



Course Specification

— (Postgraduate)

Course Title:	Biodiversity and Climatic Change
Course Code:	BIOD516
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:

The course describes a different component of climate and climate change. It also describes the impact of climate change on biodiversity at different organizational levels, the distribution of living organisms, the strategies of biodiversity management, the significant application of these methods under climate change, and the adaptation of the living organism to such changes. It covers topics on the effectiveness of national and international laws that contribute to biodiversity conservation by decreasing the negative practices that lead to climate change. The course also provides case studies on the impact of climate change on biodiversity.

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

Aquatic Biodiversity (BIOD506)

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

None.

7. Course Main Objective(s):

- Describe the impact of climatic change on the biodiversity of organisms at different levels.
- Describe the effect of the climatic change on the existence, the evolutionary relationship as well as the distribution of organisms in different environments.
- Explain the impact of climate change on the structure and function of ecosystems and communities.
- Identify the mechanisms used by living organisms to adapt to climatic change.
- Identify management strategies of biodiversity under climate change.
- Describe the role of the stakeholders, local and international communities, and organizations in planning, and supporting biodiversity conservation.
- Explain the significance of national, and international laws, and convection that contribute positively to biodiversity conservation.
- Discuss factors that contribute to climate change.



2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid <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	
3.	Field	
4.	Tutorial	30
5.	Others (specify).....	
Total		30

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

Co de	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Demonstrate knowledge of management strategies for biodiversity in the context of climate change.	K1	<ul style="list-style-type: none"> Lectures. Seminars. Tutorials. Class discussions. Problem-solving classes. Self-learning. 	<ul style="list-style-type: none"> Written exams (Midterm and Final exams). Quizzes. Class discussions.
	Explain climate change and the key factors influencing it.	K2	<ul style="list-style-type: none"> Lectures. Seminars. Tutorials. Class discussions. Problem-solving classes. 	<ul style="list-style-type: none"> Written exams (Midterm and Final exams). Quizzes. Class discussions.



Co de	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
.....			Self-learning.	
2.0	Skills			
2.1	Examine adaptive management strategies for mitigating the effects of climate change on biodiversity.	S2	<ul style="list-style-type: none"> - Lectures. - Tutorials. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Individual and group presentations. - Assignments. - Case studies. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Class discussions. - Individual and group presentations. - Assignments.
2.2	Evaluate the impact of climate change on the phenology, occurrence, and distribution of organisms and ecosystems.	S3	<ul style="list-style-type: none"> - Lectures. - Tutorials. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Individual and group presentations. - Assignments. - Case studies. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Class discussions. - Individual and group presentations. - Assignments.
2.3	Critique case studies of climate change impacts on specific biodiversity hotspots or endangered species.	S4	<ul style="list-style-type: none"> - Lectures. - Tutorials. - Seminars. - Class discussions. - Problem-solving classes. - Self-learning. - Individual and group presentations. - Assignments. - Case studies. 	<ul style="list-style-type: none"> - Written exams (Midterm and Final exams). - Quizzes. - Class discussions. - Individual and group presentations. - Assignments.
2....				

Co de	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate the ability to effectively manage individual and group tasks within a set timeframe, showing commitment to timely completion and collaboration.	V2	<ul style="list-style-type: none"> - Class discussions. - Individual and group presentations. - Tutorials. - Assignments. - Case studies. 	<ul style="list-style-type: none"> - Class discussions. - Presentations. - Individual and group presentations. - Assignments. - Essays.
3...				

C. Course Content:

No	List of Topics	Contact Hours
1.	What is climate change?	2
2.	Temperature spikes and global warming.	2
3.	Glacial retreat and sea-level rise	2
4.	Impacts on biodiversity at the genes and species level.	2
5.	Impacts on phenology, distribution, and populations.	2
6.	Impacts on ecosystem structure and function. (Part I).	2
7.	Impacts on ecosystem structure and function. (Part II).	2
8.	Climate Change, and Habit Loss.	2
9.	Climate change, and species extinction.	2
10.	Climate change and terrestrial ecosystem.	2
11.	Climate change and aquatic ecosystem.	2
12.	Management strategies for biodiversity under climate change.	2
13.	Adaptations to climate change.	2
14.	Case studies on climate change and biodiversity.	2
15.	UN conventions on climate change and biodiversity.	2
Total		30

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes, Class discussions	Distributed over 14 weeks	10
2.	Assignments, Essays	Distributed over 14 weeks	15
3.	Individual or group presentation	Distributed over 14 weeks	15
4.	Midterm Exam	9	20
5.	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"> - Rathoure, A. K. and Chauhan, P. B. (2019). Current State and Future Impacts of Climate Change on Biodiversity, pp. 313. IGI Global Publishers. ISBN13: 9781799812265. - Root, T. L., Hall, K. R., Herzog, M. P. and Howell, C. A. (2015). Biodiversity in a Changing Climate: Linking Science and Management in Conservation. 1st edition. University of California Press. ISBN: 9780520961807. - Maes, F., Cliquet, A., du Plessis, W. and McLeod-Kilmurray, H. (2015). Biodiversity and Climate Change: Linkages at International, National and Local Levels, pp. 488. Edward Elgar Publishing. ISBN: 9781782547051.
Supportive References	<ul style="list-style-type: none"> - <i>Journal of Ecosystem Health and Sustainability.</i> - <i>American Journal of Climatic Change.</i> - <i>Journal of Biodiversity.</i> - <i>Journal of Applied and Natural Science.</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
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> - A sufficient number of classrooms and well-equipped laboratories are available to accommodate up to 25 students. - Library.
Technology equipment (Projector, smart board, software)	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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