

## **001-2-3083 Community Ecology**

**Prof. Merav Seifan**

### **Course description and objective: (3 credits)**

Community ecology is a complex and diverse discipline, encompassing the study of multispecies systems. The course aims at presenting the students with modern theory concerning higher-scale multispecies assemblies and equipped them with the necessary background to approach complex natural systems. The course covers various topics on the subject, from simple and classic models of two-species interactions to the potential effect of environmental conditions on species assemblies. In addition, the course introduces the students to general definitions and tools for assessing multispecies assemblies. The mechanisms behind multispecies assemblies will be discussed based on theoretical models and case studies. The role of external and internal changes in shaping communities will be assessed and both classic and modern views on communities will be examined in relation to their potential consequences for nature.

### **Course structure:**

The course will be taught weekly in summer semester in 3 hours lectures.

The course is designed for M.Sc. & third year students.

### Assessment of students and structure of final grade:

Final exam	95%
Participation in class and discussion	5%

### **Detailed description of course units:**

- 1. Introduction (22.03):** What are communities? Definitions and historical background
- 2. Measuring communities (29.03 – 05.04):** The concept of biodiversity in relation to patterns and scales
- 3. Species interactions 1 (12.04):** Predator-prey dynamics
- 4. Species interactions 2 (26.04, 03.05):** Interspecific competition
- 5. Species interactions 3 (10.05):** Positive interactions, mutualism and facilitation
- 6. Species interactions 4 (17.05):** Space as a factor driving species interactions. The colonization-competition tradeoff and its derivatives.
- 7. Driving processes 1 (24.05):** Indirect interactions between species
- 8. Driving processes 2 (07.06):** Space and environmental heterogeneity. The concept of metacommunities + neutral
- 9. Driving processes 3 (14.06):** Beyond the intermediate disturbance hypotheses – how disturbances

can shape communities.

11. **Consequences for species assemblies 1(21.06):** Spatial and temporal models of species coexistence.  
Lottery models, Storage effects and long-term stability of species assemblies.
12. **Summary (28.06):** why diversity matters