**BINGHAM UNIVERSITY, KARU**

**BIOLOGICAL SCIENCES DEPARTMENT**

**BIO 102: GENERAL BIOLOGY II**

**COURSE OUTLINE 2020/2021 SESSION, SECOND SEMESTER**

***Lecturer: Mr. Koggie, Amos Zamfara***

1. **ANIMAL KINGDOM CLASSIFICATION**

Animals are characterized as being multicellular and eukaryotic. Classification of animals is about organizing organisms into groups. Members of a group have shared characteristic, that is common to all members of that group and it is this character that defines the group.

1. **BASIS OF CLASSIFICATION**

* Levels of Organization
* Patterns of Organ Systems e.g Digestive and Circulatory Systems
* Body Symmetry
* Body Wall
* Nature of Coelom
* Segmentation
* Notochord

1. **ANIMAL KINGDOM CLASSIFICATION CHART**
2. **INVERTEBRATES AND THEIR CHARACTERISTICS**
3. **CLASSIFICATION OF INVERTEBRATES**
4. ***PHYLUM* PORIFERA (SPONGES) -** Main Features
5. ***PHYLUM*  CNIDARIA (COELENTERATA) -** Main Features
6. ***PHYLUM* CTENOPHORA** - Main Features
7. ***PHYLUM* PLATYHELMINTHES (FLAT WORMS) -** Main Features
8. ***PHYLUM* NEMATODA -** Main Features
9. ***PHYLUM* ANNELIDA -** Main Features:

***CLASSES***:

1. Class Polychaeta – e.g. *Nereis, Arenicola, Sabella*
2. Class Oligochaeta – e.g. *Lumbricus terrestris*
3. Class Hirudinea – e.g. *Hirudo medicinalis, Glossiphonia*
4. ***PHYLUM* MOLLUSCA -** What are the main features?

***CLASSES***:

1. Class Monoplacophora – e.g. *Neopilina*
2. Class Polyplacophora – e.g. *Chiton*
3. Class Gastropoda*– e.g. Buccinum, Helix, Testacella*
4. Class Bivalvia (Lamellibranchiata) – e.g. *Anodonta, Mytilus*
5. Class Cephalopoda – e.g. *Sepia, Octopus, Squid, Nautilus*
6. **Class Aplacophora (Solenogasters)**
7. **Class Caudofoveata (Deep Sea worms)**
8. **Class Scaphopoda (Tusk Shells) -**
9. ***PHYLUM* ARTHROPODA -** What are the main features?
10. ***Subphylum* Mandibulata**

There are four (4) classes here, these are:

1. Class Crustacea – e.g. *Daphnia, Gammarus, Astacus*
2. Class Chilopoda (Centipedes) – e.g. *Lithobius*
3. Class Diplopoda (Millipedes) – e.g. *Julus*
4. Class Insecta :- It has 2 subclasses namely:
   * Subclass Apterygota (Wingless insects) – e.g. *Lepisma*
   * Subclass Pterygota (Winged insects)
     + Hemimetabolous (Exopterygota) – **metamorphosis incomplete/gradual**
     + Holometabolous (Endopterygota) – **metamorphosis complete**
5. ***Subphylum* Chelicerata**
6. Class Arachnida – e.g. *Spiders, Ticks, Mites and Harvestmen*
7. Class Scorpionida – e.g. *Scorpions*
8. **Class Pycnogonida (Sea spiders)**
9. **Class Merostomata – e.g. *Limulus***
10. ***Phylum* ECHINODERMATA -** Main Features
    * 1. Class Asteroidea – e.g. Asteria (Sea Stars)
      2. Class Ophiuroidea – *Ophiothrix* (Brittle Stars)
      3. Class Echinoidea – *Echinus* (Sea Urchins and Sand Dollars)
      4. Class Crinoidea – *Antedon* (Sea Lilies and Feather stars)
      5. Class Holothuroidea – *Cucumaria* (Sea Cucumbers)
11. **VERTEBRATES**

These are animals with a backbone.

J***. Phylum* CHORDATA -** Main features

***a) Subphylum* Urochordata *(Tunicata)*** *– e.g. Ciona*

***b) Subphylum* Cephalochordata** – e.g. *Amphioxus*

***c) Subphylum* Vertebrata (Craniata)**

1. Class Cyclostomata (Jawless fishes) – e.g. *Lamprey*
2. Class Pisces (True fishes)
   * Subclass Chondricthyes (skeleton of cartilage) Elasmobranchs e.g. Sharks
   * Subclass Osteichthyes (skeleton of bone) Teleosts e.g. Carp, Trout, Cod
3. Class Amphibia – e.g. Newts and Salamanders, Frogs and Toads
4. Class Reptilia – e.g. Lizards, Snakes
5. Class Aves – e.g. Birds
6. Class Mammalia
   * + - Subclass Monotremata – e.g. Duck-billed platypus, Spiny Anteater
       - Subclass Marsupialia – e.g. Opposums, Kangaroos, Koala Bear
       - Subclass Eutheria – e.g. Insectivores, Rodents, Carnivores, Ungulates, Cetaceans (Whales and Porpoises), Proboscideans (Elephants), Chiropterans (Bats) and Primates.

**Note:**

There will be another outline from Mrs. Ajobiewe who will be handling Plant Kingdom.