Module title: Plant physiology II

Term: First Term 1398-99

Lecturer: A. Einali (assistant prof.)

Assessments: 40% mid-term exam
50% final exam
10% Quiz

References:

1. Plant Physiology, 2002
Lincoln Taiz and Eduardo Zieger

2. Introduction to Plant Physiology, 4th edition, 2008
William G. Hopkins and. Norman P. A. Huner

3. Introductory Plant Physiology, 1983
Glenn Ray Noggle, George John Fritz

Module subjects:

1. Photosynthesis: The Light Reactions

1st week: General concepts, Photophysiology
2nd week: Photosynthetic Pigments, Absorption and action spectrum
3rd week: Key experiments in understanding photosynthesis
4th week: Organization of the photosynthetic apparatus
5th week: Organization of light-absorbing antenna systems
6th week: Electron and proton transport mechanisms
7th week: Photophosphorylation, chemiosmotic mechanism
8th week: Repair and regulation of the photosynthetic machinery, *mid-term exam*

2. Photosynthesis: Carbon Reactions

9th week: The Calvin cycle
10th week: The c2 oxidative photosynthetic carbon cycle
11th week: The C4 carbon cycle, Crassulacean acid metabolism
12th week: Synthesis of sucrose and starch, Effects of environmental factors on photosynthesis
13th week: Phloem transport

3. Respiration

14th week: Glycolysis, Pentose Phosphate Pathway of Glucose Oxidation
15th week: TCA cycle, Electron transport chain, Oxidative phosphorylation

4. Lipid Metabolism

16th week: Triacylglycerols structure, β-oxidation of Fatty acids, Gluconeogenesis, *Preparation for final exam*