COURSE DESCRIPTION

Documentation and use of databases and artificial intelligence (AI) in the development of doctoral theses

Academic year 2026-2027

1. Programme-related data

1.1. Higher Education Institution	Babeș-Bolyai University
1.2. Faculty	Faculty of Psychology and Educational Sciences
1.3. Doctoral Shool	*Education, Reflection, Development*
1.4. Field of study	Educational sciences
1.5. Level of study	Doctoral Studies

2. Course-related data

2.1. Course title	*Documentation and use of databases and artificial intelligence (AI) in the development of doctoral theses*			Course code	SDERD_5
2.2. Course coordinator	Conf. univ. dr. habil. Adriana Denisa Manea				
2.3. Seminar coordinator	Conf. univ. dr. habil. Adriana Denisa Manea				
2.4. Year of study	I	2.5. Semester	I	2.6. Type of assessment	Viva voce
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	**4**	of which: 3.2. course	**3**	3.3. seminar/ laboratory/ project	**1**
3.4. Total of hours in the curriculum	48	of which: 3.5. course	36	3.6. seminar/ laboratory	**12**
Time allocation for individual study (IS) and self-taught activities (ST)					**hours**
Learning from textbooks, course materials, bibliography, and notes (IS)					48
Additional research in the library, on subject-specific electronic platforms, and on-site					60
Preparing seminars/ laboratories/ projects, assignments, reports, portfolios, and essays					20
Tutoring (professional guidance)					10
Examinations					4
Other activities					10
3.7. Total hours of individual study (IS) and self-taught activities (ST)				**152**	
3.8. Total hours per semester				**200**	
3.9. Number of credits				**6**	

4. Prerequisites (where applicable)

4.1. curriculum-related	The operationalization of previously studied domain-specific concepts
4.2 skills-related	Artificial intelligence usage skills

5. Specific conditions (where applicable)

5.1. course-related	Activities carried out in an activating, heuristic, and problem-posing spirit.
5.2. seminar/laboratory-related	Preliminary documentary preparation.

6. Subject-specific learning outcomes

Knowledge
1. Knowledge of the structure, typology, and functionalities of international scientific databases, as well as of the mechanisms for indexing, citation, and evaluation of publication impact.
2. Knowledge of advanced search, filtering, and bibliometric analysis strategies used in the foundation of doctoral research.

3. Understanding of the operating principles of artificial intelligence systems based on natural language processing (NLP) and of their applications in scientific research.
4. Knowledge of the ways in which AI tools can be integrated into documentation, literature analysis, conceptual synthesis, and academic writing.
5. Understanding of the epistemological, methodological, and technological limitations of the use of AI in the development of academic work.
6. Knowledge of standards regarding academic integrity, citation practices, plagiarism prevention, and the responsible use of digital technologies.
7. Knowledge of the regulatory framework concerning intellectual property and the use of AI in scientific production.
Skills
1. Development of advanced documentation strategies using databases relevant to the thesis field.
2. Conducting bibliometric and systematic conceptual analyses to support the theoretical framework.
3. Critical and controlled use of artificial intelligence tools in the generation, synthesis, reformulation, and structuring of academic content.
4. Critical evaluation of AI-generated results and their argumentative integration into one's own research approach.
5. Writing original academic texts through the combined use of databases and AI tools, in compliance with scientific standards.
6. Application of academic integrity principles in the documentation and writing process.
7. Use of digital applications for reference management, bibliography organization, and monitoring research impact.
8. Well-founded justification of decisions regarding the use of AI in the doctoral thesis development process.
Responsibility and autonomy
1. Assumption of responsibility for the transparent, ethical, and justified use of AI in thesis development.
2. Demonstration of autonomy in the selection of scientific sources, databases, and digital tools used in research.
3. Making well-founded methodological decisions regarding the integration or limitation of AI use in the different stages of research.
4. Respect for and promotion of academic integrity standards and intellectual property regulations.
5. Autonomous management of the documentation and writing process through the use of technology as a tool supporting scientific thinking.
6. Responsible contribution to the development of a critical academic culture regarding the use of artificial intelligence in research.

