University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Origin and evolution of life on Earth, PG_00132875 | | |
| Field of study | Criminology | | |
| Date of commencement of studies | October 2025 | Academic year of realisation of subject | 2025/2026 |
| Education level | Bachelor's studies | Subject group | |
| Mode of study | full-time studies | Mode of delivery | e-learning |
| Year of study | 1 | Language of instruction | Polish<br>Polish |
| Semester of study | 1 | ECTS credits | 2.0 |
| Learning profile | academic | Assessment form | credit |
| Conducting unit | Faculty of Chemistry -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. Piotr Mucha, prof. UG | |
| | Teachers | dr hab. Piotr Mucha, prof. UG | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30 |
| E-learning hours included: 30.0 | | | | | | |

**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 | 30 | 0.0 | 20.0 | 50 |

**Subject objectives**

to familiarize students with the theories of the origin of the Universe, the Milky Way, the Solar System and the Earth; to familiarize students with the origin and characteristics of matter; to acquaint students with non-biological (abiotic) methods of synthesizing organic compounds in nature; to acquaint students with the definitions and characteristics of the phenomenon of life; to acquaint students with the hypotheses of the origin of life on Earth; to acquaint students with the role of RNA in the origin of life on Earth; to familiarize students with the evolution of life on Earth

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| | Student:<br>- lists the basic laws and theories of science governing the universe<br><br>- describes the methods of formation and properties of chemical elements<br><br>- explains the relationships between the structure of matter and its observed properties<br><br>- critically analyzes available experimental data on the origin and evolution of life<br><br>- presents basic facts about the origin and evolution of life in an accessible manner, using scientific language typical of the exact sciences<br><br>- is able to learn independently<br><br>- reads and understands scientific and popular science texts in Polish and English | [SK4] test/exam - oral or written |

## Subject contents

Stages of origin, evolution and structure of the Universe, Milky Way, Solar System and Earth, formation of chemical elements, abiotic synthesis of organic compounds, definitions and characteristics of the phenomenon of life, role of RNA in the origin of life, world of RNA, catalytic RNA (ribozymes), world of DNA and proteins, properties of the genetic code, structure of prokaryotic and eukaryotic cell, evolution of life on Earth, oldest traces of life

## Prerequisites and co-requisites

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| single-choice test questions | 50.0% | 100.0% |

## Recommended reading

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| Basic literature | R.F. Gesteland, "The RNA World," Cold Spring Harbor Laboratory Press, 2005, M. Yarus, "Life from an RNA World: The Ancestor Within," Harvard Univ. Press, 2011. S. Hawking A Brief History of Time, Zysk and S-ka Publishers, 2007Davies P. Cosmic Winning, Wyd. Prószyński i S-ka, 2008 |
| Supplementary literature | Clancy P., In Search of Life, Proszynski & S-ka Publishers, 2008 |
| eResources addresses | |

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| Example issues/ example questions/ tasks being completed | Sample test question:The current age of the Universe is estimated to be about (billion years).a. 4-5.5b. 8-10.5c. 13.7-13.8d. 19-20.1 |
| Work placement | Not applicable |

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