University of Gdańsk

Subject card

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| Subject name and code | Instrumental analysis, PG_00154554 | | | | | | |
| Field of study | Medical Biology | | | | | | |
| Date of commencement of studies | October 2024 | | Academic year of realisation of subject | | 2026/2027 | | |
| Education level | Bachelor's studies | | Subject group | | Obligatory subject group in the field of study<br>Optional subject group | | |
| Mode of study | full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 3 | | Language of instruction | | Polish | | |
| Semester of study | 5 | | ECTS credits | | 1.0 | | |
| Learning profile | academic | | Assessment form | | | | |
| Conducting unit | | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. Grzegorz Romanowski | | | | |
| | Teachers | | | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 15.0 | 0.0 | 0.0 | 0.0 | 15 |
| | 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 | 15 | | 3.0 | | 7.0 | 25 |
| Subject objectives | Familiarizing a student with the principles of electroanalytical, spectroscopic and chromatographic methods and stages of the analytical process, developing the ability to conduct basic analyses instrumental and their statistical evaluation, developing the ability to solve problems independently problems when conducting chemical analysis | | | | | | |

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
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| [BIOLMEDL3_U04] applies basic statistical methods and computer algorithms and techniques to describe phenomena and data analysis | 1. Uses basic formulas for the appropriate experimental technique to calculate the quantity of analyte and other chemical and physical quantities.<br>2. Selects a calculation method for a specific analytical problem. | [SU1] oral statement/conversation/ discussion<br>[SU3] text preparation/written work |
| [BIOLMEDL3_W16] explains the theoretical basis of experimental methods and lists the most important techniques of biological sciences that can be applied to medical biology and diagnostics | effect achieved in laboratory exercises | [SW2] presentation/project/paper/ report<br>[SW3] text preparation/written work |
| [BIOLMEDL3_U01] uses basic apparatus and research tools and, maintaining the correct sequence of operations, performs simple physical, biological or chemical observations and measurements in laboratory work in the biological or medical sciences | effect achieved in laboratory exercises | [SU2] presentation/project/paper/ report<br>[SU3] text preparation/written work |
| [BIOLMEDL3_U02] is able to use basic equipment and apparatus used in diagnostics or neuroscience | effect achieved in laboratory exercises | [SU2] presentation/project/paper/ report<br>[SU3] text preparation/written work |
| [BIOLMEDL3_K07] Is responsible for the equipment/materials entrusted to him and his own work and respects the work of others | effect achieved in laboratory exercises | [SK2] presentation/project/paper/ report<br>[SK3] text preparation/written work |
| [BIOLMEDL3_K06] can think and act in an entrepreneurial manner | effect achieved in laboratory exercises | [SK2] presentation/project/paper/ report<br>[SK3] text preparation/written work |
| [BIOLMEDL3_K05] jest odpowiedzialny za bezpieczeństwo pracy własnej i innych oraz potrafi rozpoznać sytuacje zagrożenia i podjąć odpowiednie działania | effect achieved in laboratory exercises | [SK2] presentation/project/paper/ report<br>[SK3] text preparation/written work |
| [BIOLMEDL3_U14] is able to prioritize and organize the work of a small team and work effectively as part of a team | effect achieved in laboratory exercises | [SU2] presentation/project/paper/ report<br>[SU3] text preparation/written work |
| [BIOLMEDL3_U12] has the ability to present his own ideas and adequate argumentation in the context of selected theoretical and practical perspectives of medical biology | 1. Explains and interprets the principles of selecting a calculation method.<br>2. Interprets and critically evaluates the results of calculations performed.<br>3. Is able to apply and conduct an appropriate discussion of errors. | [SU1] oral statement/conversation/ discussion<br>[SU3] text preparation/written work |

## Subject contents

Chemical calculations using absolute and comparative analytical measurement methods in the field of spectroscopic methods, chromatographic methods and electroanalytical methods.

## Prerequisites and co-requisites

knowledge of chemical methods of qualitative and quantitative analysis

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| test | 51.0% | 100.0% |

## Recommended reading

Basic literature

W. Szczepaniak, Metody instrumentalne w analizie chemicznej, PWN, Warszawa
A. Cygański, Metody spektroskopowe w chemii analitycznej, WNT, Warszawa
A. Cygański, Metody elektroanalityczne, WNT, Warszawa
A.2. studiowana samodzielnie przez studenta
G.W. Ewing, Metody instrumentalne w analizie chemicznej, PWN, Warszawa
J. Minczewski, Z. Marczenko, Chemia analityczna t. III Analiza instrumentalna, PWN, Warszawa

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|---|---|---|
| | Supplementary literature | D.A. Skoog, D.M. West, F.J. Holler, S.R. Crouch, Podstawy chemii analitycznej, PWN, Warszawa<br>J. Garaj, Fizyczne i fizykochemiczne metody analizy, WNT, Warszawa |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | |

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