



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Crop, Soil and Pest Management

CSP 204 – Botany of Economic Crops

COURSE PARTICULARS

Course Code: CSP 204

Course Title: Botany of Economic Crops

No. of Units: 2

Course Duration: One hour of theory and three hours of practical per week for 15 weeks.

Status: Compulsory

Course Email Address: csp204@gmail.com

Prerequisite: NIL

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This course is an exploratory, first course in botany and plant physiology designed primarily for students in Crop Science. It also meets the need of students in other agriculture related fields, as a beginner course that provides both theoretical and practical rudimentary knowledge in plant anatomy and physiology. The course focuses on plant structure and function including the cell, tissue and organs, the stem, roots, leaves, flowers, fruits and seeds. It also explores some important processes in plant such as photosynthesis, respiration, translocation of materials, as well as plant growth and development. Classification of economically important plant families is also a major component of the course. All of these are taught to the students in the classroom and in the laboratory.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the structures and functions of key components of the plant;
- intimate students with the major processes in plant metabolism; and
- help students to develop basic skills in plant identification and the use of electron microscopes.

COURSE LEARNING OUTCOMES / COMPETENCIES

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

(Knowledge based)

- explain the various cell structures and their functions;
- understand the plant tissue systems and their functions;
- understand the make-up of the organs of both dicot and monocot plants; and
- explain the various processes of plant metabolism;

(Skills)

- use the electron microscope to examine the plant structures.

COURSE ASSESSMENT CRITERIA

Students will be assessed as follows:

Class Attendance	10%
Assignments	5%
Class tests	15%
Practical	20%
<u>Final Examination</u>	<u>50%</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 all 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 any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, tests, examinations, or other academic activities are prohibited. A student is not allowed to make copies of another person's work and submit it as his/her 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 earn the student zero 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 and are prohibited from engaging in other activities (such as texting, watching videos, *etc.*) during lectures. Food and drinks are not permitted both in the lecture rooms and in the laboratories.

READING LIST

Cobley, L. S. (1976). *An Introduction to the Botany of Tropical Crops*. Second Edition. Longman Group Limited, London. 371p.

Faluyi, M. A. (2009). *Reproductive Biology of Tropical Crop Plants*. Published by O&A Books, Akure Nigeria. 319p.

Vines, A. E and Rees, N (1972) *Plant and Animal Biology*. Fourth Edition. Pitman Publishing Ltd., London WC2B 5PB. 1345p

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview The plant cell <ul style="list-style-type: none"> • Description and functions of cell structures 	During this first class, the expectation of the students from the course will also be documented.
2	The Plant Tissue <ul style="list-style-type: none"> • Definition and broad classification of Plant tissues • The tissue system 	Practical exercise will involve preparation of slides to enable students view the cell organelles and tissues under the electron microscope
4 & 5	Plant Organs <ul style="list-style-type: none"> • Overview of the important plant organs: viz the root, stem, leaves, flowers and fruits. The Root <ul style="list-style-type: none"> • Anatomy of the root • The monocot roots • Dicotyledonous roots 	Functions of the roots will also be explored. Students will be made to sketch a transverse section of the root and identify the structures in the laboratory practical session. Differences between the monocot and dicot roots be explored
6	The stem <ul style="list-style-type: none"> • Anatomy of the dicot and nonocot stem • Functions of the stem 	Functions of the stem will be itemized. Students will be made to sketch a transverse section of the root and identify the structures in the laboratory practical session. Differences between the monocot and dicot stem be explored
7 & 8	The leaf <ul style="list-style-type: none"> • Anatomy of the monocot and dicot leaf • Functions of the leaf. • Important characteristics • Leaf types based on morphology 	Students will be made to identify the different types of leaves as well as draw them in the laboratory practical
		MID-SEMESTER TEST
9 & 10	Photosynthesis <ul style="list-style-type: none"> • Condition necessary for photosynthesis • Products of photosynthesis • Importance of photosynthesis • Chemistry of photosynthesis Respiration <ul style="list-style-type: none"> • Glycolysis • Aerobic and anaerobic respiration 	

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11 & 12	<p>Translocation of organic solutes</p> <ul style="list-style-type: none"> • Mechanism of translocation 	Students will be taken through experimental evidences to establish phloem as the site of translocation
13 & 14	<p>Plant Growth and Development</p> <ul style="list-style-type: none"> • Embryogenesis • Pollination • Seed germination • Maturation <p>Plant hormones</p> <p>Senescence</p>	
15	REVISION	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.