



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Environmental biology

Course

Field of study

Environmental Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1 / 1

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr hab. Michał Michałkiewicz

Responsible for the course/lecturer:

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Faculty of Environmental Engineering and
Energy

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Prerequisites

1. Knowledge:

Basic knowledge of the biology and ecology of the range of material from high school.

2. Skills:

The ability to use literature and self-education, making observations, drawing conclusions, working in a group.

3. Social competencies:



Is aware of the need to learn, able to work in a group.

Course objective

-familiarize students with the basic knowledge about the occurrence and use of microorganisms in the environment;

- familiarize students with the problems of ecology, environmental contamination and preventing degradation.

Course-related learning outcomes

Knowledge

1. The student knows the classification, systematic position, structure and characteristics of organisms (obtained during the lecture) - [KIS_W01]
2. The student has basic knowledge of ecology (obtained during the lecture) - [KIS_W02]
3. The student has ordered knowledge of ecology, knows the ecological laws (Liebig and Shelford), elements of the biosphere, population characteristics and has knowledge of development trends in the field of the role of microorganisms in wastewater treatment and air microbiology (obtained during the lecture) - [KIS_W02, KIS_W05]

Skills

1. The student is able to carry out experiments, including measurements in the field of selected elements of air protection systems and microbiological contamination of the environment (obtained during the lecture) - [KIS_U03]
2. The student can see the aspects of applying the principles of sustainable development (obtained during the lecture) - [KIS_U05]
3. The student is able to identify simple engineering tasks of selected water, sewage and air disinfection systems (obtained during the lecture) - [KIS_U08]

Social competences

1. The student is aware of the effects of engineering activities and its impact on the natural environment (obtained during the lecture) - [KIS_K01]
2. The student is aware of the social role of the graduate and is prepared to provide information in a commonly understandable way (obtained during the lecture) - [KIS_K05]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Examination, tests, exercise reports (effects: W01,W02,W03,W04,W05,W07, U03,U05,U07,U08, K01,K05).

For each answer you can get 0-1 points. Approximately 45-50% of the maximum points must be obtained. Detailed information on scoring and rating scale are given before crediting.



Programme content

Ecology of organisms, populations, biocenosis, ecosystem and topography. Characteristic of ecological systems and factors. Influence of anthropopression on environmental. Threats of ecological balance and standards and environmental tidiness. Methods of researches and valorisation of environmental. Structure and working of ecosystem. Sources and flow of energy. Structure of organisms. Profile of Procaryota and Eucaryota. Basic information on botanic, zoology, morphology and physiology of organisms and microorganisms. The role of microorganisms in wastewater treatment and air microbiology.

Teaching methods

Information lecture, lecture with multimedia presentation, problem lecture.

Bibliography

Basic

1. Michałkiewicz M., Fiszer M. Biologia sanitarna - ćwiczenia laboratoryjne. Skrypt Politechniki Poznańskiej, 2007
2. Lampert W., Sommer U. Ekologia wód śródlądowych. Warszawa, PWB, 2001.
3. Kunicki-Goldfinger W. Życie bakterii. Wydawnictwo Naukowe PWN, 2001
4. Kunicki-Goldfinger W., Frejlik S. Podstawy mikrobiologii i immunologii. PWN W-wa.

Additional

1. Singleton P. Bakterie w biologii, biotechnologii i medycynie. PWN, 2000.
2. Nicklin J., Graeme-Cook K., Paget T., Killington R.A. Mikrobiologia - krótkie wykłady. PWN, 2000.
3. Zaremba M.L., Borowski J. Mikrobiologia lekarska. PZWL, 2001.
4. Pond E.H., Clark T.F. Mikrobiologia i biochemia gleb. Wyd. UMCS, 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for tests) ¹	45	2,0

¹ delete or add other activities as appropriate