relationship. [1PLO1.1] [1L7K1, 1L7S1, 1L7S2] | 17% | Second Exam, Final Exam |
| Predict, based on structure, the pharmacodynamics and pharmacokinetic profiles of NSAIDs and steroidal hormones, as well as their physicochemical properties-activity relationship. [1PLO1.1] [1L7K1, 1L7S1, 1L7S2] | 16% | Final Exam |
| Predict, based on structure, the pharmacodynamics and pharmacokinetic profiles of opioid analgesics, as well as their physicochemical properties-activity relationship. [1PLO1.1] [1L7K1, 1L7S1, 1L7S2] | 9% | Final Exam |
| Analyze the Structure-Activity Relationship (SAR) within a set of compounds and predict their corresponding physicochemical properties-activity relationship. [1PLO3.1] [1L7K1, 1L7S1, 1L7S2] | 5% | Active Learning |

| Relationship to Program Student Outcomes (Out of 100%) | | | | | | | | | | | | | | | |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| PLO1.1 | PLO2.1 | PLO2.2 | PLO2.3 | PLO2.4 | PLO3.1 | PLO3.2 | PLO3.3 | PLO3.4 | PLO3.5 | PLO3.6 | PLO4.1 | PLO4.2 | PLO4.3 | PLO4.4 | PLO5.1 |
| 95 | | | | | 5 | | | | | | | | | | |

| Relationship to NQF Outcomes (Out of 100%) | | |
|--|-------|-------|
| L7K1 | L7S1 | L7S2 |
| 33.33 | 33.33 | 33.33 |

| Evaluation | |
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| Assessment Tool | Weight |
| First Exam | 28% |
| Second Exam | 27% |
| Final Exam | 40% |
| Active Learning | 5% |

| Policy | |
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| Communicating with Instructors | <ul style="list-style-type: none"> - Students should communicate through their official JUST emails. Communication through personal email accounts (yahoo, Gmail, Hotmail, etc.) or social media will NOT be accepted, and no response will be provided. - Students are required to check their emails and the E-learning page of the course regularly for announcements and notifications. |
| Exams | <ul style="list-style-type: none"> - All exams are closed books and notes. - The final exam is comprehensive (covers all the material). - The first, second, and midterm incomplete exams need approval from the departments' heads. - The final incomplete exams need approval from the dean. |
| Cheating | <p>Prohibited; The commitment of the acts of cheating and deceit such as copying during examinations, altering examinations for re-grade, plagiarism of homework assignments, and in any way representing the work of others as your own is dishonest and will not be tolerated. Standard JUST policy will be applied.</p> <p>المادة 6 من نظام تأديب الطلبة لسنة 1999: إذا ضُبط الطالب أثناء الامتحان أو الاختبار متلبساً بالعض فتوقع عليه العقوبات التالية مجتمعة</p> <p>أ- اعتباره راسباً في ذلك الامتحان أو الاختبار.</p> <p>ب- الغاء تسجيله في بقية المسابقات المسجل لها في ذلك الفصل.</p> <p>ج- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه.</p> |
| Attendance | <ul style="list-style-type: none"> - Attendance is mandatory and will be recorded regularly. - Excellent attendance is expected. - Students who miss more than 20% of the classes will be dropped from the course as per JUST policy. - If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed. |
| Active learning and students' participation | <ul style="list-style-type: none"> - Students are expected to actively participate in class discussions. |
| Withdraw | The last day of courses withdrawal (without reimbursement of tuition fees) is last day before final exams. |

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| Classroom Etiquette | <ul style="list-style-type: none">- Respect<ul style="list-style-type: none">o Respect people, places, and things.o Raise your hand to speak.o Listen respectfully.o Food and drink are not permitted in class.o Do not engage in aside conversations. - Participation or Disruption:<ul style="list-style-type: none">o Do not hesitate to ask questions at any time, especially if you are unsure of something.o Listen to other students' questions to avoid asking the same question five minutes later.o Allow your classmates to participate in class discussions and refrain from taking advantage of all opportunities for active participation. - Cell Phones and Electronic Devices:<ul style="list-style-type: none">o Texting is not permitted in class.o The use of cell phones, smartphones, or other mobile communication devices is disruptive and is therefore prohibited during class without permission.o Your phone should be turned off. If you must keep your phone on, you should set it to vibrate or silent mode and leave class if you receive an emergency call.o Except in emergencies, those using such devices must leave the classroom for the remainder of the class period.o Do not use your laptop in class for browsing the Internet or using social media while in class. - Missing a Class<ul style="list-style-type: none">o Do not miss classes. It is not appropriate to ask the professor if you missed anything important if you miss class. Obviously, something of importance was missed, you missed a whole class!o Whenever you are absent from class, it is your responsibility to make up the work and to get notes, not your professor's.o If you need to leave early, notify the instructor. - Be Punctual<ul style="list-style-type: none">o Make sure you arrive to class on time. |
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