The second exam will be given on Wednesday, October 19 at 9:10 a.m. Please be on time to give yourself plenty of time to finish the exam, and be prepared to begin the exam when you arrive (i.e., finish studying before you come in to the classroom). Those who wish to have a bit more time can begin at 9:00. The exam will be over all of the material covered in lecture, lab and the assigned text-book readings up through the lectures on secondary growth.

The exam will include a mixture of matching, multiple-multiple choice, fill-in-the-blank, and a short essay question. Terminology will be stressed in evaluating your understanding of the material. There will be some questions that require more than simple recall of information.

Specifically, you should have a thorough understanding of the following subjects:

- Rooting organs of plants, including different types, and structure and development of the primary body.
- Defining characters of a root.
- Types of primary meristems, and their locations in the plant.
- Activity and products of a primary meristem (what do they do and what do they produce?).
- Regions of growth and development in the root (cell division, cell elongation, cell/tissue maturation).
- Defining characters of stems and leaves.
- Structure of the stem as seen from the outside, and from anatomical sections of the inside.
- Development of the primary body of the stem (can you compare it to that of a root?).
- Types of steles found in the root, the dicot stem, and the monocot stem, and the structure of each.
- Branching in roots and stems (where does it happen, and how does it happen?).
- Leaf development (how and where are leaves initiated, what meristems are involved, and what do they do).
- Branch development (how and where is a branch initiated, what meristems are involved, and what do they do).
- Leaf abscission (what structures do you see, and how does it work?).
- Modifications of stems, leaves and shoots (what organ(s) are they and what are they called?).
- Definition of secondary growth.
- What are they secondary meristems, what do they produce, and how do they work?
- Activity of vascular cambium and cork cambium (how do the cells divide, and what do they produce?).
- What types of cells and tissues are found in wood and bark?

The following list of terms should be familiar to you.

Primary rooting system, adventitious root, tap root, fiberous root, nodes and internodes, apical meristem, basal meristem, intercalary meristem, leaf primordium, exarch, mesarch, endarch, protoderm, procambium, ground meristem, phytomere, bifacial vascular cambium, fusiform initial, ray initial, phellogen, phellum, wood, bark, lenticel, collateral bundle, eustele, protostele, exogenous, endogenous, simple leaves, lobed leaves, toothed leaves, compound leaves, phyllotaxis, abscission zone, abscission layer, protective layer, bulb, rhizome, stolon, tuber, corm, thorn, tendril, cladophyll, spine, bract, prickle, receptacle, sepal, petal, stamen, anther, filament, carpel, pistal, ovary, style, stigma.