BIOL 325 – Plants Systematics

**Lab 12 - Lycophytes & Pteridophytes**

I. **Families to Know on Sight (no keying allowed for lab quizzes or final)**

1. Lycopodiaceae (lycopods, lycophytes, club-mosses) – p. 63
   **Diagnostic Summary:** Stoloniferous herbs with numerous spirally arranged microphylls and dichotomously branched stems; sporangia in terminal strobili or in the axils of leaves.

2. Equisetaceae (horsetails & scouring-rushes) – p. 73
   **Diagnostic Summary:** Rhizomatous herbs with hollow, ribbed, silicaceous green stems; Leaves minute & inconspicuous, fused, in whorls at nodes; branches (if any) whorled or opposite; sporangia in strobilus borne terminally on aerial stem.

II. **Genera to Know (you can write your own key to genera and use on lab final)**

A. **Equisetaceae** – p. 73
   1. *Equisetum* (herbs)

B. **Lycopodiaceae** – p. 63
   2. *Diphasiastrum* (herbs)
   3. *Huperzia* (herbs)
   4. *Lycopodium* (herbs)

C. **Osmundaceae** – p. 75
   5. *Osmunda* (herbs)

D. **Polypodiaceae s.l.** – p. 78
   6. *Adiantum* (herbs)
   7. *Asplenium* (herbs)
   8. *Dennstaedtia* (herbs)
   9. *Dryopteris* (herbs)
   10. *Nephrolepis* (herbs)
   11. *Onoclea* (herbs)
   12. *Osmunda* (herbs)
   13. *Polystichum* (herbs)
   14. *Polypodium* (herbs)
   15. *Pteridium* (herbs)

III. **Some Economic Botany**

- Coal is responsible for 60% of the electricity generated in the US, and most coal is the fossilized remains of ancient horsetails, lycopods, and ferns.
- Lycopodiaceae includes several species (e.g., *Lycopodium* spp.) used historically as a source of flammable spores used in flash powder and theatrical pyrotechnics.
- Osmundaceae and Polypodiaceae are a source of numerous ferns in ornamental horticulture. Some have limited use for their edible fiddleheads (e.g., the ostrich fern, *Matteuccia struthiopteris*), but since many or most are poisonous, one must be cautious when collecting and consuming such products.