Plant Molecular Breeding
July 11, 15-18, 2018, 10:00-16:00
Course number: 0411.4001

Taught by Dr. Assaf Distelfeld (TAU)
3 points

The course will focus on the application (theory + hands on) of molecular genetics and genomics to the development of cultivars more suited to the needs of humans.

As lab space is limited, prerequisites include relevance, student commitment, and lecturer’s approval. The students will be divided to pairs.

Grade: 4 quizzes (Day 2 to Day 5) = 40% + A final report will be submitted at the end of the course = 60%.

Course Schedule:
Day 1 (Wednesday, July 11), 14:00-18:00
Computer lab – Molecular marker design – we will discuss the concept of molecular markers and each pair will design their own set of primers for developing molecular markers.
At the end of the day the primers will be ordered and be ready for next week

Day 2 (Sunday, July 15) 10:00-16:00
Talks – Plant breeding objectives and introduction to genetic mapping and understanding the following terms - Genetic variation, Recombination and population development, Segregating populations, Polyploidy, Germplasm resources and pools crop evolution (domestication + evolution under domestication).

Day 3 (Monday, July 16) 10:00-16:00
Talks – Quantitative genetics, Gene discovery, Genomics
Laboratory – Testing the newly designed primers- each pair will test their design from day 1 and develop genetic markers

Day 4 (Tuesday, July 17) 10:00-16:00
Computer lab – Genetic mapping and basic bioinformatics- hands-on genetic mapping software
Laboratory – Genotyping, phenotyping and selection - each pair will work on separate set of plants.

Day 5 (Wednesday, July 18) 10:00-16:00
Talks – Reverse genetics, Mutation breeding, Biotechnology (transgenic)
Laboratory – Recombinant identification and genetic mapping – successful markers will be used for genotyping and genetic mapping