Syllabus: Medicinal Chemistry 2 (#1317031424)
Second Semester 2021 /2022

COURSE INFORMATION	
Course Name: Medicinal Chemistry II (Dual face-to-face and online education) **Semester: First** **Department: Department of Pharmaceutical Chemistry** **Faculty: Pharmaceutical Sciences**	**Course Code: 1317031424** **Section: 1** **Core Curriculum: 2013 Study Plan**
Day(s) and Time(s): to be assigned **Classroom: Pharmaceutical Sciences (to be assigned later on)**	**Credit Hours: 2** **Prerequisites: 1317031323**

COURSE DESCRIPTION

In this course, the knowledge from prerequisite course will be applied. Recognize the relation between molecules for design of certain synthetic leads. The categories of drug classes and their efficacies including antibiotics, antibacterial, antiviral, antifungal, anthelmintic, central nervous system drugs (antipsychotic, antiepileptic, sedative-hypnotics, anxiolytic, antidepressants and CNS stimulants), antidiabetic drugs, analgesics (opioid and non-opioid) anticancer, will be identified
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DELIVERY METHODS

The course will be delivered through a combination of active and online learning strategies. These will include:

- PowerPoint lectures and active classroom-based discussion
- Teams recorded lectures
- Relevant films and documentaries
- E-learning resources: e-reading assignments and practice quizzes through Model and Microsoft Team

FACULTY INFORMATION

Name	Dr. Rand Shahin
Academic Title:	Assistant Professor
Office Location:	Third Floor
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Email Address:	r.shahin@hu.edu.jo
Office Hours:	Monday 10:30-1:00 Tuesday 10:00-11:00 *Please send an e-mail (r.shahin@hu.edu.jo) to meet.*

REFERENCES AND LEARNING RESOURCES

Reading List

1 (textbook) Introduction to Medicinal Chemistry, Graham Patrick, 4th edition, 2009, Oxford University Press

2 Wilson and Gisvold's Textbook of Organic, Medicinal and Pharmaceutical Chemistry, 11th Edition, 2004, Lea & Febiger

STUDENT LEARNING OUTCOMES MATRIX

An alignment matrix of the **program** ILOs of the Bachelor of ؛Pharmaceutical Sciences at The Hashemite University, the **course** ILOs and knowledge, skills and competencies as mentioned in the Jordan National Qualifications Framework (JNQF)

Field according to (JNQF)	Required to achieve (according to (JNQF)	Core curriculum learning outcomes	B.Sc. Pharmacy Program ILOs	Course Objectives	Course Student ILOs						Assessment Method
					A	B	C	D			
Knowledge	**A. Knowledge and Understanding: When students have completed the program they will be able to:** 1. Gain an appreciation for the drug development process, including how biologically active drugs are synthesized, how the structure of a drug relates to its activity, and how basic research into the biochemical mechanism of disease leads to the targeted development of drugs from different classes 2. Learn the influence of the physico-chemical properties of a drug on its absorption, distribution and elimination. 3. Understand the chemical basis of drug action at molecular level and drug metabolism.	Foundational Knowledge	Learner								Lectures and Videos
Skills	**B Essential for Practice and Care (Intellectual Skills)**: When students have completed the program they will be able to: **B1**. The student should the structure of anticancer drugs **B2.** The student should analyze how do CNS drugs work and interact with their receptors.. **B3.** The student should recognize the SAR of anticancer and CNS drugs	Essentials for Practice and Care Approach to Practice and Care	Caregiver Manager Promoter Provider Creative Thinker & Problem-Solver Educator Advocate Collaborator								Lectures and Videos
	C Approach to Practice Pharmacy: The The student will be able to: 1. Critically assess primary and secondary										

	literature in the area of medicinal chemistry. 2. Be aware of the social and ethical issues that arise in medicinal chemistry.		Includer Communicator								
Competencies	**D. Personal and Professional Development: When students have completed the program they will be able to:** **D1** Students should know how to conduct literature survey for scientific information related to medicinal plants **D2** Students should know how to consult the pharmaceutical industry on natural product. **D3.**The students will be able to discuss the occurrences of side effects, overdose and interactions with herbal products which occur frequently for which a patient may seek medical care **D4** Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth regrding his role as a pharmacist and the medication expert in the field of Anticancer and CNS drugs	Personal & Professional Development Pharmaceutical Product Expert	Self-aware Leader Innovator Professional Manufacturer								Lectures and Videos

ACADEMIC SUPPORT

It is The Hashemite University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their instructor to ensure that their individual needs are met. The University through its Special Need section will exert all efforts to accommodate for individual's needs.

