

COURSE DESCRIPTION

Academic ethics and integrity. Methodology of scientific research

Academic year 2026-2027

1. Programme-related data

1.1. Higher Education Institution	Babeş-Bolyai University
1.2. Faculty	Mathematics and Computer Science
1.3. Department	Computer Science
1.4. Field	Computer Science
1.5. Level of study	Master
1.6. Degree programme / Qualification	Artificial Intelligence for Connected Industries
1.7. Form of education	Full time

2. Course-related data

2.1. Course title	Academic ethics and integrity. Methodology of scientific research			Course code	MME3150
2.2. Course coordinator	Assoc. prof. phd. Sanda-Maria AVRAM				
2.3. Seminar coordinator	Assoc. prof. phd. Sanda-Maria AVRAM				
2.4. Year of study	1	2.5. Semester	2	2.6. Type of assessment	Exam
2.7. Course status	Compulsory		2.8. Course type	Core subject	

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

3.1. Number of hours per week	4	of which: 3.2. course	2	3.3. seminar/ laboratory/ project	2
3.4. Total of hours in the curriculum	56	of which: 3.5. course	28	3.6. seminar/ laboratory	28
Time allocation for individual study (IS) and self-taught activities (ST)					hours
Learning from textbooks, course materials, bibliography, and notes (IS)					14
Additional research in the library, on subject-specific electronic platforms, and on-site					5
Preparing seminars/ laboratories/ projects, assignments, reports, portfolios, and essays					12
Tutoring (professional guidance)					3
Examinations					8
Other activities					2
3.7. Total hours of individual study (IS) and self-taught activities (ST)			44		
3.8. Total hours per semester			100		
3.9. Number of credits			4		

4. Prerequisites (where applicable)

4.1. curriculum-related	
4.2 skills-related	

5. Specific conditions (where applicable)

5.1. course-related	• Class room equipped with video projector.
5.2. seminar/laboratory-related	• Classroom with video projector and internet-connected computers

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

Professional competencies	
Competency code	Competency
PC1	Capability of analysis and synthesis
PC2	Understanding and working with basic concepts of data analysis and modelling
Transversal competencies	
Competency code	Competency
TC1	Etic and fair behavior, commitment to professional deontology
TC3	Professional communication skills; concise and precise description, both oral and written, of professional results, negotiation abilities

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	The student/graduate knows advanced methods of data analysis	The student/graduate is capable of using various probabilistic and statistical models to solve real-world problems and utilizing the statistical features of different mathematical software
PC2	The student/graduate knows the most important formalisms for describing concurrent processes. The student/graduate knows the basic paradigms of parallel programming.	The student/graduate is able to understand and apply a range of classical models and state-of-the-art research within the domain of concurrency and communications. The student/graduate understands different models of parallel programs development, their necessity and their advantages.

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.

TC1	<i>The student/graduate knows and follows ethical and deontological norms and rules in scientific research</i>	<i>The student/graduate is able to provide specialized scientific advice and develop specialized materials</i>
TC3	<i>The student/graduate develops his / her entrepreneurial spirit, leadership and negotiation skills in a socio-economic context</i>	<i>The student/graduate manages a workflow and interacts inside a team, makes decisions and manages unforeseen situations, develops creative ideas and innovative techniques</i>

7. Subject-specific learning outcomes

Knowledge and comprehension
1. The graduate knows and respects the ethical and legal principles and rules in scientific research.
Specific academic skills
1. The graduate is able to analyse concrete educational situation in terms of general ethical principles and

8. Contents

8.1. Course	Teaching and learning methods	Remarks
1. Introduction to Academic Ethics & Integrity - Definitions, importance, and historical context - Overview of ethical frameworks (deontology, utilitarianism, virtue ethics) 2. Truthfulness in Academia: Sam Harris' <i>Lying</i> - Key arguments against deception - White lies, omissions, and their ethical implications 3. Plagiarism & Intellectual Honesty - Types of plagiarism (direct, self-plagiarism, mosaic) 4. Fabrication and falsification of data - Highly publicized cases (e.g., Stapel, Hwang Woo-suk) 5. Ethics of authorship and collaboration - Ghostwriting, authorship gifts, equity in credit 6. Peer review and bias - Conflicts of interest, implicit bias 7. Animal and human research ethics - Informed consent, harm minimization 8. Whistle-blowing and moral courage - Case studies (e.g., Theranos, Harvard's Marc Hauser) - Harris's argument on the cost of silence 9. Open science and accessibility - Equity in knowledge dissemination 10. Ethics in AI and emerging technologies - Algorithmic biases, deepfakes, and misinformation 11. Synthesis: Building an ethical academic life - Integrating Harris, ethics in general, and institutional policies - Personal integrity intentions	Exposure: description, explanation, examples, discussion of case studies	
12-13. Project defences	Exposure: description, explanation	
14. Quiz test		

