هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	*Principles of Ecology*
Course Code:	*BIO1202*
Program:	*Bachelor of Science in Biology*
Department:	*Department of Biology*
College:	*Faculty of Science*
Institution:	*University of Tabuk*
Version:	***Course Specification Version Number***
Last Revision Date:	*September 2023*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 Credit (2 theoretical + 1 practical) hours					
2. Course type					
A.	☐University	☐ College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (3rd Level / 2nd year)					
4. Course general Description:					
The course includes some definitions of ecology and its concept, components of the environment (the biotic and abiotic factors) and their role in developing the community. Ecosystem: structure, functions (Productivity, energy flow, decomposition and matter cycling). It also includes the population dynamics. Ecological Succession; Structure of the atmosphere, natural resources and their conservation.					
5. Pre-requirements for this course (if any)**:**					
Fundamentals of Biology (BIO1101).					
6. Co-requirements for this course (if any)**:**					
None					
7. Course Main Objective(s):					
The main purpose of the course is to provide knowledge, strengthen skills and values of the students regarding: The basic concepts and definitions of Ecology; The environment: environmental factors and their influences on living organisms, populations, communities, and ecosystems; the Ecosystem: structure, functions and types; Population dynamics; Ecological Succession; structure of the atmosphere.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	50%
2	E-learning		
3	Hybrid • Traditional classroom		

No	Mode of Instruction	Contact Hours	Percentage
	• E-learning		
4	Distance learning		
5	**Others (Lab work)**	2	50%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Define the basic concepts and principles of Ecology.	K1	-Lectures. -Class discussion. -Group discussion. -Case studies.	-Quizzes -Midterm examination. -Final examination. -Class discussion and participation. - Homework (Problem-solving).
1.2	Describe components of the environment, ecosystem structure,	K2	-Lectures. -Class discussion. -Group discussion. -Homework assignments.	-Quizzes -Midterm examination.

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	functions and types, population dynamics, ecological succession, structure of the atmosphere and natural resources.		-Case studies.	-Final examination. -Class discussion and participation. -Homework assignments.
2.0	**Skills**			
2.1	Carry out field trips to determine to sort biotic and abiotic components of terrestrial and aquatic ecosystems; identify the main associations within the ecosystem, and construct food chains and food webs accordingly.	S2	-Lectures. -Short essay -Class discussion. -Group discussion. -Brainstorming.	-Quizzes -reports -Final examination. -Class discussion and participation. - Homework (Problem-solving).
2.2	Apply standard procedures to sample and measure producer and consumer communities, qualitatively and quantitatively evaluate them; measure the rate of photosynthesis, primary and secondary productivity and carrying capacity.	S1	-Lectures. -Short essay -Class discussion. -Group discussion. -Brainstorming.	-Quizzes -reports -Final examination. -Class discussion and participation. - Homework (Problem-solving).
2.3	Use appropriate statistical procedures and software to	S3	-Lectures. -Short essay	-Quizzes -reports

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	analyze, interpret and make sense of ecological data.		-Class discussion. -Group discussion. -Brainstorming.	-Final examination. -Class discussion and participation. - Homework (Problem-solving).
3.0	**Values, autonomy, and responsibility**			
3.1	Work independently and as a member of a team to conduct and fulfill various theoretical and practical tasks and to exchange data related to ecology.	V1	-Lectures. -Short essay -Class discussion. -Group discussion.	-Class discussion and participation. -Homework (Problem-solving).

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction: course outlines: what is Ecology?	2
2.	Components of the environment: biotic vs abiotic, and their influences upon the living organisms.	2
3.	The Ecosystem: structure and types.	2
4.	The Ecosystem: Functions (productivity, energy flow, decomposition, and matter cycling)	2
5	Population dynamics: (changes with time in population size, density, age structure, dispersion ..etc.).	2
6.	Population dynamics: biotic potential and environmental resistance	2
7.	Population dynamics: population growth and carrying capacity.	2
8.	Community dynamics (Ecological succession)	2
9.	Predators, Parasitoids and Population Stability.	2
10.	Interspecific Competition and Community Structure	2
11.	Species diversity	2
12.	Evolution and adaptation.	2
13.	r and K strategies	2

14.	Structure of the atmosphere.	2
15.	Natural resources and their conservation.	2
Total		**30**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Class Participation	During whole teaching period	5
2.	Homework (Problem-solving)	3 to 13	5
3.	Short Exams (Quizzes)	During whole teaching period	5
4.	Midterm Theoretical Examination	8-9	20
4.	Reports (For Practical)	During whole teaching period	10
5.	Final Practical Examination	15	15
6.	Final Theoretical Examination	17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	- Remmert, Hermann. Ecology: a textbook. Springer Science & Business Media, 2012. - Mittelbach, Gary G., and Brian J. McGill. Community ecology. Oxford University Press, 2019. - Hacker, S. D. and Cain, M. L. (2018). Ecology, 4th edition Oxford University Press.
Supportive References	- Journal of environmental biology. - Journal of environmental pollution - Journal of ecology - Journal of Environmental and experimental biology.
Electronic Materials	None
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Well-equipped classrooms and laboratories that accommodate a sufficient number of students
Technology equipment (projector, smart board, software)	Multimedia projectors and smart boards.
Other equipment (depending on the nature of the specialty)	NA

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	- Students. - Faculty members.	Indirect & direct: - Questionnaires. - Meetings.
Effectiveness of Students assessment	- Quality and development committee. - Department chair.	- Course report. - Program annual report.
Quality of learning resources	- Plan and program committee. - Students. - Staff members.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
The extent to which CLOs have been achieved	- Quality and development committee. - Peer Reviewer. - Program leaders.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**PROGRAMS AND STUDY PLANS COMMITTEE**
REFERENCE NO.	
DATE	**SEPTEMBER 2023**