

001-2-2055 Genetic and Physiological Regulation of Fruit Ripening 2 credits

<b>Weekly Lecture Hours</b>	<b>Exercise</b>	<b>Laboratory</b>	<b>Field Trip</b>
2			

In the frame of the course topics will be discussed concerning the genetic regulation of the ripening process in fruit. Emphasis will be given to understanding the ripening process at the molecular level. Tomato will serve as a model for studying these complex interactions. Part of the lectures will be given by the lecturer and part by the students under the supervision of the lecturer.

The following topics will be covered:

**A.** Definitions of different fruit types, ripening, and physiological ripening versus horticultural ripening. Comparison of Ripening in climacteric fruits versus non-climacteric.

**B.** Ethylene as the key regulator of ripening in climacteric fruits including the responses, biosynthesis, regulation, perception-receptors, and signal transduction of ethylene responses in fruits. We will also discuss the involvement of other plant growth regulators including auxin, gibberellins, and ABA.

**C.** The physiological changes occurring during ripening by covering: cell wall modifications, softening, pigmentation and color break, and aroma volatiles biosynthesis.

**D.** We will use tomato ripening mutants to understand the regulation of ripening through genetics and physiological treatments to control ripening.

Toward the end of the course the students will deliver lectures on chosen papers. Also the student will submit a written work at the end of the course on open unresolved questions in ripening that will be given by the lecturer.

**Grading Components:**

1. Presence	10%
2. Paper	50%
3. <u>Presentation</u>	<u>40%</u>
<b>Total</b>	<b>100%</b>

**Lecturer:** Yaron Sitrit

**Recommended Readings:** Provided during the course.