COURSE DESCRIPTION

Practical Activities of Research - Development I

Academic year 2026-2027

1. Programme-related data

1.1. Higher Education Institution	Babeş-Bolyai University, Cluj-Napoca
1.2. Faculty	Chemistry and Chemical Engineering
1.3. Department	Chemistry
1.4. Field	Chemistry
1.5. Level of study	Master
1.6. Degree programme / Qualification	Forensin Chemistry (CCR) / Chemist
1.7. Form of education	Full-time education

2. Course-related data

2.1. Course title	Practical Activities of Research - Development I			Course code	CME8119
2.2. Course coordinator	-				
2.3. Seminar coordinator	Dissertation supervisor				
2.4. Year of study	I	2.5. Semester	1	2.6. Type of assessment	Progress check
2.7. Course status	Compulsory			2.8. Course type	Specialisation subject

3. Total estimated time (hours per semester of teaching activities)

3.1. Number of hours per week	**7**	of which: 3.2. course	**-**	3.3. seminar/ laboratory/ project	**7**
3.4. Total of hours in the curriculum	98	of which: 3.5. course	-	3.6. seminar/ laboratory	98
Time allocation for individual study (IS) and self-taught activities (ST)					**hours**
Learning from textbooks, course materials, bibliography, and notes (IS)					-
Additional research in the library, on subject-specific electronic platforms, and on-site					17
Preparing seminars/ laboratories/ projects, assignments, reports, portfolios, and essays					7
Tutoring (professional guidance)					-
Examinations					3
Other activities					-
3.7. Total hours of individual study (IS) and self-taught activities (ST)				**27**	
3.8. Total hours per semester				**125**	
3.9. Number of credits				**5**	

4. Prerequisites (where applicable)

4.1. curriculum-related	Not the case
4.2 skills-related	Not the case

5. Specific conditions (where applicable)

5.1. course-related	-
5.2. seminar/laboratory-related	• Students must attend the laboratory wearing a lab coat, gloves, and bring a laboratory cloth. • Late arrivals will not be accepted. • Students must be familiar with the laboratory topic. • Supervision of operating equipment is required. • Attendance is mandatory under the conditions established by the regulations.

6.1. Competencies resulting from the completion of the degree programme *(as referred to in the curriculum)*[1]

Professional competencies	
Competency code	**Competency**
PC1	*Analysing forensic samples using specific equipments for chemical analysis*
PC5	*Apply the principles of ethics and scientific integrity in research activities compounds, precursors, components in natural samples*
PC9	*Document the results of the analyses*
PC10	*Read, interpret, and critically summarize new and complex information from various sources*
Transversal competencies	
Competency code	**Competency**
TC1	*Think creatively and innovatively*
TC5	*Works confidently within a group*

6.2. Learning outcomes relevant to the degree programme (as referred to in the curriculum)[2]

Learning outcomes targeted by the subject		
Competency code	**Knowledge and comprehension**	**Specific academic skills**
PC1, PC9, PC10, TC1	*1. Knows and manages advanced analysis and characterization methods, equipment used for fornsic evidence analysis and procedures for controlling substances hazardous to health*	*1. Apply modern methods and techniques for analysis and characterization, use specific equipment and use procedures for controlling substances hazardous to health*
PC5, TC5	*2. Knows advanced concepts, methods and theories for developing theoretical and practical approaches in research activity and selecting the most appropriate methods and equipment used for forensic analyses*	*2. Uses advanced concepts, methods and theories to develop theoretical and practical approaches in research and to select the most appropriate methods and equipment used in forensic analysis*

7. Subject-specific learning outcomes

Knowledge and comprehension
1. The graduate students are familiar with the methods and techniques of analysis used in forensic chemistry.
2. The graduate students understands the fundamental principles of the methods applied in the field of forensic analyses.
Specific academic skills
1. The graduate students perform laboratory analyses under controlled conditions, following standard protocols and safety regulations, and correctly using the specific equipment.
2. The graduate students analyse, interprets, and presents experimental data and prepares reports.

[1] The professional and/or transversal skills targeted by the subject for which the course description is prepared will be copied from the curriculum of the degree programme. For each competency, the complete entry, including the competency code, will be copied with the exact wording that appears in the curriculum, without any changes. If no competency is copied from either of the two categories, the row corresponding to that category is deleted from the table.

[2] The learning outcomes relevant for the degree programme and targeted by the subject for which the course description is prepared will be listed. The entries, copied without any changes from the Curriculum by subject type (Core Subject/Specialisation Subject/Complementary Subject), are listed under the corresponding competency.

8. Contents

8.1. Course	**Teaching and learning methods**	**Remarks[3]**
-	-	-
8.2. Seminar/ laboratory	**Teaching and learning methods**	**Remarks**
8.2.1. Introduction to research in specialized libraries (printed format)	Explanation, Conversation, Description, Problem-based approach	14 hours
8.2.2. Introduction to accessing international electronic research sources (Elsevier, Scopus, ScienceDirect, De Gruyter, PubMed, etc.)"	Explanation, Conversation, Description, Problem-based approach	14 hours
8.2.3. Conducting research in the field of the master's program in specialized libraries: analytes in biological fluids, methods and techniques of analysis, instrumentation.	Explanation, Conversation, Description, Problem-based approach	14 hours
8.2.4. Conducting research in the field of the master's program by accessing international electronic databases. Progress check	Explanation, Conversation, Description, Problem-based approach	14 hours
8.2.5. Systematizing the information collected from the specialized literature.	Explanation, Conversation, Description, Problem-based approach	14 hours
8.2.6. Presentation of reports based on literature data.	Explanation, Conversation, Description, Problem-based approach	14 hours
8.2.7. Presentation of the dissertation topic portfolio, selection of the topic and the scientific supervisor." Progress check	Explanation, Conversation, Description, Problem-based approach	14 hours
Bibliography 1. Chemical Abstracts, Analytical Abstracts, Forensic Chemistry 2. Electronic databases		

9. Evaluation

Type of activity	9.1 Evaluation criteria[4]	9.2 Evaluation methods[5]	9.3 Percentage in the final grade
9.4. Course	-	-	-
9.5. Seminar/ laboratory	A practical approach to solving an analytical problem. The quality of the presented reports	The quality of the presented reports	100%
9.6 Minimum standard for passing			
• Grade 5 (five) for the report with preliminary results.			

[3] For example, organisational aspects, recommendations for students, specific aspects relating to the course/seminar, such as inviting experts in the field, etc.

[4] The evaluation criteria must directly reflect the learning outcomes targeted at the level of the degree programme respectively at the level of the subject. More specifically, the learning outcomes set out in the expected learning outcomes are assessed.

[5] Both final evaluation methods and ongoing evaluation strategies should be established.

10. SDG labels (Sustainable Development Goals)[6]

	○	Sustainable Development Generic Label

								
○	○	○	○	○	○	○	○	○
								No label applies
○	○	○	○	○	○	○	○	●

Date of entry:
7.04.2026

Signature of course coordinator

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Signature of seminar coordinator

Date of approval in the department:

28.04.2026

Signature of the head of department

Prof. Habil. Dr. Ing. Monica Ioana Toşa

[6] Select a single label which, according to the *Implementation of SDG labels in the academic process*, best matches the subject. If the subject addresses sustainable development in a generic manner (i.e. by presenting/introducing the general framework of sustainable development, etc.), then the Sustainable Development generic label may be applied. If none of the labels describe the subject, select the last option: *"No label applies."*