



Course Specification

Diploma

Course Title: Field Geology

Course Code: APMQ3216

Program: Mining and Quarrying

Department: Diploma Department

College: The Applied College

Institution: Umm Al-Qura University

Version: 1

Last Revision Date: 20 February 2025



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A. General information about the course:

1. Course Identification

1. Credit hours: (2)

2. Course type

A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (1 St. Level)

4. Course General Description:

1. Course Description

This course emphasizes practical field techniques essential for geologists. Students will learn methods of geologic mapping, rock and structure identification, stratigraphic analysis, and data recording in outdoor environments. The course includes a field camp or series of field trips where students apply classroom knowledge in real-world geologic settings. Introduction and plate tectonics, ordering of geologic events. Stratigraphy, correlation and lithofacies maps. Field equipment in geologic mapping. Mapping igneous rocks, mapping sedimentary rocks. Geologic cross-sections and map interpretation applied geologic problems.

5. Pre-requirements for this course (if any):

APMQ1201

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

- Accurately observe, describe, and record geologic features in the field.
- Construct detailed geologic maps and cross-sections.
- Use a geologic compass and GPS for location and structural measurements.
- Interpret stratigraphic sequences, structures, and geologic histories.
- Practice safe, ethical, and responsible field behavior and documentation.

2. Teaching mode (mark all that apply)



No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		30

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

1.0	Knowledge and understanding			
1.1	Accurately observe, describe, and record geologic features in the field.	K1	Lectures and Interactive Discussions	Written Exams (Mid-Term and Final Exams), Quizzes.
1.2	Construct detailed geologic maps and cross-sections.	K3	Lectures and Interactive Discussions	Written Exams (Mid-Term and Final Exams), Quizzes.
1.3	Use a geologic compass and GPS for location and structural measurements.	K2	Lectures and Interactive Discussions	Written Exams (Mid-Term and Final Exams), Quizzes.
2.0				
2.1	Practice safe, ethical, and responsible field behavior and documentation.	S1	Interactive Discussions	Written Exams (Mid-Term and Final Exams), Quizzes
2.2	Interpret stratigraphic sequences, structures, and geologic histories.	S3	Interactive Discussions	Written Exams (Mid-Term and Final Exams), Quizzes

3.0	Values, autonomy, and responsibility			
3.1	Work effectively in teams during field trips.	V1	Individual and Group Presentations	Presentations

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Field Geology: Goals, Tools, and Field Safety	2
2.	Geologic Mapping Basics & Use of Brunton Compass	2
3.	Stratigraphic Section Measuring & Description Techniques	2
4.	Structural Geology in the Field: Folds, Faults, Bedding	2
5.	GPS Navigation, Field Notes, and Sketching Techniques	2
6.	6 Lithologic Description and Rock Unit Identification	2
7.	Aerial Photos & Topographic Map Interpretation	2
8.	Local Field Excursion #1: Intro to Mapping Techniques	2
9.	Local Field Excursion #2: Stratigraphy & Sedimentary Features	2
10.	Local Field Excursion #3: Structural Mapping	2
11.	Mapping Project Preparation: Site Analysis & Logistics	2
12.	Field Camp (5–10 Days): Geologic Mapping Project	2
13.	Data Compilation and Map Drafting	2
14.	Cross-Section Construction and Stratigraphic Correlation	2
15.		2
Total		30



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	5	10
2.	Mid-Term Exam	8	20
3.	Presentations	12	10
4.	Homework	All weeks	10
5.	Final Exam	16	50

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Coe, A.L., et al. (2011) Geological Field Techniques – A comprehensive guide covering mapping, stratigraphy, structures, and field safety.
	Maley, T.S. (1994) Field Geology Illustrated – Great illustrations and practical advice; clear and accessible for beginners.
	Compton, R.R. (1985) Geology in the Field, Wiley. – A classic field geology textbook that focuses on field observation, documentation, and map-making.
	Tucker, M.E., & McClay, D.W. (2009) Geological Field Techniques Wiley-Blackwell. – Includes step-by-step field procedures with diagrams, exercises, and case studies.
Supportive References	Berger, A.R. (2006) Brunton Compass and Geological Mapping Techniques Geological Society of America Field Notes. – Covers compass use, measuring strike and dip, and practical field layout tips.



	<p>USGS (U.S. Geological Survey)</p> <p>Topographic Map Symbols and Geologic Symbols for Map Annotation</p> <p>Available at: https://pubs.usgs.gov</p> <p>– Free resources for topographic and geologic symbology used in mapping.</p>
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
<p>facilities</p> <p>(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)</p>	Classrooms
<p>Technology equipment</p> <p>(projector, smart board, software)</p>	Data show
<p>Other equipment</p> <p>(depending on the nature of the specialty)</p>	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Faculty	Direct (project, HW, Quiz, midterm and final exam)
Effectiveness of Students assessment	Students	Indirect (Student Survey)
Quality of learning resources	Program Coordinator	Direct analysis
The extent to which CLOs have been achieved	Program Coordinator	Direct analysis
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))

Assessment Methods (Direct, Indirect)





G. Specification Approval

COUNCIL /COMMITTEE	Umm Al-Qura University Council
REFERENCE NO.	851110214476/195605
DATE	18/2/1447

