## Course E-Syllabus

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|---|---|---|
| **1** | **Course title** | Pharmaceutical Chemistry II-Blended learning |
| **2** | **Course number** | 1201402 |
| **3** | **Credit hours** | 2 (theory) |
| | **Contact hours (theory, practical)** | 2 (theory) |
| **4** | **Prerequisites/corequisites** | Pharmaceutical Chemistry I (1201411) |
| **5** | **Program title** | Pharmacy/PharmD |
| **6** | **Program code** | 1201402 |
| **7** | **Awarding institution** | The University of Jordan |
| **8** | **School** | Pharmacy |
| **9** | **Department** | Pharmaceutical Sciences |
| **10** | **Level of course** | Obligatory |
| **11** | **Year of study and semester (s)** | First semester of the 4th year |
| **12** | **Final Qualification** | Pharmacy/PharmD |
| **13** | **Other department (s) involved in teaching the course** | None |
| **14** | **Language of Instruction** | English |
| **15** | **Teaching methodology** | ☐ Blended ☑Online |
| **16** | **Electronic platform(s)** | ☐ Moodle ☑ Microsoft Teams ☐ Skype ☐ Zoom ☐ Others…… |
| **17** | **Date of production/revision** | 7-9-2021 |

**18 Course Coordinator:**

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**19 Other instructors:**

**20 Course Description:**

**a. Course Description:**

As stated in the approved study plan. This course includes detailed studies on the chemistry, biochemistry, pharmacology and metabolism of clinically important drug molecules that are used as antibiotics and chemotherapeutic agents in compacting infections and cancer.

**21 Course aims and outcomes:**

**Aims:**

- To correlate physiochemical properties of molecules with their molecular pharmacological activity (SAR).
- To understand the function, classes and mechanism of actions of drugs used in bacterial infections.
- To understand drugs used in the treatment of fungal, protozoal and worm infections
- To understand drugs used in the treatment of viral infections
- To understand the classes, mechanism and resistance of drug used in the treatment of the different types of cancer.

**Intended Learning Outcomes:**

Successful completion of this module should lead to the following outcomes:

A- Knowledge and understanding (students should):

A1) Be able to discuss the structure activity relationships (SAR) that control the pharrnacokinetics (drug absorption, distribution, metabolism and excretion) and pharmacodynamics (mechanism of action of drug with respective receptor) of significant fraction of clinically applicable antibacterial, antifungal, antiprotozoal, antivirals and antineoplastic agents.

A2) Be able to predict qualitatively pharmacokinetic and pharmacodynamic properties of various chemotherapeutic agents from molecular structures.

**22. Topic Outline and Schedule:**

| Week | Lecture | Topic | Teaching Methods*/platform | Evaluation Methods** | References |
|---|---|---|---|---|---|
| 1 | 1.1 | Introduction | AA, Synchronous lecturing/meeting, MS Teams | Exam | ***Wilson and Gisvold's Textbook of Organic, Medicinal and Pharmaceutical Chemistry, 11th Edition.***<br><br>***Principles of Medicinal Chemistry, 4th Edition. Foye, Lemke, Williams, 12th Edition*** |
| | 1.2 | Beta Lactams: Penicillins | AA, Asynchronous lecturing/meeting, MS | | |
| 2 | 2.1 | Penicillins & Cephalo-sporins | AA, Synchronous lecturing/meeting, MS Teams | | |
| | 2.2 | Cephalosporins, Beta-Lactamase inhibitors | AA, Asynchronous lecturing/meeting, MS | | |
| 3 | 3.1 | Carbapenems & Monobactams | AA, Synchronous lecturing/meeting, MS Teams | | |
| | 3.2 | Tetracyclines | AA, Asynchronous lecturing/meeting, MS | | |
| 4 | 4.1 | Tetracyclines & Aminoglycosides | AA, Synchronous lecturing/meeting, MS Teams | | |
| | 4.2 | Aminoglycosides | AA, Asynchronous lecturing/meeting, MS | | |
| 5 | 5.1 | Aminoglycosides & Macrolides | AA, Synchronous lecturing/meeting, MS Teams | | |
| | 5.2 | Macrolides, polypeptide & miscellaneous antibiotics | AA, Asynchronous lecturing/meeting, MS | | |
| 6 | 6.1 | Synthetic antibacterials: Sufonamides | AA, Synchronous lecturing/meeting, MS | | |
| | 6.2 | Synthetic antibacterials quinolones | AA, Asynchronous lecturing/meeting, MS | | |
| 7 | 7.1 | Antituberculars agents | AA, Synchronous lecturing/meeting, MS | | |
| | 7.2 | Antifungals: azoles, polyenes, squalene | AA, Asynchronous lecturing/meeting, MS | | |
| 8 | 8.1 | Antifungals: azoles, polyenes, squalene | AA, Synchronous lecturing/meeting, MS | | |
| | 8.2 | Antimalarial | AA, Asynchronous lecturing/meeting, MS | | |
| 9 | 9.1 | Antimalarial | AA, Synchronous lecturing/meeting, MS | | |
| | 9.2 | Antiprotozoal | AA, Asynchronous lecturing/meeting, MS | | |
| 10 | 10.1 | Antiprotozoal | AA, Synchronous lecturing/meeting, MS | | |
| | 10.2 | Anthelminthics | AA, Asynchronous lecturing/meeting, MS | | |
| 11 | 11.1 | Antivirals | AA, Synchronous lecturing/meeting, MS | | |
| | 11.2 | Antivirals | AA, Asynchronous lecturing/meeting, MS | | |
| 12 | 12.1 | Anticancers | AA, Synchronous lecturing/meeting, MS | | |
| | 12.2 | Anticancers | AA, Asynchronous lecturing/meeting, MS | | |

