

# UNIVERSITY OF NAIROBI

## SCHOOL OF BIOLOGICAL SCIENCES

### SBT 403: PLANT MORPHOGENESIS

#### COURSE OUTLINE

This course will focus on morphogenetic processes of plants, leading to an understanding of the formation of form and structure of shoot, leaf, flower and root, and factor underlying.

#### Learning Outcome Of Course

By the end of the course the student should be able to:

1. Describe the processes of gamete formation (spermatogenesis and oogenesis)
2. Discuss the phenomena of fertilization, cell division, differentiation and elongation, and the establishment of axes of polarity.
3. Describe the factors affecting, and changes in embryogenesis.
4. Describe the process of meristems formation and their function in plants.
5. Describe the key events in plant organogenesis (leaf, root and flowers).
6. Demonstrate an ability to read the primary literature in embryology.

#### Lecture Schedule:

1. Definition of morphogenesis.
2. Plant development and reproduction: Plant lifecycle
3. Male reproduction organs and spermatogenesis
4. Female reproductive organs and oogenesis;
5. Fertilization
6. Embryogenesis, induction and cell fate
7. Shoot development-
8. Root development
9. Leaf development
10. Flower development
11. Fruit and seed development
12. Tissue culture

## **LABORATORY WORK:**

### **Laboratory Notebook**

1. Laboratory assignments and notes will be kept in a notebook or loose-leaf file separate from lecture notes.
2. The paper, either loose-leaf or bound, should be plain without lines. An acceptable alternative is a notebook containing pages that combine both plain-drawing areas with a lined area below. Otherwise you must assemble lined and unlined pages as needed.
3. Diagrams and sketches will be done in pencil on unlined paper. Each diagram or sketch will be labeled indicating the specimen, the subject, and with particular details identified. Diagrams should be drawn to a reasonable scale, neither too small nor too large. Look for representative structures, cells, and features, noting common variations. If too many cells are involved, then give some diagrammatic representations, but attempt to indicate general cell size and arrangement in each section by drawing in a few cells in one portion or to one side of the diagram.
4. A habit sketch, an illustration of the entire organism, will accompany all sketches of individual structures or parts. This illustration will provide a labeled key (arrows and letters or numbers) to the location of the individual structures or parts. To show locations of some structures accurately, you may have to make more than one habit sketch, e. g., the whole plant, details of a leaf, details of some smaller feature, etc. All linked together.
5. Each individual sketch will be labeled to identify the subject and any particular features or structures within the sketch. Descriptions of any other important or distinctive features should be noted below the sketch labels. Notes are observations that accompany diagrams. Whereas diagrams convey shapes and sizes, notes provide information, orientation, and substance.

Time slots;	Practical	Tuesday 10-1pm
	Lecture	Friday 9-11 am