האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

SURFACE HYDROLOGY - 71630

Last update 06-03-2021

HU Credits: *3*

Degree/Cycle: *1st degree (Bachelor)*

Responsible Department: *Soil and Water Sciences*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *English*

Campus: *Rehovot*

Course/Module Coordinator: *Yair Mau*

Coordinator Email: *yair.mau@mail.huji.ac.il*

Coordinator Office Hours:

Teaching Staff:

Dr. Yair Mau,
Ms. Laura Raz

Course/Module description:
This is an introductory course in Surface Hydrology, dealing with some of the major processes in the hydrologic cycle: precipitation, evaporation and transpiration, infiltration, runoff generation and streamflow. The different topics will be treated using mathematical models and practical programming exercises.

Course/Module aims:
The course aims at giving the students a quantitative understanding of the main processes in the hydrologic cycle. We will characterize the hydrologic cycle and its fluxes through mass balance equations. The random nature of the various processes will be studied with statistics, time series analysis, return periods, extreme value distributions, etc. We will take a "hands-on approach", where students will actively engage with the material by analysing data and writing models using Python.

Learning outcomes - On successful completion of this module, students should be able to:
- Identify the various components of hydrologic budget and their interdependency.

- Describe the various processes in hydrology (precipitation, infiltration, evaporation, etc) in a mathematical language.
- Write computer code to analyze the statistics of hydrologic fluxes, and construct models of hydrological systems.

Attendance requirements(%):
100

Teaching arrangement and method of instruction: Frontal lecture, reading of required materials, exercises sessions in a computer lab.

Course/Module Content:
- The hydrological cycle
- Precipitation
- Evapotranspiration
- Water in the sub-surface and groundwater
- Infiltration
- Runoff and surface water

- Watershed hydrology
- Extreme events: precipitation, floods and droughts

Required Reading:
Dingman, S. L., 1994. Physical Hydrology. Prentice Hall

Margulis, Steven. Introduction to Hydrology,
https://margulis-group.github.io/textbook/
https://ucla.app.box.com/v/Intro-to-Hydrology-pdf

Additional Reading Material:
Introduction to Hydrology, Viessman, Warren ; New York : HarperCollins College ; 1996, 4th ed.

Chow, V. T., Maidment, D. R., and Mays, L. W., 1988, Applied Hydrology, McGraw-Hill

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 50 %
Assignments 50 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
There will be some small projects during the semester, all worth 50% of the grade. A final and larger project (50% of the grade) will be due at the end of the semester. All projects will be done in Python (on Jupyter Notebooks).