KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

Environmental Health Course Syllabus			
Course Title	**Environmental Health**		
Course Code	**NVE4375**	**No. of Credits**	**3**
Department	**Environmental**	**College**	**Engineering**
Pre-requisites Course Code	**(Health, safety & Environment) NVE3325**	**Co-requisites Course Code**	
Course Coordinator(s)	**Assistant Lecturer Ahmed A. Maaroof**		
Email	**Ahmed.abdulsalam@komar.edu.iq**	**IP No.**	
Other Course Teacher(s)/Tutor(s)	**None**		
Learning Hours	Sunday & Thursday (12:00 – 13:30) – Room 104		
Contact Hours	Thursday & Sunday (11:00 – 16:00) or by making an appointment via email (Email communication is highly encouraged)		
Course Type	Departmental Requirements		
Offer in Academic Year	**Spring 2016**		

COURSE DESCRIPTION

The course Examines health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems in industrialized and developing countries. Topics include how the body reacts to environmental pollutants; physical, chemical, and biological agents of environmental contamination; vectors for dissemination (air, water, soil); solid and hazardous waste; susceptible populations; biomarkers and risk analysis; the scientific basis for policy decisions; and emerging global environmental health problems.

COURSE LEARNING OUTCOMES

After participating in the course, students would be able to:

- Discover the main sources and types of environmental agents, and analyse the transport and fate of these agents in the environment [ABET Program Outcome **a**, **i**, **e, f** & **j**].
- Use approaches to evaluating, preventing and controlling environmental hazards that pose risks to human health [ABET Program Outcome **a**, **e**, **f**, **h and i**].
- Analyse the relation between population growth and dissemination of environmental pollutants [ABET Program Outcome **a, b**, **j** and **k**].
- Employ techniques used in toxicology and epidemiology to evaluate environmental hazards and exposures [ABET Program Outcome **a**, **b**, **i** and **k**].
- Describe specific applications of environmental health concepts to fields such as food safety, water quality control, and occupational health [ABET Program Outcome **a**, **e, i, j & k**].

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GUIDELINES ON GRADING POLICY

Points	*Percentage Scores*	*Grade*
A	*95–100*	*4.0*
A-	*90-94*	*3.7*
B+	*87–89*	*3.3*
B	*83-86*	*3.0*
B-	*80-82*	*2.7*
C+	*75–79*	*2.3*
C	*70-74*	*2.0*
C-	*65-69*	*1.7*
D+	*60–64*	*1.3*
D	*55-59*	*1.0*
D-	*50-54*	*0.7*
F	*0–49*	*0*
I	*Incomplete Course Work*	
W	*Official Withdrawal*	

COURSE TEACHING AND LEARNING ACTIVITIES

Course Teaching and Learning Activities: (short description)

This course will be carried out in 3 hours, 2 times lecture per week. The semester has 15 instructional weeks followed by one week of exam. Course instructor will:

- Utilize power point presentation to present the course information.
- The board space to illustrate cases to students.

There will be in class group work, where student will do in class exercises and turn the assignment to the instructor

COURSE ASSESSMENT Tools

Assessment Method	Assessment Weight	Description
Quizzes	10%	Quizzes are scheduled as shown in the semester schedule
Discipline Study Paper Presentation	10%	Each student needs to work alone and presentation his/her research paper work in 15 min presentation. Students must choice one of the following topics for their study paper: 1.Climate change & its impact on health: Development, Human Environment and Health 2.Reduction in personal exposures to particulate matter and carbon monoxide as a result of the installation of improved cook stove 3.Water, sanitation and hygiene interventions to reduce diarrhea in less-developed countries 4.Surveillance for waterborne disease and outbreaks associated with recreational water use
Test	20%	The test will be conducted in week 10 of the semester. It will cover part of the second half of the course contents

Midterm Exam	20%	The mid-term exam will be conducted after week 7 of the semester. It will cover the first half of the course contents
Case Study Reports	10%	Each student needs to submit two short reports (500 word) for the effect of the environment on human health by countries. For the first report, the report should demonstrates and discuss the statistical date of the effects of toxic materials on human in develop countries. For the second report, students should try to report the consequences of nuclear power plant wastes in developed countries by analysing the statistical data
Final Exam	30%	The final exam will be designed to cover all the students' learning outcomes for this course, the exam will be closed book.
Total	**100%**	

Grading: Passing Grade: 65%

Course content

Course topics include:

Chapter 1: introduction: The Environment at Risk
Chapter 2: Environmental Epidemiology
Chapter 3: Environmental Toxicology
Chapter 4: Environmental Policy and Regulation
Chapter 5: Zoonotic and Vector-Borne Diseases
Chapter 6: Toxic Metals and Elements
Chapter 7: Pesticides and Other Organic Chemicals
Chapter 8: Ionizing and Nonionizing Radiation
Chapter 9: Water quality
Chapter 10: Air quality
Chapter 11: Food Safety
Chapter 12: Solid and Liquid Wastes
Chapter 13: Occupational Health

ESSENTIAL READINGS: (Journals, textbooks, website addresses etc.)

