

מאקרוֹאקולוגיה (0431.4616)
Macroecology

פרטי הקורס

What are the distribution patterns of animals on the planet? Where can we find different taxa and how do we study geographic distribution?

Which environmental conditions affect the distribution and traits of species and assemblages?

What are the interrelationships between form, function, and distribution? How best can we conserve biodiversity at the global scale?

We will see how such questions are posed in contemporary macroecology and point out possible avenues for answering them. Focusing mainly on terrestrial vertebrates we will try to discuss examples from contemporary scientific research papers on the type of emergent phenomena studied in Macroecology, and try to understand the philosophical underpinnings of the science, as well as some of the statistical methods used to study ecological and evolutionary phenomena with strong spatial and phylogenetic underpinnings

In the home exam students will select a topic for a short macroecological research question, acquire relevant data to test a contemporary hypothesis, analyse them, and write the project up in publication format – or present a detailed research proposal for a macroecological research.

The class will run for 28 hours for one week (in the semester break between the 7th and 11th of February 2021, 6 hours a day). The grade will comprise of active participation in class discussions (25%) and a home exam (75%) to be submitted by the last day of the 2nd semester.

probable lecture titles will include

1. What macroecology is?
2. Patterns in species richness: latitudes and beyond
3. Mapping biodiversity – from point localities to species richness surfaces
4. A macroecological-statistical interlude: spatial autocorrelation, non-stationarity
5. Geographic ranges and range sizes
6. Body size: distributions and allometry
7. A statistical-evolutionary interlude: phylogenetic comparative methods
8. Ecogeographic rules: Bergmann's rule, Rensch's rule, island syndromes and the meaning of large patterns in spatial and comparative ecology and evolution
9. Conservation macroecology: assessing, prioritizing, and quantifying biodiversity at large scales

There is no textbook, but students will be required to read extensively in the primary scientific literature in macroecology and biogeography

Preliminary requirements:

- **Ecology (or an advanced course in Ecology);**
- **Evolution**

- **at least one of these three courses: 1. Zoology, 2. Vertebrate structure and function, 3. Vertebrate faunistics**
- **either 1. biostatistics or 2. introduction to R.**

Students who did not do their undergraduate degree in TAU or are unsure whether their background meets these requirements should discuss the fit of courses taken elsewhere with the lecturer *before* registration