



<b>Form: Course Syllabus</b>	<b>Form Number</b>	EXC-01-02-02A
	<b>Issue Number and Date</b>	2/3/24/2022/2963 05/12/2022
	<b>Number and Date of Revision or Modification</b>	
	<b>Deans Council Approval Decision Number</b>	2/3/24/2023
	<b>The Date of the Deans Council Approval Decision</b>	23/01/2023
	<b>Number of Pages</b>	06

1.	<b>Course Title</b>	Natural Products Chemistry
2.	<b>Course Number</b>	030933
3.	<b>Credit Hours (Theory, Practical)</b>	3
	<b>Contact Hours (Theory, Practical)</b>	3
4.	<b>Prerequisites/ Corequisites</b>	
5.	<b>Program Title</b>	
6.	<b>Program Code</b>	
7.	<b>School/ Center</b>	School of Science
8.	<b>Department</b>	Chemistry
9.	<b>Course Level</b>	PhD
10.	<b>Year of Study and Semester (s)</b>	Second Semester 2024-2025
11.	<b>Other Department(s) Involved in Teaching the Course</b>	
12.	<b>Main Learning Language</b>	
13.	<b>Learning Types</b>	•Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
14.	<b>Online Platforms(s)</b>	<input type="checkbox"/> Moodle   •Microsoft Teams
15.	<b>Issuing Date</b>	14/11/2024
16.	<b>Revision Date</b>	14/11/2024

**17. Course Coordinator:**

Name: Prof. Dr. Amal Al-Aboudi	Contact hours:
Office number: 108	Phone number: 22132
Email: alaboudi@ju.edu.jo	

**18. Other Instructors:**

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**19. Course Description:**

As stated in the approved study plan.

Explores secondary metabolites, focusing on their isolation, classification, and biological roles. Covers the biosynthesis, structure elucidation, and synthesis of alkaloids, terpenoids, and phenolic compounds, emphasizing plant compounds native to Jordan.

**20. Program Student Outcomes (SO's):** (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

- SO1.** Develop chemistry expertise, focus on theory and practice, and contribute to advancing knowledge in a specific research field.
- SO2.** Conduct original, high-quality research that advances knowledge in chemistry by developing complex projects using innovative methodologies.
- SO3.** Mentor junior researchers and students and demonstrate leadership in the scientific community through collaboration, peer review, and knowledge exchange.
- SO4.** Recognize the ethical implications and responsibly use chemistry solutions to tackle global challenges.
- SO5.** Participate in professional development to stay current with the latest research and innovations.

**21. Course Intended Learning Outcomes (CLO's):** (Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

Upon completion of the course, the student will be able to:

1. **Explain** the principles of secondary metabolism and classify secondary metabolites, demonstrating expertise in natural product chemistry theory and practice.
2. **Apply** innovative techniques to isolate and analyze secondary metabolites, designing research projects that advance knowledge of natural products.
3. **Demonstrate** leadership in discussing natural product chemistry and mentoring peers through collaborative activities and presentations on secondary metabolites.
4. **Evaluate** the ethical considerations in sourcing and researching natural products, especially within the context of plant compounds native to Jordan, recognizing chemistry's role in addressing global challenges.
5. **Engage** in ongoing learning about developments in natural products and secondary metabolites to remain current in the field (SO5).



Course CLOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analyzing	evaluating	Creating
1		X	X	X	X	X
2		X	X	X	X	X
3		X	X	X	X	X
4		X	X	X	X	X
5		X	X	X	X	X

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program SO's	SO (1)	SO (2)	SO (3)	SO (4)	SO (5)
Course CLO's					
CLO (1)	•			•	
CLO (2)		•			•
CLO (3)			•		
CLO (4)				•	
CLO (5)					•



