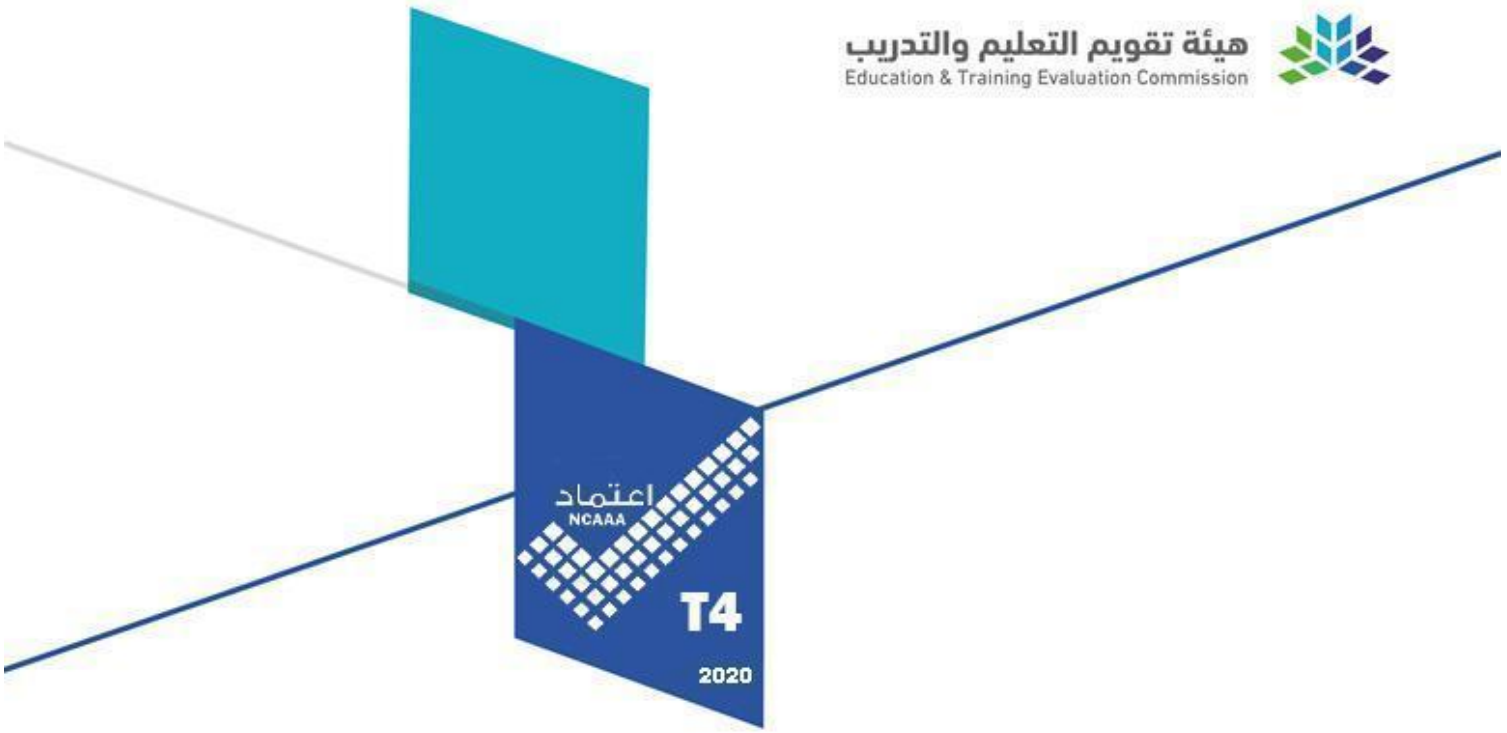
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	**Environmental Pollution**
Course Code:	**BIO471**
Program:	**Bachelor of Science in Biology**
Department:	**Department of Biology**
College:	**Faculty of Science**
Institution:	**University of Tabuk**

Table of Contents

A. Course Identification

1. Credit hours:	**3 (2 Theoretical + 1 Practical) hours**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level 6/ Second semester/ Third year.**
4. Pre-requisites for this course (if any)**:**	**Principles of Ecology (BIO271)**
5. Co-requisites for this course (if any)**:**	**None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	2	50%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other (lab work)**	2	50%

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	26
2	**Laboratory/Studio**	26
3	**Tutorial**	
4	**Others** (specify)	
	Total	**52**

B. Course Objectives and Learning Outcomes

1. Course Description

- This course includes Environment; introduction and its components, environmental pollution; definition and its sources, natural pollution and man-made pollution, different types of environmental pollution, environmental pollution and human health. minimization of environmental pollution, Environmental Impact Assessment (EIA) Concept, principles and types of EIAs, Environmental Legislations and Guidelines and recommendation of international conferences on pollution.

2. Course Main Objective

By the end of this course, the students should be able to:

- Define the term pollution and how pollutants behave in environment.
- Describe the basics of pollution, pollution and global change, solid waste, and pollution in the home.
- Discuss persistent and bio-accumulative chemicals, and pesticides, and explain their greater. stress on global pollutants.
- Recognize the relationship between energy generation and use.
- Understand the importance of going beyond pollution control, to pollution prevention.
- Learn to evaluate the impacts on human and environmental health. Applying their knowledge to solve new and interesting problems in industrial pollution control.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	To define pollution and its interrelationships with living organisms.	K1
1.2	To describe the environment and its components, environmental pollution types, sources, effects, control and management.	K2
2	**Skills :**	
2.1	To differentiate between types of environmental pollution, their causes, consequences and methods to control and management.	S1
2.2	To apply web-based searching on topics related to environmental pollution.	S3
2.3	To write scientific report on issues related to environmental pollutions.	S6
3	**Values**	
3.1	To work as a member of group in the evaluation of the environmental issues and sustainability solutions	V1
3.2	To show bioethical rules for the environment conservation	V2

