



UNIVERSITY OF NAIROBI

COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES

SCHOOL OF BIOLOGICAL SCIENCES

SBT 204: PLANT STRUCTURE AND FUNCTION

A. COURSE SUMMARY

Plant structure and function is a core unit in Botany at the undergraduate level for those undertaking B.Ed. (science), B.Sc. (Biology), B.Sc. (Microbiology and Biotechnology), B.Sc. (Environmental Conservation and Natural Resource Management). The unit is offered in the second year of study.

The unit aims at creating awareness on the basic concepts in botany that is, looking at the relationship between structure and function starting from the cell as a unit of life up to tissue systems organization. It also involves discussion on how substances move into and out of the cell and the role of the plasma membrane. The structure and function of fruits, seeds and seed germination is also discussed.

B. COURSE OBJECTIVES

The basic aim of this unit is to enable the learners acquire knowledge on the anatomical component of plant organs, as well as cell and tissue characteristics. The practical aspect is to equip learners to useful techniques in the study of plant structure. Thus, the unit objectives are;

1. Describe major types of plant cells
2. Identify major types of plant tissues
3. Distinguish among the functions of plant cells and tissues
4. Explain movement of substances into and out of the plant cell in relation to the plasma membrane
5. Identify types of seeds, fruits and explain seed germination and dormancy

C. COURSE OUTLINE

- Cell structure
- Introduction to tissue systems
- Morphology, anatomy and structure of angiosperm root, stem, leaf, fruit and seed
- Ecological anatomy
- Primary and secondary growth of plants
- Fruit and seed germination
- Function of chloroplast during photosynthesis
- Function of mitochondria during respiration
- Role of proteins in the movement of substances into and out of the cell

D. COURSE EVALUATION

CAT – 30% (Practical – 10%, Tests – 20%)

End of Semester Exam – 70%

E. RESOURCES AND REFERENCES

1. Galbraith, D.I and Wilson, D.G, (1978). Biological sciences, principles and patterns of life, 3rd edition. Holt, Rinehart and Winston of Canada, Ltd
2. Hartmann, H.T, Kofranek, A.M., Rubatzky, V.E and Flocker, W.J, (1981). Plant Science. 2nd edition. Prentice Hill, Inc. New Jersey, U.S.A.
3. Starr, C, Taggart, R, Evers, C and Starr L, (2009). Plant Structure and Function Biology: The Unity and Diversity of Life. Twelfth edition. Yolanda Cossio, Belmont, U.S.A
4. Charles B. Beck, (2005). An Introduction to Plant Structure and Development. Cambridge University Press.
5. Starr, C and Taggart, R (2001). The Unity and Diversity of Life. 9th edition. Books/Cole, U.S.A
6. Stern, K.R, Bidlack, J.E and Jansey, S.H, (2008). Introductory Plant Biology. Eleventh edition. California State University. Cho, U.S.A
7. Content on Plant Structure and Function from the internet.