## 23. Topic Outline and Schedule:

Week	Lecture	Topic	CLO/s Linked to the Topic	Learning Types Face to Face (FF) Blended (BL) Fully Online (FO)	Platform Used	Synchronous (S) Asynchronous (A)	Evaluation Methods	Learning Resources: Text book (TB)
1	1.1	Introduction to secondary Metabolism	CLO (1-5)	FF	In campus	S		TB
	1.2	Introduction to secondary Metabolism	CLO (1-5)	FF	In campus	S		TB
2	2.1	Isolation of secondary metabolites	CLO (1-5)	FF	In campus	S		TB
	2.2	Isolation of secondary metabolites	CLO (1-5)	FF	In campus	S		TB
3	3.1	Isolation of secondary metabolites	CLO (1-5)	FF	In campus	S		TB
	3.2	Isolation of secondary metabolites	CLO (1-5)	FF	In campus	S	Quiz	TB
4	4.1	Alkaloids	CLO (1-5)	FF	In campus	S		TB
	4.2	Alkaloids	CLO (1-5)	FF	In campus	S		TB
5	5.1	Alkaloids	CLO (1-5)	FF	In campus	S		TB
	5.2	Alkaloids	CLO (1-5)	FF	In campus	S		TB
6	6.1	Alkaloids	CLO (1-5)	FF	In campus	S		TB
	6.2	Alkaloids	CLO (1-5)	FF	In campus	S	Quiz	TB
7	7.1	Terpenoids	CLO (1-5)	FF	In campus	S		TB
	7.2	Terpenoids	CLO (1-5)	FF	In campus	S		TB
8	8.1	Terpenoids	CLO (1-5)	FF	In campus	S		TB



	8.2	Terpenoids	CLO (1-5)	FF	In campus	S		TB
9	9.1	Terpenoids	CLO (1-5)	FF	In campus	S		TB
	9.2	Terpenoids	CLO (1-5)	FF	In campus	S	Midterm	TB
10	10. 1	Phenolic compounds	CLO (1-5)	FF	In campus	S		TB
	10. 2	Phenolic compounds	CLO (1-5)	FF	In campus	S		TB
11	11. 1	Phenolic compounds	CLO (1-5)	FF	In campus	S		TB
	11. 2	Phenolic compounds	CLO (1-5)	FF	In campus	S		TB
12	12. 1	Phenolic compounds	CLO (1-5)	FF	In campus	S		TB
	12. 2	Phenolic compounds	CLO (1-5)	FF	In campus	S	Quiz	TB
13	13. 1	Chemical constituents of some plants' native to Jordan.	CLO (1-5)	FF	In campus	S		TB
	13. 2	Chemical constituents of some plants native to Jordan.	CLO (1-5)	FF	In campus	S		TB
14	14. 1	Chemical constituents of some plants native to Jordan.	CLO (1-5)	FF	In campus	S		TB
	14. 2	Chemical constituents of some plants native to Jordan.	CLO (1-5)	FF	In campus	S		TB
15	15. 1	Presentations	CLO (1-5)	FF	In campus	S		PP
	15. 2	Presentations	CLO (1-5)	FF	In campus	S		PP
16							Final Exam	

#### 24. Evaluation Methods:

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



Evaluation Activity	Mark	Topic(s)	CLO/s Linked to the Evaluation activity	Period (Week)	Platform
Midterm	30		CLO (1-4)	6	on campus
Quizzes and presentations	30		CLO (1-4)	11	on campus
Final	40		CLO (1-4)		on campus

### 25. Course Requirements:

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

### 26. Course Policies: The following (A – E) will be addressed per the University of Jordan's regulations.

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, and misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course: **Internet, textbooks and e-library**

### 27. References:

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

1. Natural products: their chemistry and biological significance by Mann, J, 1994, Harlow, Essex, England: Longman Scientific & Technical; New York: Wiley.
2. Medicinal Natural Products: A Biosynthetic Approach by Paul M. Dewick, 2009 New York: Wiley



B- Recommended books, materials, and media:

Named Reactions, A Collection of Detailed Reaction Mechanisms, Third Edition, Jie Jack

**28. Additional information:**

Name of the Instructor or the Course Coordinator: Amal Al-Aboudi	Signature: <i>Amal Alaboudi</i>	Date: .....
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The Head of Graduate Studies Committee/ Department Chemistry <b>Dr. Murad AlDamen, Prof.</b>	Signature: .....	Date: .....
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The Head of Department of Chemistry <b>Dr. Murad AlDamen, Prof.</b>	Signature: .....	Date: .....
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Vice Dean for Graduate Studies and Scientific Research / School of Science <b>Dr. Kamal Sweidan, Prof.</b>	Signature: .....	Date: .....
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The Dean of School of Science <b>Dr. Mahmoud I. Jaghoub, Prof.</b>	Signature: .....	Date: .....
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