اعـتـمـاد
NCAAA
T4
2020

Course Specifications

Course Title:	Invertebrates
Course Code:	**Zoo251-3**
Program:	**B.Sc. Biology**
Department:	**Biology**
College:	**Science**
Institution:	**Faculty of Science, Jazan University**

Table of Contents

A. Course Identification

1. Credit hours:	

2. Course type

a. University ☐ College ☐ Department ☑ Others ☐

b. Required ☑ Elective ☐

3. Level/year at which this course is offered: 3rd level/ 2nd year

4. Pre-requisites for this course (if any)**: None**

5. Co-requisites for this course (if any)**:None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	26h	86.7%
2	**Blended**	4h	13.3%
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**30**
2	**Laboratory/Studio**	**30**
3	**Tutorial**	
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

Course Title	Course No.	Credit Units			Year	Level	Pre-Requisite
		Theoretical	Practical	Total			
INVERTEBRATES	**251ZOO**	2	1	3	2nd	3rd	

1) Course Objectives:

The biology of lower invertebrates (Protozoa, Porifera, Coelesterata, Platyhelminthes and Nematoda. Classification, general features, example for each phylum, and life and its evaluation, biology and morphology.

The biology of higher invertebrates (Annelida, Arthoropoda, Mollusca and Echinodermata), coelomic cavity, movement, excretion, nervous system, endocrine glands, biological associations and biological ecology

2) Course Contents:

Classification of lower invertebrates and examples for each phylum, life and its evaluation, metabolism, symmetry, cleavage and gastrulation, respiration, execration, reproduction and biological colony. Field trips to local habitats and for collecting samples and studding invertebrate animals.

Classification of higher invertebrates, general features, coelomic cavity, segmentation, movement, extraction organs, receptors and sensor organs, endocrine glands in Annelida and Insect and types of biological associations

3) Practical:
Laboratory work and Field trip to local habitats for collecting samples
Classification of higher and lower invertebrates

4) Assessment:
Exams: Essay/Objective, oral, class work, research work, translations
Practical: Identifying samples and slides, drawings.
Quiz 20%
Practical 30%
Final 50%

5) Teaching Methods:
Lectures, photographs, slides, multimedia, Field trips, web-based learning. Samples, Light microscopes, glassware, chemicals.

6) Text Books:

7) References:
-Hickman, C.P., C.P., Larson, A., Helen I'Anson, H., Keen, S.L., Roberts, L.S. (2011) Integrated Principles of Zoology. 15ᵗʰ edition, McGraw Hill.   London, New York.
-Wallace, R.L., Beck, D.E. and Braithwai Water, K.T. (1996). Invertebrate Zoology: A Laboratory Manual. Prentice Hall, USA.
-Ruppert, E.E, and Barnes, R.D. (1994). Invertebrate Zoology. Saunders College Pub.
-Paul, A Meglitsch and Schram, F.R. (1991). Invertebrate Zoology. Oxford University Press, Oxford.

2. Course Main Objective
- Classification of the kingdom of animals.
- General characteristics and classification of Protozoa
- General characteristics and classification of Porifera
- General characteristics and classification of Metazoa.
-General features and classification of Cnidaria
- General characteristics and classification of Platyhelminthes.
- General characteristics of Nematoda.
- General characteristics and classification of Annelida
- - General characteristics and classification of Arthropoda.
- Characteristics of insecta
- General characteristics of and classes of Mollusca.
- General characteristics and classification of Echinodermata.

3. Course Learning Outcomes

	CLOs	Aligned-PLOs
1	**Knowledge and Understanding**	
1.1	Define all principals, concepts, theories and aspects concerning with invertebrate	K1.1
1.2	Compare between different mechanisms, functions, practices and aspects related to invertebrate	K2.1
1.3	Draw all systems, organs, cells and its contents diagrams and figures of invertebrate	K2,3
2	**Skills :**	
2.1	Examine theoretically or practically the sides, photos, diagrams or statements of invertebrate	S1,3
2.2	Write a report about any practical or theoretical tasks related to invertebrate	S3,3
3	**Values:**	
3.1	Illustrate awareness of risk assessment and safety observation when dealing with various equipment at various fields.	V2,1

C. Course Content

No	List of Topics	Contact Hours
1	**Terms and bases of classification of animal kingdom**	**2**
2	**Subkingdom: Protozoa**	**10**
3	**Subkingdom Parazoa: Phylum Porifera**	**4**
4	**Subkingdom Metazoa: PhylumCnidaria**	**4**
5	**Bilateria: Acoelomayes: Phylum Platyhelminthes**	**4**
6	**Coelomates: Pseudocoelomates: Phylum Nematoda**	**4**
7	**Eucoelomates: Phylum Annelida**	**8**
8	**Eucoelomates: Phylum Arthropoda**	**8**
9	**Eucoelomates: Phylum Mollusca**	**8**
10	**Eucoelomates: Phylum Echinodermata**	**4**
	Total	**56**

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 and Understanding**		
1.1	Define all principals, concepts, theories and aspects concerning with invertebrate	Lectures	Quizes, short answer questions.
1.2	Compare between different mechanisms, functions, practices and aspects related to invertebrate	Lectures	Quizes, short answer questions.
1.3	Draw all systems, organs, cells and its contents diagrams and figures of invertebrate	Lectures- Lab work	Short answer questions-Homework
2.0	**Skills**		
2.1	Examine theoretically or practically the sides, photos, diagrams or statements of invertebrate	Lectures- Lab work	Practical exam-Homework
2.2	Write a report about any practical or theoretical tasks related to invertebrate	Lectures Group Discussion Lab work	Practical exam-Homework
3.0	**Values**		
3.1	Illustrate awareness of risk assessment and safety observation when dealing with various equipment at various fields.	Lab work	Practical exam-Homework

2. Assessment Tasks for Students

#	*Assessment task	Week Due	Percentage of Total Assessment Score
1	Homework assignment	2	2
2	Practical quizzes	4	2
3	Lecture Quizzes	6	2

#	*Assessment task	Week Due	Percentage of Total Assessment Score
4	Mid-term exam	8	10
5	Practical web-based assignment	10	2
6	Lecture web-based essay	12	2
7	Final practical exam	14	30
8	Final Exam	16	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 Office hours/faculty/week.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	-Brusca, C.R., Brusca, G.J. and Haver, N.J. (2018) Invertebrates. Sinauer Associates; 2nd edition. 936 pages. -Hickman, C.P., C.P., Larson, A., Helen I'Anson, H., Keen, S.L., Roberts, L.S. (2014) Integrated Principles of Zoology. 16th edition, McGraw Hill. London, New York
Essential References Materials	Walace, R.L., Beck, D.E., Braithwai, Water, K.T. (1996). Invertebrate Zoology: A Laboratory Manual. -Rupert, E.E. & Barnes, R.D. (1994) Invertebrate Zoology. Saunders College Pub.
Electronic Materials	Zoological record
Other Learning Materials	Media softwares

2. Facilities Required

Item	Resources
Accommodation Classrooms, laboratories, demonstration) (.rooms/labs, etc	2 Lecture rooms for a group of 30 students. 1 laboratory for a group of 15 students
Technology Resources (.AV, data show, Smart Board, software, etc)	One computer laboratory for a group of 15 students.
Other Resources Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list	Light microscopes, slides, photomicrographs of the different phyla of invertebrates

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course Contents		
Course Facilities		
Teaching Methodology		
Assessment Quality		
Assessment Methodology		

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	Consultant Committee/ Board of Biology Department
Reference No.	
Date	12 September, 2020