Special Needs Section:

Tel: **00962-5-3903333** **Extension:** **4209**

Location: **Students Affairs Deanship/ Department of Student Welfare Services**

Email: **amalomoush@hu.edu.jo**

amalomoush@staff.hu.edu.jo

COURSE REGULATIONS

Participation

Class participation and attendance are important elements of every student's learning experience at The Hashemite University, and the student is expected to attend all classes. A student should not miss more than 15% of the classes during a semester. *Those exceeding this limit of 15% will receive a failing grade regardless of their performance*. It is a student's responsibility to monitor the frequency of their own absences. Attendance record begins on the first day of class irrespective of the period allotted to drop/add and late registration. It is a student's responsibility to sign-in; failure to do so will result in a non-attendance being recorded.

In exceptional cases, the student, with the instructor's prior permission, could be exempted from attending a class provided that the number of such occasions does not exceed the limit allowed by the University. The instructor will determine the acceptability of an absence for being absent. A student who misses more than 25% of classes and has a valid excuse for being absent will be allowed to withdraw from the course.

On average, students need to spend 15 hrs of study and preparation weekly. At the beginning of the lectures, be on time and don't leave before the end of the lecture without an accepted excuse. If you missed a class, it is your responsibility to find out about any announcements or assignments you have missed. For any clarification, please communicate your instructor at her posted office hours or by appointment. Listen well to the lecture, if you have a question, ask your instructor. You will find the course material at the course team after the lecture.

Plagiarism

Plagiarism is considered a serious academic offence and can result in your work losing marks or being failed. HU expects its students to adopt and abide by the highest standards of conduct in their interaction with their professors, peers, and the wider University community. As such, a student is expected not to engage in behaviours that compromise his/her own integrity as well as that of The Hashemite University.

Plagiarism includes the following examples, and it applies to all student assignments or submitted work:

- Use of the work, ideas, images or words of someone else without his/her permission or reference to them.
- Use of someone else's wording, name, phrase, sentence, paragraph or essay without using quotation marks.
- Misrepresentation of the sources that were used.

The instructor has the right to fail the coursework or deduct marks where plagiarism is detected

Late or Missed Assignments

In all cases of assessment, students who fails to attend an exam, class project or deliver a presentation on the scheduled date without prior permission, and/or are unable to provide a medical note, will automatically receive a fail grade for this part of the assessment.

- Submitting a term paper on time is a key part of the assessment process. Students who fail to submit their work by the deadline specified will automatically receive a 10% penalty. Assignments handed in more than 24 hours late will receive a further 10% penalty. Each subsequent 24 hours will result in a further 10% penalty.
- In cases where a student misses an assessment on account of a medical reason or with prior permission; in line with University regulations an incomplete grade for the specific assessment will be awarded and an alternative assessment or extension can be arranged.

Missed Assessments

In all cases of assessment, students who fails to attend an exam on the scheduled date without prior permission, and/or are unable to provide a medical note, will automatically receive a failure .grade for this part of the assessment

• In cases where a student misses an assessment on account of a medical reason or with prior permission; in line with university regulations an incomplete grade for the specific assessment will be awarded and an alternative assessment or extension can be arranged.

Cheating

Cheating, academic disconduct, fabrication and plagiarism will not be tolerated, and the university policy will be applied. Cheating policy: The participation, the commitment of cheating will lead to applying all following penalties together:

- Failing the subject, he/she cheated at
- Failing the other subjects taken in the same course
- Not allowed to register for the next semester
- The summer semester is not considered as a semester

Student Complaints Policy

Students at The Hashemite University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-

academic. For more information about the policy and processes related to this policy, you may refer to the students' handbook.

