האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

The science of global warming - 70930

Last update 05-10-2021

HU Credits: 2

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Geology

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Yonatan Goldsmith

Coordinator Email: yonig@mail.huji.ac.il

Coordinator Office Hours: Individual scheduling

Teaching Staff:

Dr. Yoni Goldsmith

Course/Module description:

Global warming and climate change are of the biggest challenges of our generation, which will have substantial social, economic, and environmental effects.

The class will present:
a) The scientific background of global warming and climate change
b) What are natural climate cycles?
c) How we know global warming is manmade
d) How do we know what the future holds?
e) What are the consequences of global warming and in particular in Israel?
f) The social, economic and environmental outcomes of global warming will be discussed

Course/Module aims:

Presentation of the scientific background of global warming and the societal challenges they are creating

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

- Understand in a more complex manner the challenges the world faces in the wake of global warming
- Analyze basic climate data
- Critically evaluate issues regarding global warming

Attendance requirements(%):

80

Teaching arrangement and method of instruction: Lectures and problem sets

Course/Module Content:

1. Intro, warming, causes and consequences
2. The structure of the climate – energy balance, greenhouse gasses
3. The structure of the climate 2
4. Paleoclimate – natural climate cycles.
5. Paleoclimate 2 – the records
6. Anthropogenic climate change, CO2 emissions

7. Fossil fuel
8. Climate models and the IPCC
9. Results of climate change: rainfall, agriculture and immigration
10. Sociology and law in relation with climate change
11. Global warming effect on humans
12. Solutions to global warming
13. Carbon footprint
14. Climate Change in Israel

Required Reading:

Archer. D. 2012. Global warming – understanding the forecast. Wiley & Sons.
IPCC. 2013. The Physical Science Basis. Cambridge University Press.
Resilience accelerator Tel Aviv-Yaffo Report. 2019.
המשרד להגנת הסביבה. 2015. היבטים כלכליים בהיערכות לשינויים אקלימיים בישראל.

Additional Reading Material:

Archer, D. and Pierrehumbert. 2011. The Warming Papers. Wiley-Blackwell.
Broecker, W.S. and Kunzing, R. 2008. Fixing Climate. Hill & Wang.
Cramer. W. et al., 2018. Nature Climate Change.
Hochman, A. 2018. International Journal of Climatology
Keith. D. 2013. A Case for Climate Engineering. Boston Review.
Kelley, C. et al., 2015. PNAS.

Course/Module evaluation:

End of year written/oral examination 60 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 40 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: