



Course Specifications

Course Title:	Invertebrate Zoology
Course Code:	221BIO-3
Program:	Biology
Department:	Biology
College:	College of Arts and Sciences
Institution:	Najran University

Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	4
1. Course Description	4
2. Course Main Objective	4
3. Course Learning Outcomes	4
C. Course Content	4
D. Teaching and Assessment	5
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	6
2. Assessment Tasks for Students	7
E. Student Academic Counseling and Support	7
F. Learning Resources and Facilities	7
1. Learning Resources	7
2. Facilities Required	7
G. Course Quality Evaluation	8
H. Specification Approval Data	8

A. Course Identification

1. Credit hours: 3
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: II/ 1 st year
4. Pre-requisites for this course (if any): 101BIO-4
5. Co-requisites for this course (if any): non

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify) E-learning	
	Total	60
Other Learning Hours*		
1	Study	27
2	Assignments	3
3	Library	5
4	Projects/Research Essays/Theses	5
5	Others (specify): Office hours	5
	Total	45

* 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

The course underlines the basis of classification of invertebrates in the animal kingdom and gives examples from the different environments explaining the main characteristics for each group. The course will also demonstrate the different feeding methods, adaptations, inner organs composition and spawning.

2. Course Main Objective

1. Define the fundamental basis of invertebrates' taxonomy.
2. Describe the basic and recent information on selected invertebrates: their characteristics, adaptations, reproductive strategies and geographical distribution.
3. Know different habitats, mode of nutrition, locomotion, reproduction, sensation among invertebrate phyla
4. Review with recent information on invertebrate animals through Presentations and Scientific reports.
5. Classify variety of invertebrates.
6. Distinguish between classification, morphology and function of invertebrates, with an emphasis on Arabian fauna.
7. Create, through active participation in laboratory practical sessions, competence in the use of observation and interpretation in the study of invertebrate's animals.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Define the fundamental basis of invertebrates' taxonomy.	
1.2	Know the basic and recent information on selected invertebrates: their characteristics, adaptations, reproductive strategies and geographical distribution.	
1.3	Recognize different habitats, mode of nutrition, locomotion, reproduction, sensation among invertebrate phyla	
2	Skills :	
2.1	Explain the basis of invertebrates' taxonomy	
2.2	Describe the interrelationships between invertebrate phyla	
2.3	Distinguish between classification, morphology and function of invertebrates, with an emphasis on Arabian fauna.	
3	Competence:	
3.1	Work independently and as a team work	
3.2	Manage recourses, time and other members of the group	
3.3	Communicate results of work with others	

C. Course Content: Theoretical Aspect

No	List of Topics	Contact Hours
1	Protista - A brief introduction to the major kinds of animal-like protista, with emphasis scientific nomenclature. - Classification of animal kingdom	2
2	Protozoa - A brief introduction – Characters and classification of protozoa	4

	Different classes of protozoa with examples Sarcodina, ciliophora, mastigophora, sporozoa	
3	Sponges : The Poriferans The transition from unicellular (or acellular) to multicellular organization.(types of sponges)	2
4	The Cnidarians: Jellies, Corals & Anemones -Classification - Hydra, various medusae and corals. -Economic and medical importance	2
5	The platyhelminthes Classification Characteristics Trematoda (Fasciola sp, Schistosoma, Taenis sp)	4
6	The Aschelminthes (Nematoda) Classification Characteristics Ascaris, Ankylostoma sp	2
7	Arthropods I -The implications of an external skeleton. -The shrimp.	2
8	Arthropods II - planktonic crustacea (Branchiopoda, Ostracoda, Cirripidia, Malacostraca and Copepoda) Comparison between Scolopendra and Iulus Life cycle of Scorpion and spider and their ecology and economic importance.	2
10	Mollusca I -Shelled and non-shelled Gastropoda.	2
11	Mollusca II Bivalvia, pearl formation, squid and Octopus.	2
12	Echinodermata -The starfish is used to introduce this group of important marine organisms. As well as sea cucumber and sea urchin.	2
13	The Annelids The coelomate body plan. Examples discussed include earthworms, polychaetes, and leeches.	2
14	Rotifera -Main characters, different genera and its importance as pollution indicators.	2
Total		30

Practical

No	List of Topics	Contact Hours
1	Protozoa Amoeba, Entamoeba histolytica, some Foraminifera, Euglena, Trypanosoma, Leishmania, Paramecium, Plasmodium, and Monocystis	2
2	Phylum Porifera Part of colony Leucosolenia, Sycon (L.s., T.s.), spicules, Euspongia (W.M.), sponge fibers, gemmule of Spongilla	4
3	Phylum Coelentrata Hydra (W.M., L.S., T.S.), Obelia (part of colony, medusa), Tubularia , and Sertularia	2

4	Class Scyphozoa Aurelia (Life cycle), and Class Anthozoa: Sea-anemone (Polyp, T.S.)	2
5	Class Anthozoa Corals (Fungia, Acropora, Galaxae, Porites, Tubiporaetc.), Xenia (Polyp, T.S.)	4
6	Phylum Platyhelminthes Planaria (W.M., T.S.), Fasciola (adult, egg, snail, cercaria, encysted metacercaria, T.S.)	2
7	Phylum Platyhelminthes Schistosoma (Adult male and female, snails, eggs, cercaria), and Taenia (adult, scolex, egg, gravid and mature segment, T.S.).	2
8	Phylum Nematoda Ascaris (W.M., male and female dissection)	2
10	Phylum Nematoda: Ascaris (T.S. male and female), other worms	2
11	Phylum Annelida: Earthworm (W.M., T.S)	2
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	Define the fundamental basis of invertebrates' taxonomy.	Lectures	Final and semester exams
1.2	Describe the basic and recent information on selected invertebrates: their characteristics, adaptations, reproductive strategies and geographical distribution.	Lectures	Final and semester exams
1.3	Know different habitats, mode of nutrition, locomotion, reproduction, sensation among invertebrate phyla	Lectures	Final and semester exams
2.0	Skills		
2.1	Explain the basis of invertebrates' taxonomy	Student negotiations	Class room activity
2.2	Understand the interrelationships between invertebrate phyla	Student negotiations	Class room activity
...	Distinguish between classification, morphology and function of invertebrates, with an emphasis on Arabian fauna.	Student negotiations	Class room activity
3.0	Competence		
3.1	Work independently and as a team work	Student negotiations	Class room activity
3.2	Manage resources, time and other members of the group	Student negotiations	Class room activity
...	Communicate results of work with others	Student negotiations	Class room activity

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Practical First Exam	6	10%
2	Theoretical First Exam	6	10%
3	Practical Second Exam	12	10%
4	Theoretical Second Exam	12	10%
5	Practical Final Exam	15	10%
6	Theoretical Final Exam	15	50%

*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 :

- 10 hours per week as office hours
- Academic advisor 10 hours per week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Paul, A. Meglitsch & F.R. Schram (1991). Invertebrate Zoology 3 rd Edition. Oxford University Press
Essential References Materials	Wallace, R.L., Beck, D.E., Braithwai, Water, K.T. (1996). Invertebrate zoology: A Laboratory manual. 5 th Ed. Prentice Hall, USA
Electronic Materials	Websites
Other Learning Materials	Films related to the course

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) 40 seats/ class room/ 20 seats labs Computer access with data show and internet
Technology Resources (AV, data show, Smart Board, software,	Data show, Overhead projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Models

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course evaluation	Student	direct
Student-faculty meeting	Faculty, Program Leaders	indirect
Departmental council discussions	Staff members	indirect
Discussion with the group of faculty teaching the same course	Peer Reviewer	indirect
Periodical departmental revisions of each method of teaching	Peer Reviewer	indirect

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	
Reference No.	
Date	