C. Course Content

No	List of Topics	Contact Hours
1	Environment-introduction and its components	2
2	Environmental pollution-definition and its sources	2
3	Natural pollution and man-made pollution	2
4	Types of environmental pollution	2
5	Water pollution	2
6	Soil pollution	2
7	Air pollution	2
	Midterm exam	
8	Noise pollution, Radioactive pollution	2
9	Environmental pollution and human health	2
10	Minimization of environmental pollution	2
11	Environmental Impact Assessment (EIA) -Concept, principles and types of EIAs	2
12	Environmental Legislations and Guidelines	2
13	Recommendation of International Conferences on pollution. Revision	2
	Final Exam	
Total		**26**

2-Practical part

No	List of Topics	Contact Hours
1	Identification and Use of Some Equipment in Ecological Studies	2
2	Measurement of Heavy metals in soil samples	2
3	Measurement of Toxins in soil samples	2
4	Measurement of Heavy metals water samples	2
5	Measurement of *Coli* Form Contamination in Fresh Water Samples	2
6	Measurement of *Coli* Form Contamination in Marine Water Samples	2
7	Evaluation of Air pollution using air samplers	2
	Midterm Exam	
8	Detection of the Petroleum contamination in Soil Samples	2
9	Detection of the Petroleum contamination in Water Samples	2
10	Biological magnification of Environmental Toxins in Marine Fishes	2
11	Biological magnification of Environmental Toxins in Fresh Water Fishes	2
12	Evaluation of the Solid Contamination	2
13	Evaluation of the Solid Contamination	2
	Final Exam	
Total		**26**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	To define pollution and its interrelationships with living organisms.	- Lectures	- Quizzes. - Homework - Final exams.
1.2	- To describe environment and its components, environmental pollution types, sources, effects, control and management.	- Activities and homework.	- Quizzes. - Homework - Final exams.
2.0	**Skills**		
2.1	To differentiate between types of environmental pollution, their causes, consequences and methods to control and management.	- Lectures. - Individuals and small group tasks.	- Individual and group presentations.
2.2	To apply web-based searching on topics related to environmental pollution.	- Short essay. - Individual presentation and	- Case studies - Demonstrate through posters and charts.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		working as a part of group.	- Practical examinations.
2.3	To write scientific report on issues related to environmental pollutions.	- Short essay. - Individual presentation and working as a part of group.	- Case studies - Demonstrate through posters and charts.
3.0	**Values**		
3.1	To work as a member of group in the evaluation of the environmental issues and sustainability solutions.	- Essay writing. - Lab demonstrations	- Oral and written scientific report. - Interactive discussion and participation.
3.2	To show bioethical rules for the environment conservation	- Essay writing. - Lab demonstrations	- Oral and written scientific report. - Interactive discussion and participation.

2. Assessment Tasks for Students

#	*Assessment task	Week Due	Percentage of Total Assessment Score
1	Activities and Short Quizzes	1-13	10%
3	Midterm Theoretical Exam	8	25%
4	Midterm Practical Exam	8	10%
	Final Practical Exam	14	25%
5	Final Theoretical Exam	15	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- An induction period at the beginning of the academic session.
- An extensive Learning Resources Centre, incorporating a library and computer center.
- A Program Tutor to give academic advice.
- Personal tutors to provide pastoral and academic support.
- Office hours 8 hr/ week.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	- Pierce J., Weiner, R. F., and Vesilind, P. A. (1998). Environmental Pollution and Control, 4th edition. Elsevier Inc. ISBN: 978-0-7506-9899-3. - Hacker, S. D. and Cain, M. L. (2018). Ecology, 4th edition. Oxford University Press. ISBN: 9781605357973. - Bowman, W. D., Hacker, S. D. and Cain, M. L. (2017). Ecology, 4th edition. Sinauer Associates, Inc., USA. ISBN: 9781605356181.
Essential References Materials	- Journal of environmental biology. - Journal of Environmental Pollution. - Journal of Ecology. - Journal of Air water and Soil Pollution. - Journal of Environmental and Experimental biology. - Hacker, S. D. and Cain, M. L. (2018). Ecology, 4th edition. Oxford University Press. ISBN: 9781605357973. - Bowman, W. D., Hacker, S. D. and Cain, M. L. (2017). Ecology, 4th edition. Sinauer Associates, Inc., USA. ISBN: 9781605356181. - Jacobson, M. Z. (2002). Atmospheric Pollution: History, Science, and Regulation. Cambridge University Press. ISBN: 9780511802287. - Hill, M. K. (2010). Understanding Environmental Pollution. Cambridge University Press, UK. ISBN: 9780521518666.
Electronic Materials	- Saudi Digital Library - http://instructors.coursesmart.com
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration) (.rooms/labs, etc	Ecology and Environment Laboratory is required
Technology Resources AV, data show, Smart Board, software,) (.etc	Projectors required in each lecture theatre and laboratory
Other Resources Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list	Equipment for environmental monitoring and impact assessment required

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
- Effectiveness of teaching and assessment.	- Students.	Indirect - Questionnaires.
- The extent of achieving the course learning outcomes.	- Program committee. - Staff members. - Students.	Direct - Questionnaires. - Reports. - Meetings
- Quality of learning resources.	- Program leaders. - Peer Reviewer.	Direct & Indirect - Questionnaires. - Reports. - Meetings

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Quality and Academic Accreditation-1443, Department of Biology
Reference No.	
Date	1/6/2022