Course Specification
(Bachelor)

Course Title:	Conservation Biology and Bioextinction
Course Code:	EVS 1232
Program:	Bachelor of Science in Environmental Science
Department:	Biology
College:	Science
Institution:	Imam Mohammed Ibn Saud Islamic University
Version:	1
Last Revision Date:	-

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 3 (Lectures 2 + Lab 2)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Level 3/ 2nd Year)					
4. Course general Description:					
This course explores the evolution of key elements in conservation-focused. studies involving biodiversity patterns, extinction trends, genetics for conservation, and population conservation efforts in communities, landscapes, and the sustainability of ecosystems. Nowadays, humans have triggered an unparalleled reshuffling of the earth's biota. We purposely and accidentally continue to spread a growing number of species across environmental barriers that were once thought impossible to overcome. Successful introductions typically have negative impacts on ecosystem function, biodiversity, and ecosystem services, with invasion being considered a significant current natural disaster. The course 'Conservation Biology and Bioextinction' will focus on non-native alien species, examining what causes them to rapidly increase in population and have harmful effects on the ecosystem in their new habitat, leading to the extinction of other susceptible species. It will establish direct links between basic principles in ecology and evolutionary biology, issues relevant to extinction and invasion ecology, and the unique characteristics of individual invasive species. Therefore, the primary objective is to highlight species extinction's ecological significance and explore related sociological, economic, and associated topics.					
5. Pre-requirements for this course (if any)**:**					
EVS 1110 EVS 1111					
6. Co-requisites for this course (if any)**:**					
None					

7. Course Main Objective(s):
Conservation Biology and Bioextinction' is an advanced general survey course that familiarizes students with the main concepts. Services and issues related to the protection and recovery of wildlife are the main objectives of the course project. The focus of the course is to build a plan for conserving the habitats of multiple species.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	√	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**	30
2.	**Laboratory/Studio**	30
3.	**Field**	0
4.	**Tutorial**	0
5.	**Others (specify)**	0
Total		60

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Outline the procedures for examining the preservation of species, biodiversity, and the prevention of extinction.	**K1**	Lecture and take-home research assignment	Quizzes, midterm exams and final exam
1.2	Discuss the rules, guidelines, and agreements that address the conservation biology issues.	**K2**	Lecture and take-home research assignment	Quizzes, midterm exams, and final exam
1.3	Explain the importance of conservation genetics theory in promoting biological conservation efforts.	**K3**	Lecture and take-home research assignment	Quizzes, midterm exams, and final exam
2.0	**Skills**			
2.1	Apply quantitative techniques for conducting population viability analyses.	**S1**	Take-home research assignment	Reports
2.2	Use quantitative methods to analyze population viability and biodiversity.	**S2**	Take-home research assignment	Reports
2.3	Evaluate strategies that can be defended in order	**S3**	Take-home research assignment	Reports

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	to conserve a species or a system that is of concern.			
3.0	**Values, autonomy, and responsibility**			
3.1	Share in the discussion of the literature articles in the field of conservation biology and use using scientific evidence deduced from raw data to support their position to an audience of peers.	**V1**	Take-home research assignment	Quizzes, midterm exams, Lab reports, project presentations, Lab exams and final exam
3.2	Show the ability to communicate endemic and invasive taxa-related information to various audiences in an accurate, compelling, and logically supported manner, via writing and talks.	**V2**	Take-home research assignment	Quizzes, midterm exams, Lab reports, project presentations, Lab exams and final exam
3.3	Adhere to the relevant ethical rules	**V3**	Take-home research assignment	Quizzes, midterm exams, Lab reports, project presentations, Lab exam and final exam

