



Biodiversity of Sand Dunes

Dr. Elli Groner, Dr Nitzan Segev, Prof. Uri Shanas
weekly 1.5 hours + 5 days field trip, 3 credits

Course description

Biodiversity

The aim of this course is to provide the students with a hands-on experience in studying biodiversity. The world-wide sharp decline in biodiversity is a human made crisis that ecologists are trying to solve. Some of the important questions are “What and how many species exist?”; “How do we evaluate the abundance and the richness of species?”; Why is biodiversity so important? “How do we set priority regions for conservation based on biodiversity?”

Sand dunes

Sand dunes are especially vulnerable, and their biodiversity is under extinction processes. We will learn about the ecosystem changes of sand dunes including natural and anthropogenic processes. We will also learn about the development threats to the dunes and the politics behind it. These questions and others will be dealt with before, during and after sampling several taxonomic groups on sand dunes.

Requirements:

The students will be required to be able to assess the species turnover between habitats at where they will compare one of the largest conservation problems: the mining of dunes. The students in this course will take part in a long-term monitoring research of the sand dunes. In Samar Dunes they will take part in a long term monitoring by the Arava institute together with Haifa University.

The course is composed of introduction lessons of 1.5 hours as preparations and then a 5 day field trip to the Samar sand dunes in Arava area (returning to Ketura every day). Then there will be lessons with an explanation of how to write the paper. At the end of the trip the students will be required to write a paper comparing dunes at different locations. Project can be on reptiles, rodents and insects (depending on the seasonality). Students will practice sand dune sampling during the semester. Returning students are exempt from this part.

Grade Components

Class attendance and punctuality 15%

Participation in expedition 20%

Class assignments 25%

Final report 40%

Course Schedule

Lesson	Topic	Teacher
1	Introduction	Elli & Nitzan
2	Biodiversity	Elli
3	Ketura sand dunes - research methods	Nitzan
4	Evolution and taxonomy of animals 1	Elli
5	Evolution and taxonomy of animals 2	Nitzan
6	Adaptation of animals to the desert and sand	Nitzan
Expedition day 1	Expedition: 5 days of field work including field and lab work morning and afternoon and oral presentations.	Nitzan, Elli & Uri
Expedition day 1		Nitzan & Uri
Expedition day 1		Nitzan & Uri
Expedition day 1		Nitzan & Uri
Expedition day 1		Nitzan & Uri
7	Analysing data and excel	Elli
8	Alpha & beta diversities	Elli
9	Behavior conservation	Nitzan
10	Students presentations	Elli & Nitzan