**SYLLABUS**

**regarding the qualification cycle FROM 2024 TO 2025**

1. Basic Course/Module Information

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| Course/Module title | Paleobiology |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | College of Natural Sciences |
| Name of the unit running the course | Institute of Biology |
| Field of study | Biology and Biotechnology |
| Qualification level  | I degree |
| Profile | general academic |
| Study mode | stationary |
| Year and semester of studies | summer |
| Course type | Course in the major area of study |
| Language of instruction | English |
| Coordinator | dr hab. prof. UR Iwona Kania-Kłosok |
| Course instructor | dr hab. prof. UR Iwona Kania-Kłosok |

\* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester(n0.) | Lectures | Classes | Colloquia | Lab classes | Seminars | Practical classes | Internships | others | **ECTS credits**  |
| summer |  | 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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| Good communication, reading and writing English; high school zoology level; high school botany level. |

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

3.1. Course/Module objectives

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| O1 | - Explain and be able to discuss the processes of taphonomy, autotaphonomic,ecological, taphotopic, postburial, products of the taphonomic process. |
| O2 | - Characterize different kinds of fossil resins, selected groups of animals and plantsin Mesozoic and Cenozoic record |
| O3 | - Explain dynamics of the taxonomic diversity; evolution of selected groupsof organisms with particular reference to the Diptera. |
| O4 | - Characterize morphology and phylogeny of selected groups of plants and animalsknown from fossil record. |
| O5 | - Characterize examples of behavior of fossil animals preserved in amber. |
| O6 | - Develop skills in performing collaborative research. |

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 will be able to characterizethe major types of fossil resins, the morphology and evolution of selectedgroups of fauna and flora; | K\_W01 |
| LO\_02 | - student will understand the way andthe directions of evolution in particular group of fossil taxa, their morphology andtaxonomy and the processes of taphonomyand fossilization; | K\_W01 |
| LO\_03 | - student will be able to perform basicassessment of the types of resins andrecognize representatives of most commongroups of fauna and flora preserved in fossil resins; | K\_U04 |
| LO\_04 | - student will be able to makea reconstruction of morphology of chosenrepresentatives of fossil taxa preserved as an imprints or inclusions; | K\_U04 |
| LO\_05 | - student will be able to carry out the biometric measurements of fossil insects with application of the basic techniques usedin the paleontology | K\_U04 |
| LO\_06 | - student will be able to develop skills in performing collaborative research | K\_K01 |

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

1. Lectures

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| Content outline |
| The fossil record; different types of fossil resins; taphonomic processesof fossils and ichnofossils in different paleoenvironments and modesof their preservation, marine deposits, non-marine subaquaticpaleoenvironments, lacustrine deposits, swamp, marsh and otherwetlands, fluvial, spring deposits, subaerial paleoenvironments. |
| The most important episodes in history of life; inclusions in amber,taphonomy; direct burial in sedimentary deposits; autotaphonomicfactors, ecological factors, ecological factors affecting organisms in their life-time; mortality factors; post-moderns ecological factors,taphotopic factors, technical factors. |

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

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| Content outline  |
| The processes of taphonomy, fossilization, types of fossil resins, majorfossil deposits, types of preservation, taphonomy of fossils,autotaphonomic, ecological, taphotopic, postburial, products of thetaphonomic process. |
| Stratigraphic principles. |
| Early stage of evolution of the representatives of selected groups of fauna and flora. |
| General features of chosen group of fauna and flora with particularreferences to the late Cretaceous taxa. |
| Dynamics of the taxonomic diversity, environments and early stages of evolution of chosen groups of fauna and flora. |
| Morphology and phylogeny of selected groups with examplesof behavior of fossils preserved in amber. |

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: Audio/video presentations.
Classes: practical laboratory work, discussion, deporting and presenting results

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

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| --- | --- | --- |
| 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-01-06 | Lecture, audio/video presentations | lectures |
| LO-o1-06 | Practical laboratory work, discussion, deporting and presenting results. | classes |
| LO-o1-06 | Field work. | practical classes |

4.2 Course assessment criteria

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| Attendance is expected in all lectures, indoor workshop.Assessment for this course is carried out in many different ways. It takes into considerationboth knowledge of the lecture but also critical thinking skills, technical skills,communication skills and collaborative skills. |

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

– number of hours and ECTS credits

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| --- | --- |
| Activity | Number of hours |
| Scheduled course contact hours | 30 |
| Other contact hours involving the teacher (consultation hours, examinations) | 66 |
| Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.) | 29 |
| Total number of hours | 125 |
| 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

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| --- | --- |
| Number of hours | n.a. |
| Internship regulations and procedures | n.a. |

7. Instructional materials

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| Compulsory literature:- Walker C., Ward D., 2000. Fossils. Dorling Kindersley Limited, London.- Prothero D. R., 2013. Bringing Fossils to Life: An Introduction to Paleobiologyon Amazon.Columbia University Press.- Kosmowska-Ceranowicz B. 2006. Amber, views, options. WUW, Warszawa.- Patzkowsky M.E., 2012. Stratigraphic Paleobiology. Understanding the Distribution of Fossil Taxa in Time and Space. The University of ChicagoPress.- Gould J.S., 1989. Wonderful Life: The Burgess Shale and the Nature of History. W.W. Norton & Co., United States.- Grimaldi D., Engel M.S. 2005. Evolution of the insects. Cambridge UniversityPress, Cambridge.- Rasnitsyn A.P., Quicke D.L.J. 2006. History of insects. Kluwer AcademicPublishers, Dordrecht. |
| Complementary literature: - Martínez-Delclòs X.; Briggs D.E.G., Peñalver E. 2004. Taphonomy of insectsin carbonates and amber. Palaeogeography Palaeoclimatology Palaeoecology 203: 19-64.- Szwedo J., Sontag E. 2009. The traps of the ‘amber trap’. Amber-trappedinsects trap scientists with enigmas. In: Berning B., Podenas S. (Eds.), Amber: Archive of the deep time. Denisia 26: 155–169.- Szwedo J., Sontag E. 2013. The flies (Diptera) say that amber from the Gulfof Gdańsk, Bitterfeld and Rovno is the same Baltic amber. Polish Journal of Entomology 82: 379-388.- Kania I., Wegierek P. 2008. Palaeoaphididae (Hemiptera, Sternorrhyncha) from Lower Cretaceous Baissa deposits. Morphology and classification. Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków. Monografie faunistyczne, 25: 132. |

Approved by the Head of the Department or an authorised person