****

**Salahaddin University-Erbil**

**College of Science**

**Department of Earth Science and Petroleum**

**Subject: Geotectonic**

**Course Book: 4nd Year**

**Lecturer's name: Awara Amin**

**PhD. in Tectonic and geomorphology**

**Academic Year: 2022-2023**

**Course Book**

|  |  |
| --- | --- |
| **1. Course name** | **Geotectonic** |
| **2. Lecturer in charge** | **Awara Amin** |
| **3. Department/ College** | **Department of earth science and petroleum** |
| **4. Contact** | **e-mail: awara.m.amin@su.edu.krd****Tel: (0751-198-8461)** |
| **5. Time (in hours) per week**  | **Theory:2, practical 8**  |
| **6. Office hours** | **5 hr** |
| **7. Teacher's academic profile**  | **I have got M.Sc. in 2011 in geochemistry and petrogenesis of volcanic rocks located on Iraq-Iran border from Salahaddin University. Then I got PhD in 2020 in observing tectonic and geomorphologic impact on landscape development at the University of Glasgow. In the past ten years I have been teaching several subjects at both universities (Salahaddin and Glasgow) such as, optical mineralogy, practical igneous and metamorphic rocks, digital geology and mapping using corelDraw and Illustrator, and GIS, filed geology.**  |
| **8. Course overview:**  In modern day geologic science, especially understanding plate behaviours helps geologists to better estimate landscape development in the future based on how plates have acted in the past. Add to that, in this course students learn how to make connection between earthquake and plate tectonic movement, and why most of them happen in the north east of our region along the Iraq-Iran-Turkey border.  |
| **9. Course objective:** Plate motions, earthquakes, volcanoes, mountain building, landslides, floods and many others phenomena have interacted over long time to sculpt our present-day landscape. In this course, we present the impact of some of these phenomena, what each of them is, and what causes them. We will be mainly focusing on plate tectonics -the grand unifying theory of geology- to explain how the location of out plate (Arabian plate), which we are part of now, has changed radically over geologic time, and why present-day geologic activities including earthquakes and volcanic occur where they do. These all together would help us to understand the context of the environment and sustainability challenges we will face in the future. |
| **10. Student's obligation** Attendance is a key to pass this subject. Students must attend most of the lectures as part of the policy the department has. They will miss weekly activities if they miss any lecture which will leave impact on their grade at the end of semester. Students are given lectures in advance and they are expected to get the required lecture printed before attending any lecture. They are given weekly task and they have to solve it and send it by their own email. This is only to push them to make them more familiar with computer and email writing. |
| **11. Forms of teaching**Lectures are in powerPoint form, and they are presented for students on high resolution projectors. Often the lectures are dominated by sketches and graphs to make the message (take out) clear and easy for students.  |
| **12. Assessment scheme**The students are required to do one exam in this course. The grade division is like that in this subject: Monthly exam is over 50 and final exam is over 50. Together becomes 100. So the monthly exam is also divided like that: 15 for theory and 35 for practical part. Usually after five or six lecture, they do an exam. Their 15 scores come from the exam and their attendance, classroom activities, and reports.  |
| **13. Course Reading List and References‌:*** **List of reference:**
* Jassim, S.Z. and Goff, J.C. eds., 2006. Geology of Iraq. DOLIN, sro, distributed by Geological Society of London.
* Koshnaw, R.I., Stockli, D.F. and Schlunegger, F., 2019. Timing of the Arabia-Eurasia continental collision—Evidence from detrital zircon U-Pb geochronology of the Red Bed Series strata of the northwest Zagros hinterland, Kurdistan region of Iraq. Geology, 47(1), pp.47-50.
* Karim, K.H., Sedimentary Basins (few lectures).
* **YouTube and online lectures (internet):**
 |
| **13. The Topics:** | **Lecturer's name** |
| Week 1: **An overview on the course, and explaining why understanding plate tectonic is matter.**Week 2**: Explaining ﻿continental drift idea and palaeomagnetism, and ﻿what can Palaeomagnetism tell us as geologists.**Week 3: **Explaining the driving force behind plate tectonics, and how plate boundaries are defined.**Week 4: **Explaining mechanisms of forming distinctive basin environments in different plate tectonic settings. Then, will learn how over the geologic time our region, Kurdistan, has experienced some of these tectonic basin environments which were supplied by several types of sediments.**Week 5 & 6: **Tectonic events have sculpted today’s shape of our landscape (Iraq-Kurdistan). ﻿Then explaining how Kurdistan’s position has changed along the history as part of the Arabian plate, and accumulated its currents sediments now seen on the surface.**Week 7: **Earthquake and plate tectonics**Week 8 & 9: **Explaining the currently common tectonic tools to determine and evaluate rates of erosion and exhumation over geologic time scale. And explaining role of tectonics, and climate in controlling rates of long-term landscape change.**Week 10: **Isostasy and Tectonics**Week 11: **We would have a field trip, and you will present your report in the last lecture if time allows us.** | **Awara Amin** |