Form: Course Syllabus		
	Form Number	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
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	Number of Pages	06

1.	**Course Title**	Mineralogy
2.	**Course Number**	0305721
3.	**Credit Hours (Theory, Practical)**	3, theory
	Contact Hours (Theory, Practical)	3, theory
4.	**Prerequisites/ Corequisites**	-
5.	**Program Title**	M.Sc. in Geology
6.	**Program Code**	-
7.	**School/ Center**	School of Science
8.	**Department**	Geology
9.	**Course Level**	-
10.	**Year of Study and Semester (s)**	-
11.	**Other Department(s) Involved in Teaching the Course**	-
12.	**Main Learning Language**	English
13.	**Learning Types**	✔ Face to face learning ☐Blended ☐Fully online
14.	**Online Platforms(s)**	✔ Moodle ✔ Microsoft Teams
15.	**Issuing Date**	-
16.	**Revision Date**	Fall 2024

17. Course Coordinator:

Name: Hind Ghanem Contact hours: -

Office number: Phone number: ext: 22281

Email: h.ghanem@ju.edu.jo

18. Other Instructors:

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

19. Course Description:

The course will focus on the following topics, First, the detailed study of the international stratigraphic codes and their direct applications to Jordanian stratigraphy. Stratigraphical subdivisions and their applications fields e.g. lithostratigraphy, biostratigraphy, chrono-stratigraphy, magnetostratigraphic, seismic stratigraphy and sequence stratigraphy. Introduction to stratigraphic analysis and lithologic correlation: rock unit classification and conversion of the chronostratigraphic time to geochronologic time. Visiting exposed stratigraphic sites trying to apply the above topics practically. Under the student's activity section, each student should chose published scientific paper related to one of the topics above (from Jordan if possible) for analyzing and criticization.

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)

1. Students will show advanced expertise of geological standards, theories, and analytical techniques, equipping them to clear up complicated geological problems.

2. Students will develop the capability to design, conduct, and critically examine geological research, using quantitative and qualitative information evaluation to draw significant conclusions applicable to enterprise and academia.

3. Students will gain arms-on enjoy in fieldwork and laboratory settings, applying advanced geological techniques and tools to investigate geological phenomena and conduct resource assessments.

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

1. To demonstrate understanding of crystallography and mineralogy and understand the influence of crystal chemistry on mineral assemblages and mineral processes.
2. To apply mineralogy in geological problems related to the student research interest.
3. Develop the ability to research and learn mineralogical topic individually and in groups.

Course CLOs	The learning levels to be achieved					
	Remembering	**Understanding**	**Applying**	**Analysing**	**evaluating**	**Creating**
1	✔	✔	✔	✔		
2		✔	✔	✔		
3		✔	✔	✔	✔	✔

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

Program SO's Course CLO's	SO (1)	SO (2)	SO (3)	SO (4)	SO (5)	SO (6)
CLO (1)	✔	✔	✔			
CLO (2)	✔	✔	✔			
CLO (3)	✔	✔	✔			

23. Topic Outline and Schedule:

Week	Lecture	Topic	CLO/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	Introductory Meeting	1	Face to Face			Exams + assignments	Suggested readings + papers
	1.2	Introduction: Mineralogy and its applications	1	Face to Face			Exams + assignments	Suggested readings + papers
	1.3							
2	2.1	Introduction to crystallography	1	Face to Face			Exams + assignments	Suggested readings + papers
	2.2	Symmetry	1	Face to Face			Exams + assignments	Suggested readings + papers
	2.3							
3	3.1	Descriptive nomenclature of crystals and crystal structures	1	Face to Face			Exams + assignments	Suggested readings + papers
	3.2	Descriptive nomenclature of crystals and crystal structures	1	Face to Face			Exams + assignments	Suggested readings + papers
	3.3							
4	4.1	Crystal Chemistry	1	Face to Face			Exams + assignments	Suggested readings + papers
	4.2	Crystal Chemistry	1	Face to Face			Exams + assignments	Suggested readings + papers
	4.3							
5	5.1	Minerals Growth and stability – phase diagrams	1	Face to Face			Exams + assignments	Suggested readings + papers
	5.2	Minerals Growth and stability – phase diagrams	1	Face to Face			Exams + assignments	Suggested readings + papers
	5.3							

