

Introduction

A course on principles of environmental health typically covers a wide range of topics related to the ways in which our environment affects our health. Overall, the course may emphasize the importance of understanding the complex interactions between our environment and our health, and the need for interdisciplinary approaches to addressing environmental health challenges.

Course Objectives:

The objectives of a course on principles of environmental health may include the following:

- To develop an understanding of the basic principles and concepts of environmental health, including environmental hazards, exposure pathways, and the impact of environmental factors on human health.
- To gain knowledge of the sources and types of environmental pollutants and toxicants that can impact human health.
- To understand the methods and tools used for assessing environmental health risks, including epidemiology, toxicology, and risk assessment.
- To develop an awareness of the key issues and challenges related to environmental health, such as climate change, food safety, water and air quality, and occupational health.

- To learn about the regulations and policies that govern environmental health, and the role of government and other stakeholders in protecting public health and the environment.
- To develop skills in evaluating and interpreting scientific research related to environmental health, and in communicating complex scientific concepts to a lay audience.
- To foster an interdisciplinary approach to environmental health, drawing on knowledge and perspectives from fields such as public health, environmental science, policy, and economics.

Overall, the course may aim to equip students with the knowledge and skills necessary to understand and address environmental health challenges, and to contribute to efforts to promote environmental sustainability and protect public health.

Course Learning Outcomes:

On completion of the course, the students will be able to;

1. **Acquire** the basic principles and concepts of environmental health, including environmental hazards, exposure pathways.
2. **Understand** the impact of environmental factors on human health.
3. **Solve** and to highlight the impact of social determinants of health, such as poverty, inequality, and access to healthcare, on the spread of communicable diseases.
4. **Analyse** the role of environmental factors such as air quality, water quality, sanitation, and waste management in the transmission of communicable diseases.
5. **Evaluate** and interpreting scientific research related to environmental health, and in communicating complex scientific concepts to a lay audience
6. **Demonstrate** an interdisciplinary approach to environmental health, drawing on knowledge and perspectives from fields such as public health, environmental science, policy, and economics

Course Outline:

Introduction to Environmental Health: This section of the course may cover the basic principles and concepts of environmental health, including the definition of environmental health, environmental hazards, and exposure pathways.

Environmental Toxicology: This section may cover the study of the harmful effects of environmental toxins on human health. It may cover topics such as chemical hazards, toxicology, and risk assessment.

Water and Air Quality: This section may cover the importance of clean water and air for human health, the sources of water and air pollution, and strategies for improving water and air quality.

Food Safety: This section may cover the safety of the food supply, including the risks associated with foodborne illness and contamination.

Occupational Health: This section may cover the health risks associated with different occupations and workplaces, including exposure to toxic chemicals, radiation, and physical hazards.

Climate Change and Health: This section may cover the health impacts of climate change, including the effects of extreme weather events, heatwaves, and changes in air and water quality.

Environmental Policy and Regulation: This section may cover the role of government and other organizations in regulating environmental hazards and protecting public health.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks

Text and Reference Books:

