University of Gdańsk

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | Ecological Modelling - laboratory , PG_00204930 | | |
| Field of study | Oceanography | | |
| Date of commencement of studies | October 2027 | Academic year of realisation of subject | 2028/2029 |
| Education level | Master's studies | Subject group | Obligatory subject group in the field of study<br>Optional subject group<br>Subject group related to scientific research in the field of study |
| Mode of study | full-time studies | Mode of delivery | at the university |
| Year of study | 2 | Language of instruction | Polish |
| Semester of study | 3 | ECTS credits | 1.0 |
| Learning profile | academic | Assessment form | credit |
| Conducting unit | Laboratory of Ichthyology -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. Mariusz Sapota, prof. UG | |
| | Teachers | | |

| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|---|
| | Number of study hours | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20 |
| | E-learning hours included: 0.0 | | | | | | |

| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|---|
| | Number of study hours | 20 | 1.0 | 4.0 | 25 |

| | |
|---|---|
| Subject objectives | Explanation of methods of creating ecological models, teaching the principles of creating models of the functioning of marine ecosystems |

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [OCEANMU2-U01] is able to formulate and solve complex and unusual problems regarding the functioning of individual components of the marine environment using knowledge from various fields and scientific disciplines and propose solutions | is able to formulate and solve complex problems concerning the functioning of individual components of the marine environment by integrating knowledge from various fields and scientific disciplines | [SU2] presentation/project/paper/ report<br>[SU5] implementation of a problem task |
| [OCEANMU2-U05] is able to use source information in Polish and a chosen foreign language, including archival and electronic databases, within the field of oceanography; critically analyzes and synthesizes information, and is capable of performing critical interpretation and synthesis of data | is able to use source information, in Polish and English, including archival and electronic databases, in the field of ecosystem functioning, performs a critical analysis and synthesis of information | [SU2] presentation/project/paper/ report<br>[SU5] implementation of a problem task<br>[SU8] observation of student's independent or team work |
| [OCEANMU2-U06] is able to use specialized computer software as well as advanced mathematical and statistical methods to analyze data and describe processes and phenomena occurring in the marine and coastal environment; evaluates their reliability and usefulness and performs critical analysis | is able to use specialized computer software as well as mathematical and statistical methods in modeling and describing phenomena and processes occurring in the marine environment and the coastal zone | [SU2] presentation/project/paper/ report<br>[SU5] implementation of a problem task |
| [OCEANMU2-K04] is ready to critically evaluate his/her knowledge and received content in the field of natural sciences in in particular in the field of the studied specialty, a in problematic situations, supports oneself with knowledge experts | is self-critical and draws conclusions based on analysis, acts in accordance with the principles of professional ethics | [SK5] implementation of a problem task<br>[SK6] demonstration of practical skills |

## Subject contents

Trophic relationship modeling

Creating modules containing individual elements of the trophic sow

Single-population models

Multi-species ecological systems

A model of energy flow and matter circulation in a marine ecosystem. During the course, the student will use the Ecopath, Ecosim and Ecospace modules to create a model of the functioning of the marine ecosystem. After verifying its functioning, the student can receive a certificate of completion of the Ecopath with Ecosim (EwE) course

## Prerequisites and co-requisites

basic knowledge of statistics, knowledge of the general principles of functioning of marine ecosystems

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Implementation of a problem task | 51.0% | 100.0% |

## Recommended reading

Basic literature

Ecopath with Ecosim users guide, Lenfest Ocean Futures Project 2008

Witek Z. 1993. Structure and function of marine ecosystem In the Gdansk Basin on the basis of studies performed in 1987. (ed.) Studia I Materialy Oceanologiczne nr 63,

| | | |
|---|---|---|
| | Supplementary literature | Kremer J.N., Nixon S.W. A Coastal Marine Ecosystem, , Ecological Studies 24, 1978<br><br>Fennel W. Neumann T., Introdustion to the modeling of marine ecosystems, , Elsevier Oceanography Series 72, 2004<br><br>Dzierzbicka-Glowacka L. 2000 Matematyczne modelowanie procesow biologicznych w gornej warstwie morza, Rozprawy i monografie IO PAN Sopot, 13 |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | |

Document generated electronically. Does not require a seal or signature.