

# BIO 426 Plant Anatomy – Final exam topics

Also review prior material!

## Leaves

- General morphology (base, petiole, lamina)
  - Simple vs. compound
  - Terms: abaxial, adaxial, bifacial, unifacial
- General anatomy (know structures)
  - Epidermis
  - Mesophyll
    - palisade
    - spongy
  - Support tissues
  - Vascular system
    - venation patterns
    - bundle sheaths
- Ecological anatomy (know structures)
  - Photosynthetic pathways – Kranz anatomy
  - Xeromorphic gymnosperm & larrea leaves
  - Sun vs. shade leaves
  - Unifacial leaves (like *Yucca*)

## Flowers and Cones

- General plant reproductive cycle
  - alternation of generations
  - sporophyte vs. gametophyte (ploidy)
- Gymnosperms
  - Sporangia in cones
  - microsporangiate strobili (pollen cones)
    - simple shoot axis (know structure)
    - microgametophyte from sporocytes (know process)
    - microgametophyte structure
  - megasporangiate strobili (seed cones)
    - compound shoot axis (know structure)
    - megagametophyte from sporocytes (know process)
    - megagametophyte structure (incl. archegonia)

## Angiosperms

- General flower structure (simple, perfect flower)
  - Microsporangia in stamens (androecium)
  - Megasporangia in carpels (gynoecium)
  - Other parts (petals, sepals)
- Stamen structure
  - microsporangia development
  - tapetum
  - endothecium

pollen

## Carpel structure

- stigma
- style
- ovary

## Ovules

- megagametophyte
- nucellus
- integument layers
- micropyle

- Megagametophyte development (polar nuclei, egg, synergids, antipodals)
- nuclear divisions
- cell migrations

## Fruits

- General functions
- Development (vs. conifers)
- Origin of tissues (ovary wall)
  - pericarp layers (exo, meso, endo)
  - true vs. false fruits
  - superior vs. inferior ovary (relation to true/false fruits)
- Fruit types (see key)

## Seeds

- General functions
- Structures
  - seed coat
  - nutritive tissues (conifer vs. angiosperm)
- Embryo development
- Seed dispersal
- Seed germination
- Dormancy
- Germination patterns (and structures)
  - epigeal
  - hypogeal