

## **Vascular Flora of Wisconsin - Botany 401**

### **Exam 2 Lecture Study Guide**

In addition to the specific information you are required to know from lab, I have included here items (terms, concepts) from each of the **numbered** (from course website) lectures/pdfs that you should review. Questions on the lab/lecture exam will come from these concepts and terms.

**12Fagales:** know the correlated features that go with wind pollination in this groups of trees; aments, monoecy, unisexual flowers, bracts, inferior gynoecium, nuts (what is a nut); how does trimorphic heterostyly form in *Lythrum*; development of hypanthium in Lythraceae and Onagraceae whether perigynous or epigynous; schizocarp fruit (Geraniaceae) – what is it

**13Brassicales:** silique and silicle fruits – what are they; defining feature of Malvaceae (& relatives) with fused stamens; samara/schizocarp fruits of maples, nectariferous disk

**14Blueberries:** what holds the Asterids together; mycotrophic and other low nutrient specializations in Ericaceae; poricidal anthers in Ericaceae – purpose; free-central placentation in Primulaceae – where else have we seen this type; dimorphic heterostyly in *Primula* – how does that work; how does the pitcher trap work in *Sarracenia*; what is unusual about dogwood flowers versus typical Asterid flowers; head formation and bracts in Cornaceae

**15Milkweeds:** understand the unusual flower of *Asclepias* (milkweeds) and how it functions; interpetiolar stipules in Rubiaceae; main growth form of morning glories and relatives; origin of parasitism in morning glories

**16Mints:** monochasium inflorescence in Boraginaceae; what is gynobasic style (Boraginaceae and Lamiaceae); why zygomorphic flowers in Lamiaceae; verticil inflorescences; what is known about the origin of hemi- and holo-parasitism in Orobanchaceae; types of host specializations in holo-parasites; what kinds of carnivory occur in Lentibulariaceae

**17Honeysuckles:** how are the Adoxaceae and Caprifolicaceae separated; what floral/inflorescence features do the valerian, teasel, and carrot families exhibit towards “head” construction (later seen in sunflower family); what vegetative, chemical, and floral features link the ginseng and carrot families

**18Asters:** what is “pollen presentation” as seen in Campanulaceae (and later in sunflower family); know the features of the head and florets seen in the Asteraceae: capitulum, involucre or phyllaries, ray floret, disk floret, ligulate floret, radiate head, discoid head, ligulate head, pappus, achene

**19Monocot1:** what defined the monocot group; know the trend in pollination biology in the Alismatales; in what habitats/habits are they specialists; spathe and spadix; what defines the “petaloid” monocots; what is the general floral formula of the Liliaceae; how has stamen number changed in Iridaceae and Orchidaceae; what nutrient uptake method, floral features, and pollination strategies are unique in orchids

**20Monocot2:** what general changes happen to flowers and inflorescences in the commelinid monocots; what are some vegetative and floral features used to separate rushes, sedges, and grasses; what is the perigynium in sedges; know the spikelet and floret structure of grasses - glumes, lemma, palea, lodicules, caryopsis

**Weeds.ppt:** what are weeds; several ways that species are determined to be weeds rather than native to a given region; several ways that weeds enter the Great Lakes region; what weeds can or hypothesized to do when coming into a new region

**DNA Barcoding.ppt:** what is the primary purpose of DNA Barcodes; what are secondary uses of DNA Barcodes; some benefits and problems with barcoding plant species; how have they been used with the Wisconsin vascular flora

### **Additional information about lab material**

In addition to the 90 specimens you will be required to recognize from lab (numbers 81-170), we will be asking additional questions pertaining to others terms and groups we have covered since Exam 1.

Know characteristics and terms and be able to recognize structures associated with the following 12 plant families. These families are a subset of the highlighted families from the lab handouts; they are also covered in some detail in lectures, so you may want to review lecture material as well.

- Fagaceae
- Brassicaceae
- Ericaceae
- Asclepiadaceae
- Lamiaceae
- Apiaceae
- Caprifoliaceae
- Asteraceae
- Araceae
- Liliaceae
- Cyperaceae
- Poaceae