Course Specification
— (Bachelor)

Course Title: **Ecology and Biodiversity**

Course Code: **BIO-1251**

Program: **Bachelor of Science in Biology.**

Department: **Biology**

College: **Science**

Institution: **Imam Mohammad Ibn Saud Islamic University (IMSIU)**

Version: *Course Specification Version Number*

Last Revision Date: *Pick Revision Date.*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3 (1 Lecture + 2 Laboratory + 0 Tutorials))

2. Course type

A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required			☐Elective	

3. Level/year at which this course is offered: (Level 3 / Second Year)

4. Course general Description:

To investigate the nature and diversity of life, from microorganisms and fungi to plants and animals. • To explore the mechanism of biodiversity: evolution through natural selection. • To learn how different groups of organisms interact and are dependent on their habitats and each other. • To use and expand this knowledge in laboratory classes by observing and describing specimens representing the variety of organisms.

5. Pre-requirements for this course (if any):

6. Co-requisites for this course (if any):

7. Course Main Objective(s):

On successfully completing this course, students will be expected: • To investigate the nature and diversity of life, from microorganisms and fungi to plants and animals. • To explore the mechanism of biodiversity: evolution through natural selection. • To learn how different groups of organisms interact and are dependent on their habitats and each other. • To use and expand this knowledge in laboratory classes by observing and describing specimens representing the variety of organisms.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	40	100
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	20
2.	Laboratory/Studio	17
3.	Field	3
4.	Tutorial	
5.	Others (specify)	
Total		40

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	To define the processes that lead to biodiversity and the nature and characteristics of global biodiversity.	1.1	Educative videos	Quizzes Mid-terms
1.2	To describe the molecular and structural unity of life.	1.2	Educative videos	Quizzes Mid-terms
2.0	Skills			
2.1	To predict whether populations of interacting organisms persist over time or become extinct.	2.1-2.3	Collective analyses and discussion about scientific articles- on invasion and extinction	Laboratory reports

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	To explain how the diversity of living things is generated and perpetuated.	2.1-2.2	- Field survey	-Field and laboratory attitudes of students -Laboratory reports -Mid-terms -Final exam
2.3	To explain how interactions with the physical environment and with other organisms are involved in ecological and evolutionary change of populations.	2.1-2.2	-Drawing of Similarity cladogram based on species lists	-Lab. Reports -Final Lab. Exam -Mid-terms -Final exam
3.0	Values, autonomy, and responsibility			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.1	To use quantitative models and data to solve problems in evolution and ecology.	2.2-1.3	-Use of softwares on Biodiversity (Primer 5.0, Biodiversity Pro, and Past)	-Lab. Reports -Final Lab. Exam -Mid-terms -Final exam
3.2	To operate laboratory instruments and computers.	3.3	-Sampling of soil -Use of the Berleze method to extract the fauna	Lab. Reports
3.3	To Perform biological experiments and handle various slides during laboratory classes.	3.3	-Taxonomic study of the soil fauna	Lab. Reports

C. Course Content

No	List of Topics	Contact Hours
1	Biodiversity: What is it? Where is it? Where does it come from? • What is biodiversity? • Patterns in distribution of diversity • Measuring diversity	5
2	Basics of Ecology • Why does diversity matter? • Ecosystem Services • Diversity-Function Models • Pollination: Ecosystem services and diversity • Population Ecology: Extinction/environmental degradation • Community Ecology: Species Interactions • Community Ecology: Predator-Prey Activity	4
3	Ecosystem Ecology: Introduction and Energetics • Ecosystem Ecology: Introduction and Energetics • Ecosystem Ecology: Carbon Cycle and Climate Change • Climate Change and Disease Dynamics • Island Biogeography	4
4	Human Population Size • Reconciliation Ecology	4
5	Biotic and abiotic factors	4
6	Animals' Communities and Biodiversity	4
7	Plant Communities and Biodiversity	4
8	Biodiversity of Monera, Protista, and Fungi	5
9	Biodiversity of Fauna and Flora of Saudi Arabia	5
10	Sustainability and the Future • revision	5
Total		40

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm 1	Around 4th -5th week	15%
2.	Midterm 2	Around 8th -9th week	15%
3.	Quizzes, Attendance, Participation, Home works.	All the semester	10%
4.	Lab reports.	All the semester	5%
5.	Lab Exam.	Around 10th week	15%
6.	Final Exam.	Around 11th -12th week	40%
7.	Total		100%

*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	Smith, R. L. and Smith, T. M. Elements of Ecology 9 th edition Pearson Education(2014). ISBN13: 978-0321934185 • M.J., S. Jennings, M. Attrill, Marine Ecology: Progresses, Systems, and Impacts. 2nd. ed., Oxford Univ.Press, London (2011). ISBN-13: 978-0199227020 • Kalff, J. 2002. Limnology. Pearson Education, Prentice Hall. 2nd. ed., (2011) ISBN-13: 9780130337757
Supportive References	http://podolskyr.people.cofc.edu//biol211/lectures.htm
Electronic Materials	http://www.usc.edu.au/learn/courses-and-programs/courses/course-library/sci/sci102biodiversity-and-ecology • http://podolskyr.people.cofc.edu//biol211/
Other Learning Materials	CDs specialized for Ecology and Biodiversity

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Each classroom is equipped with PC and retro projector with a maximum of 30 students.
Technology equipment (projector, smart board, software)	The computers are equipped with different software's.
Other equipment (depending on the nature of the specialty)	Specific laboratory equipment for this course including posters, models of different experimental animals , dissection instruments, light microscopes , fluorescent microscopes, dissection microscopes ,microtome instrument, slide preparations, instruments special for measurement of ecological parameters , mixer, , for centrifuges , incubators , ovens and other glass wares.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct
Effectiveness of Students assessment	Course coordinator	Direct
Quality of learning resources	Peer Reviewer	Indirect
The extent to which CLOs have been achieved	Specialized committees	Indirect
Other	Faculty	Indirect

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

Council /COMMittee	Head of biology department
Reference No.	
Date	