



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Fisheries and Aquaculture Technology Department

FAT 302 – Fish Population Dynamics

COURSE PARTICULARS

Course Code: FAT 302

Course Title: Fish Population Dynamics

No. of Units: 2

Course Duration: Two hours of theory per week for 13 weeks and two hours of Practical for 2 weeks.

Status: Compulsory

Course Email Address: Nil

Course Webpage: Nil

Prerequisite: NIL

COURSE INSTRUCTORS

Mrs. A.O Abidemi-Iromini

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COURSE DESCRIPTION

This course discuss Fish population Dynamics and designed to disseminate information on the state of fish population, utilization, and management within the aquatic environment; for conservation harnesses of the endemic fish to Nigeria fish stock in the Gulf of guinea. It discusses definition of fish stock assessment; Primary Objectives of fish stock assessment. The stock concept. Estimation of growth parameters. Methods for estimation of growth parameters from length and age data. Age/Length composition data from a single survey and multiple surveys. Fishing efforts and catch per unit efforts. Population estimation: age and growth, sex ratio, natality (recruitment) and mortality. Computation of yields from given recruitments. Hence, the focus of the course is to bring to the awareness of the students the importance in fish management, and conservation to guide against over fishing, under fishing and running desirable specie(s) of fish into extinction, while managing fish stock for the benefit and utilization of the present generation as well as the future generations.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to fish population Dynamics, causes of dynamism in fish stocks, assessment of the stock for continual existence of stock, objectives, effects of management techniques on utilization and conservation of fish stocks; and
- provide students with opportunities to think and suggest basic management techniques that could best aid better utilization and conservation of fish stock in Nigeria.

COURSE LEARNING OUTCOMES / COMPETENCIES

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

(Knowledge based)

- know the importance of fisheries management, catch quotas, stock concept and composition to continual existence and utilization of fish stock;
- classify and explain the function of different management techniques and model to guide fish stock management;
- understand methods of calculating and determining growth and age parameter to determine the state of a stock;
- and know basic terms used fish stock management and assessment of fish population dynamics.

(Skills)

Students should be able to:

- design a 44mm mesh size net
- suggest a stock assessment model that can be used as a management tool in fisheries
- calculate fish length/weight relationship to assess growth and age of fish

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	10%
Assignments	10%
Test(s)	20%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in the practical exercises. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will result to zero mark for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, etc.) during lectures. Food and drinks are not permitted in the laboratories. Students should put on laboratory coat during laboratory work.

READING LIST

FAO. (2011). FAO Aquaculture Newsletter. 63p

FAO. (2010). Putting into practice an ecosystem approach to managing sea cucumber fisheries. 81p

FAO. (2009). Fisheries Management. FAO Technical Guildline for responsible Fisheries (4).

FAO. (2007). Results and conclusion of the project "Ecosystem Approaches For Fisheries Management with Benguela current large Marine Ecosystem." FAO Fisheries Circular.

FAO. (1998). Squid recruitment dynamics. 273pp.

Legend

- 1- Available in the University Library
- 2- Available in Departmental/School Libraries
- 3- Available on the Internet.
- 4- Available as Personal Collection

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction to Fish population Dynamics and Course Overview	During this first class, the expectation of the students from the course will also be documented.
2 & 3	<ul style="list-style-type: none"> • Introduction to Fish Stock Assessment. • The need for stock assessment • Model used in fish management 	<p>Awareness on the state of fisheries globally and in Nigeria is informed to students.</p> <p>The poor state of the world's fish resources necessitates the need for stock assessment for rational utilization, and continuous existence of the fish resources.</p> <p>The types of models used in fish management will be discussed.</p>
4 & 5	<ul style="list-style-type: none"> • Primary Objectives of fish stock assessment. • The stock concept 	<p>Lecture will be disseminated on primary objectives of fish stock assessment and stock concept.</p> <p>The students will be taught fish regulation, law and edicts.</p> <p>The lecture on stock concept will involve definition of stock concept, and other management terms in fish stock assessment.</p> <p>Assignment will be given to students on the above topics.</p>
6 & 7	<ul style="list-style-type: none"> • Estimation of growth parameters. • Methods for estimation of growth parameters from length and age data. 	<p>Lectures on estimation of growth parameters will be disseminated and various method of estimation will be mentioned.</p> <p>Detail methods of estimation using Length/weight relationship of class of fish and age data using spines, otolith, et.c will be used to estimate growth of fish. Information will be given on determination of Age in fish.</p>
8 & 9	<ul style="list-style-type: none"> • Students' Assessment (Mid-Semester Test) • Age/Length composition data from a single survey and multiple surveys. 	<p>Test will be used to examine the status of students understanding of the course</p> <p>Lectures will be given on fish age/Length composition data from a single survey and multiple surveys.</p>

10 & 11	<ul style="list-style-type: none"> • Fishing efforts and • catch per unit efforts. 	<p>Students will be lecture on stock composition, exploitation status, and maximum sustainable yield for rational utilization and continuous existence of the fish stock.</p> <p>Catch per unit efforts will involve discussion on the population of stock and method of allocating quotas.</p>
12 & 13	<ul style="list-style-type: none"> • Factor of Population change • Practical class (1) 	<p>Lectures will be given on factor of population change that could affect fish catch per unit efforts and maximum sustainable yield.</p> <p>Practical class will hold on designing of a regulated fish nets, and calculations of maximum sustainable yield.</p>
14	<ul style="list-style-type: none"> • Practical class (2) 	<p>Students will be divided into group to carry out assessment of fish age using Otoliths, and making of fish tags.</p>
15	REVISION	<p>This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.</p>