



Course Specification

— (Postgraduate)

Course Title:	Assessment and Monitoring of Biodiversity
Course Code:	BIOD510
Program:	Master's in Biodiversity
Department:	Department of Biology
College:	Faculty of Science
Institution:	University of Tabuk
Version:	2
Last Revision Date:	18/11/1444 H



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A. General information about the course:

1. Course Identification:

1. Credit hours: (3 Hours)

2. Course type

A. University College Department Track

B. Required Elective

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

4. Course General Description:

- This course describes the need, importance, and methods of biodiversity assessment and monitoring. It also identifies the Environmental Impact Assessment (EIA) and modeling of biodiversity. Besides, it describes the modern tools and techniques used for data collection and its statistical analysis, applications of Remote sensing (RS), Geographical information systems (GIS), Global Positioning System (GPS), Radio collaring, Radio telemetry, camera trapping, a molecular technique like DNA fingerprinting and DNA barcoding, and the use of indicators and instruments. Further, it provides an overview of approaches and challenges in biodiversity assessment and monitoring and some case studies on biodiversity assessment and monitoring.

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

Evolution and Biodiversity (BIOD502)

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

None

7. Course Main Objective(s):

- Identify and describe the need, importance, and methods of biodiversity assessment and monitoring.
- Identify the role of EIA, and modeling in biodiversity assessment.
- Distinguish statistical methods of biodiversity assessment.
- Identify applications of RS, GIS, and GPS in biodiversity assessment, and monitoring.
- Describe the Radio collaring, radio telemetry, and camera trapping.
- Describe the molecular techniques.
- Recognize approaches and challenges in biodiversity assessment and monitoring.

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	E-learning		
3	Hybrid		



No	Mode of Instruction	Contact Hours	Percentage
	<ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	3 Hours/Week
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify).....	
Total		45

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	Explain key methods and techniques used in the assessment and monitoring of biodiversity.	K1	<ul style="list-style-type: none"> Lectures. Seminars. Class discussions. Problem-solving classes. Self-learning. 	<ul style="list-style-type: none"> Written exams (Midterm and Final exams). Quizzes. Class discussions.
1.2	Describe the role of biodiversity indicators in monitoring ecosystem health and species populations.	K2	<ul style="list-style-type: none"> Lectures. Seminars. Class discussions. Problem-solving classes. Self-learning. 	<ul style="list-style-type: none"> Written exams (Midterm and Final exams). Quizzes. Class discussions.
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2.0	Skills			
2.1	Analyze biodiversity monitoring data to identify trends and assess conservation needs.	S2	<ul style="list-style-type: none"> Lectures. Seminars. Class discussions. Problem-solving 	<ul style="list-style-type: none"> Written exams (Midterm and Final exams). Quizzes.



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			<ul style="list-style-type: none"> classes. - Self-learning. - Case studies. - Presentations. 	<ul style="list-style-type: none"> - Class discussions. - Presentations.
2.2	Evaluate and understand various methods for assessing and monitoring biodiversity.	S3	<ul style="list-style-type: none"> - Lectures. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Case studies. - Presentations. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Class discussions. - Presentations.
2.3	communicate findings from biodiversity assessment and monitoring to various audiences.	S5	<ul style="list-style-type: none"> - Lectures. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Case studies. - Presentations. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Class discussions. - Presentations.
....				
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate commitment to timely and effective task completion in biodiversity assessment and monitoring, both individually and in team settings.	V2	<ul style="list-style-type: none"> - Class discussions. - Presentations. - Assignments - Essays. - Reports 	<ul style="list-style-type: none"> - Class discussion. - Assignments. - Essays. - Reports. - Presentations.
...				

C. Course Content:

No	List of Topics	Contact Hours
1.	Biodiversity assessment and monitoring: An overview.	3
2.	Environmental Impact Assessment (EIA).	3
3.	Modeling of biodiversity.	3
4.	Census, sampling techniques, biodiversity indices.	3



5.	Statistical methods for data analysis.	3
6.	Remote sensing (RS).	3
7.	Geographical information system (GIS) and Global Positioning System (GPS). (Part I).	3
8.	Geographical information system (GIS) and Global Positioning System (GPS). (Part II).	3
9.	Radio collaring, radio telemetry, and camera trapping. (Part I).	3
10.	Radio collaring, radio telemetry, and camera trapping. (Part II).	3
11.	The molecular technique (DNA fingerprinting, DNA barcoding).	3
12.	Indicators for biodiversity.	3
13.	Instruments for Laboratory and field studies.	3
14.	Approaches and challenges.	3
15.	Case studies on Biodiversity Assessment and Monitoring.	3
Total		45

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	Distributed over 3-12 weeks	10
2.	Assignments, Essays, or Reports	Distributed over 14 weeks	15
3.	Individual or group presentation	Distributed over 14 weeks	15
4.	Midterm Exam	8	20
5.	Final Exam	17	40
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	
	- Ansari, A. A., Gill, S. S., Abbas, Z. K. and Naeem, M. (2017). Plant Biodiversity: Monitoring, Assessment and Conservation, CAB International Publications, UK, pp 640. ISBN: 9781780646947.
	- Hegazy A., Lovett-Doust-J (2016) Plant Ecology in the Middle East. Oxford scholarship online. ISBN-13: 9780199660810, DOI:10.1093/acprof:oso/9780199660810.001.0001.
	- Trivedi, P. C. (2008). Biodiversity Impact and Assessment,



	ISBN: 9788171325801, 343 pages, Pointer Publishers. - Wheater, C. P. (2005). Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring. ISBN-13: 978-0521823685, Pages 588. Cambridge University Press
Supportive References	- <i>Journal of Biodiversity</i> . - <i>Journal of Biodiversity Assessment and Conservation</i> .
Electronic Materials	- Saudi Digital Library. - UNSEDOC Digital Library. - www.sciencedirect.com .
Other Learning Materials	- None.

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	- A sufficient number of classrooms are available to accommodate up to 25 students. - Library.
Technology equipment (Projector, smart board, software)	- Data show projectors and a wireless internet connection are available for students and faculties. - Smart blackboard. - Computer Portable PowerPoint presentations.
Other equipment (Depending on the nature of the specialty)	- None.

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	- Students	- Direct & Indirect.
Effectiveness of student's assessment	- Course instructors & Course coordinator (Teachers)	- Direct.
Quality of learning resources	- Students	- Indirect.
The extent to which CLOs have been achieved	- Course instructors. - Course coordinator. - Quality Committee.	- Direct & Indirect.
Other		

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

Assessment Methods (Direct, Indirect)



G. Specification Approval Data:

COUNCIL /COMMITTEE	Department of Biology Council
REFERENCE NO.	Department Council NO (26)
DATE	26/11/1444 H