



Introduction to Environmental Science

Dr. Tareq Abuhamed
Suleiman Halasah

1.5 hours twice a week. 3 credits **Undergraduate**

Course description

This course is designed to give an overview of environmental science, focusing on global environmental issues. The course will look at past and present environmental issues and the chemical and physical tools that assist in the study of the environment. The course will cover air pollution, the water cycle and environmental issues associated with water, hazardous substances, global warming, ozone depletion and acid rain. Each student will choose a specific topic to research and present to the class. There will be one field trip associated with the class.

Grade components

Class participation	10%
Quizzes	12%
Chemical of the week	3 %
Paper	15%
Midterm	20%
Final exam	40%

Textbook for the course:

Chapters in: "Environmental Science" by Richard T. Wright, International Edition (9th)
Pearson-Prentice Hall (2005)

Session 1

Our planet – past and present environment; the atmosphere and the climate; natural and anthropogenic processes

Dr. Tareq Abu Hamed

Readings: "Environmental Science" by Richard T. Wright, International Edition (9th)
Pearson-Prentice Hall (2005), pages 1-21 and appendix C, pages 669-675

Discussion: Israel Jordan population growth and pollution

Discussion: is CO₂ sequestration realistic?

Session 2

Chemical and physical tools assisting environmental studies – the atomic structure, chemical bonding and chemical reactions

Lecturer: Dr. Tareq Abu Hamed

Readings: “Environmental Science” by Richard T. Wright, International Edition (9th) Pearson-Prentice Hall (2005), pages 54-68, 320-347 and appendix B, pages 667-668

Session 3

The waste cycle – solid waste, hazardous waste, other types of wastes

The waste cycle – Recycling and the integrated solution to waste problems

Lecturer: Dr. Tareq Abu Hamed

Readings: “Environmental Science” by Richard T. Wright, International Edition (9th) Pearson-Prentice Hall (2005), pages 490-511; 513-537

Progress report 1. At the beginning of this session each student will present in 3 minutes her/his assignment selection

Discussion: Waste in Palestine and Israel

Discussion: Recycling culture comparison

Session 4

Understanding global issues; the greenhouse effect, the ozone layer depletion; acid rain phenomenon

Lecturer: Dr. Tareq Abu Hamed

Readings: “Environmental Science” by Richard T. Wright, International Edition (9th) Pearson-Prentice Hall (2005), pages 348-401,

Session 5

Wastewater and wastewater treatment

Lecturer: Suleiman Halasah

Readings: “Environmental Science” by Richard T. Wright, International Edition (9th) Pearson-Prentice Hall (2005), pages 463-488

Discussion: Comparison of waste water treatment in Israel and the PA

Session 6

What is toxicity, Analysis of several natural and industrial processes, hazardous substances, whole life cycle analysis.

Lecturer: Dr. Shmuel Brenner

Readings: “Environmental Science” by Richard T. Wright, International Edition (9th) Pearson-Prentice Hall (2005), pages 404-431

Discussion: Toxicity of VOC

Hands on in the research park-Lecturer Tareq Abu Hamed

Session 7

Chemical reactions in the atmosphere and the environmental impacts of fossil fuels.
Climate change and introduction to renewable energy sources.

Progress report 2. At the beginning of this session each student will present in 3 minutes her/his assignment progress

Lecturer: ***Dr. Tareq Abu Hamed***

Readings: "Environmental Science" by Richard T. Wright, International Edition (9th)
Pearson-Prentice Hall (2005), pages 538-571

Discussion: renewable energy regulations in Israel

Session 8

The water cycle- the liquid state of matter, properties of water, types of solutions; the pH concept.

Lecturer: ***Dr. Tareq Abu Hamed***

Readings: "Environmental Science" by Richard T. Wright, International Edition (9th)
Pearson-Prentice Hall (2005), pages 176-203

Progress report 2. At the beginning of this session each student will present in 3 minutes her/his assignment progress

Session 9

Midterm exam

Session 10

Field Trip in the region (5 hours)

Trip to Timna landfill, Sabiha waste water and the paper recycling plant in Eilat

Session 11

Air pollution – the gaseous state of matter, definitions, sources, effects, monitoring, standards

Lecturer: ***Dr. Tareq Abu Hamed***

Discussion: Air pollution from Power generation

Readings: "Environmental Science" by Richard T. Wright, International Edition (9th)
Pearson-Prentice Hall (2005), pages 572-602

Environmental Pollution, Volume 130, Issue 1, July 2004, Pages 113-126

Session 12

Presentation of personal assignments; Conclusions

Lecturer: Tareq Abu Hamed

Session 13

Review week

Lecturer: Dr. Tareq Abu Hamed

Session 14 Final exam

Recommended Reading:

“Human Geography” by Paul L. Knox And Sallie A. Marston, 3rd Edition
Pearson-Prentice Hall (2004).

Will the Circle Be Unbroken: A History of the U.S. National Ambient Air Quality Standards.

John Bachmann, Journal of the Air & Waste Management Association, volume 57, pp 652-697 (2007).

Sustainable Development, Global Environmental Change and Public Health. A.J .McMicheal and T. Kjellstrom. Fall, Automne 2002.

Health and Sustainable Development World Summit on Sustainable Development. International Institute for Environmental and Development. . David Bradley, Sandy Cairncross and Carolyn Stephens. May 2001.