Course Specifications

Course Title:	**Animal Ecology**
Course Code:	**4013352-3**
Program:	**General Biology**
Department:	**Department of biology**
College:	**Faculty of Applied Science**
Institution:	**Um Al-Qura University**

Table of Contents

A. Course Identification

1. **Credit hours:** **3 hours.**	

2. Course type

a.	University	☐	College	☐	Department	✔	Others	☐
b.		Required	✔		Elective	☐		

3. Level/year at which this course is offered: **3ʳᵈ Year / Level 6.**

4. Pre-requisites for this course (if any)**: Vertebrates (4012322-3).**

5. Co-requisites for this course (if any)**: NA.**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	**30**	**50**
2	**Blended**	**-**	**-**
3	**E-learning**	**-**	**-**
4	**Correspondence**	**-**	**-**
5	**Other**	**30**	**50**

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	**30**
2	**Laboratory/Studio**	**42**
3	**Tutorial**	**-**
4	**Others** (specify)	**30**
	Total	**102**
Other Learning Hours*		
1	**Study**	**30**
2	**Assignments**	**8**
3	**Library**	**15**
4	**Projects/Research Essays/Theses**	**10**
5	**Others** (specify)	**-**
	Total	**63**

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

Animal ecology is the study of animals and how they relate to their environment. It will study basic concepts of ecology including climate and environmental periodicity, terrestrial ecosystems, aquatic ecosystems, limiting factors and the ecological niche concept, habitat selection models, territoriality, ecological traps, movement, dispersal, migration, managing time and energy, growth and bioenergetics, and physiological flexibility. Labs will integrate field-based and quantitative approaches in the study of individual variation in ecological settings. Labs will also focus on writing skills. For the essay requirement, students must complete an Independent Field Study and write a 2500-word report. Animal Ecology is highly recommended for students who have a strong interest in ecology, behavior, evolution, and environmental science.

2. Course Main Objective

After completing this course, students should be able to:

- Understand major concepts and terminology in the field of ecology.
- Know the basic facts of population, community and ecosystem level ecology.
- Be able to clearly and concisely speak about and write about the major concepts in ecology.
- Recognize the interconnections among the major concepts of ecology.
- Understand how empirical evidence (i.e., data) supports or refutes the major concepts.
- Apply field and practical applications.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	Identify main Terms of ecology: Ecology; community; environments, ecosystems, populations, etc…	
1.2	Employ recent communication and information technologies effectively in different tasks related to animal ecology.	
1.3	Learn the geographical, biotic and abiotic factors affect the environments and Distinguish different types Ecosystems system. Then Apply / team ecological study for local ecosystems.	
1.4	Distinguish the population dynamics, interrelation between different populations in each ecosystem. Then Be aware about the proper and applied ways deal with the population in different ecosystems	
1.5	Be able to clearly and concisely speak about and write about the major concepts in ecology.	
1.6	Learn how to design and apply an ecological study that addresses relevant questions, carry out the study using the appropriate equipment, interpret and discuss the obtained data as presentation.	
1.7	Remember the terms of ecology and define the relationships between different populations.	
1.8	Comprehend the methods and application of ecological research.	
1.9	Enumerate the relationships between individuals of same population	

	CLOs	Aligned PLOs
2	**Skills:**	
2.1	**Explain the relationships between different populations in a terrestrial and aquatic ecosystem.**	
2.2	**Distinguish the basic scientific facts, concepts, principles, and applications related to animal ecology.**	
2.3	**Define the energy flow in different ecosystems.**	
2.4	**Apply / study recent communication and information technologies effectively in different tasks related to animal ecology.**	
2.5	**Identify main Terms of ecology: Ecology; community; environments, ecosystems, populations, etc…**	
2.6	**Employ recent communication and information technologies effectively in different tasks related to animal ecology.**	
2.7	**Discuss the relationships between organisms and their ecosystems.**	
2.8	**Team work activities: Describe, and confirm the different types of population in different ecosystems as a presentation activity.**	
2.9	**Use the Diversity laws and its applications in the terrestrial ecosystem.**	
3	**Competence:**	
3.1	**Developing oral presentations and leader ship activity**	
3.2	**Communicating personal ideas and thoughts**	
3.3	**Work independently, Self-learning and as part of a team,**	
3...	**To examine, describe, draw, dissect or contribute reports.**	

C. Course Content

No	List of Topics (16 weeks)	Contact Hours
1	**Different ways to study the ecology and Ecosystem and its components (living and non- living).**	**2**
2	**Factors that affect the succession and ecosystem types.**	**2**
3	**The density of organisms and the ways of calculating density. some ecological laws**	**2**
4	**Aquatic eco-system in its different forms(sea- river-lake –swamp). Characteristics of each region from the previous environmental regulations and the types of organisms that exist in each region.**	**2**
5	**Diversity and Richness and environmental age pyramids.**	**2**
6	**Midterm exam.**	**2**
7	**A. Environmental relationships that can arise between individuals of the same species.**	**2**
	B. Environmental relationships that can arise between individuals of the different populations.	**2**
8	**C. Environmental relationships that can arise between individuals of the same and different species (Harmful relationships and beneficial relations).**	**2**
9	**1.Relations between animals and plants, food chains and food webs.**	**2**
10	**2.Relations between animals and plants, food chains and food webs.**	**2**
11	**Tribal communities and tribal forms of growth in the environment, organisms spread and distribution.**	**2**

