Form: Course Syllabus		
	Form Number	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
	Number and Date of Revision or Modification	2023/10/15
	Deans Council Approval Decision Number	265/2024/24/3/2
	The Date of the Deans Council Approval Decision	2024/1/23
	Number of Pages	06

1.	**Course Title**	Archaeological Materials Science
2.	**Course Number**	2602211
3.	**Credit Hours (Theory, Practical)**	3
	Contact Hours (Theory, Practical)	3 Theory
4.	**Prerequisites/ Corequisites**	N/A
5.	**Program Title**	Cultural Resources Management and Conservation
6.	**Program Code**	02
7.	**School/ Center**	Archaeology and Tourism
8.	**Department**	Cultural Resources Management and Conservation
9.	**Course Level**	3d year
10.	**Year of Study and Semester (s)**	2025/2026 First & Second Semesters
11.	**Program Degree**	BA
12.	**Other Department(s) Involved in Teaching the Course**	N/A
13.	**Learning Language**	Arabic
14.	**Learning Types**	☒ Face to face learning ☐Blended ☐Fully online
15.	**Online Platforms(s)**	☒Moodle ☐Microsoft Teams
16	**Issuing Date**	
17.	**Revision Date**	

18. Course Coordinator:

Name: Dr. Fuad Hourani Contact hours: S,T,TH: 12:30-13:00 & M, W: 13:00-14:30

Office number: Phone number: 25047

Email: f.hourani@ju.edu.jo

19. Other Instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:
Name:
Office number:
Phone number:
Email:
Contact hours:

20. Course Description:

This course focuses on the chemical and physical and mechanical properties of organics (cellulose and protein sources) such as wood, paper, papyrus, bone, leather, ivory, mummies and textile, and inorganic materials such as metals, pottery, glass, and glass-like materials. The deterioration related to material properties is also established.

21. Program Intended Learning Outcomes: (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

PILO's	***National Qualifications Framework Descriptors***		
	Competency (C)	**Skills (B)**	**Knowledge (A)**
1. Applies the principles of critical and objective thinking in addressing heritage protection issues.	☐	☐	☒
2. Identifies and deeply understands problems and challenges, analyzing the complex aspects of heritage and influencing factors, providing comprehensive and detailed assessments.	☐	☐	☒
3. Develops innovation and entrepreneurship skills in the field of heritage resource	☐	☐	☒

management, exploring new opportunities for funding and development.			
4. Engages and discusses effectively with local communities and groups interested in heritage, understanding the impact of heritage resources on cultural identity and community development.	☐	☐	☒
5. Identify, understands, and critically evaluates academic sources, articles, and research related to heritage and its management to extract main ideas and fundamental concepts.	☐	☒	☐
6. Listens attentively and focused to lectures and discussions, engaging with the presented content thoughtfully and comprehensively	☐	☒	☐
7. Selects and critically evaluates information and ideas, independently analyzing data and evidence.	☐	☒	☐
8. Develops and identifies strategies for problem-solving, applying acquired concepts and skills in practical contexts.	☐	☒	☐
9. Utilizes various digital technologies and tools in managing, documenting, and conserving heritage resources, such as using electronic information management systems and imaging, documentation, and analysis techniques.	☐	☒	☐
10. Innovates new and creative solutions to the challenges of heritage resource management and conservation.	☒	☐	☐
11. Collects and comprehensively analyzes data and information, extracting main ideas and fundamental concepts.	☒	☐	☐
12. Evaluates results, monitors performance, and analyzes data and information to determine the achievement of goals and identify areas needing improvement and development.	☒	☐	☐
13. Implements effective plans and strategies for managing heritage resources, organizing relevant activities and events.	☒	☐	☐

* Choose only one descriptor for each learning outcome of the program, whether knowledge, skill, or competency.

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

	The learning levels to be achieved	

Course ILOs #	Remember	Understand	Apply	Analyse	Evaluate	Create	Competencies
K1: Express the right terminology in relation with archaeological material and materials science.	√	√	√		√		K
K2: Demonstrate basic understanding of the chemical and physical properties of different types of archaeological materials.	√		√				K
S1: Employ materials science-based knowledge in the understanding of human experience in the past.		√	√	√		√	S
S2: Identify a wide range of archaeological artefacts and cultural materials types.			√	√	√		S
C1: Identify relevant standards and methodological approaches to science-based analysis of		√			√		C

cultural materials							
C2: Explain how materials science-based knowledge is integral to archaeological practice.			√	√	√		C

23. The matrix linking the intended learning outcomes of the course -CLO's with the intended learning outcomes of the program -PILOs:

PILO's * / CLO's	1	2	3	4	5	6	7	8	9	10	11	12	13	Descriptors**		
														A	B	C
K1: Express the right terminology in relation with archaeological material and materials science.		√	√					√						√		
K2:Demonstrate basic understanding of the chemical and physical properties of different types of archaeological materials.		√		√							√			√		
S1: Employ materials science-based knowledge in the understanding of human experience in the past.								√	√	√					√	
S2: Identify a wide range of	√									√			√		√	

archaeological artefacts and cultural materials types.															
C1: Identify relevant standards and methodological approaches to science-based analysis of cultural materials.				√				√	√						√
C2: Explain how materials science-based knowledge is integral to archaeological practice.					√		√						√		√

