

## **001-2-2300 Guided Reading on Plant Metabolism: Authentic to Synthetic (2 Credits)**

**Lecturer:** Dr. Vered Tzin

### **Course syllabus:**

This course will introduce students to state-of-the-art approaches in plant metabolism with special emphasis on classical biochemistry (major central and specialized metabolites), functional characterization of small molecules, analytical methods, to the most advanced approaches of synthetic biology.

The course will cover the following questions:

### **1. How do plants synthesis small molecules?**

- a) Biochemistry
- b) Regulation
- c) Cell compartments
- d) Transportation

### **2. Why plant synthesis small molecules? (function)**

- a) Biotic and abiotic stresses
- b) Development, phytohormones

### **3. Approaches to understanding plant metabolism?**

- a) "Omics" techniques
- b) Analytical approaches – GCMS, LCMS, NMR
- c) Genetics and genomics
- d) Metabolic engineering and synthetic biology

### **Course structure:**

The student will read, present and discuss with the lecturer, research papers dealing with the subjects mentioned above. The student will be guided as to possible papers to choose so that a comprehensive picture is built of how plants synthesis and regulate metabolites and what techniques are used for this topic. The focus will be on research articles Q1 journals as well as exploring the bioRxiv preprint non-peered review publications.

### **Structure of final course-grade:**

Component	Weight
Presentations	70%
Class discussions	30%
Total:	100%