



Department of: Chemistry

College of: Science

University of: Salahaddin

Subject: Geochemistry and Mineralogy

Course Book: Second Stage/ Second Semester

Lecturer's name: Dr. Idrees Nadir Ahmed (Lecturer, Ph.D.) + Dr. Awaz Karim Rasul (Lecturer, Ph.D.)

Academic Year: 2023/2024

Course Book

1. Course name	Geochemistry and Mineralogy
2. Lecturer in charge	Dr. Idrees Nadir Ahmed + Dr. Awaz Karim Rasul
3. Department/ College	Department of Chemistry/ College of Science
4. Contact	e-mail: idrees.ahmed@su.edu.krd , awaz.rasul@su.edu.krd Tel: 07514302454, 0750 449 6509
5. Time (in hours) per week	Theory: 4 Practical: 2 (each group/ 8 groups).
6. Office hours	
7. Course code	
8. Teacher's academic profile	<p>* Graduated in Geology (Ranked 2nd in the department) in Salahaddin University/ College of Science (2001-2002). I have worked as assistant geology for 4 years at different subjects including: Physical Geology, Geochemistry, Geophysics, Remote sensing, Geomorphology.</p> <p>* M.Sc. in Geology at Salahaddin University, (2010). Thesis title “The Impact of Tanjero Stream on the Soils, Ground Water along the Stream Course and Derbendikhan Reservoir, Sulaimani-Iraq”. After getting Assistant Lecturer title, I have taken the subjects: Geomorphology, Physical Geology, Optical Mineralogy, Petrology (Igneous and Metamorphic rocks).</p> <p>* Ph.D. in in Biology Salahaddin University, (2020). Dissertation title “Mineralogy and Geochemistry of Podiform Chromitites in Zagros-Suture Zone, Kurdistan Region, NE-Iraq”.</p> <p>I worked at different committees of the department including, Student Reception Committee, Examination Committee, Summer Field Committee.</p>
9. Keywords	Geochemistry, Minerals,
10. Course overview:	<p>This course will cover the most important topics of Quality Control, which focus on components of quality control/quality assurance and a historical look about quality. Quality control course focus on the requirements for quality control processes and methods for applying quality system. It important for the student to know about the standard. The student will take knowledge about sampling, sampling strategies for environmental components and how statistical process control is applied; how construct control charts. The student able to know the quality specification and purposes of quality control in foods and drugs; water, soil and air quality standards and regulations, monitoring and treatment.</p>

11. Course objective:

This course develops appreciation of quality management theory, principles, and practices; provides an ability to function as a team member for solving problem as well as to design experiments, to collect and analyse data, and interpret results. This course also develops strategies for organizational change and transformation and use quality improvement tools and practices for continuous improvement. Moreover, the course provides information about quality control and quality assurance of the environmental compartments including air, water, soil, food, etc.

12. Student's obligation

In this course, the students will be evaluated through two 2 exams. The student's obligation during the course is attendance in the class for two hours for studying the theory. During this course the students will prepare a report about quality of any of the environmental components and consider as an exam.

13. Forms of teaching

For each class, we recommend the students to take the lecture handout before attending the classroom. A student must read the lecture before the class. In the class, the lectures are power-point present at the first hour of the class, inconspicuous points are clear on whiteboard, difficult idioms and tough words are also clear for the students, and then medium talk with teacher is make to discuss the theoretical aspects of the subjects. At the end of the class a short review of the lectures will make by the students while the data-show projector is switch-off in order to remind them the critical points from the lectures each week. Finally, a slide of question mark is present in order the students to ask the teacher about inconspicuous points from each lecture.

14. Assessment scheme

The students are required to do more than one closed book exam at the mid of the semester besides other assignments including scientific reports. final grade will be based upon the following criteria:

Theory = 15 % (Exam = 10 % and Scientific reports and seminar presentation = 5 %)

Practical Exam (including Exam, Quiz, and absence) = 35 % (Exam = 15 % and Scientific reports and seminar presentation = 6 %, Weekly report = 8%, Quizz = 6)

Final exam: 50%

Constructive classroom participation, submitting assignments, and attending class will be evaluated by the lecturer over the semester and used in borderline cases to determine the final grade. Exams and assignments require analytical work and not just memorization of topics or articles.

15. Student learning outcome:

At the end of the semester, students should get enough information about the:

<ul style="list-style-type: none"> • The student should be able to identify mineral properties. • The student should understand the relationship between different minerals of the same group. • The student should be able to identify different type of rocks. • The student should understand the distribution of elements in rocks and minerals. 	
16. Course Reading List and References: Required books: <ul style="list-style-type: none"> • Faure, G. (1997). Principles and applications of geochemistry (Vol. 625). Upper Saddle River, NJ: Prentice Hall. • Klein, C., & Philpotts, A. R. (2013). Earth materials: introduction to mineralogy and petrology. Cambridge University Press. • Okrusch, M., & Frimmel, H. E. (2020). Mineralogy: An Introduction to Minerals, Rocks, and Mineral Deposits. Springer Nature. 	
17. The Topics:	Lecturer's name
<u>A: Theory</u>	
Week 1: Course book Week 2: Periodic Table (Elements, bonding, simple structures). Week 3: Crystallography and their systems. Week 4: Mineral, and their properties, Classification of Minerals Native. Week 5: Oxides and hydroxides, Carbonate, Sulfide and sulfate, Silicate. Week 6: Geochemistry of Igneous rocks. Week 7: Geochemistry of Metamorphic rocks. Week 8: Geochemistry of Sedimentary rocks. Week 9: Weathering, soils, and soil development. Week 10: Organic Geochemistry.	Dr. Idrees Nadir Ahmed and Dr. Awaz Karim Rasul 4 hour per week for theoretical lecture
18. Extra notes: The course book lacks to the problems which affect the educational process is the absence of appropriate rooms for lecturers to develop themselves.	
19. Peer review Assistant Professor Dr. Hikmat Safi Al-Jaleel	