



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 Credit Hours (2 Theoretical + 1 Practical)

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	60	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	30
2.	Laboratory/Studio	20
3.	Field	10
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	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. Practical sessions. Field works. Seminars. 	<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"> - Class discussions. - Problem-solving classes. - Self-learning. - Case studies. - Individuals and group presentations. - Assignments. 	<ul style="list-style-type: none"> - Laboratory reports. - Field reports. - Class discussions. - Individuals and group presentations. - Assignments.
2.2	Evaluate and understand various methods for assessing and monitoring biodiversity.	S3	<ul style="list-style-type: none"> - Lectures. - Practical sessions. - Field works. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Case studies. - Individuals and group presentations. - Assignments. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Laboratory reports. - Field reports. - Class discussions. - Individuals and group presentations. - Assignments.
2.3	Communicate findings from biodiversity assessment and monitoring to various audiences.	S5	<ul style="list-style-type: none"> - Lectures. - Practical sessions. - Field works. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Case studies. - Individuals and group presentations. - Assignments. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Laboratory reports. - Field reports. - Class discussions. - Individuals and group presentations. - Assignments.
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3.0	Values, autonomy, and responsibility			
3.1	Demonstrate commitment to timely and effective task completion in biodiversity assessment	V2	<ul style="list-style-type: none"> - Class discussions. - Individuals and group presentations. - Assignments. 	<ul style="list-style-type: none"> - Class discussion. - Laboratory reports. - Field reports - Individuals and group presentations.



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	and monitoring, both individually and in team settings.			- Assignments.
...				

C. Course Content:

No	List of Topics	Contact Hours
1.	Biodiversity assessment and monitoring: An overview.	2
2.	Environmental Impact Assessment (EIA).	2
3.	Modeling of biodiversity.	2
4.	Census, sampling techniques, biodiversity indices.	2
5.	Statistical methods for data analysis.	2
6.	Remote sensing (RS).	2
7.	Geographical information system (GIS) and Global Positioning System (GPS). (Part I).	2
8.	Geographical information system (GIS) and Global Positioning System (GPS). (Part II).	2
9.	Radio collaring, radio telemetry, and camera trapping. (Part I).	2
10.	Radio collaring, radio telemetry, and camera trapping. (Part II).	2
11.	The molecular technique (DNA fingerprinting, DNA barcoding).	2
12.	Indicators for biodiversity.	2
13.	Instruments for Laboratory and field studies.	2
14.	Approaches and challenges.	2
15.	Case studies on Biodiversity Assessment and Monitoring.	2
Total		30

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes, Class discussions, Assignments	Distributed over 14 weeks	10
2.	Individual or group presentation	Distributed over 14 weeks	10



No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
3.	Laboratory Reports, Field Reports	Distributed over 14 weeks	10
4.	Midterm Exam	9	20
5.	Practical Exam	16	10
6.	Final Exam	18	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	<ul style="list-style-type: none"> - 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. - Wheeler, C. P. (2005). Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring. ISBN-13: 978-0521823685, Pages 588. Cambridge University Press
Supportive References	<ul style="list-style-type: none"> - <i>Journal of Biodiversity</i>. - <i>Journal of Biodiversity Assessment and Conservation</i>.
Electronic Materials	<ul style="list-style-type: none"> - Saudi Digital Library. - UNSEDOC Digital Library. - www.sciencedirect.com.
Other Learning Materials	<ul style="list-style-type: none"> - None.

2. Educational and Research Facilities and Equipment Required:

Items	Resources
<p>facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)</p>	<ul style="list-style-type: none"> - A sufficient number of classrooms and well-equipped laboratories are available to accommodate up to 25 students. - Library.
<p>Technology equipment (Projector, smart board, software)</p>	<ul style="list-style-type: none"> - Data show projectors and a wireless internet connection are available for students and faculties. - Smart blackboard.

Items	Resources
	- 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