

UNIVERSITY OF NAIROBI

SCHOOL OF BIOLOGICAL SCIENCES

SBT 201: GYMNOSPERM AND ANGIOSPERM TAXONOMY

OBJECTIVE:

This course is designed to help students learn the basic morphology of flowering plants, how plants are classified, to use & construct keys for plant identification and practical recognize major higher plant families using mostly vegetative and floral morphological characters and also understand use of some endomorphic criteria.

LECTURE OUTLINE:		PRACTICAL OUTLINE	
Topics	Subtopics	Topic	Subtopics
1. Introduction to taxonomy	a. Definition & Significance b. Relationship to other sciences c. Terminologies	1. Taxonomic sources-1 Vegetative and reproductive characters)	a. Vegetative characters b. Floral inflorescence c. Floral- flower d. Fruits
2. Classification of plants	a. Artificial, natural, phylogenetic Systems. b. Principles of classification	2. Dicot. Lab. 1a.	Magnoliaceae, Rosaceae, Leguminosae, Moraceae, Combretaceae
3. Plant identification methods	a. Dichotomous keys (use and construction) b. Numerical keys	3. Dicot. Lab. 1b.	Brassicaceae, Malvaceae Tiliaceae, Sterculiaceae Euphorbiaceae Rutaceae, Meliaceae, Anacardiaceae
4. Herbarium Techniques	a. Collection & preservation of plants b. Literature in a herbarium	4. CAT 1	
5. Historical taxonomy	a. Folk taxonomists b. Ancient taxonomists c. Medieval d. Renaissance e. Current	5. Dicot. Lab. 1c	Apocynaceae, Rubiaceae, Bignoniaceae, Verbernaceae
6. Botanical nomenclature	a. International code of nomenclature b. Epithet Formation c. Nomenclatural types	6. Dicot. Lab. 2a	Ranunculaceae, Amaranthaceae, Umbelliferae, Compositae
7. Taxonomic sources-2 (endomorphic)	a. Anatomy b. Genetics c. Cytology	7. Dicot. Lab. 2b	Solanaceae, Convolvulaceae, Acanthaceae,

LECTURE OUTLINE:		PRACTICAL OUTLINE	
characters)	d. Chemistry e. (Palynology) f. Semantids		Boraginaceae, Labiatae
8. Sources of variation	a. Environmentally induced (intraspecific) variation b. Genetically induced. (Recombination, mutation) c. Breeding systems	8. Monocot. Lab. 1 9. Gymno. Lab	Commelinaceae, Juncaceae, Cyperaceae, Gramineae Gymnosperm: <i>Pinus</i> , <i>Araucaria</i>
9. Phylogeny	a. Phenetics b. Cladistics	CAT 2	

References:

1. Stace C.A., (1989). Plant taxonomy and biosystematics ed. 2.
2. Lawrence (1955). An introduction to plant taxonomy.
3. Lawrence and Heywood, (1984).
4. Shukla, P. and Misra, S.P., (1979). An introduction to taxonomy of Angiosperm.
5. Dutta S.C. (1966). An introduction to gymnosperms.
6. Sharma O.P. Plant taxonomy
7. Agnew and Agnew 1994, Upland Kenya wild flowers, ed. 2.
8. Beentje, 1994, Shrubs, trees and lianes.
9. Kokwaro, 1994. Flowering plants of Kenya.
10. Judd et al. 2002. Plant systematics: A phylogentic approach. Ed. 2.

Evaluation

A. Course assessment

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| 1. CATs (at least 2) | 30 marks |
| 2. Lab quizzes and assignments | 30 marks |
| | Total CA 90/3=30 marks |
| B. Semester examination | 70 marks |
| | Total 100 marks |

Laboratory requirements

MATERIALS: You are required to provide your own set of laboratory tools for floral dissections. A basic, minimum kit would include:

- ❖ Dissection needle, 1 - fine-tipped forceps, 2 - Single-edged razor blades, 1 - 15 cm ruler, 1 - 10X or 16X hand lens
- ❖ Lab book
- ❖ Pencils, rubbers