

GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE

1990-91 (WINTER)

Title of Course: Plant Structure and Development

Course Description: A developmental approach to the structure of vascular plants emphasizing seed plant cytology, apical meristem, histogenesis, organogenesis, secondary growth, floral anatomy and development. Principles of wood development, anatomy and identification.

Course Number: BT 309

Session: Winter

Teaching Personnel: Paul Lemay, Instructor (Nursing 539-6330, Main Campus 539-2863)
Rick Scott, Laboratory Technician (539-2953)

Teaching Methods: Lecture - Discussion
Tapes - Films
Audio-Visual Aids
Independent Learning Activities
Laboratory Exercises

METHODS OF EVALUATION

Lecture	Weighting
Assignments and Reports	15%
Unit Tests	15%
Comprehensive Exam	40%
Laboratory	
Exams	30%

TEXTS

Esau, Katherine. Anatomy of Seed Plants, 2nd Edition, Wiley, 1977.

Cass, David. Botany 219 Plant Structure and Development (Lab Manual), June, 1990, U of A.

References

- Stern, Kingsley. Introductory Plant Biology, 5th Edition, 1991, W. C. Brown.
- Greulach, Victor. Plant Function and Structure, 1973, Macmillan Corp.

Lecture Topics

Introduction

- Course Outline - Lab Outline
- Text
- Marks Distribution
- Generalized Plant Body Organization
- Plant Microtechnique
 - Cytology
 - Microscopy
- Cell Wall Structure, Deposition and Development
- Plant Histology
 - Parenchyma
 - Collenchyma
 - Sclerenchyma
 - Stone Cells
 - Fibres
 - Vessels
 - Tracheids
 - Sieve Elements
- Epidermis
- Structure and Development of Primary Xylem Tissue
 - Primary Xylem (Protoxylem and Metaxylem)
 - Vessel Sculpturing
 - Tracheid Sculpturing
 - Secondary Xylem
 - Variations
 - Conifers
 - Dicotyledons
- Vascular Cambium
- Phloem
 - Primary
 - Secondary
- Periderm
 - Structure and Development
- Secretory Structures
- Root
 - Primary Growth
 - Types, Structure, Development
 - Secondary Growth
 - Types, Structure, Variations
 - Adventitious Roots

Stem

- Primary Growth
- Structure and Development
- Secondary Growth
- Development and Types

Leaf

- Structure and Development
 - Histology
 - Development
 - Abscission
- Variations in Structure
 - Environment
 - Dicotyledon
 - Monocotyledon
 - Gymnosperm

Flower

- Structure
- Development
- Reproduction
 - Microsporogenesis
 - Male Gametophyte
 - Megasporogenesis
 - Female Gametophyte
 - Fertilization

Fruit

Seed

Embryogenesis and Seedling

Laboratory exercises will parallel the lecture presentations.