

## SYLLABUS

Academic ethics and integrity. Methodology of scientific research  
2025-2026

### 1. Information regarding the programme

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| 1.1 Higher education institution    | <b>Babes-Bolyai University</b>          |
| 1.2 Faculty                         | <b>Mathematics and Computer Science</b> |
| 1.3 Department                      | <b>Computer Science Department</b>      |
| 1.4 Field of study                  | <b>Computer Science</b>                 |
| 1.5 Study cycle                     | <b>Master</b>                           |
| 1.6 Study programme / Qualification | <b>Advanced Informatics Systems</b>     |

### 2. Information regarding the discipline

|                                    |          |                                                                    |          |                         |          |                        |                   |
|------------------------------------|----------|--------------------------------------------------------------------|----------|-------------------------|----------|------------------------|-------------------|
| 2.1 Name of the discipline<br>(en) |          | Academic ethics and integrity. Methodology of scientific research  |          |                         |          |                        |                   |
| (ro)                               |          | Etică și integritate academică. Metodologia cercetării științifice |          |                         |          |                        |                   |
| 2.2 Course coordinator             |          | Lect. Dr. Ioan-Coroiu Adriana Mihaela                              |          |                         |          |                        |                   |
| 2.3 Seminar coordinator            |          | Lect. Dr. Ioan-Coroiu Adriana Mihaela                              |          |                         |          |                        |                   |
| 2.4. Year of study                 | <b>1</b> | 2.5 Semester                                                       | <b>1</b> | 2.6. Type of evaluation | <b>c</b> | 2.7 Type of discipline | <b>Compulsory</b> |
| 2.8 Code of the discipline         |          | MME3150                                                            |          |                         |          |                        |                   |

### 3. Total estimated time (hours/semester of didactic activities)

|                                                                                       |    |                      |    |                        |                     |
|---------------------------------------------------------------------------------------|----|----------------------|----|------------------------|---------------------|
| 3.1 Hours per week                                                                    | 4  | Of which: 3.2 course | 2  | 3.3 seminar/laboratory | 1 seminar+1 project |
| 3.4 Total hours in the curriculum                                                     | 56 | Of which: 3.5 course | 28 | 3.6 seminar/laboratory | 28                  |
| Time allotment:                                                                       |    |                      |    |                        | hours               |
| Learning using manual, course support, bibliography, course notes                     |    |                      |    |                        | 10                  |
| Additional documentation (in libraries, on electronic platforms, field documentation) |    |                      |    |                        | 12                  |
| Preparation for seminars/labs, homework, papers, portfolios and essays                |    |                      |    |                        | 12                  |
| Tutorship                                                                             |    |                      |    |                        | 4                   |
| Evaluations                                                                           |    |                      |    |                        | 6                   |

|                                  |     |  |
|----------------------------------|-----|--|
| Other activities: .....          |     |  |
| 3.7 Total individual study hours | 44  |  |
| 3.8 Total hours per semester     | 100 |  |
| 3.9 Number of ECTS credits       | 4   |  |

#### 4. Prerequisites (if necessary)

|                   |   |
|-------------------|---|
| 4.1. curriculum   | • |
| 4.2. competencies | • |

#### 5. Conditions (if necessary)

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| 5.1. for the course                  | • Videoprojector room             |
| 5.2. for the seminar /lab activities | • Videoprojector room and laptops |

#### 6. 6.1 Specific competencies acquired

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Professional competencies | <p>C34 Data Analysis and Modeling</p> <p>C35 Development of Computational Components for Interdisciplinary Projects</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Transversal competencies  | <p>CT1: Applying rules for: organized and efficient work, responsibilities in educational and scientific activities, and creative exploitation of one's potential, while respecting the principles and rules of professional ethics.</p> <p>CT2: Efficient organization of activities within an interdisciplinary group and development of empathic, relational, and collaborative communication skills.</p> <p>CT3: Using efficient methods and techniques for learning, knowledge accumulation, and research, and developing the ability to exploit knowledge, adapt to society's requirements, and communicate in the English language</p> |

