



Salahaddin University

College of Agriculture Engineering Science

Soil and Water Department

Subject: (Soil and Water Pollution)

Lecturer's name/ Muna Muhanna Abdulhameed

Course Book of (3rd Year)

Academic Year: 2023-2024

Course Book

1. Course name	Spring semester
2. Lecturer in charge	Mrs Muna Muhanned Abdulhameed
3. Department/ College	Soil & Water
4. Contact	e-mail: muna.abdulhameed@ us.edu.krd Tel: 0750 7576697
5. Time (in hours) per week	Theory: 2 Practical: 3
6. Office hours	Availability of the lecturer to the student during the week
7. Course code	
8. Teacher's academic profile	2013 - BSc – Salahaddin Univ. Agriculture College –Soil Science Dept. 2017- MSc – Salahaddin Univ. Agriculture College – Soil and Water Dept. Soil Pollution.
9. Keywords	
10. Course overview:	In this course, students will learn about environmental pollution sources related to air pollution, water pollution, soil pollution, environmental degradation and noise pollution. Furthermore, How to take sample of polluted air. Students will also learn about the ways by which individual consumption pattern makes a difference in energy use, and diminish solid waste generation. In addition, the difference between indoor and outdoor pollution will be discussed followed by the ways to reduce indoor pollution will also be evaluated.
11. Course objective:	Collecting the huge information about the very important things of life and one of the important things of ecology which represent in soil and its relation with the other components in the world.
12. Student's obligation	1- The student must be already in the lecture. 2- The student must success in the average of the two examination were must be done. 3- Prepare the report and presentation about one of the titles were taken the lectures Or syllabus. 4- Quizes must be done weekly.
13. Forms of teaching	1- Data show and power point. 2- White board. 3- Papers (Which collected some headline)

14. Assessment scheme

final grade will be derived as follows:

- **Quizzes and homework's:** About 10 quizzes will be given throughout the semester. They will be given at the beginning of the class period and last 10 minutes. 3-5% of your grade.
- **Exams:** There will be two closed book exams given throughout the semester. Each test will be scheduled for 90 minutes. 10 % of grade.
- **Final Exam:** The Final Exam is Comprehensive in all course outlines. 20% of your grade.

Mean of two examinations (Theoretical Part) -15% Practical part - 35% = 50%

Final examination: Theory 50% = 50%

15. Student learning outcome:

- 1 Taking knowledge about the main characteristics of the soil.
- 2-The impotency of the soil in a scientific method.
- 3-Personal ability and its responsibility against the soil.
- 4-All processes and formations were happened of the bulk soil.
- 5- Studying the soil physical, chemical and biological properties -----.
- 6- And at the end must the student feel what's the duty of one of them, like each academic person and take the information of development countries.

16. Course Reading List and References

Required book:

- 1- Gerry, B. (1999). Environmental Pollution Studies. Liverpool University Press.
- 2- Gokhale, S. (2009). Laboratory manual of Air pollution sampling and analysis. Indian Institute of Technology Guwahati.
- 3- Kabata Pendias, A. and H. Pendias. (2001). Trace elements in soils and plants 3rd Ed. CRC press. Boca Raton, USA.
- 4- Marquita, K. H. (2004). Understanding Environmental Pollution. 2nd. Ed. Cambridge University Press.
- 5- Mirsal, A. M. 2008. Soil pollution Origin, monitoring & remediation. 2nd .Ed. Springer-verlag Berlin Heidelberg.

▪ Useful references:

- 1- Rao, K. J. and M.V. Shantaram. 2003. Soil and water pollution due to open landfills. Workshop on sustainable landfill management – 3 Chennai, India, pp. 27-38.
- 2- Ronald, A. H. (2007). Element of Environmental Chemistry. A John Wiley & Sons, INC., Publication.

▪ Magazines and review (internet):

The core materials of the course consists of the above book, articles from media and internet, and lecture's notes, make sure you read all the materials and prepare well before

going for the examinations. Students are encouraged to search for any other materials that may help improve their English language ability in reading, writing, listening and speaking plant communities' texts.

17. The Topics:	Lecturer's name
<p>1- Understanding introduction about Environmental, pollution. Stationary pollution source, Air Pollution, Air polluted classification, Air pollutants (CO, CO₂, CO, SO₂, NO_x, H₂S, Hydrocarbons).</p> <p>2- Acid Rain, Measuring of air Pollution and how to Sampling of air Pollution.</p> <p>3- Primary and Secondary of Air Pollution and Effect of Climate Change.</p> <p>4- Water pollution definition, Sources of water pollution and toxic substances. First Exam</p> <p>5- Soil pollution. Pollutants of Agrochemical Sources: Soil Pollution Type and control. Solid Waste.</p> <p>6- Heavy metals, Causes, distribution of Heavy metals and Factors effect on Heavy metals</p> <p>7- Noise Pollution, Sources, Causes and Effect. Health and Environmental Effects of Noise Pollution and Ways to Minimize of Noise Pollution.</p> <p>8- Oil Refinery and Industrial Pollution, Effects, Source and Control.</p> <p style="text-align: center;">Second Exam</p>	<p>Mrs Muna Muhanned abdulhameed Weekly (3)hrs</p>
18. Practical Topics (If there is any)	
<p>19. Examinations:</p> <p style="text-align: center;"><u>Example of Semester Examination:-</u></p> <p>Q1:- Write True or False of the following statements, with correcting the false sentences. (30M)</p> <ol style="list-style-type: none"> 1. The mobility and bioavailability of heavy metals are depending on the soil conditions but some metals depend on Industrial contaminated land. 2. Organic Contaminants like Petroleum hydrocarbons, and Pesticides. 3. In acid rain SO₃ dissolves in water Vapor producing sulphuric acid. 4. Organic matter can mobilize heavy metals. 5. Oil cannot dissolve in ocean and form a thick sludge in the surface of the water. 	

Q2) Fill the blanks with suitable words. (30M)

1. ----- is a portable handheld air quality particle counting meter used to monitor particulate matter (PM) concentrations in the air.
2. Acid rain is a reaction between----- and -----.

Q3) Answer (5) five of the following questions briefly. (40M)

- 1- Write the sources, effects and sinks of the pollutants below
 - 1- Carbon Dioxide (CO₂)
 - 2- Hydrocarbons
 - 3- Oxides of Sulphur
 - 4- Carbon monoxide (CO).
- 2- How we can minimize of pollution caused by oil refinery and steel industry
- 3- Compare between pollution and pollutant.
- 4- There is a lot you can do in your home, business and school to reduce the amount of waste you produce that enters a landfill, explain the main ways to reduce the amount of waste?
- 5- How to reduce the effect of noise pollution?
- 6- Explain the major groups of land contamination?

20. Extra notes:

21. Peer review: