BIO 102 General Biology
Lecture Outline

Plant Growth & Development

I. Introduction
- Growth vs. Development

II. Germination
- A. Factors stimulating germination
  - Temperature
  - Moisture
  - Oxygen levels
  - Hours of daylight
- B. Germination of monocots vs. dicots
- C. Energy storage

III. Plant Hormones
- A. Definition of hormone
- B. Auxins
  - Cell elongation: Acts on apical meristem
- C. Cytokinins
  - Cell division: Acts on leaves and lateral buds
- D. Gibberellins
  - Stem elongation: Acts on internodes
- E. Ethylene gas
  - Promotes fruit ripening & abscission
- F. Abscisic acid (ABA)
  - Promotes stomata closure, dormancy, and embryo development

IV. Tropisms
- A. Definition of tropism
  - Positive vs. negative
- B. Phototropism
  - Role of auxins
- C. Gravitropism
  - Statoliths
- D. Thigmotropism
  - Role of auxins and ethylene gas
  - Mechanical stress response

V. Response to Seasons
- A. Photoperiodism
  - Long-day vs. short-day vs. day-neutral plants
  - Night length
  - Effects on flowering and fir trees
- B. Thermoperiodism
  - Vernalization