



Department of Biology

College of Education

University of Salahaddin-Erbil

Subject: Practical Ecology

Course Book

Lecturer's name: Sana Kayfi Najmadden

Academic Year: 2022-2023

Course Book

1. Course name	Practical Ecology and Pollution
2. Lecturer in charge	Rebwar Khdir Shekha
3. Department/ College	Biology/ Education
4. Contact	Sana.najmadden@su.edu.krd
5. Time (in hours) per week	12 Hours \week
6. Office hours	10 Hours \week
7. Course code	EdB0304
8. Teacher's academic profile	B.Sc. in Department of Biology-College of Education – University of Salahaddin-Erbil in 2007-2008. M.Sc. Degree –Ecology and Phycology, Department of Biology, College of Education, University of Salahaddin – Erbil. Iraq in 2017. Assist. Lecturer on Ecology and Pollution Lab from undergraduate study.
9. Keywords	Ecology, pollution, environment, Ecosystem
10. Course overview:	<p>This course covers a wide range of topics in the environmental sciences; provide an introduction to ecology – the scientific study of how organisms interact with each other and their physical and chemical environment. The purpose of this course is to introduce you to the fundamental principle of ecology; the course examines the influence of physical, chemical, and biological processes on the transport of pollutants in the environment. Students will explore ecological effects of selected environmental pollution problems; particularly those related to chemical contaminants. This course will provide the base scientific knowledge that is essential for assessing the impact of pollution on the structure and function of ecosystems.</p> <p>We will spend most of the semester study ecology at different levels of organization (population, communities and ecosystem). We will demonstrate how basic ecological principles may be applied to study of practical ecological study.</p>
11. Course objective:	After completing this course, you will have acquired a general understanding of the physical, chemical and biological factors that influence the distribution and abundance of

organisms in nature. At the end of the course, students should be able to :

- Explain the fundamental ecological principle that pertain to individual organisms, to population, to communities, to ecosystem, to landscapes and to the globe.
- Develop a broad appreciation of the linkage between ecology and pollution.
- Describe and understand the various techniques using in ecology, from computation to experimental and how these techniques are coupling with scientific method to address ecological questions.
- To explain the fundamental concepts and principles of mass transport, chemical partitioning, and biological transformation in the environment.
- To examine the influence of physical, chemical, and biological processes on the transport of pollutants in the environment.

12. Student's obligation

Students are essential part in class and should make every effort to maintain good attendance in their class. The role of students and their obligations throughout the academic year, Students should be attendance in all lectures and completion of all tests, exams and wear lab coats, gloves and sometime glass, Quizzes and daily activities, each student work individually and some time in a group. Each student should participate in the classroom. Discussing relevant subjects at appropriate times can spark new conversations and produce valuable debates and question is important part in classroom. Students need to respect the ideas and opinions of their classmates in and outside of the classroom. Students need to respect the ideas and opinions of their classmates in and outside of the classroom.

13. Forms of teaching

Write the main part of lecture on white board, explanation the part of the lecture with question and answer after repeat the main part of the prior lecture quickly. I use Data show for showing my presentation, Color pencils and White board. Students have a hard copy of lectures to determine important point. At the end repeat and detect the important part of lecture in style question and answer.

14. Assessment scheme

Course grade

- The grade will be determined by following assessment: Quizzes and Exams (semester two exam 30 degree). +quizzes and activities 5 degree.
- Practical exams will be theoretical and practically.
- For ecology subject, 15 degree for theory & 35for practical. Final exam will be on 50 degree (50 degree for theory only).

15. Student learning outcome:

- Understand the basic fundamental ecological principle.
- Introduce with instruments and equipment that using to measuring parameters of metrology.
- Useful some instruments to detect parameters of water.
- Understand the components and layers of soil (Soil profile).
- To know the physical, chemical and biological characters of the soil.
- Understand the scientific principles to detect or to analyze the soil in field and in lab.
- Understand the relationships between the parameters of water.
- To know the physical, chemical and biological parameters of the water.
- To perform techniques to analyze the water for determine the quality of water.

16. Course Reading List and References:

- APHA (2012), standard methods for examination of water and waste water: American public health association, American water works association, water environment federation.
- Bartram, J. and Balance, R. (1996). Water quality monitoring a principle guide to the design implementation of fresh water quality studies and monitoring programmers. United nation environmental program and word health organization , E and FN span an important of chapman and Hall .
- Best, G. A. and Ross, S. L. (1977). River pollution studies, Liverpool university press.

17. The Topics

Lecture Date

<p>18. Practical Topics (If there is any)</p> <p>Week 1: Introduction to Ecological study (definition)</p> <p>Week2: Metrological parameters (definition, counting, classification ...)</p> <p>Week3: Ecological instruments (definition, Function,...)</p> <p>Week4: Soil, Pedology, components of soil, forming factors, physical properties (horizon) , W.H.C.</p> <p>Week5: Soil texture and textural class, definition, methods, fragments (sand, silt and clay).</p> <p>Week6: Soil Organic Matter(definition), components, Benefits (physically, chemically, biologically).</p> <p>Week7: Soil pH, Soil pH Determination(Methods to detect pH).</p> <p>Week8: Bulk Density and Particle density (definition) , define porosity, types of pore, measurement.</p> <p>Week9: Water Properties: Water Density</p>	

19. Examinations:

1. Compositional: In this type of exam the questions usually starts with Explain how, What are the reasons for...? Why...?, How....?

With their typical answers

2. True and false type of exams:

In this type of exam, a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence.

3. Multiple choices:

In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase.

4. matching exams:

In this type of exam a short sentence about a specific subject will be provide and matching with correct word or phrase.

5.blanks

In this type of exam the questions has one or two blanks, which complete by correct word or phrase or sentences.

6.Draw and label