

Vascular Flora of Wisconsin - Botany 401

Exam 1 Lecture Study Guide

In addition to the specific information you are required to know from lab, I have included here items (terms, concepts) from lecture that you should review.

Introduction: know the main land plant phyla, what is the tension zone and how it is determined, the two floristic provinces in Wisconsin, the main floristic elements in Wisconsin

Nomenclature: pros and cons of both common and scientific names, parts that make up the species (binomial) name and the scientific name, what synonymy is and how it might happen, the main ranks we have stressed in the course (in order: phyla, order, family, genus, species)

Seed-free vascular plants: the two phyla that make up this group, how the major entities are related or where they are placed (club mosses, spike mosses, horsetails, true ferns), the life cycle (and its important terms and components) of a common fern, difference between homosporous and heterosporous, which of the seed-free families have heterosporous, megaphylls vs. microphylls and which groups possess which, where sporangia are typically found in the major groups, how the primitive ferns are typically different from advanced ferns, sterile vs. fertile fronds

Gymnosperms: what are the four major groups (sometimes considered their own phyla), which are native to the Great Lakes, what is the seed (in terms of heterosporous life cycle and parts contributing to the seed), monoecy vs. dioecy, main type of pollination and seed dispersals

Flower morphology: know the 4 parts in detail, flower as modified shoot, carpel vs. pistil, how basic flower is modified, symmetry, numerical plan, fusion (adnation, connation), position of ovary, hypanthium, placentation, ovules, fruits, basics of floral formula, how floral form is ecological adaptive

Magnolia.ppt: what features do basal angiosperms typically possess; follicle and samara fruit; cordate leaf; convergence of aquatic plants (e.g., *Nymphaea* vs. *Nelumbo*); adaptations to emergent, floating, or submersed aquatic habitats; beetle and/or fly pollination syndrome

Berberidaceae.ppt: what floral features do these basal eudicots typically possess; poisonous plants; spring ephemeral adaptations to temperate forest understories; capsule and berry fruit

Caryophyllid.ppt: adaptations to xeric environments and/or weedy habitats and/or saline regions; Crassulacean Acid Metabolism and C₄ photosynthesis; free-central placentation; circumscissile capsule; raceme vs. dichasium inflorescence; ocrea; convergence and divergence of carnivory; hybridization and polyploidy

Saxifragales.ppt: apocarpic flowers; know how to separate Rosids and Asterids; perigynous flowers with hypanthium; 4 types of gynoecium in Rosaceae and resulting fruit types; aggregate fruit, drupe, pome; N₂ fixation as adaptation to low nutrient habitats

Fabales.ppt: apetalous and wind pollination; multiple fruit; 2 main types of legume flowers; legume fruit

Malpigh.ppt: parietal placentation; chasmogamous vs. cleistogamous flowers; ament/catkin inflorescence; cyathium inflorescence; pepo fruit

EndangeredSpp.ppt: different ways species are valued; basics of ESA and what it provides; endangered vs. threatened vs. special concern; 7 WI spp. on Federal list; how spp. become endangered in Great Lakes region; know 2 of these by common name and how they have become threatened