***Linking each course learning outcome (CLO) to only one program outcome (PLO) as specified in the course matrix.**

****Descriptors are determined according to the program learning outcome (PLO) that was chosen and according to what was specified in the program learning outcomes matrix in clause (21).**

24. Topic Outline and Schedule:

Week	Lecture	Topic	ILO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1 1.2 1.3	General framework: Concepts, definitions and basic principles	K1, C2	Face to face	Class room & Moodle	Sync.	Exams, Individual/Group presentations & Participation in class discussions	See references in section 28

2	2.1 2.2 2.3	The Matter, its nature, chemistry and properties	K2, C1	Face to face	Class room & Moodle	Sync.	Exams, Individual/Group presentations & Participation in class
3	3.1 3.2 3.3						
4	4.1 4.2 4.3						
5	5.1 5.2 5.3	Acids sand bases	K2	Face to face	Class room & Moodle	Sync.	Exams, Individual/Group presentations & Participation in class
6	6.1 6.2 6.3	Polymers	K2, C1	Face to face	Class room & Moodle Class	Sync.	Exams, Individual/Group presentations & Participation in class discussions
7	7.1 7.2 7.3						
8	8.1 8.2 8.3	Evolution of engineering materials	C2, S1	Face to face	Class room & Moodle Class		Exams, Individual/Group presentations & Participation in class discussions
9	9.1 9.2 9.3	Archaeological materials: Types, sources and elemental compositions.	K2, S2	Face to face	Class room & Moodle	Sync.	Exams, Individual/Group presentations & Participation in class discussions
10	10.1 10.2 10.3						
11	11.1 11.2 11.3						
12	12.1 12.2 12.3	Preparation / fabrication of archaeological materials and the transformation of the primary elements.	K2	Face to face		Sync.	Exams, Individual/Group presentations & Participation in class discussions

13	13.1 13.2 13.3	Techniques used in the study of archaeological materials and their components.	S1	Face to face	Class room & Moodle	Sync.	Exams, Individual/Group presentations & Participation in class discussions	
14	14.1 14.2 14.3	Students' presentations	K1, K2, C2	Face to face	Class room & Moodle	Sync.	Written and oral presentations	
15	15.1 15.2 15.3							

25. Evaluation Methods:

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

Evaluation Activity	*Mark wt.	K1	K2	S1	S2	C1	C2
First Exam	30	√	√			√	√
Second Exam –If any							
Final Exam	50	√	√	√	√	√	√
**Class work							
Projects/reports							
Research working papers							
Field visits							
Practical and clinical							
Performance Completion file							
Presentation/ exhibition	20	√			√		
Any other approved works							
Total 100%							

*** According to the instructions for granting a Bachelor's degree.**

****According to the principles of organizing semester work, tests, examinations, and grades for the bachelor's degree.**

Mid-term exam specifications table*

No. of questions/ cognitive level						No. of questions per CLO	Total exam mark	Total no. of questions	CILO/ Weight	CILO no.
Create **%10**	Evaluate **%10**	analyse **%10**	Apply %20	Understand **%20**	Remember %30					
	1			1	1	3	30	10	30%	K1
		1			1	2			20%	K2
	1		1	1		3			30%	C1
		1			1	2			20%	C2

Final exam specifications table

No. of questions/ cognitive level						No. of questions per CLO	Total exam mark	Total no. of questions	CILO Weight	CILO no.
Create **%10**	Evaluate **%10**	analyse **%10**	Apply %20	Understand **%20**	Remember %30					
		1		1	1	3	50	12	20%	K1
	2					2			15%	K2
1			1			2			10%	S1
1						1			10%	S2
			1			2			15%	C1
		1		1		2			10%	C2

26. Course Requirements:

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

27. Course Policies:

A- Attendance policies: As per the university rules

B- Absences from exams and submitting assignments on time: As per the university rules

C- Health and safety procedures: As per the university rules

D- Honesty policy regarding cheating, plagiarism, misbehavior: As per the university rules

E- Grading policy:

F- Available university services that support achievement in the course:

- JU Library
- Faculty conservation lab.

28. References:

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

- E-learning coarse page

B- Recommended books, materials, and media:

1- Pollard M., Batt C., Stern B., Young, S. M. M. 2007: Analytical Chemistry in Archaeology. Cambridge University Press. New York..
2- Gilberto Artioli. 2010 : Scientific methods and Cultural Heritage. Oxford University Press
3- Other references (in French and English) available upon request.

29. Additional information:

Name of the Instructor or the Course Coordinator: Dr. Fuad Hourani……	Signature: ……...……	Date: 11/01/2026……..
Name of the Head of Quality Assurance Committee/ Department ……	Signature: ……...……	Date: ……..……
Name of the Head of Department ……	Signature: ……...……	Date: ……..……
Name of the Head of Quality Assurance Committee/ School or Center ……	Signature: ……...……	Date: ……..……
Name of the Dean or the Director ……	Signature: ……...……	Date: ……..……