Study program: Ecology

Type and level of studies: Undergraduate academic studies (UAS)

Course unit: E118 Animal Ecology

Teacher in charge: Snezana B. Pesic, PhD

Language of instruction: English

ECTS: 6

Prerequisites: /

Semester: Summer

Course unit objective

Formation of expert who possess knowledge about the normal functioning of natural systems (with focus on the regnum Animalia, from the aspects of the individual, the population, the life community, the ecosystem and the biosphere).

Learning outcomes of Course unit

The trained expert who mastered the field and laboratory work techniques, able to interpret field and laboratory results, trained logic (connecting and interpreting natural events and shapes with environmental conditions), learned to work teamwork and acquire knowledge about the animal world and its significance in ecosystems and biosphere at all.

Course unit contents

Theoretical classes: INTRODUCTION: Research area, definition, history and development, research levels in ecology. AUTEKOLOGY (IDIOECOLOGY): Ecological niche and life form. Ecological factors and animals: basic abiotic, trophic and biotic factors. POPULATION ECOLOGY (DEMECOLOGY): Definition and basic characteristics of the population. Formal elements of the structure of the population: number of individuals and density, spatial distribution, population habitus, age structure, sex ratio, health status of the population. Functional elements of the structure of the population: behavior of population, population dynamics, natality, mortality, migrations. Population theories. BIOCENOLOGY: Biocenosis. Zoocenosis. ECOSYSTEMOLOGY: Ecosystems. Biomes, biochores and living areas or biocycles (sea, fresh waters and land). BIOSPHEROLOGY: Biosphere. Anthropogenic impacts on the animals.

Practical classes /Exercises in the laboratory and in the field. AUTHECOLOGY: 1-3. Life forms and the ecological niche of insect larvae that develop in freshwater (Odonata, Ephemeroptera, Trichoptera, Plecoptera and Diptera - Chironomidae) and freshwater fish (*Salmmo* sp., *Cottus gobio, Cobitis aurata, Nemacheilus barbatulus, Barbus meridionalis, B. barbus, Perca fluviatilis, Lepomis gibbosus, Esox lucius, Cyprinus carpio, Carassius carassius* and *Silurus glanis*). 4. Thermocline. 5. The temperature of the outside environment and the behavior of poikilotherm organisms (experiment with *Drosophila melanogaster*). 6. Dependency of developmental speed from the amount of available food and the size of the living space (experiment with *Tenebrio molitor* larvae). DEMECOLOGY: 7. The growth of the mixed population of the protozoa in limited conditions (experiment). 8. Marking and Lincoln's index as a method for determining the approximate population size. SINECOLOGY: 9. Methods of hunting in ecology; pitfall traps (terrain and laboratory). 10-11. Soil as environment (terrain and laboratory). 12-14. The lake/reservoir and the stream as environment (terrain and laboratory). 15. Collecting of Arthropods from vegetation by methods of mowing and sweeping (terrain). Seven days long field practice in different ecosystems of Serbia and Montenegro (related to the course B120 Field Practice).

Literature

- Begon M, Harper JL & Townsend CR. (1996): Ecology - individuals, populations and communities. Third edition. Blackwell Science.
- Botkin DB, Keller EA. (2010): Environmental Science – Earth as Living Planet. Seventh edition. International student version. Wiley.
- Brodskii AK. (2001): Kratkii kurs obshchei ekologii. Uchebnoe posobie. Izdanie 5-oe. DEAN, St. Peterburg. (in Russian)
- Fedorov VD, Gil'manov TG. (1980). Ekologiya. MGU, Moskva. (in Russian)
- Krebs CJ. (1994): Ecology - The Experimental Analysis of Distribution and Abundance. 4th edition. HarperCollins College Publishers.
- Pešić S. (2011): The Fundamentals of Ecology. Faculty of Natural Sciences and Mathematics, Kragujevac. (in Serbian)
- Smith RL & Smith TM. (2003): Elements of Ecology, Fifth edition. Benjamin Cummings, San Francisco.
- Southwood TRE, Henderson PA. (2004): Ecological methods. 4th edition Blackwell Science.
- Stankovic S. (1961): Animal Ecology. Institute for publishing textbooks, Belgrade. (in Serbian)
- Townsend CR, Begon M & Harper JL. (2008): Essentials of Ecology. Third ed. Blackwell Publishing.
- Various other printed and electronic sources

Number of active teaching hours				
Lectures: 30	Practice: 30	Other forms of classes:	Independent work:	Other classes:

Teaching methods

Power-point presentations and dialogue, practical work in the laboratory and in the field, in the group and individual

Examination methods (maximum 100 points)

Exam prerequisites	**No. of points**	**Final exam**	**No. of points**
Activity during the lectures	5	Written examination	20
Practical classes	10	Oral examination	35
Tests/colloquiums	30 (3x10)	Other	

Grading system

Grade	**No. of points**	**Description**

10	>= 91	Excellent
9	81-90	Exceptionally good
8	71-80	Very good
7	61-70	Good
6	51-60	Passing
5	<=50	Failing