

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          |                                         |                                     |         |                                                                                                                                                |     |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Subject name and code                       | M.Sc. Seminar - Chemistry, PG_00144206                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                          |                                         |                                     |         |                                                                                                                                                |     |
| Field of study                              | Chemical Business                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |                                         |                                     |         |                                                                                                                                                |     |
| Date of commencement of studies             | February 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                          | Academic year of realisation of subject |                                     |         | 2026/2027                                                                                                                                      |     |
| 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                            |                                     |         | 4.0                                                                                                                                            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          | Assessment form                         |                                     |         | credit                                                                                                                                         |     |
| Conducting unit                             | Faculty of Chemistry -> Rector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                          |                                         |                                     |         |                                                                                                                                                |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          | dr hab. Joanna Makowska                 |                                     |         |                                                                                                                                                |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |                                         |                                     |         |                                                                                                                                                |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Lecture                                                  | Tutorial                                | Laboratory                          | Project | Seminar                                                                                                                                        | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0                                                      | 0.0                                     | 0.0                                 | 0.0     | 30.0                                                                                                                                           | 30  |
|                                             | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30                                                       |                                         | 5.0                                 |         | 65.0                                                                                                                                           | 100 |
| Subject objectives                          | Development of in-depth skills in preparing and presenting oral presentations in Polish, mainly in the field of subjects related to master thesis<br>Preparation for independent collection and processing of scientific information based on literature searches<br>Knowledge of the principles of preparing and writing substantive and formally correct simple scientific publications, with particular emphasis on the master thesis.<br>Monitoring the progress of each student's project work in the framework of the parallel masters' workshop |                                                          |                                         |                                     |         |                                                                                                                                                |     |

| Learning outcomes | Course outcome                                                                                                                                                                                                                                   | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Method of verification                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|                   | [BCHMU2_U02] Is able to define her/his interests, develop them within the chosen direction and in connection with the subject of her/his master's thesis by implementing the process of self-education and planning her/his professional career. | -Student verifies the level of his knowledge and skills; understands the need to constantly take care of personal development, demonstrates creativity in working independently and in a team; is characterized by perseverance in taking on personal challenges<br>- Student is critical in expressing opinions and is open to the opinions of co-discussants<br>- Student is active in expanding knowledge and appreciates the need for continuous learning                                                                                                                                                                                | [SU2] presentation/project/paper/report<br>[SU5] implementation of a problem task                                                 |
|                   | [BCHMU2_U03] Is able to present, based on the current state of knowledge, scientific discoveries and the results of own research in the field of chemical and economic sciences, by skilfully conducting debates and public speaking.            | -Student demonstrates the ability to conduct experiments related to the master's thesis; uses simple and advanced methods, techniques and tools to achieve intended goals, searches information fluently in the literature on the subject (Polish and English)<br>-Student is able to give a presentation on issues in the field of chemical and economic sciences, taking into account the latest scientific achievements and the results of his/her own research work<br>- Student is able to speak substantively about issues related to the master's thesis in an understandable language;                                               | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report                                           |
|                   | [BCHMU2_U05] Is able to choose and apply, based on the literature of chemical sciences in Polish and English, appropriate methods and tools for solving problems in chemistry and related sciences.                                              | Student:<br>• shows substantive preparation to use chemical literature<br>• demonstrates enhanced ability to understand scientific texts in the field of chemistry in both Polish and English;<br>• develops and uses literature information on the scientific subject matter of his experimental work in the master's workshop, in order to present them in the master's thesis being prepared;<br>• logical and clear presentation of the topic in the form of an oral presentation with a multimedia presentation;<br>• participates in the discussion in a substantive way and shows interest in the topics presented by other speakers. | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report<br>[SU5] implementation of a problem task |
|                   | [BCHMU2_K04] Is willing to properly assess the acquired knowledge, respect and disseminate it in order to solve specific cognitive and practical issues.                                                                                         | -Student is critical in expressing opinions and remains open to the opinions of co-discussants.<br>-Student independently uses literature databases and critically selects source texts.<br>-Student is aware of the consequences of disregarding intellectual property and the abuse of artificial intelligence tools in scientific and research work.                                                                                                                                                                                                                                                                                      | [SK2] presentation/project/paper/report<br>[SK5] implementation of a problem task                                                 |

|                                 | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Method of verification                                                                                                                            |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 | [BCHMU2_K08] Is willing to develop appropriate best practices and take up challenges in the professional and public sphere, taking into account the principles of professional ethics.                                                                                                                                                                                                                                                                                                                                        | <p>Student:</p> <ul style="list-style-type: none"> <li>• remains critical in expressing opinions and remains open to the opinion of the environment</li> <li>• is active in expanding knowledge on the subject related to the undertaken master's thesis and understands the need to constantly expand knowledge and skills</li> <li>• works independently on exploring English-language literature on the topic of the master's thesis and problem tasks</li> <li>• engages in scientific discussions</li> <li>• demonstrates responsibility for the reliability of the scientific information provided</li> </ul>                                                                                                        | <p>[SK1] oral statement/conversation/discussion</p> <p>[SK2] presentation/project/paper/report</p> <p>[SK6] demonstration of practical skills</p> |
|                                 | [BCHMU2_W06] Knows and understands tasks in the field of chemistry, environmental protection and economics that are the subject of human activity to the extent that allows independent work on a research, scientific and measuring position.                                                                                                                                                                                                                                                                                | <p>Student:</p> <ul style="list-style-type: none"> <li>• shows substantive preparation to use chemical literature</li> <li>• demonstrates enhanced ability to understand scientific texts in the field of chemistry in both Polish and English;</li> <li>• develops and uses literature information on the scientific subject matter of his experimental work in the master's workshop, in order to present them in the master's thesis being prepared;</li> <li>• logical and clear presentation of the topic in the form of an oral presentation with a multimedia presentation;</li> <li>• participates in the discussion in a substantive way and shows interest in the topics presented by other speakers.</li> </ul> | [SW5] implementation of a problem task                                                                                                            |
|                                 | [BCHMU2_U07] Is able to use English in chemistry in accordance with the requirements specified for level B2+ of the Common European Framework of Reference for Languages and specialised terminology.                                                                                                                                                                                                                                                                                                                         | <p>-Student independently uses literature databases and critically selects source texts on a given or independently selected topic -</p> <p>- Student reads, analyzes and evaluates simple scientific texts in Polish and English -</p> <p>-Student has the ability to prepare an oral presentation on a given topic in English and Polish</p> <p>- Student discusses in a substantive way the topic presented during his own or someone else's presentation</p>                                                                                                                                                                                                                                                           | <p>[SU1] oral statement/conversation/discussion</p> <p>[SU2] presentation/project/paper/report</p>                                                |
|                                 | [BCHMU2_W07] Knows and understands legal and economic systems of organization and management of human resources, patent information and intellectual property resources related to the chemical industry and other sectors of the economy.                                                                                                                                                                                                                                                                                    | Student knows the basic concepts and principles related to the protection of intellectual property. Knows the principles of copyright law, patent law, trademark law, industrial design law, and trade secret law.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | [SW4] test/exam - oral or written                                                                                                                 |
| Subject contents                | <p>Rules for searching, collecting and processing scientific information based on various types of literature sources and databases in Polish and English.</p> <p>Principles of written preparation and editing of substantive and formally correct simple scientific publications, with particular emphasis on the thesis in the field of exact and natural sciences.</p> <p>Rules for preparing substantive and formally correct oral presentations at the popular science level in Polish, using multimedia techniques</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                   |
| Prerequisites and co-requisites |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                   |

|                                                                |                                                                                                                       |                                                                                                                                                                                                                                                                                           |                               |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Assessment methods and criteria                                | Subject passing criteria                                                                                              | Passing threshold                                                                                                                                                                                                                                                                         | Percentage of the final grade |
|                                                                | Preparation and presentation of several oral presentations in Polish, mainly on topics related to the master's thesis | 100.0%                                                                                                                                                                                                                                                                                    | 100.0%                        |
| Recommended reading                                            | Basic literature                                                                                                      | A. Literature required to finally pass the course (pass the exam): A.1. used during classes Books and scientific articles related to the topic of the master's thesis A.2. studied independently by the student Books and scientific articles related to the topic of the master's thesis |                               |
|                                                                | Supplementary literature                                                                                              | B. Additional literature Books and scientific articles related to the topic of the master's thesis                                                                                                                                                                                        |                               |
|                                                                | eResources addresses                                                                                                  |                                                                                                                                                                                                                                                                                           |                               |
| Example issues/<br>example questions/<br>tasks being completed |                                                                                                                       |                                                                                                                                                                                                                                                                                           |                               |
| Work placement                                                 | Not applicable                                                                                                        |                                                                                                                                                                                                                                                                                           |                               |

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