1. Blumenthal, D. S., and Rutenber, A. J. 1995. Introduction to environmental health. Second Edition. New York: Springer.
2. Lippmann, M. (Ed.). 2020. Environmental toxicants: Human exposures and their health effects. New York: Van Nostrand Reinhold.
3. Moeller, D. W. 2011. Environmental health (Revised ed.). Cambridge: Harvard University Press.
4. Moore, G. S. 2018. Living with the earth: Concepts in environmental health science. Boca Raton: Lewis Publishers.
5. Nadakavukaren, A. 2020. Our global environment: A health perspective (5th ed.) Prospect Heights: Waveland Press, Inc.
6. Philp, R. B. 2017. Environmental hazards and human health. Boca Raton: Lewis Publishers.
7. Yassi, A., Kjellstrom, T., de Kok, T., Guidotti, T. L. 2001. Basic environmental health. New York: Oxford University Press.
8. Bennett, R. and Estell, R. 2012. Global Change and Challenge, Routledge
9. Lazaridis M, and Colbeck Ian, 2010. Human Exposure to Pollutants via Dermal Absorption and Inhalation. Springer.
10. Colbeck I. 2008. Environmental Chemistry of Aerosol, Blackwell Publishing
11. Wright, R.T. 2017. Environmental Science 9th Ed. Pearson Prentice Hall.
12. Purohit, S. S. and Ranjan R. 2011. Ecology Environment and Pollution, Agrobios
13. Ali, Z. Colbeck, I, and Nasir, Z. A. 2009. Basics of air Pollution Monitoring, UVAS, E-links.
14. Tiwary, A, and Colls, J. 2017. Air Pollution: Measurement, Modelling and Mitigation, 3rd edition, Taylor and Francis group.
15. Kowalski, W. J. 2014. Aerobiological Engineering Handbook, McGraw Hill.
16. Patt, A.G., Schroter, D., Klein, R.T.J., and Vega-Leinert, C.D. 2012. Assessing Vulnerability to Global Environmental Change. Making research Useful for Adaptation, Decision Making and Policy, Earthscan, pp. 285.
17. Susskind, L.E., Jain, R. K. and Martyniuk, A. O. 2013. Better Environmental Policy Studies. How to Design and Conduct more Effective Analysis, Island Press, London. Pp. 203.
18. Mozzanti, M. and Montini, A. 2011 Waste and Environmental Policy, Routledge, Taylor and Francis group. Pp.238.

UZO-568 Principles of Environmental Health (Lab)

Cr. (1)

Introduction

Overall, practicals aim to provide students with hands-on experience in applying the principles and methods of environmental health, and to develop critical thinking and problem-solving skills in addressing environmental health challenges.

Course Objectives:

The objectives of a course on principles of environmental health may include the following:

- To develop an understanding of the basic principles and concepts of environmental health, including environmental hazards, exposure pathways, and the impact of environmental factors on human health.
- To gain knowledge of the sources and types of environmental pollutants and toxicants that can impact human health.
- To understand the methods and tools used for assessing environmental health risks, including epidemiology, toxicology, and risk assessment.
- To develop an awareness of the key issues and challenges related to environmental health, such as climate change, food safety, water and air quality, and occupational health.
- To learn about the regulations and policies that govern environmental health, and the role of government and other stakeholders in protecting public health and the environment.

- To develop skills in evaluating and interpreting scientific research related to environmental health, and in communicating complex scientific concepts to a lay audience.
- To foster an interdisciplinary approach to environmental health, drawing on knowledge and perspectives from fields such as public health, environmental science, policy, and economics.

Overall, the course aim to equip students with the knowledge and skills necessary to understand and address environmental health challenges, and to contribute to efforts to promote environmental sustainability and protect public health.

Course Learning Outcomes:

On completion of the course, the students will be able to;

1. **Acquire** the basic principles and concepts of environmental health, including environmental hazards, exposure pathways.
2. **Understand** the impact of environmental factors on human health.
3. **Solve** and to highlight the impact of social determinants of health, such as poverty, inequality, and access to healthcare, on the spread of communicable diseases.
4. **Analyse** the role of environmental factors such as air quality, water quality, sanitation, and waste management in the transmission of communicable diseases.
5. **Evaluate** and interpreting scientific research related to environmental health, and in communicating complex scientific concepts to a lay audience
6. **Demonstrate** an interdisciplinary approach to environmental health, drawing on knowledge and perspectives from fields such as public health, environmental science, policy, and economics

Practicals:

Practicals include the following:

Environmental Sampling: Students may learn how to collect and analyze environmental samples to detect pollutants and toxicants, such as water, soil, and air samples.

Environmental Health Impact Assessment: Students may learn how to conduct an environmental health impact assessment (EHIA) of a proposed project or policy, evaluating the potential health risks and benefits associated with the project.

Field Trips: Students may go on field trips to environmental health laboratories, waste management facilities, and other sites to gain practical experience and observe real-world applications of environmental health principles.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks