**SYLLABUS**

**regarding the qualification cycle FROM 2023 To 2024**

1. Basic Course/Module Information

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| --- | --- |
| Course/Module title | Molecular Ecology |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | Institute of Biology and Biotechnology |
| Name of the unit running the course | Department of Biology |
| Field of study | Biology, Biotechnology |
| Qualification level  | 2nd degree |
| Profile | general academic |
| Study mode | stationary |
| Year and semester of studies |  |
| Course type | Basic |
| Language of instruction | English |
| Coordinator | Małgorzata Karbarz, PhD |
| Course instructor | Małgorzata Karbarz, PhD |

\* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester(n0.) | Lectures | Classes | Colloquia | Lab classes | Seminars | Practical classes | Internships | others | **ECTS credits**  |
| 2 |  |  |  | 30 |  |  |  |  | 5 |

1.2. Course delivery methods

- conducted in a traditional way

- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

pass with a grade

2. Prerequisites

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| Knowledge of: general botany, systematic botany, invertebrate zoology, vertebrate zoology, biochemistry, genetics, ecology. |

3. Objectives, Learning Outcomes, Course Content, and Instructional Methods

3.1. Course/Module objectives

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| --- | --- |
| O1 | Familiarizing students with research methods used in modern molecular ecology. |
| O2 | Indicating the possibilities and problems of modern molecular ecology to students. |
| O3 | Showing the possibility of applying molecular ecology in nature conservation. |
| O4 | To familiarize the student with the possibilities of using databases and online tools in molecular ecology. |
| O5 | Transfer of knowledge in the field of the latest scientific achievements in the field of molecular ecology. |

3.2. Course/Module Learning Outcomes (to be completed by the coordinator)

|  |  |  |
| --- | --- | --- |
| Learning Outcome | The description of the learning outcome defined for the course/module | Relation to the degree programme outcomes |
| LO\_01 | Student:Gives definitions in the field of molecular ecology | K\_W02 |
| LO\_02 | Lists techniques and molecular methods used in the study of species and interspecific variability and the assessment of the degree of biodiversity | K\_K07 |
| LO\_03 | Describes the possibilities of using experimental and laboratory techniques in the field of molecular biology in ecological research | K\_W04, K\_U01 |
| LO\_04 | Characterizes ecological aspects of biotechnology | K\_U08, K\_U01 |
| LO\_05 | He lists arguments about the application of molecular ecology and its limitations | K\_K02, K\_K07 |

**3.3. Course content (to be completed by the coordinator)**

1. Lectures
2. Classes, tutorials/seminars, colloquia, laboratories, practical classes

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| Content outline  |
| DNA barcoding and metabarcoding |
| GMO detection |
|  The use of databases and analytical tools available on-line in molecular ecology.  |

3.4. Methods of Instruction

e.g.

*Lecture: a problem-solving lecture/a lecture supported by a multimedia presentation/ distance learning*

*Classes: text analysis and discussion/project work (research project, implementation project, practical project)/ group work (problem solving, case study, discussion)/didactic games/ distance learning*

*Laboratory classes: designing and conducting experiments*

Lecture: a problem-solving lecture/a lecture supported by a multimedia presentation/ distance learning

Laboratory classes: designing and conducting experiments

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

|  |  |  |
| --- | --- | --- |
| Learning outcome | Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes) | Learning format (lectures, classes,…) |
| LO-01 | report | Labboratory classes |

4.2 Course assessment criteria

|  |
| --- |
| *Report* |

5. Total student workload needed to achieve the intended learning outcomes

– number of hours and ECTS credits

|  |  |
| --- | --- |
| Activity | Number of hours |
| Scheduled course contact hours | 30 |
| Other contact hours involving the teacher (consultation hours, examinations) | 40 |
| Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.) | 60 |
| Total number of hours | 130 |
| Total number of ECTS credits | 5 |

\* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

|  |  |
| --- | --- |
| Number of hours |  |
| Internship regulations and procedures |  |

7. Instructional materials

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| Compulsory literature:Freeland J. Molecular ecology. 2019. |
| Complementary literature:  |

Approved by the Head of the Department or an authorised person