

UZO-569 Principles of Fish Biology -I

Cr. (2)

Introduction:

Fish are of considerable importance to humans as a source of food, both from capture fisheries and through various forms of culture. Without proper knowledge of the life, habits and behaviour of fishes, it would not be possible to plan, control and manage the fisheries resources in a satisfactory manner. This course outlines the classification, morphology, physiology and feeding behavior of fishes.

Course Objectives:

The objectives of the course are to:

- Provide information regarding classification of fishes.
- Impart knowledge of general morphology of fishes.
- Make students familiar with the fish physiology.
- Make understand various feeding groups of fishes.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

- Identify fishes on the basis of their morphological and anatomical characters.
- Differentiate various groups of fishes on the basis of their feeding habits.
- Explain fish physiology.

Course Contents:

1. **Introduction to fish:** What fish are, How and where fish live, Major groups of living fishes, Representative of families of living fishes.
2. **Fish morphology:** Fish body form, body covering, appendages, openings. Head and mouth, upper lip lower lip, barbules. Scale, its types, arrangement, colour, scalesless fishes. Fin rays, fin spines (Pectoral, Pelvic, Dorsal, and Caudal and Anal fin).
3. **Fish feeding habits:** Predators, Grazers, Strainers, Suckers, Parasites
4. **Fish blood, tissue fluids, and blood forming organs:** Plasma, Red blood cells, White blood cells, Blood formation
5. **Respiration:** Structure and function of gills, adaptations for air breathing among fishes, lungs and gas bladder
6. **Reproduction:** Types of reproduction, The reproductive system, Spermatozoa and their formation, Eggs and their formation
7. **Systematics and nomenclature:** Introduction. Suitability of fishes to systematic studies. Historical background, taxonomic concepts. The data of classification. Study of collections, zoological nomenclature.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks

Textbook:

1. **Ichthyology** (2nd Ed.) By Lagler et al., 2009. John Wiley and Sons (Text Book).

Books Recommended:

2. Sandhu, G.S. **Textbook of Fish and Fisheries**. 2005. 1st Ed. Dominant publishers, New Delhi.
3. M. Huet. **Textbook of Fish culture: Breeding and Cultivation**. 1994. Fishing News Books, UK.
4. Jayram K.C. **Catfishes of India**. 2006. Narendra Publishing House, Delhi.
5. Jhingran and Rullin. **A Hatchery Manual for the Common Chinese and Indian Major carps**. 1986. Asian Development Bank, Manila, Philippines.
6. Mirza and Sharif. **A key to the fishes of the Punjab**. 1996. Ilmi Kitab Khana, Lahore.

Introduction:

Fish are of considerable importance to humans as a source of food, both from capture fisheries and through various forms of culture. Without proper knowledge of the life, habits and behaviour of fishes, it would not be possible to plan, control and manage the fisheries resources in a satisfactory manner. This course outlines the classification, morphology, physiology and feeding behavior of fishes.

Course Objectives:

The objectives of the course are to:

- Provide information regarding classification of fishes.
- Impart knowledge of general morphology of fishes.
- Make students familiar with the fish physiology.
- Make understand various feeding groups of fishes.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

- Identify fishes on the basis of their morphological and anatomical characters.
- Differentiate various groups of fishes on the basis of their feeding habits.
- Explain fish physiology.

Course Contents:

Identification of freshwater fish species with the help of key. Collection and preservation of freshwater fish (optional). Fish dissection to study different body systems.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks