The University of Jordan

الجامعة الاردنية

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	
	Deans Council Approval Decision Number	2/3/24/2023
	The Date of the Deans Council Approval Decision	23/01/2023
	Number of Pages	06

1.		Course Title	Advanced Structural Geology
2.		Course Number	0335941
3.		Credit Hours (Theory, Practical)	3, theory, 1 credit hour practical
		Contact Hours (Theory, Practical)	2, theory, 1 practical
4.		Prerequisites/ Corequisites	Geo101, Rocks
5.		Program Title	PH.D in Geology
6.		Program Code	-
7.		School/ Center	School of Science
8.		Department	Geology
9.		Course Level	PH D program
10.		Year of Study and Semester (s)	2024/2025 second semester
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	25/04/2025
16.		Revision Date	

17. Course Coordinator:

Name: Prof. Dr Fathi Shaqour	Contact hours: -
Office number: Geology 202	Phone number: ext: 22275
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18. Other Instructors: NA

Name:
Office number:
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Contact hours:
Name:
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Contact hours:

19. Course Description:

Study of the application of deforming forces to earth materials and the structures resulting from that deformation. Overview of the different types of force that influence materials in general and Earth materials in specific mainly rocks; stress relationships with the geometry and genesis of geological structures: jointing, faulting and folding. Use of statistical approaches to represent geological structures such as rose diagrams and stereo-nets. Study the rheology principles to understand the genesis and mechanism of geological structures.

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) Students will be able to design and execute original research, employing advanced methodologies to generate new knowledge in their specialized area of geology

(SO2) Students will display the potential to seriously evaluate complex geological problems, the usage of analytical and problem-fixing capabilities to develop modern answers and interpretations of their studies.

(SO3) Students will benefit know-how in using cutting-edge gear, techniques, and technology applicable to their geological research, applying these abilities to research and cope with complicated geological phenomena.

(SO4) Students will effectively communicate their studies findings via academic guides, presentations, and conferences, making significant contributions to the scientific network and attractive technical and non-technical audiences.

(SO5) Students will showcase a sturdy dedication to ethical studies practices and apprehend the broader societal and environmental effects of their work, promoting sustainability and integrity within the subject.

(SO6) Students will demonstrate a determination to persistent mastering, actively enticing with rising studies, and professional improvement possibilities to maintain and amplify their know-how throughout their careers.

PILO's	*National Qualifications Framework Descriptors*		
	Competency (C)	Skills (B)	Knowledge (A)
1.	X		X
2.	X	X	X
3.		X	
4.	X		
5.			X
6.	X	X	

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

CLO1 Demonstrate an understanding of the terms, concepts and principles of structural geology,

CLO2 Demonstrate an understanding of the Earth plate tectonics and their role of deforming the rocks in the forms of folding, faulting and jointing

CLO3 Develop professional skills in structural geology, such as measuring strike and dip using geological campus, identifying geological structures in nature and on maps.

CLO4 Develop understanding of rock structures and how to geometrically describe structures and analyze their genesis.

CLO5 Read and interpret geological structures on geological maps.

CLO6 Use stereographic projections to represent inclined planes and their dip directions for the purpose of analyzing geological structures.

Course CLOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analysing	evaluating	Creating
CLO (1)	✔	✔				
CLO (2)	✔	✔	✔			
CLO (3)			✔		✔	
CLO (4)	✔			✔		
CLO (5)		✔				
CLO (6)	✔			✔		✔

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)	Descriptors**		
							A	B	C
CLO (1)		✔	✔				X		
CLO (2)	✔	✔		✔				X	
CLO (3)	✔		✔				X		X
CLO (4)		✔	✔					X	
CLO (5)					✔		X		
CLO (6)	✔	✔		✔				X	X

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	2	Geo-structures 1: Stress and strain in materials and deformation in rocks Ductile and brittle behaviour of rock materials	1	Face to Face			Exams + assignments	Suggested readings + papers
2	2	Geo-structures 2: Attitudes of lines and planes and attitudes of geological surfaces (bearing and plunge), Characteristics formed in rocks caused by the disturbance from internal or external forces	1	Face to Face			Exams + assignments	Suggested readings + papers
3	2	Geo-structures 3: Relationship between width of outcrops with erosion/ topography/ contour lines Folds, Faults and other rock deformations	2	Face to Face			Exams + assignments	Suggested readings + papers

		Geological contacts / contour lines of inclined layers **Study and analysis of geological maps**						
4	2	Folds, Faults and other rock deformations Geological contacts / contour lines of inclined layers **Study and analysis of geological maps**	3	Face to Face			Exams + assignments	Suggested readings + papers
5	2	Folds: Advanced fold geometry and nomenclature	3	Face to Face			Exams + assignments	Suggested readings + papers
6	2	**Folds** (continue) - fold orientation and classification - fold mechanism and fold geometry - fold types, domes, basins, - advanced geologic map analyses	3	Face to Face			Exams + assignments	Suggested readings + papers
7	2	Rheology 1		Face to Face			Exams + assignments	Suggested readings + papers
8	2	Rheology 2	4	Face to Face				
9	2	Rheology 3	4	Face to Face			Exams + assignments	Suggested readings + papers
10	2	Rheology 4 **Midterm Exam**	5	Face to Face			Exams + assignments	Suggested readings + papers
11	2	Rheology 5	5	Face to Face			Exams + assignments	Suggested readings + papers
12	2	Stereographic projections, Representations of planes on stereo-nets	6	Face to Face			Exams + assignments	Suggested readings + papers
13	2	Further examples of stereo net analysis	5					
14	2	Problem solving	2					
15	2	Revision and case studies	3					
		Presentations **Final EXAM**		Face to Face			Exams + assignments	Suggested readings + papers

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	30	TBD	1,2,3	End of eighth week	
Assignments/quizes	10	TBD	1,2,3,4,5,6	Weekly	
Project and presentations	20	TBD	1,2,3,4,5,6	Term-long project due at the end of the semester	
Final Exam	40	TBD	3,4,5,6	End of semester	

25. Course Requirements:

students should have a computer, internet connection, account on a specific software/platform…(elearning)

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:

Earth Structure, Ben A. Van Der Pluijm and Stephen Marshak, 2004,

Structural Geology, An Introduction to Geometrical Techniques, Donal M. Ragan, 2009, Fourth Edition

B- Lecture notes materials, handouts, case studies, and media: U-tube on experiments, and case studies

28. Additional information:

See list of suggested readings in the course outline

	Signature:	Date:
Name of the Instructor or the Course Coordinator:	……...……	**25/04/2025**……
Dr. Fathi Shaqour		
Name of the Head of Quality Assurance Committee/ Department	Signature:	Date:
	……...……	……..……
Name of the Head of Department	Signature:	Date:
Dr Bety Saqarat	……...……	……..……
Name of the Head of Quality Assurance Committee/ School of Science	Signature:	Date:
Prof. Emad A. Abuosba	……...……	……..……
Name of the Dean or the Director	Signature:	Date:
Prof. Mahmoud I. Jaghoub	……...……	……..……