

University of Salahaddin - Hawler
College of Science
Department of Biology



Course Book of

ECOLOGY & POLLUTION

3rd Stage/ Undergraduate Biology Students
First and Second Semester

2010 - 2011

Class: Monday 8:30 am -10:30 am

Examination: 2 Exams (duration time for each is only 2hrs)
Quizzes & All year attendance
Practical
Final Examination

(20 Marks)
(5 Marks)
(15 Marks)
(60 Marks)

Total Marks:

(100 Marks)

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- PREAMBLE

The global condition of the environment is disastrous and in need of every citizen's involvement to restore and protect it. The well being of glob and its people is linked to the future of its environmental condition. Entering a new era (agenda 21) it is of most importance to pursue a path of sustainable development focusing on meeting the need of the present generation without compromising the ability of future generations to meet their needs. Environmental situations can only be successfully addressed by innovative government and grassroots initiatives at the national and community levels to prevent future degradation. The administration (i.e. University) must thus adopt a national environmental management policy.

Ecology is one of the basic science courses that comprise the Biology curriculum of the four years of Science College. The overall goal of these courses is to provide with the knowledge and understanding of the scientific principles that are the basis of current approaches to know the general basis of the environment and subsequently its pollution (*Environmental Awareness and Protection*).

- COURSE DESCRIPTION, OBJECTIVES AND FORMAT

In the light of the increasing importance of environmental issues to Kurdistan and the global society, the administration must stand behind the overarching principle of sustainable development and guarantee its citizens a fundamental human right to:

- a) An environment that is not harmful to their health and well being and
- b) Have the environment protected, for the benefit of present and future generations.

The administration must launch a new approach, changing from reactive and sectorized, towards a more strategic and integrative one beginning by lifting institutional barriers, some of them:

- Lack of opportunity for public participation in environmental reviews.
- Lack of systematic and qualified monitoring.
- Weak or poorly utilized information systems and lack of planning.
- Inappropriate environmental standards or procedures.
- Weak environmental enforcement.



- Insufficient access to information, particularly relating to trade and environment aspects.

To improve environmental management several academically constraints are related to the process, which they are:

- Identifying the local environmental problems.
- Defining strategies.
- Implementing and monitoring policies.

This suggesting the need for capacity building for managing the environmental management process, alongside the need to build and strengthen academic structures.

- TEACHING TOOLS

- Lecture notes prepared in Microsoft Word and presented to the students using PowerPoint, Data Show & on classroom Board.
- The lecture indicates, introduction, explain every slide show and if there is any question from the students. The lecture ends with several sample questions and given answers.
- The notes usually given to the students on a Disc/USB flash memory stick and by handout and a copy to be placed on the college website.
- Every sitting exam assigned for the students, question papers corrected, marks rewarded, next lecture discuss and solve the exam questions and place a copy of answers into their notes after giving several ways of answering. The corrected papers are given to the students for reviewing their errors. Exam answer papers are to be saved for future references.
- The exam paper covers most of the lectures and indicated:
- Exam instructions, selective answers, definitions, mechanisms, explanations, Drawings, write an essay, diagrams, differences...etc. The exam questions usually clear, direct and obvious.
- Every student activity is recorded, saved and notes will be taken by the students as well as by the lecturer for all over the academic year.
- All student marks will be displayed on their department board.
- All year student efforts will be calculated and added to the final course marking out of a 100%.



- FORMS OF TEACHING

- ✚ Different forms of teaching will be used to reach the objectives of the course: power point presentations for the head titles and definitions and summary of conclusions, classification of plants and any other illustrations, besides worksheet will be designed to let the chance for practicing on several aspects of the course in the classroom, furthermore students will be asked to prepare research papers on selective topics and summarise articles contents published in English into either Kurdish or Arabic language, those articles need to be from printed media or internet articles. There will be classroom discussions and the lecture will give enough background to translate, solve, analyze, and evaluate problems sets, and different issues discussed throughout the course.
- ✚ To get the best of the course, it is of outmost important to attend classes as much as possible (e.g. revision of the required lectures, teacher's notes regularly as all of them are foundations for the course. Lecture's notes are for supporting and not for submitting the reading material including the handouts. Always we will try as much as possible to participate in classroom discussions, preparing the assignments given in the course.

- EXAMINATIONS

There will be at least four obligate exams through the year (two exams in each semester), each exam will contain; thinking critical questions, short / long answer questions, illustration by diagrams etc.

- COURSE WEEKLY OUTLINE

Weeks	Topics Covered in Lectures	Hours
1	<ul style="list-style-type: none"> • Introduction • Ecology Defined • Historical Review • Scope and Range of Ecology • Divisions of Ecology • Subdivisions of Ecology 	2
2	<ul style="list-style-type: none"> • The Earth's Climates • Distribution of Life Forms on the Earth's Planet • Horizontal Distribution 	2



	<ul style="list-style-type: none"> • Vertical Distribution • Seasonal Distribution 	
3	<ul style="list-style-type: none"> • Ecosystems and Communities • The Structure of Ecosystems • Biotic Components <ul style="list-style-type: none"> - Primary Producers - Consumers - Decomposers 	2
4	<ul style="list-style-type: none"> • Abiotic Components <ul style="list-style-type: none"> - Abiotic Resources - Abiotic Conditions 	2
5	<ul style="list-style-type: none"> • Tolerance Range • Limiting Factors • Combined law of Tolerance • Ecological Niches 	2
6	<ul style="list-style-type: none"> • Biomes • Patterns of Life on Land • Forests • Grasslands • Croplands • Green House • Desert and others 	2
FIRST EXAMINATION		
8	<ul style="list-style-type: none"> • Aquatic Ecosystems • Surface Water <ul style="list-style-type: none"> - Running Water - Standing Water • Underground Water 	2
9	<ul style="list-style-type: none"> • Energy Flow Through Ecosystems • Trophic Levels • Food Chains and Food Webs 	2
10	<ul style="list-style-type: none"> • Ecological Pyramids <ul style="list-style-type: none"> - Pyramids of number - Pyramids of Energy - Pyramids of Biomass 	2
11	<ul style="list-style-type: none"> • Biogeochemical Cycles (Recycling 	2



	<ul style="list-style-type: none"> of Nutrients in Ecosystems) <ul style="list-style-type: none"> • Types of Biogeochemical Cycles <ul style="list-style-type: none"> - Nutrient Cycles - Hydrological Cycles • Perfect Cycles • Imperfect Cycles 	
12	<ul style="list-style-type: none"> • Succession • Ecosystem Change and Stability 	2
13	<ul style="list-style-type: none"> • Climatic and Non Climatic Factors 	2
14	<ul style="list-style-type: none"> • Life Interactions <ul style="list-style-type: none"> - Interactions that Harm Both Organisms - Competition - Interactions that Harm One Organism and Benefit the Other - Predation - Interactions that Benefit One Organism and Have No Effect on the Other - Commensalisms - Interactions that Benefit Both Organisms - Protocooperation - Mutualism 	2
SECOND EXAMINATION		

- TEXTBOOKS

- Any Reference Text Books on Ecology & Pollution published in 20 & 21st century.
- Students are encouraged to search for any other materials that may help improve their English language ability in reading, writing, listening and speaking Ecology & Pollution texts.

D Ganjo

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