



**LEAD CITY UNIVERSITY, IBADAN.**  
**FACULTY OF BASIC MEDICAL & APPLIED SCIENCES**  
**DEPARTMENT OF BIOLOGICAL SCIENCES**  
**SECOND SEMESTER, 2018/2019 ACADEMIC SESSION**

**COURSE PARTICULARS**

**Course code: ZOO 213**

**Course Title : Coelomate Invertebrates**

**No. Of Units : 3**

**Status : Compulsory**

**LECTURERS DETAILS**

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**COURSE DESCRIPTION**

**Introduction**

The invertebrates are animals without a vertebral column (backbone). The early invertebrates are the single-celled animals, majority of which are very minute and microscopic. These are the protozoans. There evolved more structurally complicated groups that are multicellular but they remained at tissue grade and assumed a diploblastic structure, that is, body wall made up of two layers of cells. Some groups later emerged with the body wall made of three layers of cells- ectoderm, mesoderm and endoderm. This is triploblastic grade. This new collection of invertebrates developed a body cavity or space known as coelom. However, there are three categories of these invertebrates with coelom- the acoelomates. These are the Platyhelminthes (flatworms).

The second category are the pseudocoelomates. Such invertebrates are the Nemertean, Nematodes and Rotifers. The third category are the invertebrates with true coelom and generally referred to as coelomates or eucoelomates. These comprise members of the following Phyla: Annelida, Arthropoda, Mollusca and Echinodermata.

**Course Description**

True coelom and pseudocoelom. Metameric segmentation.

Phyla of invertebrates.

Coelomate invertebrates and their phyla among the invertebrates.

Brief classification of each phylum down to order.

General characteristics of members of each phylum and chosen classes and orders citing some examples.

**COURSE OBJECTIVES:**

By the end of the course, students should be able to

1. Know the general characteristics of invertebrates and meaning of coelom
2. Understand the differences between Acoelomates, Pseudocoelomates and Coelomates.
3. Outline the general classification of each phylum with examples.

**TEACHING PLAN**

WEEK	CONTENT
1	Characteristics of the invertebrates: Phyla of the invertebrates ,Diploblastic animals.
2	Triploblastic animals. Types of Coelom: Acoelomates, Pseudocoelomates,Coelomates, Eucocoelomates
3	Metamerism and Symmetry. Annelida- General characteristics,general classification
4	Class <i>Chaetopoda</i> ; Order <i>OligochaetaLumbricusterestris</i>
5	Phylum Mollusca- General characteristics General classification, Class Gastropoda- Litorina sp.(Perinwinckle), Helix sp. (Garden snail)
6	Class Lamellibranchiata (Bivalva) Pecten sp. , Class Cephalopoda- Squids and Loligo , Octopuses.
7	Phylum Arthropoda; General characteristics, classification.
8	ClassArachnida:Scorpions,Spiders,Class,ChilopodaCentipede, Class- Diplopoda
9-10	Class Insecta (Hexapoda): General characteristics,OrderOrthoptera- Grasshopper, locust
11	Order dictyoptera- Cockroach, Order Diptera- Housefly ,Mosquito.
12	Class Crustacea- General characteristics, Group (subclass) Malacostraca; Division Eucarida, Order, Decapoda. General characteristics – Astacus(crayfish),Galathae (Lobster), prawns, Uca(Tropical crab).
13	Phylum Echinodermata- General Classification Class Asteroidea, ClassEchinoidea.
14	Revision and Tutorials

**ASSESSMENT**

Class Attendance	10 marks
Tests and Assignments	30 marks
Final Examination	60 marks

### Reading List

1. Rupert, Edward E, Fox Richard S, Barnes, Robert D (2004) : Invertebrate Zoology , 7<sup>th</sup> Edition Cengage Learning.
2. Dorit R.L, Walker W. F, Barnes R. D.(1991) Zoology. Saunder College Publishing.
3. Overhill, Raith (2006). An introduction to the invertebrates, 2<sup>nd</sup> Edition, Cambridge University Press.

### Tutorials Questions

- 1(a) Discuss the various characteristic features of the invertebrates (b) Define the following terms (i) metamerism (ii) symmetry
- 2a. Explain in detail the following terms: i. Triploblastic animalsii. Coelomates  
iii. Pseudocoelomates (b) Discuss critically any three chacteristic features of the Phylum Annelida.
- 3 a. Apart from Phylum Annelida, list the three other phyla in the Coelomates group  
b. Name 3 classes that make up the Phylum Annelida  
c. Which are the 3 orders that make up the class whose members possess Chaetae?  
d. Describe the structure and general functions of the Clitellum
- 4a. Discuss any 6 notable reasons why some invertebrate coelomates are classified into the Phylum Mollusca. (b) Name any three classes of the Phylum Mollusca.
- 5a. The Gastropods are said to be well adapted to all types of habitat. Discuss.  
b. Name the two subclasses in the class Gastropoda. Give one example in each class.
- 6(a)Enumerate the characteristic features of the subclass Pulmonata of the Phylum Mollusca. Give an example and mention the order to which it belongs.  
b. Enumerate the general morphological characteristics of members of the class Bivalvia.

### Section B

- 7a. Enumerate the structural features of members of the class Cephalopoda.  
b.Describe the structural features of a named Octopoda.

8a. Discuss any 10 characteristics of the Arthropods.

b. In which of the classes do we have (i) centipedes (ii) Millipedes

c. List any three classes of the subphylum Mandibulata.

9. Discuss the special characteristic features that make some invertebrate Coelomates Arthropods.

10a. Which are the 3 subphyla that make up the Phylum Arthropoda?

b. Give the general names of the four groups of Arthropods that make up the class Arachnida.

c. Name the two regions of Arachnids division

d. Name the order to which each of the following arachnids belongs.

i. Scorpions ii. Spiders iii. Mites and ticks

e. Name any one class of the subphylum Mandibulata.

f. In which of the classes do we have (i) Centipedes (ii) Millipedes?

11 a. Describe the general reproduction in insects.

b. Give the general names of any two members of the class Crustacea.

c. Which of the two groups of coelomates that makes up the class Crustacea?

d. In which Phylum of invertebrate coelomates do we have “starfish” and what is its zoological name?

12. Discuss the special characteristic features of the members of the class insecta under the following headings: i. Body division ii. Segmentation of the head, thorax and abdomen iii. abdomen iv. Regions of the thorax and their appendages v. Head appendages vi. Sense organs and locations vii. Number of legs viii. Structure of a leg ix. Respiration