

**Name of the module: Carbon Metabolism and Photosynthesis in a Changing Environment**

**Number of the module: 001.2.2059**

BGU Credits: 2

ECTS credits:

Academic year:

Semester:

Hours of instruction: 2 / week

Location of instruction: Zoom

Language of instruction: English

Cycle:

Position:

Field of Education: Plant Sciences

Responsible department: French Associates Institute for Agriculture and Biotechnology of Drylands

General prerequisites: no prerequisites

Grading scale:

Course Description:

Carbon metabolism is a basic process essential for plants growth and survival. Carbon metabolism encompasses carbon assimilation through photosynthesis, consumption through respiration and photorespiration and allocation to different metabolic pools. The course will summarize most of these processes from the ecosystem to the biochemical levels with a focus on plant adaptation and acclimation to changing environments.

Aims of the module:

To provide the background needed in carbon metabolism of plants and their response to changing environments.

Objectives of the module: To understand basic responses of plants to the environment.

Learning outcomes of the module:

On successful completion of this course students will be able to:

1. Understand the different plant carbon metabolism processes
2. Understand the role of plants in changing environments including climate change.

Attendance regulation: obligatory, at least 80% attendance

Teaching arrangement and method of instruction: online learning

Lecturer:

Contact details: Shimon

Rachmilevitch

Office phone: +972-8-6596838

mail: rshimon@bgu.ac.il

Office hours:

In coordination with the lecturer

Module evaluation: at the end of the semester the students will evaluate the module, in order to draw conclusions, and for the university's' internal needs

Confirmation:

Last update: November 2021

Assessment:

1. Five Assignments during the semester (70%)
2. Final presentation (20%)
3. Participation in lectures (10%)

Work and assignments:

1. Five short assignments during the semester
2. Final presentation in which each student is given a different topic related to the course and will present it in a 15 minute talk.

Module Content\ schedule and outlines:

- Carbon pools
- Photosynthesis
- Respiration
- Alternative pathways
- Growth and allocation
- Carbon economy
- Scaling up from leaf to canopy to global processes
- Stress responses of the photosynthetic apparatus.
- Carbon metabolism and environmental changes.

Additional literature: Bibliography of the module.

The course texts are scientific articles that will be supplied by the instructor.

**\* All learning material will be available to the students on the module's website/ library/ electronic documents available to BGU students.**