#### 6.2. Learning outcomes

|           |                                                                                                                                                                                                                                                                                  |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Knowledge | <ul style="list-style-type: none"> <li>• The graduate is able to analyse concrete educational situation in terms of general ethical principles and rules</li> <li>• The graduate knows and respects the ethical and legal principles and rules in scientific research</li> </ul> |
| Skills    | <ul style="list-style-type: none"> <li>• The graduate proves the capacity to reflect over own learning resources.</li> </ul>                                                                                                                                                     |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Responsibility and autonomy:</b> | <ul style="list-style-type: none"> <li>• The graduate uses efficient strategies, methods and techniques for lifelong education, in order to self educate and self develop his/her personal and professional skills</li> <li>• The graduate has the ability to combine information in different ways in order to form a positive attitude towards its his/her own development</li> </ul> |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 7. Objectives of the discipline (outcome of the acquired competencies)

|                                          |                                                                                                                                                                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.1 General objective of the discipline  | <p>Understanding and applying regulations, laws, and ethical practices in computer science</p> <p>Detecting violations of intellectual property</p> <p>Analyzing the risks and alternatives of decisions regarding ethical aspects</p> |
| 7.2 Specific objective of the discipline | <p>Utilizing ethical analysis methodologies</p> <p>Critical skills in identifying legal violations within the respective field</p>                                                                                                     |

## 8. Content

| 8.1 Course                                                                                                                       | Teaching methods                                                     | Remarks |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------|
| 1. Introductory Aspects. The Responsibility, Ethics, and Integrity of the Programmer in Software Product Development             | Interactive Presentation                                             |         |
| 2. Scientific Research. Grants. Projects.                                                                                        | <p>Explanation</p> <p>Conversation</p> <p>Teaching Demonstration</p> |         |
| 3. Writing a Scientific Paper. Evaluating a Scientific Paper. Acceptance Criteria. Presenting a Paper at a Scientific Conference | <p>Explanation</p> <p>Conversation</p> <p>Teaching Demonstration</p> |         |
| 4. Evaluation of Research. Academic Rankings.                                                                                    | <p>Explanation</p> <p>Conversation</p> <p>Teaching Demonstration</p> |         |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                  |         |
| 5. Research Funding.<br><br>Sources of Research Funding.<br><br>Scholarships. Conflicts of Interest in Research.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Explanation<br><br>Conversation<br><br>Teaching<br>Demonstration |         |
| 6. Ethical Aspects in Scientific Research.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Explanation                                                      |         |
| 7. The Beginnings of Computing in Romania and in Cluj.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Conversation                                                     |         |
| 8. Aspects Regarding Plagiarism and Intellectual Property.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Teaching<br>Demonstration                                        |         |
| 9. Multidisciplinary Team in Biomedical Research - Ethics of Clinical Studies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Explanation                                                      |         |
| 10. Ethics in the Digital Age.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Conversation                                                     |         |
| 11. Compliance vs. Risk Management - Ethics of Security in Organizations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Teaching<br>Demonstration                                        |         |
| 12. Systematic Literature Review                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Explanation                                                      |         |
| 13 Student Project Presentations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                  |         |
| 14 Student Project Presentations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                  |         |
| Bibliography:<br>ACM/IEEE-Computer Society. Software Engineering Code of Ethics and Professional Practice. Version 5.2. <a href="http://www.acm.org/about/se-code">http://www.acm.org/about/se-code</a><br>Council for Big Data, Ethics & Society. <a href="http://bdes.datasociety.net/">http://bdes.datasociety.net/</a> Data & Society. <a href="https://datasociety.net/">https://datasociety.net/</a><br>Collmann, Jeff and Matai, Sorin Adam, Eds., (2016) Ethical Reasoning in Big Data: A Exploratory Analysis, Springer, 192 pages.<br>Mittelstadt, Brent and Floridi, Luciano, Eds. (2016) The Ethics of Biomedical Big Data, Springer, 480 pages.<br>Lane, Julia, et al., Eds., (2014) Privacy, Big Data, and the Public Good: Frameworks for Engagement, Cambridge University Press, 339 pages. |                                                                  |         |
| 8.2 Seminar / laboratory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Teaching methods                                                 | Remarks |
| 1. Study and discussions related to the topics covered in the course.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Debate and discussions                                           |         |
| 2. Study and discussions related to the topics covered in the course.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Debate and discussions                                           |         |
| 3. Study and discussions related to the topics covered in the course.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Debate and discussions                                           |         |

