The Hebrew University of Jerusalem

Syllabus

ENVIRONMENTAL GEOLOGY - 71070

Last update 05-03-2023

HU Credits: 2

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Soil and Water Sciences

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Larry Gaber

Coordinator Email: LJG@ NETVISION.NET.IL

Coordinator Office Hours: tuesday 14:00-15:00

Teaching Staff:

Dr. Larry Gaber,
Ms. ella stiklaro

Course/Module description:
Fundamentals of Geology
Geological hazards and humans
Human impact on geological environment
The course will include Lectures and quizzes and a final. The quizzes and exams are multiple choice questions.

Course/Module aims:
Awareness, understanding and assessment of the environment
- Ability to assess geological hazards
- Ability to understand the impact of
Human behavior on the environment
- Impact on the economy and politics

Learning outcomes - On successful completion of this module, students should be able to:
Awareness, understanding and assessment of the environment
- Ability to assess geological hazards
- Ability to understand the impact of
Human behavior on the environment
- Impact on the economy and politics

Attendance requirements(%):
attendance in lectures is required.

Teaching arrangement and method of instruction: Lectures, 2 mid terms and final exam.

Course/Module Content:
Introduction - what is geology. formation of the universe, our solar system and the earth.
Differentiation and Structure of the Earth. Size and mass of the earth. Chemical composition of the earth.
Gravimetry and Isostasy,
Snells law and seismic waves. major layers of the earth.
Atomic Structure (Bohr model)
Mineralogy, Silicate tetrahedra and silicate minerals, geometry

Petrology: Three major rock groups (Sedimentary, magmatic and metamorphic rocks). Rock formation, weathering and erosion.
Geological time and general laws of geology (uniformitarianism and superposition)
Topographic Maps
Geological maps
Continental drift and Plate Tectonics
Rock mechanics (fractures and folding of rocks)
Earthquakes (Fundamentals , intensity earthquake damage, Richter scale, Triangulation and Prediction). Tsunami.
Volcanism Types of Volcanoes and the dangers of active volcanoes.
Mass wasting, Ground stability
Fossil Fuels,Formation of fossil energy sources(Oil, gas and fracking. Peak oil and the Hubert curve.
Alternative energy (Hydro, atomic -including fusion, solar, geothermal and Biomass.
Hydrology - Water use and environmental impact of
Industrial pollution.
Remediation and Monitoring.

Required Reading:

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Additional Reading Material:

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Grading Scheme:

Additional information:

-Participation is 10% of the grade. It is based an attendance. Any missed class has to be approved by lecturer otherwise it will reduce the attendance portion of the grade.
The quizzes and the final are multiple choice questions.On each quiz and on the final there is a open bonus question which can add up to 10 points in each quiz and the final. The student writes any question that he or she finds interesting. The student prepares a good answer to their question and writes it during the quiz/test (from memory). An interesting question and intelligent answer can add up to 10 points so it is possible to get an overall score of 110 points in each quiz and the final exams. A poor or silly question/answer will not get any bonus points.
If a student misses a few lectures they will lose a proportional amount of attendance points. A student that does not attend most of the lectures will not get a grade at all in the course. Examples of acceptable reasons for not making it to a

lecture are illness, religious holidays and reserve duty. Please notify me before, during or right after you missed a class. Attendance is taken during every class.