

Global Learning Semesters

Course Syllabus

Course: GEOL 315 Geology of Cyprus and Eastern Mediterranean

Department: Sciences and Engineering

Host Institution: University of Nicosia, Nicosia, Cyprus

Course Summary		
Course Code	Course Title	Recommended Credit Hours
GEOL-315	Geology of Cyprus and Eastern Mediterranean	3
Subject	Contact Hours	Prerequisites
Geology	42-45	At least a 2 nd year student
Department	Level of Course	Language of Instruction
Sciences & Engineering	Upper-Division	English

Course Description

The course introduces students to the science and the basics of geology, and studies the formation of Cyprus and the Mediterranean Basin and specially the unique geological formations of Cyprus. The Troodos mountain range, a unique place in the world for the understanding of an oceanic plate and the relevant geodynamic phenomena, will be of special focus. The course includes several site visits. The course can be taken by any science student.

Prerequisites (if applicable)

At least a 2nd year student

Instructor Information

Nicki Nicolaidou, nikoletnik@gmail.com: Mrs.Nicki Nicolaidou received her Degree in Geology from the Aristotle University of Thessaloniki, Greece in 2007. Since 2010 she is working as a project geologist for the Canadian gold exploration company Northern Lion, in Cyprus. Previous work experience as a geologist includes geotechnical and environmental impact assessment studies.

Ifigenia Gavriel, iphigenia_gabriel@yahoo.gr: Mrs.Ifigenia Gavriel is a postgraduate student of the MSc Environmental Engineering of the Department of Civil and Environmental Engineering at the University of Cyprus. She received her Degree in Geology from the National and Kapodestrian University of Athens, Greece in 2009. From 2010 she is working as a project geologist for the Canadian gold exploration company Northern Lion, in Cyprus.

Learning Outcomes

1. To get a solid understanding of the geology as a science and field of study and research.
2. To understand the outside and inner structure of the earth.
3. To understand the various geological formations such as rocks, plates, water and minerals.
4. To understand the various geological processes including weather, volcanoes and earthquakes.

5. To get an understanding of the tectonic activity and the geological form of the Mediterranean Basin.
6. To focus on the geological formations of Cyprus.
7. To further study the Troodos ophiolite sequence and the sedimentary cover with site visits on a sampling basis.
8. To observe through site visits the various rock types and minerals.
9. To appreciate the economic significance of natural resources from this very unique mountain.
10. Be able to understand and explain data collection and analysis methods

Course Outline

Part 1: General Geology

1. The Earth: age and origin, structure (core, mantle, crust), chemical composition, thermal field.
2. Geological processes related to: weathering, superficial water streams, underground water, glaciers, seas and lakes, atmosphere.
3. Geodynamics and Tectonics of the Earth: Plate Tectonic theory and movements, formation of mountains and oceans, folding, faulting, earthquakes.
4. Mineralogy: mineral, crystallography, classification, ores and mineral deposits
5. Rocks: types, formation, classification
 - a. Igneous rocks (plutonic and volcanic)
 - b. Sedimentary rocks
 - c. Metamorphic rocks
6. Hydrogeology: basics
7. Mapping and sampling procedures

Part 2: Geology of Cyprus

1. Overview of Eastern Mediterranean
2. Geographical position of Cyprus
3. Formation of the island of Cyprus

The Troodos Ophiolite

4. The Pera Pedi formation
5. Volcanic sequence (upper pillow lava, lower pillow lava, basal group)
6. Intrusive sequence (sheeted dyke complex)
7. Plutonic sequence (gabbros, dunite, wehrlite, pyroxenite, plagiogranites)
8. Mantle sequence (harzburgite, serpentine)

The Mamonia Complex

The Kyrenia Range

The Circum Troodos Sedimentary Cover (Succession)

9. Kannaviou Formation
10. Lefkara Formation
11. Pakhna Formation
12. Kalavassos Formation (the Messinian episode)
13. Nicosia Formation
14. The Fanglomerates
15. The Holocene deposits

The Natural Resources of Cyprus

16. Mines and quarries (types, location, environmental impact)

17. Water (ground, dams, climate)
18. Landscapes and tourism

Field trips

Three field trips will take place during the course to observe the ophiolite, the sedimentary rocks and visits to a quarry and a mine.

During the field trips the participants can create a collection form all the major Cyprus rocks and minerals.

Evaluation and Grading

Grading

Mid-Term Examination	30 %
Final Examination	40 %
Field trip Notebook	20 %
Attendance	10 %

Readings and Resources

Edwards, S., Hudson-Edwards, K., Cann, J., Malpas, J., Xenophontos, C. (2010). *Classic Geology in Europe 7 – Cyprus*. Harpenter: Terra Publishing

Other Academic Policies

Perfect attendance is encouraged. Students missing classes are still responsible for the material covered. If attendance falls below 80%, students will be withdrawn from the course. The attendance policy applies also to the site visits.

Materials and Supplies

No additional materials or supplies are required for this course.

Optional: geological hammer, compass, lens, notebook