The University of Jordan

Accreditation & Quality Assurance Center

Course Syllabus

Course Name:
Geology of Jordan

1	Course title	Geology of Jordan
2	Course number	**0335401**
3	Credit hours (theory, practical)	3 credit hours theory, no practical
	Contact hours (theory, practical)	3 contact hours for the theory, no practical
4	Prerequisites/corequisites	**0355331 and 0305341**
5	Program title	
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Science
9	Department	Applied and Environmental Geology
10	Level of course	Undergraduate
11	Year of study and semester (s)	4th year, 2nd semester
12	Final Qualification	B.Sc.
13	Other department (s) involved in teaching the course	
14	Language of Instruction	
15	Date of production/revision	

16. Course Coordinator: Prof. Dr. Belal S. Amireh

Office numbers, office hours, phone numbers, and email addresses should be listed.

Office Hours: 9-10 daily.
bamireh@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

18. Course Description:

As stated in the approved study plan.

This course concentrates on the geologic evolution of Jordan from the Precambrian until now. It introduces students to the stratigraphy of the geological column from the Precambrian, Paleozoic, Mesozoic, and Cenozoic; tectonics and major structures in Jordan, with emphasis on the Dead Sea Transform fault; mineral and energy resources; water budget of Jordan especially for the Jordan River Basin. A 3-4 days field trip to Aqaba and south of Jordan is required.

Course Content:

I. Stratigraphy of Jordan:

1- Precambrian Eonethem:
a- Genesis and evolution of the Arabian-Nubian Shield
b- Aqaba Complex: metamorphic and plutonic rocks, and dikes
c- Araba Complex: Safi Group
d- Umm Ghaddah Formation

2- Paleozoic Erathem:
a- Cambrian System
b- Ordovician System
c- Lower Silurian Series
d- Hercynian Unconformity
e- Oil possibilities from Paleozoic source rocks

3- Mesozoic Erathem:
a- Triassic System
b- Jurassic System
c- Lower Cretaceous Series: Kurnub Group
d- Upper Cretaceous Series: Ajlun Group, and part of Balqa Group

4- Cenozoic Erathem:
a- Tertiary System
b- Quaternary System
c- Cenozoic volcanism

II- Geologic structures of Jordan:
a- Precambrian and Paleozoic tectonic movements
b- Syrian Arc Fold Belt System
c- Transverse faults
d- Dead Sea Transform Fault
e- Graben tectonics
f- Geomorphology of Jordan

III- Seismicity of Jordan and the Middle East Region

IV- Mineral Resources

V- Hydrology and Environment

19. Course aims and outcomes:

A- Aims:

1- Understand the formation of the Arabian Shield
2- Know the metamorphic rocks in Wadi Araba and other parts of Jordan
3- Subdivide the Cambrian System into the different formations
4- Determine the depositional environment development through the Paleozoic Era
5- Study the paleogeography of the Mesozoic Erathem
6- Distinguish between the Kurnub Group formations in Northern Jordan from those of Central and Southern Jordan
7- Follow the development of the depositional environment of the Ajlun Group
8- Attribute the variation in lithology between the various formation of the Balqa Group
9- Know the types of Cenozoic volcanic extrusions in Jordan
10- Understand the Harrat Ash-Sham Basaltic Suoer-Group
11- Describe the geologic structures of Jordan
12- Explain the horizontal tectonics leading to formation of the Dead Sea Transform Fault

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to …

1- Discuss the formation of the Arabian Shield in terms of the plate tectonics theory
2- Interpret the facies composing the Sarmuj, Hiyala, and Umm Ghaddah Formations
3- Compare between the Cambrian Salab, Burj, Abu Khusheiba, and Umm Ishrine Formations.
4- Understand the depositional environments of the Ordovician Umm Saham, Disi, Hiswa , Dubaydib, and Mudawwara Formations.
5- Attribute the absence of the Devonian, Carboniferous, and most of the Permian Systems in Jordan.
6- Give recommendation where to drill in Jordan to encounter any Paleozoic, Mesozoic, and Cenozoic formations.
7- List the various formations of the Ajlun, and Balqa Groups, and to interpret their depositional environments.
8- Locate the position of the phosphorite, bituminous deposits of economic value in Jordan.
9- Interpret the genesis of the tripoly in Ghudran Formation.
10- Set the criteria of distinguishing the Kurnub Group from the directly underlying Disi Formation.
11- Compare between the various groups of the Harrat Ash-Shaam Basaltic province
13- Interpret the Jordan Rift Valley in terms of the graben tectonics
14- Understand the seismicity of Jordan within that of the region

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

22. Evaluation Methods and Course Requirements:

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

23. Course Policies:

A- Attendance policies:

B- Absences from exams and handing in assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

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

24. Required equipment:

Data show

25. References:

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

Abed, A.M., 2000. Geology of Jordan, its environment, resources and water. Jordanian Geological Association Publications. Amman, 571 pp.

B- Recommended books, materials, and media:

26. Additional information:

Name of Course Coordinator: Prof. Dr. Belal S. Amireh Signature: ---------- Date: 19/3/2017--------

---------- Head of curriculum committee/Department: ---------- Signature: ----------

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Head of Department: ---------- Signature: ----------

Head of curriculum committee/Faculty: ---------- Signature: ----------

Dean: ---------- -Signature: ----------

Copy to:
Head of Department
Assistant Dean for Quality Assurance
Course File