001-2-3080 (3 credits)

Lecturer: Michal Segoli

Course description and objective:
Organisms exhibit a huge variation of life history strategies: some live for several days and others up to hundreds of years; some reproduce once and others multiple times; some produce few offspring while others produce thousands. To explain the remarkable diversity of life histories among species we must understand how evolution shapes organisms to optimize their reproductive success. In this course I will introduce students to variations in life history traits, discuss basic evolutionary models explaining these variations and present case studies addressing some of the theoretical predictions.

Course structure:
The course will be taught weekly in 2 hours units.
The course is designed for graduate students.
Assessment of students and structure of final grade:
Participation in class and discussion 10%
Presentation of a selected topic 40%
Final assignment 50%

Detailed description of course units:
1. Causes of variations
2. Natural selection
3. Evolutionary trade-offs
4. Age and size at maturity
5. Offspring size and number
6. Senescence
7. Life cycles
8. Sex and gender
9. Movement and dispersal
10. Specialization and generalization
11. Interspecific interactions
12. Rapid evolution and eco-evolutionary feedbacks
13. Adaptation to anthropogenic change

Reading:
Fox, C. W., Roff, D. A. and D. J. Fairbairn. 2001. (eds.) Evolutionary Ecology. Concepts and Case Studies. Oxford University Press, New York.
Stearns, S. C., 1992. The Evolution of Life Histories. Oxford University Press, Oxford, UK.
Roff, D. A., 2002. Life History Evolution. Sinauer Associates, Sunderland, MA.