

Ministry of Higher Education and Scientific research



Department of Earth

Sciences and Petroleum

College of Science

University of Salahaddin

Subject: Practical Physical Geology

Course Book – 1st Year

Lecturer's name: Abdullah Talaat Othman

Academic Year: 2022/2023

Course Book

1. Course name	Practical Physical geology
2. Lecturer in charge	Abdullah Talaat Othman (MSc)
3. Department/ College	Department of Earth Sciences and Petroleum / College of Science
4. Contact	e-mail: abdullah.talat@su.edu.krd
5. Time (in hours) per week	Practical: 2 hours (Five groups per week) Tel: 07504945980
6. Office hours	4 hours
7. Course code	
8. Teacher's academic profile	I received the BSc. in Geology and the MSc. in structural geology from Salahaddin University-Erbil, in 2011 and 2017, respectively. I'm an assistant lecturer of structural geology and academic staff at the department of Earth Sciences and Petroleum-College of science-Salahaddin University/Erbil. I'm interested in structural geology, geomorphology and geological software.
9. Keywords	Physical Geology, Minerals, Igneous Rocks, Sedimentary Rocks, Metamorphic rocks and Lithologic symbols.
10. Course overview:	The practical physical geology course includes the principal study of the minerals and rock types. The course focuses on the physical properties of minerals such as (color, streak, hardness, transparency, luster, cleavage, fracture and specific gravity), three different types of rock such as (Igneous rock, sedimentary rock and metamorphic rock), and also on the lithologic symbols
11. Course objective:	The students will get an idea about the fundamentals of physical geology; covering how to identify and describe the Minerals through their properties by using hand specimen, explains about the Rock types and their classification (Igneous, sedimentary and Metamorphic) also by using hand specimen, and Lithologic Symbols by using a suitable symbol for each rock. The course is designed for students with little or no background in geology. Each lesson

includes specific learning objectives that the students should use to prepare for the lab. The lab manual includes the procedures that illuminate the central principles of physical geology and lab course. The procedures can help the students to review, analyze, and apply their knowledge of the materials covered in the lab course.

12. Student's obligation

Student must require attending class on a weekly basis and on time. And be able to cover the Labs topic during the academic year and be prepared for a quiz about the previous lab subject. And every lab the students must prepare the report and submit it at the end of the lab. The attendance of the student to the class makes the positive point to understanding the Lab subject and be able to pass the monthly and final exam during the academic year.

13. Forms of teaching

The teaching form mainly based on the PowerPoint slide that presenting by a data show in the class. Student can get the hard and soft copy of this power point slides and lab sheets before starting the lab.

14. Assessment scheme

I give one exam during the academic course, and this exam will cover all the received material. There are two styles for this exam; the student will choose one style before the exam, the first one is in move style and the second one is the classic style. The exam has 35 marks (25 on exam, 3 on quiz, 7 on report and activity).

15. Student learning outcome:

Practical Physical Geology is a course in which students will learn about the fundamentals of physical geology; covering how to identify and describe the Minerals through their properties by using hand specimen, explains about the Rock types and their classification (Igneous, sedimentary and Metamorphic) also by using hand specimen, and Lithologic Symbols by using a suitable symbol for each rock. The course is designed for students with little or no background in geology. Each lesson includes specific learning objectives that the students should use to prepare for the lab. The lab manual includes the procedures that illuminate the central principles of physical geology and lab course. The procedures can help the students to review, analyze, and apply their knowledge of the materials covered in the lab course.

16. Course Reading List and References:

F. K. Lutgens & E. J. Tarbuk, 2012. **Essentials of Geology**. Pearson Education, Inc., New Jersey.

Bradley Deline, Randa Harris and Karen Tefend. **Introductory Geology**. University of north Georgia.

Fundamentals of Geology: C. W. Montgomery, Third Edition. McGraw-Hill Company, Boston (1997).

17. The Topics: Practical Physical geology	Lecturer's name
Week 1: Course book	Abdullah T. Othman 2 hours
Week 2 & 3: Minerals Physical Properties of Minerals (Color, Streak, Transparency, Luster, Hardness, Cleavage, Fractures and Specific gravity (density)).	2 hours
Week 4: Igneous Rocks Procedures to describe igneous rocks (Origin, Textures, Color, Acidity/or Chemical Classifications, Mineral composition).	2 hours
Week 5 & 6: Sedimentary Rocks Types of sedimentary rock (Clastic sedimentary rocks and non-clastic sedimentary rocks) Classification of sedimentary rocks according to the following parameters: (Color of rock, Size of particles/or crystals formed the rock, Sorting and Mineral composition).	2 hours
Week 7 & 8: Metamorphic Rocks Laboratory requirements for working on metamorphic rocks: (Type of metamorphism, Class of metamorphism Texture, Metamorphic Grade and Parent rocks)	2 hours
Week 9: Lithologic Symbol	2 hours
Week 10: Examination	

18. Examinations:

Q1/ Write the (True or False) for these sentences and correct the False one, without change the Bold word:

1. The type of metamorphism of **Schist** is dynamic.
2. The luster of **Quartz** mineral is non-metallic.
3. The **Limestone** is an example of evaporite sedimentary rock.

Q12/ What is the difference between these two rocks:

Conglomerate and Sandstone

Q3/ Choose the correct answer:

- | | | | |
|--|----------------|-----------------|----------------|
| 1. The Mineral composition of Chert is | a. Clay | b. Dolomite | c. Quartz. |
| 2. The Fracture of Copper mineral is | a. Hackly | b. Conchoidal | c. Even. |
| 3. The Grade of metamorphism of Hornfels is | a. High | b. Low | c. All grade. |
| 4. The Transparency of Gypsum mineral is | a. Translucent | b. Opaque | c. Transparent |
| 5. The Acidity of Gabbro is | a. Acidic | b. Intermediate | c. Mafic. |

19. Extra notes:

It's important that the students ask questions if they do not understand the subject and do not hesitate to ask a question. Each lab has many samples so the student must control all the samples and write a short note to identify each hand specimen samples.

20. Peer review

Assist. Prof. Dr. Waleed Shingaly