Textbook:

Name of the Textbook: Essentials of Environmental Health – second edition
Authors: Robert H. Friis
Publisher: Jones & Bartlett Learning
ISBN: 0763778907
Year: 2012

References:

1. Title: *Introduction to environmental health*
Authors: Blumenthal, D. S., and Ruttenber, A. J.
Edition: Second Edition
Publisher: New York: Springer
ISBN: 0826139019
Year:1995

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2. Title: *Environmental toxicants: Human exposures and their health effects*
Authors: Lippmann, M.
Publisher: New York: Van Nostrand Reinhold
ISBN: 0471780855
Year:1992

3.Title: *Living with the earth: Concepts in environmental health science*
Author: Moore, G. S
Publisher: Boca Raton: Lewis Publishers
ISBN: 0849379989
Year:1999

COURSE POLICY *(including plagiarism, academic honesty, attendance etc)*

Attendance Policy:
Students are expected to attend each class for the entire semester. Students are responsible for material present in lectures. Only students with official KUST absence, family crises, and illness are excused from class. Three occasions of lateness count as one absence. The student who misses 10 percent of the classes will be placed on probation.

Make up Policy:
Since all examination are announced in advance, ZERO grade will be given to any missed examination unless a student's has an acceptable reason, such as illness, for not being able to take the examination during all those days when the examination was announced.

Academic Dishonesty:
Any type of dishonesty (Plagiarism, Copying another's test or home-work, etc) will Not be tolerated. Students found guilty of any type of academic dishonesty are subject to failure in this course, plus further punishment by the University Council

GUIDELINES FOR SUCCESS

1. Work both independently and in groups of your peers, who can help you understand the course material**.**
2. Attend every lecture, discussion.
3. Make every effort to interact with your class partner(s).
4. Try to stay active throughout the class period.
5. Don't hesitate to ask questions in class.
6. Put your fair share of efforts in preparing the term projects and the term paper.
7. Be cooperative at all times.
8. Spend at least 2-3 hours each day for studying and doing homework.

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Course Schedule

Week	Due Date	Chapter/ Section	Assignments
1	**28 Feb- 3 March**	• Introduction, Syllabus Review, Course Expectations and Requirements. • Environmental Health issues & Problems	**N/A**
2	**6-10 March**	**chapter 1: introduction the environment at risk** • Significant of the environment for human health • Population and the environment • The Environment at Risk • Ecosystems and Energy	**N/A**
3	**13-17 March**	**chapter 2: environmental epidemiology** • Definition of environmental Epidemiology • Contribution of epidemiology to environmental health • Strategies of environmental epidemiology • Limitations and deficiencies of environment epidemiology	**Quiz #1 (chapter 1 of the textbook)**
	20-24 March	**Nawroz holiday**	
4	**27-31 March**	**chapter 3: environmental toxicology** • Description of toxicology • The concept of a Dose and related terms • Factors that Reponses to a toxic chemical • Links between toxicology and risk assessment	**Quiz #2 (chapter 2 of the textbook)**
5	**3–7 April**	**chapter 4: environmental policy and regulation** • Overview of the environmental policy process • Case studies: Environmental policies to protect human health • Major US Environmental health laws	**N/A**
6	**10-14 April**	**chapter 5: zoonotic and vector-borne diseases** • Terminology used in the context of Zoonotic and Vector-Borne Diseases	**Quiz #3 (chapter 4 of the textbook)**

		• Examples of vector borne diseases • Arthropod-Borne Viral Diseases • Control and prevention of mosquito-borne diseases	
7	**17-21 April**	**chapter 6: toxic metals and elements** • Hazardous substances & toxic heavy metals • Overview of sources and effects of exposure to metals • Essential metals with potential for toxicity • Metals for use in medical therapy	**Case Study Report #1 submission**
	22- 28 April	**Midterm Exam** **(chapter 1,2,3,4,5 &6 of the textbook)**	
8	**2–5 May**	**chapter 7: pesticides and other organic chemicals** • Pesticides & Dioxins • Organic solvents • Chemicals used in the manufacture of plastics • Environmental Estrogens	**N/A**
9	**8-12 May**	**chapter 8: ionizing and nonionizing radiation** • Overview of ionizing and nonionizing radiation • Sources of environmental exposure to ionizing and non-ionizing radiation • Health effects of exposure to ionizing radiation • Nuclear waste disposal	**Quiz #4 (chapter 7 of the textbook)**
10	**15-19 May**	**chapter 9: water quality** • The water supply • Treatment of water for residential consumption • Drinking water contamination • Beach and coastal pollution	**N/A**
11	**22-26 May**	**chapter 10: air quality** • Sources and causes of air pollution • Compounds of air pollution • Health effects of air pollution • Global warming and global climate change	**Test (chapter 7,8 & 9 of the textbook)**

		• Controlling air pollution and global warming	
12	**29 May-2 June**	**chapter 11: food safety** • The global burden of foodborne illness • Categories of food hazards • Common microbial agents of foodborne illness • Regulation of food safety • Foodborne disease prevention	**N/A**
13	**5-9 June**	**chapter 12: solid and liquid wastes** • Compounds of the municipal solid waste stream • Solid waste management • Disposal of hazardous materials and wastes • Sewage processing and disposal	**Quiz #5 (chapter 11 of the textbook)**
14	**12-16 June**	**chapter 13: occupational health** • Significant of occupational environment for health • Overview of agents if occupational disease • Specific occupationally associated diseases and conditions • Prevention of occupational disease	**Case Study Report #2 submission**
15	**19-23 June**	**Revision week**	**Presentation** Each student needs to work alone and presentation his/her research paper work in 15 min presentation
16	**24-30 June**	**Final Exam** **(from chapter 1 till chapter 13 of the textbook)**	
	July 3, 2016	**Last day of the semester**	