

001-2-2040

The course will be held during the Spring semester and the Summer break - 2015

Lab Course in Epigenetics 4 credits

Course Description:

The aims of the course are to demonstrate several major techniques commonly used in epigenetics, a topical issue in biology that impacts basic science, clinical medicine and agriculture. These techniques will be used for exploration of unique epigenetic features employed by desert plants growing in their natural habitats. Epigenetic regulation refers to heritable control mechanisms of gene expression superimposed on the DNA sequence. Such mechanisms include DNA methylation and posttranslational modifications of core histone proteins that affect chromatin structure and function.

The course constitutes of three sessions of field tour (around 4 h each), which will take place during the Spring semester, for collecting annual and perennial desert plants nearby the campus and processing the samples, that is nuclei preparation and fixation. These materials will be used during the one-week-lab course at the semester break for the analysis of epigenetic constraints employed by desert plants in their natural habitats.

Course Objectives:

Training students in observing plants in the field and formulating biological questions related to their survival in the desert from epigenetic perspective.

Providing students with the knowledge and the capabilities of using common epigenetic tools for studying genome organization and chromatin structure and function.

Guiding students in visualizing and interpreting epigenetic results as well as in arranging and describing results as figures for the purpose of presentation/writing a paper.

1. Molecular biology and epigenetics (N0. 001-2-2036) or equivalent.

Lecturer: Gideon Grafi (ggrafi@bgu.ac.il; 08-656-3479)

Grading will be based on the following:

1. Attendance
2. The quality of presenting papers.
 - a. This will require reading and understanding the paper to be presented in great detail, as well as reading supporting papers if necessary.
 - b. Each student must read all papers before presentation time.
 - c. Participation in the discussion of the paper. Asking questions, making comments etc.
3. Discussion of the results obtained for the analysis of desert plants.

4. Final report in the form of a scientific paper should be submitted within 2 weeks from the end of the course.