Bibliography

1. Harris, Sam. Lying. Four Elephants Press, 2013.
2. ACM Code of Ethics and Professional Conduct, developed by the ACM Code 2018 Task Force, <https://www.acm.org/code-of-ethics>
3. ACM/IEEE-Computer Society. Software Engineering Code of Ethics and Professional Practice, <https://www.acm.org/code-of-ethics/software-engineering-code/>
4. Council for Big Data, Ethics & Society. <https://bdes.datasociety.net/>
5. Data & Society. <https://datasociety.net/>
6. Vallor, Shannon, and William J. Rewark. "An introduction to data ethics." Course module.) Santa Clara, CA: Markkula Center for Applied Ethics (2018).
7. Collmann, Jeff, and Sorin Adam Matei. "Ethical Reasoning in Big Data." Switzerland: Springer (2016): 4-18.
8. Mittelstadt, Brent Daniel, and Luciano Floridi, eds. The ethics of biomedical big data. Vol. 29. Cham: Springer, 2016.
9. Taylor, Linnet. "The ethics of big data as a public good: which public? Whose good?." Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences 374.2083 (2016): 20160126.
10. Fairfield, Joshua AT, and Christoph Engel. "Privacy as a public good." Duke LJ 65 (2015): 385.

8.2. Seminar/ laboratory

Teaching and learning methods

Remarks

Study and discussion related to the course topics.

Dialogue, case studies, examples

Bibliography

1. Harris, Sam. Lying. Four Elephants Press, 2013.
2. Herschel, Richard, and Virginia M. Miori. "Ethics & big data." Technology in Society 49 (2017): 31-36.
3. Buchanan, Elizabeth A. and Michael Zimmer, "Internet Research Ethics", The Stanford Encyclopedia of Philosophy (Winter 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.), <https://plato.stanford.edu/archives/win2023/entries/ethics-internet-research/>
4. Floridi, Luciano, and Mariarosaria Taddeo. "What is data ethics?." Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences 374.2083 (2016): 20160360.
5. Floridi, Luciano, and Mariarosaria Taddeo. "What is data ethics?." Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences 374.2083 (2016): 20160360.
6. Metcalf, Jacob, and Kate Crawford. "Where are human subjects in big data research? The emerging ethics divide." Big Data & Society 3.1 (2016): 2053951716650211.
7. O'Leary, Daniel E. "Ethics for big data and analytics." IEEE Intelligent Systems 31.4 (2016): 81-84.
8. Richards, Neil M., and Jonathan H. King. "Big data ethics." Wake Forest L. Rev. 49 (2014): 393.
9. Zwitter, Andrej. "Big data ethics." Big data & society 1.2 (2014): 2053951714559253.
10. Moreno, Megan A., et al. "Ethics of social media research: Common concerns and practical considerations." Cyberpsychology, behavior, and social networking 16.9 (2013): 708-713.

9. Evaluation

Type of activity	9.1 Evaluation criteria	9.2 Evaluation methods	9.3 Percentage in the final grade
9.4. Course	Quiz test	Exam	70%
9.5. Seminar/ laboratory	Project	Defence	30%
9.6 Minimum standard for passing			
• At least grade 5 (from a scale of 1 to 10).			

10. SDG labels (Sustainable Development Goals)³

	 Sustainable Development Generic Label							
								
								X
								No label applies
								

Date of entry:

23.05.2026

Signature of course coordinator

Assoc. prof. phd. Sanda-Maria AVRAM

Signature of seminar coordinator

Assoc. prof. phd. Sanda-Maria AVRAM

Date of approval in the department:

...

Signature of the head of department

Assoc. prof. phd. Adrian STERCA

³ 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."