

Ecology of the Arava

Coordinator: Dr. Elli Groner,

3 weekly lecture hours 4 short field work sessions and a one-day tour.

3 academic credits

Course description

This course will present an overview of the ecology of the Arava desert. In this course, both basic principles of ecology followed by desert ecology will be introduced.

Students will learn about desert food webs, the interaction between ecosystems, pollution and other risks to the conservation of the Arava.

Students will study the link between the Arava ecosystems, they will study about plants, arthropods, mammals and birds of the terrestrial ecosystem and the principles and wildlife of the sea. While learning about different ecosystem and taxon students will study the anthropogenic impact on wildlife.

Grade components:

Final exam 45%

Quizzes 10%

Midterm exam 5%

Attendance, Participation, discussions 10%

Projects, exercises, assignments 30%

Evaluation :

- Exams will be made up of multiple choice questions as well as some essay questions that test the understanding of the material and the ability to extrapolate to similar problems.
- Exercises will include written work on either the reading material or the material taught in class. Exercises will also include trip reports, linking the ecology of the area and anthropological pressures on the environment.
- Projects will include the following :
 1. A webpage on a chosen species (from literature)
 2. Description of a landscape unit (from own field work data)

3. Acacia trees – characteristics of wadis using aerial photos and ground truthing and validation.

Project will be divided to 2 sections:

- I. Identical protocols in the same wadi for the whole class and done individually.
- II. In groups of 3 with each group taking a different wadi.

Readings:

The Biology of Deserts. David Ward 2009. Oxford university press. 339 pp

Syllabus:

- Part A : **Getting to know the desert** – Introduction to the desert, learning tools to study desert ecology including pitfall traps, soil, Berleese traps and acacia tree monitoring.
- Part B :**Sea and Air of the Arava** – Marine biology, bird migration
- Part C :**Socio-ecology** – Policy, ecosystem services, planning, conservation

Course Schedule

Class	Topic	Activity	Guests
1	Deserts of the world		
2	The Arava: land, air, sea		
3	Desert ecology principles		
4	Soil fauna	Field work	
5	Energy in desert food-webs		
6	Pitfall traps	Field work	
7	Acacia		
8	Acacia monitoring	Field work	
9	Plants adaptation to the desert		Prof. Pua Bar
10	Biogeography of plants		Prof. Pua Bar
11	Animal adaptation to the desert		
12	Bird migration		
13	Biodiversity		
14	Biodiversity analysis		
15	Sand dunes geomorphology and biodiversity		
16	Biodiversity of sand dunes		
17	Insect & taxonomy		