KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego

UNIA EUROPEJSKA
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FUNDUSZ SPOŁECZNY

Course title	ECTS code
Speciation, Ecology, Biodiversity and Biogeography of cyanobacteria and microalgae - theoretical concepts and facts	13.8.1168

Name of unit administrating study

Faculty of Oceanography and Geography

Studies

faculty	field of study		
Faculty of Oceanography and Geography	BRAK TŁUMACZENIA, Geography, Water Management and Protection of Water Resources, Spatial Management, Geology, Socio-economic geography with elements of GIS, Physical geography and geoinformation, Oceanography	type	all
		form	all
		specialty	all
		specialization	all

Teaching staff

prof. UG, dr hab. Katarzyna Palińska

Forms of classes, the realization and number of hours

Forms of classes

Auditorium classes, Lecture

The realization of activities

classroom instruction, online classes

Number of hours

Auditorium classes: 18 hours, Lecture: 12 hours

ECTS credits

2

The academic cycle

2022/2023 winter semester

Type of course

an elective course

Language of instruction

english

Teaching methods

- critical incident (case) analysis
- discussion
- group work
- multimedia-based lecture
- problem-focused lecture
- project-based method (research, implementation, practical project)
- seminar lecture
- text analysis and discussion

Form and method of assessment and basic criteria for eveluation or examination requirements

Final evaluation

- Graded credit
- Examination

Assessment methods

- ssignment work – conducting research and presenting results
- written exam with open questions
- Lecture: final written assessment; Seminar: continuous assessment, attendance control, preparation of a presentation based on an original, relevant paper
- assignment work – project or presentation
- assignment work – completing a specific practical assignment
- graded course credit based on individual grades obtained during the semester
- written exam (test)
- written exam (long written answer/problem solving)
- oral exam

The basic criteria for evaluation

Lecture: the ability to explain the inherent difficulty involved in defining the term “species”; general knowledge of the biodiversity and biogeography patterns (for cyanobacteria and microalgae); the ability to acquire knowledge about cyanobacterial ecology
10% attendance
90% final written assessment
Seminar: the ability to read and understand scientific papers in English; the ability to summarize and present the content of a scientific paper; the ability to consider different points of view
10% attendance
30% activity
60% presentation
> 90% excellent 5
81% - 90% very good 4+
71% - 80% good 4
61% - 70% satisfactoet 3+
51% - 60% pass

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements
None

B. Prerequisites
None

Aims of education

Aims of education
Lecture: Knowledge of specific ecology and biodiversity of cyanobacteria and microalgae. Special attention will be given to theoretical species concepts used in the past and nowadays in taxonomy of cyanobacteria.
Seminar: To give students the tools necessary to improve their oral communication & presentation skills while gaining insight into different species concepts and their application to phototrophic microorganisms.

Course contents

Course contents
Lecture:
A.1. What is the biological diversity and why should we value it?
A.2. Diversity of phototrophic microorganisms and their adaptations allowing survival in different ecosystems and multiple stresses
A.3. Ecological factors that influence the pattern of life on earth
A.4. Theoretical species concepts and their application
A.5. Taxonomy and identification of cyanobacteria: classical and modern methods
Seminar: Journal club: reading, presentation and discussion of original scientific papers on:
B.1. Special adaptation of phototrophs to different environments
B.2. Phenotypic vs molecular diversity
B.3. Biogeography of phototrophs; “Everything is everywhere” theory

Bibliography of literature

Bibliography of literature

Darwin, C.D. 1859. On the origin of species. John Murray. Chapter 12. Online via the Project Gutenberg. http://www.literature.org/authors/darwin-charles/the-origin-of-species-6th-edition/
Oren, A. (2004). “A proposal for further integration of the cyanobacteria under the Bacteriological Code”. Int. J. Syst. Evol. Microbiol. 54: 1895–1902.
Whitton, BA. (2012) Ecology of Cyanobacteria II: Their Diversity in Space and Time. Springer Verlag. http://books.google.de/
Wilson, E.O. 1992. The Diversity of Life. W.W. Norton and Co. ISBN 0-393-31047-7 pages 215–228.

The learning outcomes (for the field of study and specialization)

Knowledge

Knowledge
[K_1, K_W01] Students understand and correctly describe the basic phenomena of ecology, speciation and biodiversity, and natural processes taking place in the aquatic environment with a particular focus on the marine environment (A1-5, B1-3); written examination.
[K_2, K_W03] Students are able to explain the basic principles that govern biogeography of phototrophic microorganisms (A1-5, B1-3); written examination.
[K_3, K_W07] Students understand how to draw conclusions and make inferences based on literature and analysis of data (B1-3); presentation.
[K_4, K_W08] Students know and understand the basic topics / problems in biodiversity studies; students are aware of interconnections between these problems as well as with other disciplines of natural sciences (A1-5, B1-3); written examination.
[K_5, K_W17] Students understand and can explain the impact of human activities on the biodiversity of marine ecosystems (A1-5); written examination.
[K_6, K_W18] Students can explain the consequences of disturbing the equilibrium in marine ecosystems (A1-5, B1-3); written examination.

Skills

Skills
[U_1, K_U02] Students read with comprehension scientific texts in English (A1-5, B1-3); presentation.
[U_2, K_U03] Students are capable of using information from scientific publications and other sources (A1-5, B1-3); written examination, presentation.
[U_3K_U05] Students can evaluate and elaborate the used resources (A1-5, B1-3); presentation.
[U_4, K_U16] Students can make oral presentations in the English language on the detailed issues in the field of oceanography (B1-3); presentation.

Social competence

Social competence

[K_1, K_K02] Students are open to new ideas and ready to revise their viewpoints (A1-5, B1-3); observation of work during the course.

[K_2, K_K05] Students effectively organize their work and critically evaluate the level of progression (A1-5, B1-3); observation of work during the course.

[K_3 K_K15] Students understand the importance of posing questions and problems in order to broaden their knowledge in the field of marine sciences (A1-5, B1-3); presentation, observation of work during the course.

Contact

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