Module title: The Mechanism of Hormonal Action

Term: First Term 1398-99

Lecturer: A. Einali (assistant prof.)

Assessments: 25% mid-term 1 exam
25% mid-term 2 exam
40% final exam
10% Quiz

References:

1. **Plant hormone signaling, 2006**
Peter Hedden and Stephen Thomas

2. **Biochemistry and Molecular Biology of Plants, 2nd Edition, 2015**
Bob B. Buchanan, Wilhelm Gruissem, Russell L. Jones

3. **Plant Physiology, 2002**
Lincoln Taiz and Eduardo Zieger

Module subjects:

1. Gene Expression and Signal Transduction

1st week: Genome Size, Organization, and Complexity, Eukaryotic Gene Expression
2nd week: Transcription modulation in Eukaryotes, Transcription Factors, The Ubiquitin Pathway

3rd week: Signal Transduction in Eukaryotes, second messengers

2. Auxin: The Growth Hormone

4th week: The emergence of the auxin concept, Biosynthesis and metabolism of auxin
5th week: Multiple Pathways for the Biosynthesis of IAA
6th week: AUXIN TRANSPORT
7th week: Inhibitors of Auxin Transport, Physiological effects of auxin
8th week: Auxin signal transduction pathways, *First mid-term exam*

3. Gibberellins: Regulators of Plant Height

9th week: The discovery of the gibberellins, Biosynthesis of gibberellin
10th week: Metabolism of gibberellin, Gibberellin Response Mutants
11th week: Gibberellin signal transduction

4. Cytokinins:Regulators of Cell Division

12th week: The discovery, identification, and properties of cytokinins; Biosynthesis, metabolism, and transport of cytokinins
13th week: Cellular and molecular modes of cytokinin action, *Second mid-term exam*

5. Ethylene:The Gaseous Hormone

14th week: Biosynthesis of Ethylene, Cellular and molecular modes of ethylene action

6. Abscisic Acid

15th week: ABA structure, Biosynthesis and metabolism
16th week: Cellular and molecular modes of ABA action, *Preparation for final exam*