BIOLOGY 2050, TREE DEVELOPMENT AND FUNCTION

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Lecture: M,W,F, 2:30-3:30pm RC0005
Lab 1: Thursday 11:30-2:30pm; **Lab 2:** Thursday 2:30-5:30pm

Texts:

1. Wilson, B.F., 1984. The Growing Tree (on reserve in library)
2. Powell, G. 2009. Lives of Conifers
3. Leitch, M.A. Biology 2050 Lab Manual (Provided Free)

Marking Scheme:

Mid term test	15%
Lab exam	15%
Final exam	45%
Labs	25%

Please Note: no unreasonable request will be refused to defer a test provided that the request is made in writing and a doctor's certificate (or equivalent) is given to me within one week of the test date.

Exam Format:

Essay, short answers, multiple choice, diagram/label. Lab and mid term exams are worth 15% of your final grade each and the written final is worth 45% of your final grade.

Laboratory:

Lecture notes and other materials may be handy to have in the labs for reference. You will be expected to make neat, accurate diagrams, drawings and notes on plain white paper. These should be shown to the instructor or teaching assistant each week. The labs should be handed in at the beginning of the following lab period. The reports will be evaluated and will make up 25% of your final grade.

Lecture:

Most topics cover structure, function and regulation of development. No assignments are requested. You are expected to read the appropriate sections of the text and material in the class notes.

TOPIC OUTLINE

Topic	Sub-Topics	Sub-Topic
1. Roots	Function	
	Rhizography- *pattern, classification, sampling*	
	Anatomy- *primary and secondary tissues, function, cell types*	
	Development- *apical meristem, differentiation, cambium, secondary growth, lateral & adventitious roots*	
	Control of Growth- *lateral and adventitious roots, biotic & endogenous factors, root shoot interactions*	
	Growth Periodicity- *seasonal, episodic, potential, dormancy*	
2. Shoots	Morphology- *examples*	
	Buds- *composition, types, development, phenology, dormancy*	
	Shoot Anatomy- *primary tissues, differentiation, cambial formation, leaf formation & phyllotaxy*	
	Control of Shoot Growth- *external and internal factors*	
	Photosynthesis, Respiration etc.	
3. Stems	Cambium	Anatomy- *cell types*
		Activity/Regulation- *division & hormones*
		Development- *differentiation*
	Wood	Gymnosperm/Angiosperm- *species*
		Anatomy and Variation- *cell/tissue types*
	Phloem/Periderm	Gymnosperm/Angiosperm- *species*
		Anatomy and Variation- *cell/tissue types*
		Primary and Secondary- *development*
4. Transport	Source and Sink- *concepts and water in the column*	
	Pressure Potential- *driving force concept*	
	Transport in Xylem- *cells and the process*	
	Transport in Phloem- *cells and the process*	
5. Reproduction	Life Cycles- *outline of examples from various species*	
	Gymnosperms	
	Angiosperms	