12	Environmental terrestrial biomes and characteristic for each biome.	2
13	Animal inhabiting each biome.	2
14	Diversity laws and its applications in the terrestrial ecosystem.	2
15	Revision	2
16	Final exam.	
Total		**30**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	Identify main Terms of ecology: Ecology; community; environments, ecosystems, populations, etc…	1. Lectures and student research papers. 2. The using of visual display such as PowerPoint. 3. Homework assignments. Discussions (connecting what they learn in the class and applying this information in laboratory).	- Homework and Quizzes. - Midterm and final written exams. - Evaluation of reports. - Group discussions and participation in the lecture. Course work reports.
1.2	Employ recent communication and information technologies effectively in different tasks related to animal ecology.		
1.3	Learn the geographical, biotic and abiotic factors affect the environments and Distinguish different types Ecosystems system. Then Apply / team ecological study for local ecosystems.		
1.4	Distinguish the population dynamics, interrelation between different populations in each ecosystem. Then Be aware about the proper and applied ways to deal with the population in different ecosystems		
1.5	Be able to clearly and concisely speak about and write about the major concepts in ecology.		
1.6	Learn how to design and apply an ecological study that addresses relevant questions, carry out the study using the appropriate equipment, interpret and discuss the obtained data as presentation.		
1.7	Remember the terms of ecology and define the relationships between different populations.		
1.8	Comprehend the methods and application of ecological research.		
1.9	Enumerate the relationships between individuals of same population		
2.0	**Skills**		
	Collect and Examine population samples, or their figures in wild or aquatic ecosystem.		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	Characterize food pyramid (energy flow) in ecosystems.	1. Interactive lectures. 2. Seminars. 3. Participation of students in discussions during the lecture. 4. Trying to explain the issues in regular and motivated manner. Follow up the students in lab and during carryout all analytical techniques.	- Exam must contain questions that can measure these skills. - Quiz and exams. - Discussions after the lecture. Practical exam.
2.2	Define the relations between populations.		
2.3	Use computers and internet to search for the latest information in ecology.		
2.4	Apply ecological methods practically.		
2.5	Record types of populations to understand their relationships.		
3.0	**Competence**		
3.1	Personal leader ship activity	• Oral presentations. • Internet search assignments and essays. • Incorporating the use and utilization of computer in the course requirements.	- Evaluation of student essays and assignments. - Marks given to for good reports and presentations. Evaluating during the discussion in lecture and reports. Part of the grad is put for student's written participation.
3.2	Self-learning in teamwork.		
…	Reports and presentations		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Periodical Exam(s)	4	10 %
2	Mid Term Exam (Theoretic)	8	20 %
3	Mid Term Exam (practical)	9	10 %
4	Reports and essay	11	5 %
5	Final Practical Exam	15	15 %
6	Final Exam	16	40 %
7			

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

2 Office hours/week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Cain, Bowman, and Hacker. 2011. Ecology, 2nd. ed. Sinauer Associates, Sunderland, MA. Available at bookstore** **Smith, R; Smith, RM. (2000). Ecology and Field Biology. (6th ed.).** **Staff lecture notes**
Essential References Materials	**Begon, M.; Townsend, C. R., Harper, J. L. (2006). Ecology: From individuals to ecosystems. (4th ed.). Blackwell.** **Allee, W.; Emerson, A. E., Park, O., Park, T., and Schmidt, K. P. (1949). Principles of Animal Ecology. W. B. Saunders Company.**
Electronic Materials	**http://www.eulc.edu.eg/eulc/libraries/index.aspx** **www.animal-ecology.info/**
Other Learning Materials	**CD prepared by the staff members containing U-tube videos.** **Multi- media associated with the text book and the relevant websites.** **Biological charts.**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	**The areas of class rooms are suitable, concerning the number of enrolled students; and air conditioned.** **Lecture room equipped with a black board and** **Data show. Instructors use their own laptop.** **Ecology lab well equipped.**
Technology Resources (AV, data show, Smart Board, software, etc.)	**Class rooms are already provided with data show, audio-visual equipment.**
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	**Laboratory instruments for measuring some ecological parameters.**

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student Feedback on Effectiveness of Teaching	**Students.**	**Class room discussions.** **Questionnaires.**
Evaluation of Teaching	**Instructor or by the Department**	**Revision of student answer paper by another staff member.** **Analysis the grades of students.**

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Prof. Adnan Mohamed Hijji; Prof. Osama Mohamed Sarhan	
Reference No.		
Date	21/11/2019	