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz…etc

**23 Evaluation Methods:**

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

| Evaluation Activity | Mark | Topic(s) | Period (Week) | Platform |
|---|---|---|---|---|
| Midterm Exam | 30 | Beta Lactams:<br>Penicillins<br>Cephalosporins<br>Beta-Lactamase inhibitors<br>Carbapenems<br>Monobactams<br>Tetracyclines<br>Aminoglycosides<br>Macrolides<br>Polypeptide & miscellaneous antibiotics<br>Sufonamides<br>Quinolones | 6 | Students.com |
| Assignments | 30 | In class activities<br>Online activities<br>Online quizzes | 8-10 | |
| Final Exam | 40 | All covered topics during the semester | 13 | Students.com |

**24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):**

Students should have a computer, internet connection, account on MS Teams

**25 Course Policies:**

A- Attendance policies:
Attendance: Mandatory.
First warning - with 3 absences; Last warning - with 4 absences; Failing in the subject - with 5 absences

B- Absences from exams and handing in assignments on time:
Will result in zero achievement unless health report or other significant excuse is provided.

C- Health and safety procedures:
Not Applicable

D- Honesty policy regarding cheating, plagiarism, misbehavior:
The participation, the commitment of cheating will lead to applying one or more of the following penalties:
1) Failing the subject he/she cheated at
2) Failing the other subjects taken in the same course

3) Not allowed to register for the next semester. The summer semester is not considered as a semester

E- Grading policy:

Exams and Quizzes:

In class activities: 10 points
Online activities: 10 points
Online quizzes: 10 points
Mid Exam: 30 points
Final Exam: 40 points

F- Available university services that support achievement in the course:
Classrooms, Library, Internet connections

**26 References:**

A- Required book(s), assigned reading and audio-visuals:

- Gisvold's Textbook of Organic, Medicinal and Pharmaceutical Chemistry, 11th Edition, Delgado, J.N.; Remers, W.A.
- Principles of Medicinal Chemistry Foye, Lemke, Williams, 12th Edition

B- Recommended books, materials and media:

- Burger's Medicinal Chemistry, 6th edition; D.J. Abraham, Ed.
- Burger's Medicinal Chemistry, 5th edition, Vol. 1-5; M.E. Wolff, Ed.
- Burger's Medicinal Chemistry, 4th edition, Vol. 1-3; M.E. Wolff, Ed.
- Organic Chemistry of Drug Synthesis, Vol. 1-6, Daniel Lednicer and Lester A. Mitscher

**27 Additional information:**

None

Name of Course Coordinator: **Areej Abuhammad** Signature: Date: 7-9-2021

Head of Curriculum Committee/Department: ---------- Signature: ----------

Head of Department: ---------- Signature: ----------

Head of Curriculum Committee/Faculty: ---------- Signature: ----------

Dean: ---------- Signature: ----------