7. Contents

7.1. Course	**Teaching and learning methods**	**Remarks**
Module I: Technological developments and the evolution of technology use in education: • Technological transformations in contemporary academic research. • The digital ecosystem of research: databases, indexing, and scientific visibility.	Interactive lecture, critical analysis of examples, practical demonstration of database functionality, guided debate, and individual reflection.	6 course hours
Module II: Advanced scientific documentation: • Typology of scientific databases and selection criteria for doctoral research. • Advanced strategies for searching and filtering scientific literature. • Bibliometric analysis and evaluation of publication impact.	Interactive lecture, advanced search exercises, analysis of bibliometric indicators, and exemplification.	12 course hours

• Organization, systematization, and management of specialized literature.		
Module III: Artificial intelligence in research • Fundamentals of artificial intelligence and natural language processing (NLP). • Use of AI in scientific documentation and synthesis. • Academic prompt engineering and critical evaluation of AI-generated content.	Applied demonstrations, guided prompt formulation exercises, comparative analysis of AI-generated results, and critical analyses.	9 course hours
Module IV: Technology-assisted academic writing • Integration of AI in the development of the theoretical framework and scientific argumentation. • Clarity, coherence, and rigor in digitally assisted academic writing.	Case study, assisted writing exercises, analysis of scientific texts, and critical evaluation of argumentative coherence.	6 hours course
Module V: Integrity and responsibility • Ethics of AI use in doctoral research. • Academic integrity, intellectual property, and prevention of scientific misconduct.	Problem-based approach, normative and critical analysis, case studies, and debate.	6 hours course
Module VI: The future of artificial intelligence in research and the responsibility of the researcher	Debate, prospective analysis, and critical reflection.	3 hours course

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7.2. Seminar/ laboratory	**Teaching and learning methods**	**Remarks**
Module I: Context and digital academic infrastructure: • Comparative analysis of databases relevant to the thesis topic. • Identification of indexing and journal classification criteria. • Evaluation of the visibility and credibility of scientific publications.	Practical demonstration using scientific databases, guided comparative analysis, individual exercises for identifying relevant sources, and formative feedback.	2 seminar hours
Module II: Advanced scientific documentation: • Development of a personalized search strategy for the thesis topic. • Application of logical operators and advanced filters in databases.	Applied exercises in advanced search techniques, analysis of bibliometric indicators, use of reference management applications, and formative feedback.	4 seminar hours

• Conducting a preliminary bibliometric analysis. • Organization and systematization of literature using dedicated applications.		
Module III: Artificial intelligence in research: • Formulation and optimization of academic prompts. • Use of AI for synthesis and conceptual clarification. • Critical evaluation of AI-generated content in relation to primary sources.	Guided exercises in prompt formulation and optimization, applied demonstrations, comparative analysis of AI-generated results, critical reflection and applied discussions, and formative feedback.	2 seminar hours
Module IV – Technology-assisted academic writing: • Writing a section of the theoretical framework using databases and AI. • Academically assisted reformulation and argumentative clarification through digital tools. • Proper integration of citations and references into the written text.	Real-time assisted writing, text analysis, guided academic reformulation, peer evaluation, and formative feedback.	2 seminar hours
Module V: Integrity and responsibility: • Analysis of cases of plagiarism, self-plagiarism, and inappropriate use of AI. • Interpretation of a similarity report.	Case study, analysis of similarity reports, debate, and individual reflection on the responsible use of AI.	2 seminar hours
Module VI: The future of artificial intelligence in research: • Development of a personal strategy for documentation and the use of AI. • Justification of methodological decisions regarding the integration of technology into research.	Individual presentation of the personal strategy for documentation and AI use, debate, and collective feedback.	1 seminar hour

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8. Evaluation

Type of activity	8.1 Evaluation criteria	8.2 Evaluation methods	8.3 Percentage in the final grade
8.4. Course	Degree of understanding and application of advanced documentation strategies; well-founded and critical use of databases; appropriate and ethical integration of AI tools in the thesis development process; coherence and scientific rigor of the developed outputs.	Portfolio developed throughout the course (documentation strategy, bibliometric analysis, AI use exercises, digitally assisted written section) and final integrative portfolio (summative assessment).	70%
8.5. Seminar/ laboratory	Active involvement in applied activities; ability to critically analyze AI-generated content; application of academic integrity standards; justification of methodological decisions regarding the use of technology.	Continuous assessment during practical activities, analysis of products developed during seminars, participation in debates, and final presentation of the personal strategy for documentation and responsible AI use.	30%

8.6 Minimum standard for passing

- Knowledge of the main theoretical, methodological, and ethical benchmarks regarding scientific documentation and the use of databases and artificial intelligence in doctoral research.
- Application of the acquired knowledge in the development of documentation strategies, critical analysis of specialized literature, well-founded use of digital tools and AI, as well as in rigorous academic writing.
- Demonstration of the ability to responsibly and autonomously integrate digital technologies into the doctoral thesis development process, in compliance with academic integrity and intellectual property standards.

9. SDG labels (Sustainable Development Goals)

	○ Sustainable Development Generic Label							
								
○	○	○	X	○	○	○	○	○
								No label applies
○	○	○	○	○	○	○	○	○

Date of entry:
30.03.2026

Signature of course coordinator

Signature of seminar coordinator

Date of approval in the department:
28.04.2026

Signature of the head of department