C. Course Content

No	List of Topics (lectures)	Contact Hours
1.	Introduction to Conservation Biology: 1. What is Biodiversity? 2. Threats of biodiversity: Overexploitation, Invasive Species, Disease	4
2.	Biodiversity loss and its consequences 1. Estimates of extinction rates worldwide and in Saudi Arabia 2. Analyzing and discussing causes of extinction 3. Summarizing causes of vulnerability to extinction and consequences 4. Changing of the environment and loss of gene pool and ecosystem services and livelihood	4
3.	Invasive alien species	4
4.	Biological invasion process 1. Transport 2. Introduction 3. Establishment 4. Spread 5. The management-invasion continuum	2
5.	Theories and concepts of invasion biology 1. Spread, establishment, and impacts of alien species 2. Climate and habitat match of alien species 3. Biology of high-impact invaders 4. Risk assessment of alien species 5. Management of biological invasions	2
6.	Socioecological Context 1. Characterizing stakeholders and biological invasion stages 2. Perceptions and values 3. Ethics and invasive alien species	2
7.	Conceptual basis for the invasive alien species assessment 1. Literature review 2. Key issues in the discussion of biological invasions	2
8.	Bioinvasion and Bioextinction: Red and Mediterranean Seas	2
9.	Protected Areas: Establishment, Design, and Management	2
10.	Protected Areas vs. Unprotected Lands	2
11.	Conservation Outside of Protected Lands International Conservation	2
12.	The Challenge of Sustainable Development Conservation Biology and Ethics	2
Total		**30**

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 7th - 8th week	15%
3.	Quizzes, Participation, and Attendance	During the semester	10%
4.	Final Lab Exam	15th week	20%
6.	Final Exam	16th week	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	• Biodiversity: An Introduction by Gaston and Spicer, 2nd ed. (2004) • The Challenges of Biodiversity Science by Loreau (2010) • Kull, C. A. (2018). Critical Invasion Science: Weeds, Pests, and Aliens. In R. Lave, C. Biermann, & S. N. Lane (Eds.), The Palgrave Handbook of Critical Physical Geography (pp. 249–272). Springer International Publishing. • Bellard, C., Cassey, P., & Blackburn, T. M. (2016). Alien species as a driver of recent extinctions. Biology Letters, 12(2), 20150623. • Pimm, S. L., Jenkins, C. N., Abell, R., Brooks, T. M., Gittleman, J. L., Joppa, L. N., Raven, P. H., Roberts, C. M., & Sexton, J. O. (2014). The biodiversity of species and their rates of extinction, distribution, and protection. Science, 344(6187), 1246752. • Gurevitch, J., & Padilla, D. K. (2004). Are invasive species a major cause of extinctions?. Trends in ecology & evolution, 19(9), 470-474. • Smith, K. F., Sax, D. F., & Lafferty, K. D. (2006). Evidence for the role of infectious disease in species extinction and endangerment. Conservation biology, 20(5), 1349-1357.
Supportive References	None
Electronic Materials	• USDA National Invasive Species Information Center: http://www.invasivespeciesinfo.gov/

	• Florida: https://www.invasivespeciesinfo.gov/us/florida • US Forest Service Invasive Species Program: http://www.fs.fed.us/invasivespecies/ • US Geological Service Non-Indigenous Aquatic Species: http://nas.er.usgs.gov/ • International Union for the Conservation of Nature (IUCN) Invasive Species Specialist Group: http://www.issg.org/ • Florida Natural Areas Inventory – Invasive Species: https://www.fnai.org/invasivespecies.cfm • Center for Aquatic and Invasive Plants, University of Florida: https://plants.ifas.ufl.edu/ • Florida Exotic Pest Plant Council: https://www.fleppc.org/ • Florida Invasive Plant species mobile field guide: http://www.plantatlas.usf.edu/flip/
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms and Laboratories
Technology equipment (projector, smart board, software)	Projector and Smartboard
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
Effectiveness of Students assessment	Program Leader	Direct
Quality of learning resources	Peer Reviewer	Indirect
The extent to which CLOs have been achieved	Program Leader	Direct
Other	-	-

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	