6	6.1	Physical and Chemical Properties of Minerals	1	Face to Face			Exams + assignments	Suggested readings + papers
	6.2	Special Properties of Minerals	1	Face to Face			Exams + assignments	Suggested readings + papers
	6.3							
7	7.1	Descriptive Mineralogy – Silicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	7.2	Descriptive Mineralogy – Silicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	7.3							
8	8.1	Descriptive Mineralogy – Silicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	8.2	Descriptive Mineralogy – Silicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	8.3							
9	9.1	Descriptive Mineralogy – Silicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	9.2	Descriptive Mineralogy – Silicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	9.3							
10	10.1	Descriptive Mineralogy – Nonsilicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	10.2	Descriptive Mineralogy – Nonsilicates	1	Face to Face			Exams + assignments	Suggested readings + papers
	10.3							
11	11.1	Descriptive Mineralogy – Nonsilicates	2	Face to Face			Exams + assignments	Suggested readings + papers
	11.2	Descriptive Mineralogy – Nonsilicates	2	Face to Face			Exams + assignments	Suggested readings + papers
	11.3							
12	12.1	Applications: Minerals as Geothermobarometers	2	Face to Face			Exams + assignments	Suggested readings + papers
	12.2	Applications: Mineral Deposits and their Characteristics	2	Face to Face			Exams + assignments	Suggested readings + papers

	12.3							
13	13.1	Applications: Industrial Minerals	2	Face to Face			Exams + assignments	Suggested readings + papers
	13.2	Applications: Environmental Mineralogy	2	Face to Face			Exams + assignments	Suggested readings + papers
	13.3							
14	14.1	Applications: Minerals in Medical Applications	2	Face to Face			Exams + assignments	Suggested readings + papers
	14.2	Presentations by students	3	Face to Face				
	14.3							
15	15.1	Presentations by students	3	Face to Face				
	15.2	Presentations by students	3	Face to Face				
	15.3							

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 Exam	25	TBD		End of eighth week	
Home Assignments	15	TBD		Weekly	
Project and presentation	20	TBD		Term-long project due at the end of the semester	
Final Exam	40	TBD		End of semester	

25. Course Requirements:

Students should have a computer, internet connection, webcam, active account on Microsoft-teams.

26. Course Policies:

A- Attendance policies: following the school regulations. B- Absences from exams and submitting assignments on time: following the school regulations. C- Health and safety procedures: following the school regulations. D- Honesty policy regarding cheating, plagiarism, misbehavior: following the school regulations. E- Grading policy: following the school regulations. F- Available university services that support achievement in the course: NA.

27. References:

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

no specific required textbook.

B- Recommended books, materials, and media:

- Introduction to Mineralogy, (second or third edition), by W. Nesse. Oxford University Press.
- Demange, M.A., 2012. Mineralogy for Petrologists: optics, chemistry and occurrences of rock-forming minerals. CRC Press.
- Mukherjee, Swapna. Applied mineralogy: applications in industry and environment. Springer Science & Business Media, 2012.
- Assigned readings for different topics. See available resources on E-learning
- Any other textbook in Mineralogy is recommended.

28. Additional information:

Name of the Instructor or the Course Coordinator: **Hind Ghanem**	Signature: ……..……	Date: ……..……
Name of the Head of Quality Assurance Committee/ Department ……	Signature: ……..……	Date: ……..……
Name of the Head of Department ……**Dr Bety Saqarat**……	Signature: ……..……	Date: ……..……
Name of the Head of Quality Assurance Committee/ School of Science **Prof. Emad A. Abuosba**	Signature: ……..……	Date: ……..……
Name of the Dean or the Director **Prof. Mahmoud I. Jaghoub**	Signature: ……..……	Date: ……..……