

Arthropod Behavior and Agroecology 001.2.3093 (2 Credits – Ben-Gurion University)

Intensive Course: February 12-16, 2023, Sede Boqer Campus

Course organizer: Michal Segoli

Guest Lecturer: Klaus Birkhofer (Brandenburg Technical University – Cottbus, Germany)

Additional lecturers: Elad Chiel, Moshe Coll, Yael Lubin, Ally Harari, Tamar Keasar, Itai Opatovsky, Michal Segoli

The aim of the course is to examine the behavioral characteristics of arthropod pests and their natural enemies in relation to pest control in agroecosystems. Students will learn the principles of animal behavior underlying conservation biological control. They will acquire familiarity with different groups of arthropods both harmful and beneficial to agriculture. They will learn methods and acquire tools that will enable them to apply this knowledge to agricultural systems. The course is graduate level; a background in ecology or agricultural studies is advisable.

Grades will be given based on a course assignment and participation in exercises and discussions.

Please contact Michal Segoli (msegoli@bgu.ac.il) if you have any questions.

Schedule

Sunday, Feb 12

1. Introduction to behavior and agroecology:
 - 10:00-12:00 Classical, augmentative and conservation biocontrol (Birkhofer)
 - 12:00-13:00 Break
 - 13:00-14:00 What is behavioral ecology? (Lubin)
 - 14:00-16:00 Critical questions for this course (Segoli)

Monday, Feb 13

2. Main groups of pests and beneficial insects (Segoli)
 - 9:00-10:00 Pests
 - 10:00-11:00 Beneficials
3. Aspects of behavior:
 - 11:00-12:00 Foraging behavior of natural enemies (Lubin)
 - 12:00-13:00 Break
 - 13:00-14:00 Movement of natural enemies (Lubin)
 - 14:00-16:00 Reproductive behavior (Segoli)

Tuesday, Feb 14

Field project– in MOP DAROM research station.

Wednesday, Feb 15

4. Functional traits

9:00-10:00 Functional traits of natural enemies (Klaus)

5. Applied aspects

10:00-11:00 Insect rearing (Opatovsky)

11:00-12:00 Pesticide use (Keasar)

12:00-13:00 Break

13:00-14:00 The use of insect endosymbionts (Chiel)

14:00-16:00 Work on the project

Pizza night

Thursday, Feb 16

5. Applied aspects, continued

10:00-11:00 Sterile insect techniques and other mating disruptors (Harari)

11:00-12:00 Use of omnivorous consumers as biological control agents: pros and cons (Coll)

12:00-13:00 Break

6. Large temporal and spatial scale effects

13:00-14:00 Climate change and biocontrol (Birkhofer)

14:00-15:00 Instructions for project report

15:00-16:00 Conclusions, overview and future directions

Later date (to be specified)

7. Class project reports