|                                                                       |                        |  |
|-----------------------------------------------------------------------|------------------------|--|
| 4. Study and discussions related to the topics covered in the course. | Debate and discussions |  |
| 5. Study and discussions related to the topics covered in the course. | Debate and discussions |  |
| 6. Study and discussions related to the topics covered in the course. | Debate and discussions |  |
| 7. Study and discussions related to the topics covered in the course. | Debate and discussions |  |

## Bibliography

Herschel, Richard and Miori, Virginia (2017) "Ethics & Big Data," Technology in Society 49, 31- 36.

Buchanan, Elizabeth and Zimmer, Michael (2016) "Internet Research Ethics," The Stanford Encyclopedia of Philosophy, Edward N. Zalta (ed.), <https://plato.stanford.edu/entries/ethics-internet-research/>

Floridi, Luciano, and Taddeo, Mariarosaria (2016) "What is Data Ethics?" Philosophical Transactions of the Royal Society A, 374:2083, DOI: 10.1098/rsta.2016.0360. In special issue with the theme The Ethical Impact of Data Science, Taddeo and Floridi eds.

Metcalf, Jason and Crawford, Kate (2016) "Where are Human Subjects in Big Data Research? The Emerging Ethics Divide," Big Data & Society 3:1, DOI: 10.1177/2053951716650211

O'Leary, Daniel E. (2016) "Ethics for Big Data and Analytics," IEEE Intelligent Systems, 31:4, 81- 84.

Crawford, Kate, et al. (2014) "Critiquing Big Data: Politics, Ethics, Epistemology." International Journal of Communication, 8:1663-1672.

Richards, Neil M. and King, Jonathan H. (2014) "Big Data Ethics," Wake Forest Law Review. Available at SSRN: <https://ssrn.com/abstract=2384174>

Zwitter, Andrej (2014) "Big Data Ethics," Big Data & Society, Jul-Dec, 1-6.

Moreno, M.A., et al. (2013) "Ethics of Social Media Research: Common Concerns and Practical Considerations." Cyberpsychol Behav Soc Netw. 16(9):708-13. doi: 10.1089/cyber.2012.0334.

## 9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

The course is included in the curriculum of the majority of prestigious universities abroad.

The course content provides basic ethical guidance established by ACM and IEEE, as well as the legal regulations of the European Union and Romania.

## 10. Evaluation

| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Share in the grade (%) |
|------------------|--------------------------|-------------------------|-----------------------------|
|------------------|--------------------------|-------------------------|-----------------------------|

|                                    |                             |                     |            |
|------------------------------------|-----------------------------|---------------------|------------|
| 10.4 Course                        | During the semester         | Raport1<br>Raport 2 | 30%<br>30% |
|                                    | At the end of the semester  | Raport 3            | 30%        |
| 10.5 Seminar/lab activities        | Presenting the final report | Presentation        | 10%        |
| 10.6 Minimum performance standards |                             |                     |            |
| ➤ At least an average equal to 5   |                             |                     |            |

Date

10.04.2025

Signature of course coordinator

Lect. Dr. Adriana Ioan-Coroiu

Signature of seminar coordinator

Lect. Dr. Adriana Ioan-Coroiu

Date of approval

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Signature of the head of department

Conf. Dr. Adrian Sterca