

**THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE, NIGERIA**



**DEPARTMENT OF FISHERIES AND AQUACULTURE TECHNOLOGY**

**FAT 305 – FISH TAXONOMY AND BIOLOGY**

**COURSE PARTICULARS**

Course Code: FAT 305

Course Title: Fish Taxonomy and Biology

No. of Units: 3

Course Duration: 2 hours of theory and 3 hours of practicals per week for 15 weeks

Status: Compulsory

**COURSE INSTRUCTOR**

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**COURSE DESCRIPTION**

Principles of systematics. Phylogenetic relationships. Taxonomy and detailed study of major commercial fish species in Nigeria's inland, estuarine and marine waters. Identification of fish species using keys and monographs. Morphology of bony and cartilaginous fishes. Respiration, Reproduction, excretion, osmoregulation, food and feeding habits, circulatory and nervous systems.

This course introduces the students to the comprehensive description, phylogenetic classification, occurrence, abundance, geographical distribution, ecological features, conservation status and diversity of most common finfishes that inhabit freshwaters and brackish waters of Nigeria with emphasis on their identification using standard taxonomic keys and their morphometric and meristic features. It provides a checklist and simple identification of Nigerian freshwater, brackishwater and marine fishes in diagrams and short descriptions.

**COURSE OBJECTIVES**

The objectives of this course are to:

- Introduce students to the identification and taxonomic classification of finfishes in Nigerian waters

- Acquaint students with the knowledge of vital organs and their physiological functions within the fin fishes, with particular emphasis on respiration, reproduction, excretion, osmoregulation, food and feeding habits, circulatory and nervous systems.

### **COURSE LEARNING OUTCOMES/COMPETENCIES**

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

- identify and describe common finfishes from inland, estuarine and marine ecosystems in Nigeria using standard taxonomic keys
- possess dissection skills to remove internal organs of fin fish responsible for vital physiological functions

### **GRADING SYSTEM FOR THE COURSE**

The course will be graded as follows:

Class attendance	10%
Practicals	30%
Assignment(s)/Test(s)	20%
Final examination	40%

**Total**                                  **100%**

### **GENERAL INSTRUCTIONS**

#### **Attendance**

It is expected that every student should attend all lectures and participate in all practical exercises. Records of attendance will be kept in order to determine each student's qualification to sit for the final examination. In case of absence, the student must inform the course lecturer as soon as possible/practicable, indicating the reason(s) for the absence.

#### **Academic Integrity**

Violations of academic integrity are prohibited. All cases of intellectual fraud and academic dishonesty will be reported to the appropriate University authorities for implementation of appropriate sanctions.

#### **Assignment(s)/Test(s)**

Assignments and Test scripts must be submitted as scheduled, failing which the student will be scored zero (0).

#### **Code of Conduct**

The code of conduct of students in lecture rooms, field practical classes and laboratories, as stipulated in the Students Handbook, must be strictly adhered to.

### **READING LIST**

#### **A. Fish Taxonomy**

1. Adesulu, E.A. & Sydenham, D.H.J. (2007) The freshwater fishes and fisheries of Nigeria. Macmillan Nigeria Publishers Ltd., Ibadan. 397pp.

2. Holden, M. & Reed, W. (1972) West African freshwater fish. Longman Group Ltd., London. 68pp.
3. Ido-Umeh, G. (2003) Freshwater fishes of Nigeria (taxonomy, ecological notes, diet and utilization). Ido-Umeh Publishers Ltd., Benin City, Nigeria. 243pp.
4. Moses, B.S. (1992) Introduction to tropical fisheries. 2<sup>nd</sup> edition. Ibadan University Press, Ibadan. 133pp.
5. Olaosebikan, B.D. & Raji, A. (2013) Field guide to Nigerian freshwater fishes. Revised edition. 144pp.
6. Reed, W., Burchard, J., Hopson, A.J., Jenness, J. & Yaro, I. (1967) Fish and fisheries of Northern Nigeria. Ministry of Agriculture, Northern Nigeria, Zaria. 226pp.

### **B. Fish Biology**

1. Bone, Q., Marshall, N.B. & Blaxter, J.H.S. (1999) Biology of fishes. 2<sup>nd</sup> edition. Stanley Thornes (Publishers) Ltd., Cheltenham, UK. 332pp.
2. Gupta, S.K. & Gupta, P.C. (2010) General and applied ichthyology (fish and fisheries). Revised edition. S. Chand & Company Ltd., New Delhi, India. 1133pp.
3. Kumar, S. & Tembhe, M. (1997) Anatomy and physiology of fishes. Vikas Publishing House Pvt. Ltd. New Delhi, India. 275pp.
4. Pandey, K. & Shukla, J.P. (2012) Fish and fisheries. 3<sup>rd</sup> revised edition. Rastogi Publications, Meerut, India. 567pp.

### **COURSE OUTLINE**

<b>Week</b>	<b>Topic</b>	<b>Remarks</b>
<b>1</b>	Introduction and course overview Parts used in fin fish identification, technical terms, Morphometric and meristic measurements	This week will document the students' expectations for the course
<b>2</b>	Family: Dasyatidae, Protopteridae, Polypteridae, Elopidae, Megalopidae	Identification and description of genera and species in the different fin fish families using standard taxonomic keys and features
<b>3</b>	Family: Ophichthidae, Denticipidae, Clupeidae, Arapaimidae, Pantodontidae	
<b>4</b>	Family: Notopteridae, Mormyridae, Gymnarchidae, Kneriidae, Phractolaemidae	
<b>5</b>	Family: Alestidae, Hepsetidae, Distichodontidae, Citharinidae, Cyprinidae	
<b>6</b>	Family: Bagridae, Clarotidae, Schilbeidae, Amphiliidae, Clariidae	
<b>7</b>	Family: Malapteruridae, Mochokidae, Ariidae, Syngnathidae, Notobranchidae	
<b>8</b>	Family: Poeciliidae, Channidae, Latidae, Carangidae, Lutjanidae	
<b>9</b>	Family: Gerreidae, Haemulidae, Monodactylidae, Sciaenidae, Nandidae	
<b>10</b>	Family: Cichlidae, Mugilidae, Polynemidae, Gobiidae, Eleotridae	

<b>11</b>	Family: Anabantidae, Mastacembelidae, Synbranchidae, Soleidae, Tetraodontidae	
<b>12</b>	Respiration Reproduction	Knowledge of vital organs involved and their physiological functions
<b>13</b>	Excretion Osmoregulation Food and feeding habits	
<b>14</b>	Circulatory system Nervous system	
<b>15</b>	Revision	This week precedes the final examination. Evaluation will be done to assess how well the students' expectations for the course have been met.