האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

Syllabus

How many people can Earth support? - 40352

Last update 24-10-2022

HU Credits: 2

Responsible Department: Geography

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Amit Tubi

Coordinator Email: amit.tubi@mail.huji.ac.il

Coordinator Office Hours: Tuesday, 12:00-13:00, room 4617

Teaching Staff:
Dr. Amit Tubi

Course/Module description:
While the population of our planet keeps growing, Earth□s natural systems are

experiencing increasing pressures. This course examines the question how many people can Earth support? This question is examined from the angle of human-nature interactions at the global, regional and local scales over time. We'll ask why and where did geographic variables lead to societal collapse? Does the environment limit the carrying capacity of the Earth? What are the implications of globalization for regional and local capacities? And how are environmental issues addressed? In addressing these issues we'll deal with questions pertaining to food supply, water resources, energy, climate change, ecosystem services, human footprints, and global regimes.

Course/Module aims:

To provide a global inter-scale view of human development and human-nature interactions. To expose the students to the terminology used in today's environmental discourse. To understand the patterns and implications of globalization processes.

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

To outline over-arching patterns of human-nature interactions over time;
To critically appraise concepts of carrying capacity;
To identify the inter-relations between population, food, water and energy issues;
To connect the inter-scale effects of globalization processes and identify their ramifications.

Attendance requirements(%):

80%

Teaching arrangement and method of instruction: Lectures in class

Course/Module Content:

The course comprises three modules:
World geography - human-nature interactions in a historical perspective from the last ice age until today;
Carrying capacity - what is it? population, food, water and energy interactions and inter-dependencies;
Implications of human actions on ecosystem services, and the inter-scale relations of such implications.

Required Reading:

Diamond Jared (1997) Guns, Germs, and Steel: the Fates of Human Societies. New

York : W.W. Norton (ch. 4-5).

McCauley D.J. et al., 2015, Marine defaunation: Animal loss in the global ocean, Science 347 (6219), 247-254.

Cohen J. (1995) How Many People can the Earth Support?, Norton (ch. 12).

Falkenmark M. and Lannerstad M. (2010) Food security in water-short countries coping with carrying Capacity overshoot, in: L. Martinez-Cortina, A Garrido and E. Lopez-Gunn (eds) Re-thinking Water and Food Security, CRC Press.

Ferguson A. (2002) The assumptions underlying eco-footprinting, Population and Environment 23, 303-313.

Additional Reading Material:

Chenoweth J, Hadjikakou M. and Zoumides C (2014) Quantifying the human impact on water resources: a critical view of the water footprint concept, Hydrology and Earth System Sciences 18, 2325-2342.
Cohen J. (1995) How Many People can the Earth Support?, Norton.

Costanza R., d'Arge R. et al. (1997) The value of the world's ecosystem services and natural capital. Nature, 387, 253-260.

Dasgupta P. (1995) Population, Poverty and the Local Environment, Scientific American (Feb.), 26-31.

Diamond Jared (1997) Guns, Germs, and Steel: the Fates of Human Societies. New York : W.W. Norton.

Diamond J. (2005) Collapse: How Societies Choose to Fail or Succeed, Viking.

Feitelson E. (1998) Muddling toward sustainability: the transformation of environmental planning in Israel, Progress in Planning 49 (1), pp 1-53.

Feitelson E (2013) The four eras of Israeli water policies, in: N. Becker (ed). Water Policy in Israel: Context, Issues and Options, Springer, Berlin.
French H., 2000, Vanishing Borders: Protecting the Planet in the Age of Globalization, Norton.

Gleick P. and Palaniappan M (2010) Peak water limits to freshwater withdrawal and use, PNAS 107 (25) 11155-11162.

Haddeland et al., 2014, Global water resources affected by human interventions and climate change, PNAS 111, 3251-3256.

Hardin, G. (1968) The tragedy of the commons. Science, 162, 1243-1248.

Hoekstra A.Y. and Wiedmann T.O. (2014) Humanity□s unsustainable environmental footprint, Science 344 (6 June), 1114-1117.

Issar Arie S., Mattanyah Zohar. (2007) Climate Change : Environment and History of the Near East . Berlin : Springer, GF 71 I78 2007

Jaeger W.K. et al. (2013) Toward a formal definistion of water scarcity in natural-human systems, Water Resources Research 49, 4506-4517.

Lopez-Gunn E. and Llamas M.R., 2008, Re-thinking water scarcity: Can science and technology solve the global water crisis?, Natural Resources forum 32, 228-238.

Marsh, William M. and Grossa J. Jr. (2005) Environmental Geography: Science, Land use, and Earth Systems. New York: J. Wiley.

McAnany P and Yoffee N (eds) (2009) Questioning Collapse: Human Resilience, Ecological Vulnerability and the Aftermath of Empire, Cambridge University Press.

McCauley D.J. et al., 2015, Marine defaunation: Animal loss in the global ocean, Science 347 (6219), 247-254.

Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B., Kent, J. 2000. Biodiversity hotspots for conservation priorities. Nature 403: 853□858.

Perevolotsky, A., Sheffer, E. (2009). Forest management in Israel□The ecological alternative. Israel Journal of Plant Sciences, 57, 35-48.

Pontig C., 1992, A Green History of the World: The Environment and the Collapse of Great Civilizations, Penguin.

Postel S. (1999), Pillars of Sand: Can the Irrigation Miracle Last?, Norton.

Rees W, Wackernagel M and Testemale P,(1998) Our Ecological Footprint, New Society Publishers

Rolett B. and Diamond J. (2004) Environmental predictors of pre-European deforestation on Pacific islands. Nature, 431, 443-446.

Vengosh A., Jackson R.B., Warner N., Darrah, T.H. and Kondash A. (2014) A critical review of the risks to water resources from unconventional shale gas development and hydraulic fracturing in the United States, Environmental Science and Technology 48, 8334-8348

The Ecological Footprint Atlas (2008).

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 100 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: