

Orders and families to know for Botany 400 2nd lecture exam

*Caryophyllales - betalains, dichasium inflorescence, free-central or derived (basal) placentation; petals often lacking

- *Caryophyllaceae $CA^{\overbrace{5}^{\text{---}}} \ CO^5 \ A^{5,10} \ \underline{G}^{\textcircled{2-5}}\text{-capsule}$ [dichasium; free-central]
- *Amaranthaceae $CA^{3-5} \ CO^0 \ A^5 \ \underline{G}^{\textcircled{2-3}}\text{-achene}$ [unisexual
one ovule; achene or utricle]
- *Portulacaceae $CA^2 \ CO^5 \ A^{5+} \ \underline{G}^{\textcircled{2-3}}\text{-capsule}$ [few basal ovules; capsule or pyxis]
- *Cactaceae $CA^{\infty} \ CO^{\infty} \ A^{\infty} \ \underline{G}^{\textcircled{4}}\text{-berry}$ [parietal, inferior]
- *Phytolaccaceae $CA^5 \ CO^0 \ A^{10} \ \underline{G}^{\textcircled{5+}}\text{-berry}$ [raceme; sometimes apocarpic]
- *Polygonaceae $P^{3+3(5)} \ A^{3X} \ \underline{G}^{\textcircled{3}}\text{-achene}$ [raceme; ocrea stipule]

*Saxifragales - intermediate between ranunculids and rosids; usually 2-6 carpels that are only slightly fused at base; usually follicles

- *Saxifragaceae $CA^5 \ CO^5 \ A^{5 \text{ or } 10} \ \underline{G}^{\textcircled{2}}\text{-follicles}$ [basal leaves]
- *Crassulaceae $CA^{4-6} \ CO^{4-6} \ A^{8-12} \ \underline{G}^{4-6}\text{-follicles}$ [succulents, CAM]

*Rosales - Nitrogen fixing, loss of corolla, glandular leaf serrations

- *Rosaceae $CA^5 \ CO^5 \ A^{\infty} \ \underline{G}^{\infty}\text{-follicles}$ spiraea group
- $\underline{G}^{\infty}\text{-achenes}$ rose group $\underline{G}^1\text{-drupe}$ cherry group $\underline{G}^{\textcircled{5}}\text{-pome}$ apple group
- *Ulmaceae $CA^{4-8} \ CO^0 \ A^{4-8} \ \underline{G}^{\textcircled{2}}\text{-1 seeded samara}$
- *Moraceae [unisexual, multiple fruit (syconium) of 1 seeded units]

*Fabales - see family features

*Fabaceae CA⁵ COZ⁵ A⁽⁹⁾⁺¹ G¹ -legume Faboideae

*Fagales - wind pollination, trees, aments, inferior ovary, nut fruit

CA³⁻⁶ CO⁰ A[∞] G⁽²⁻³⁾ -nut [unisexual]

*Fagaceae, *Juglandaceae, *Betulaceae - separated based on leaves, fruits

*Malpighiales - parietal placentation, capsules often, many shifts to wind pollination

*Violaceae CA⁵ COZ⁵ A⁵ G⁽³⁾ -capsule

*Salicaceae CA⁰ CO⁰ A[∞] G⁽²⁾ -capsule [unisexual flowers]

*Euphorbiaceae CA⁰ CO⁰ A¹ G⁽³⁾ -capsule [unisexual flowers, cyathium]

*Sapindales - woody, compound leaves, 1-2 seeded ovary, disk well developed

*Anacardiaceae CA⁵ CO⁵ A^{5,10} G⁽³⁾ -drupe [bisexual or unisexual]

*Sapindaceae CA⁴⁻⁵ CO^{0, 4-5} A⁴⁻¹⁰ G⁽²⁾ -samara, schizocarp [bisexual or unisexual]

*Malvales - palmate venation, stellate hairs, fused A, valvate sepals

*Malvaceae CA⁵ CO⁵ A^(∞) G^(5-∞) -capsule

*Myrtales - internal phloem, vestured pits, well developed hypanthium

*Onagraceae CA⁴ CO⁴ A^{4,8} G⁽⁴⁾ -capsule, berry

*Brassicales or Capparales - mustard oils

*Brassicaceae CA⁴ CO⁴ A⁴⁺² G⁽²⁾ -silique, silicle