COURSE ASSESSMENT

Course Calendar and Assessment

Students will be graded through the following means of assessment and their final grade will be calculated from the forms of assessment as listed below with their grade weighting taken into account. The criteria for grading are listed at the end of the syllabus

Students will be graded through the following means of assessment:

Assessment	Grade Weighting	Deadline Assessment
First Exam	30%	~ 6th week
Second Exam	30%	~ 10th week
Final Exam	40%	~ 15th /16th week

Description of Exams
Test questions will predominately come from material presented in the lectures. Semester exams will be conducted during the regularly scheduled lecture period. Exam will consist of a combination of multiple choice, short answer, match, true and false and/or descriptive questions.
Homework: Will be given for each chapter, while the chapter in progress you are supposed to work on them continuously and submit in next lecture when I finish the chapter.
You are also expected to work on in-chapter examples, self-tests and representative number of end of chapter problems. The answers of self-tests and end of chapter exercises are given at the end of the book.

Quizzes: Unannounced quizzes will be given during or/and at the end of each chapter based upon the previous lectures. It will enforce that you come prepared to the class.

No make-up exams, homework or quizzes will be given. Only documented absences will be considered as per HU guidelines.

Description of Exams
Test questions will predominately come from material presented in the lectures and the lectures themselves. Semester exams may be conducted during the regularly scheduled lecture period. Exam may consist of a combination of multiple choice, short answer, match, true and false, and/or descriptive questions.

No make-up exams will be given. Only documented absences will be considered as per HU guidelines. Make-up exams may be different from regular exams in content and format.

Grades are not negotiable and are awarded according to the following criteria:

Letter Grade	Description	Grade Points
A+	Excellent	4.00
A		3.75
A-		3.50
B+	Very Good	3.25
B		3.00
B-		2.75
C+	Good	2.50
C		2.25
C-		2.00
D+	Pass	1.75
D	Pass	1.50
F	Fail	0.00
I	Incomplete	-

WEEKLY LECTURE SCHEDULE AND CONTENT DISTRIBUTION

"Lecture hours and weeks are approximate and may change as needed"

Course Contents					
Topics	**Topic Details**	**Reference No.**	**Chapter**	**Estimated no. of hours**	**Assessment**
Antibacterial	• Miedicinal chemistry of Sulfonamides and penicillins • Medicinal chemistry of Beta lactamases	2	6	2	First exam
Antibiotics	• Medicinal chemistry of Cephalosporin	1and 2	Ref 1: Part E Ref 2: Chapter 8	2	First exam
Antibiotics	• Medicinal chemistry of protein synthesis antibiotics	1and 2	Ref 1: Part E Ref 2: Chapter 8	2	First exam
Antifungal agents	A brief aboutAntifungal agents	2	Chapter 6	2	First exam
Antiprotozoal and antimalarials antibiotics	A brief about Antiprotozoal and antimalarials antibiotics	2	Chapter7	2	1st exam
Antiviral agents	Antiviral agents	2	Chapter 9	2	Second exam
Antineoplastics, anticancer or cytostatics	Antineoplastics, anticancer or cytostatics Alkylating agenrts	1and 2	Ref 1: Part E , Ref 2: Chapter 10	2	Second exam
Antineoplastics, anticancer or cytostatics	Antineoplastics, anticancer or cytostatics Antimetabolites	1and 2	Ref 1: Part E	2	Second exam

			Ref 2: Chapter 10		
Antineoplastics, anticancer or cytostatics	Antineoplastics, anticancer or cytostatics newer drugs	1and 2	Ref 1: Part E Ref 2: Chapter 10	2	Second exam
A brief about Antidiabetic drugs	A brief about Antidiabetic drugs	2	Chapter 20	2	2nd exam
Central nervous system Sedative-hypnotics	Central nervous system Sedative-hypnotics	2	Chapter 12	2	Final exam
Antiepileptics	A brief about Antiepileptics	2	Chapter 15	2	Final exam
A brief about Antidepressants A brief about General and local anasthetics	A brief about Antidepressants A brief about General and local anasthetics	2	Chapter 12	2	Final exam
A brief about Opoiod and nonopioid analgesics	A brief about Opoiod and nonopioid analgesics	2	Chapter 22	2	Final exam

Last updated on 20/ 3/ 2022 by : Dr. Rand Omar Shahin