



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**



1.	Course title	Applied Sedimentary Rocks
2.	Course number	0355331
3.	Credit hours (theory, practical)	2, 1
	Contact hours (theory, practical)	1, 3
4.	Prerequisites/corequisites	
5.	Programtitle	Applied and environmental geology
6.	Year of study andsemester (s)	3 <sup>rd</sup> , 1 <sup>st</sup>
7.	Final Qualification	B. Sc.
8.	Other department(s) involved in teaching the course	
9.	Language of Instruction	English
10.	Date of production/revision	10, 5, 2018
11.	Required/ Elective	Required
12.		

**13. Course Coordinator:** Prof. Dr. Belal S. Amireh

*Officenumbers,officehours, phonenumber,andemailaddresses shouldbelisted.*

115, Sunday 10-12, Monday 12-14, 22251, bamireh@ju.edu.jo

**14. Other instructors:**

*Officenumbers,officehours, phonenumber,andemailaddresses shouldbelisted.*

**15. Course Description:**

*As statedin the approvedstudy plan.*

**Contents:**

**I. Siliciclastic sedimentary rocks**

- 1- Texture 2- Structures  
3- Mineral composition 4- Diagenesis

**II. Limestones:**

- 1- Mineralogy 2- Components  
3- Classification 4- Structures  
5- Carbonate diagenesis 6- Dolomitization  
7- Carbonate depositional environments and facies 8- Carbonate sequences



### **III. Evaporites:**

- 1- Gypsum and anhydrite
- 2- Halite
- 3- Evaporite sequences

### **IV. Sedimentary iron deposits**

- 1 - Source and transportation of iron
- 2- The formation of the principal iron minerals
- 3- Occurrence and petrography of the iron minerals
- 4- Precambrian iron-formations and Phanerozoic ironstones

### **V. Sedimentary phosphate deposits**

- 1- Mineralogy
- 2- Nodular and bedded phosphorites
- 3- Bioclastic and pebble-bed phosphorites and guano

### **VI. Coal, oil shales and petroleum**

- 1- Modern organic deposits
- 2- Coals and coal series
- 3- Coal petrology
- 4- Oil shales
- 5- Petroleum

### **VII. Cherts and siliceous sediments**

- 1- Chert petrology
- 2- Bedded cherts
- 3- Nodular cherts
- 4- Non-marine siliceous sediments and cherts



## 16. Course aims and outcomes:

- 1- To understand textures, structures, mineral composition, and diagenesis of siliciclastic sedimentary rocks.
- 2- To comprehend the mineralogy, classification, diagenesis and depositional environments of carbonate rocks.
- 3- To understand the mineralogy, structures and depositional environment of evaporites.
- 4- To know the source, methods of transport, and chemical depositional conditions of sedimentary iron deposits.
- 5- To understand the mineralogy, structures and depositional environment of sedimentary phosphate deposits.
- 6- To know the mineralogy, structures and depositional environment of cherts and siliceous deposits.
- 7- To understand the mineralogy, structures and depositional environment of coal and organic-rich sedimentary deposits.
- 8- To be able to carry on grain size analysis.
- 9- To perform the statistical analysis required for grain size parameters and mineral modal analysis.
- 10- To recognize the various types of sedimentary rocks in the field.
- 11- To gain the skill of writing reports related to the data acquired through microscopy and field work.

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

- 1- Recognize the textures and structures of the siliciclastic, carbonate, evaporite, phosphate, chert, organic-rich, and iron-rich sedimentary rocks.
- 2- Know the mineral composition, diagenesis and classification of the siliciclastic, carbonate, evaporite, phosphate, chert, organic-rich, and iron-rich sedimentary rocks.
- 3- Distinguish between the depositional environments of the various clastic and non-clastic sedimentary rocks.
- 4- Lab: Identify microscopically the types of sedimentary rocks, conduct grain size analysis, carry on modal analysis, and to write the related reports.



### 17. Topic Outline and Schedule:

Topic	Week	ILOs	Program SOs	ABET SOs	TLA (teaching, learning and Assessment)
Siliciclastic sedimentary rocks	1-4				
Limestones	5-8				
Evaporites	9				
Sedimentary iron deposits	10				
Sedimentary phosphate deposits	11				
Coal, oil shales and petroleum	12				
Cherts and siliceous deposits	13				

(Please mention instructors per topic if the course topics are being taught by more than one instructor )

### 18. Evaluation Methods and Course Requirements (Optional):

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

### 19. Course Policies:

A- Attendance policies: Compulsive

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

C- Health and safety procedures: Very well

D- Honesty policy regarding cheating, plagiarism, misbehavior: As the regulations of the Jordan University

E- Grading policy + Weighting (i.e. weight assigned to exams as well as other student work): Please see the item of grading

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

G- Statement on Students with disabilities

**Students with Disabilities:** Students with disabilities who need special accommodations for this class are encouraged to meet with the instructor and/or their academic advisor as soon as possible. In order to receive accommodations for academic work in this course, students must inform the course instructor



and/or their academic advisor, preferably in a written format, about their needs no later than the 4<sup>th</sup> week of classes.

**20. Required equipment:**

Data show, polarizing microscope, siev sets, shaker, precision balance.

**21. References:**

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

Tucker, M. E., 2001. Sedimentary Petrology, 3<sup>rd</sup> edition. Blackwell Science, Oxford, UK, 262 p.

B- Recommended books, materials, and media:

Boggs, S. 1987. Principles of sedimentology and stratigraphy. Merrill Publishing Co., Columbus, 784 pp.

**22. Additional information:**

Date:10/5/2018 -----

Name of Course Coordinator: Prof. Dr. Belal S. Amireh

Signature: Belal Amireh

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

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

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

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

Copy to:

Head of Department

Assistant Dean for Quality Assurance