

The Hebrew University of Jerusalem

Syllabus

EARTHQUAKES AND SEISMIC HAZARD - 70543

Last update 10-09-2023

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Geology

Academic year: 0

Semester: 2nd Semester

Teaching Languages: English

Campus: E. Safra

Course/Module Coordinator: Prof. Amotz Agnon

Coordinator Email: amotz@huji.ac.il

Coordinator Office Hours: Thursday 4-5

Teaching Staff:

Prof Amotz Agnon,
Ms. Shaked Anglberd

Course/Module description:

The course presents the foundations of earthquake science

Course/Module aims:

Acquaintance with basic terms (intensity versus magnitude; moment versus energy; epicenter - focus - source; attenuation - dissipation; resonance and amplification).

Learning outcomes - On successful completion of this module, students should be able to:

*Understanding basic texts on earthquakes.
Ability to compute energy balance for earthquakes.
Interpretation of focal solutions ("beach-balls") while understanding ray paths.
Technical assistance for consulting and surveys*

Attendance requirements(%):

75

Teaching arrangement and method of instruction:

Course/Module Content:

*1927 Jericho earthquake and basics for earthquake science.
Significant historical earthquakes of the Holy Land.
Sedimentary and other geological evidence.
Archaeological evidence in Israel and worldwide.
Instrumental seismology: focus and epicenter.
Focal solution; source mechanics.
Various scales for estimating magnitude; 1995 Gulf of Aqaba quake and its damage in Eilat; modern attenuation relations and hazard analysis.
The Israeli code.
Paleoseismic trenching and length-offset-magnitude systematics.
Volcanic quakes; tsunamis.
Seismotectonics; forecasting.*

Required Reading:

Bolt; Hough; Agnon 2014
Stein & ~Stein: *Playing Against Nature*

Additional Reading Material:

Ambraseys 2009; Guidoboni and Comastri 2004; Sbeinati 2005

Grading Scheme:

Written / Oral / Practical Exam 20 %
Essay / Project / Final Assignment / Home Exam / Referat 30 %
Presentation / Poster Presentation / Lecture/ Seminar / Pro-seminar / Research proposal 15 %
Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 10 %
Mid-terms exams 10 %
Presentation / Poster Presentation / Lecture 15 %

Additional information:

Participation (10% grade): At each class the instructor asks students about reading material.

Quiz (10% grade): Immediately following Passover 19 April.

Assignments (20% grade): four assignments, 5% each.