UNIVERSITATEA BABEŞ-BOLYAI
BABEŞ-BOLYAI TUDOMÁNYEGYETEM
BABEŞ-BOLYAI UNIVERSITÄT
BABEŞ-BOLYAI UNIVERSITY
TRADITIO ET EXCELLENTIA

# Course syllabus

## 1. Information about the program

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| 1.1 Higher Education Institution | **Babeş-Bolyai University** |
| 1.2 Faculty | **of Mathematics and Computer Science** |
| 1.3 Department | **Computer Science** |
| 1.4 Field of study | **Computer Science** |
| 1.5 Study level | **Master** |
| 1.6 Programme of study/ Qualification | **Cyber Security** |

## 2. Information about the discipline

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|---|---|---|---|---|---|---|---|
| 2.1 Title | | **Fundamentals of humanistic education (Argumentation theory) (Fundamente de educație umanistă (Teoria argumentării))** | | | | | |
| 2.2 Course holder | | | **Lecturer Dr. Mihai Rusu** | | | | |
| 2.3 Seminar holder | | | | | | | |
| 2.4 Year of study | | 2.5 Semester | **1** | 2.6. Type of assessment[1] | **ME** | 2.7 Type of module[2] | **F** |
| 2.8 Code of the discipline | | | FEU000X | | | | |

## 3. Total estimated time (teaching hours per semester)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 No. of hours per week | **2** | 3.2 of which for course | **2** | 3.3 of which for seminar | **0** |
| 3.4 Total no. of hours in the curriculum | **28** | 3.5 of which for course | **28** | 3.6 of which for seminar | **0** |

| Time distribution: | Hours |
|---|---|
| Study by using handbook, reader, bibliography and course notes | 17 |
| Additional library/specialised online research, field research | 8 |
| Preparation of seminars/laboratories, homework, projects, portfolios and essays | 15 |
| Tutoring | 5 |
| Examinations | 2 |
| Other activities: ..... | |

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| 3.7 Total no. of hours for individual study | 47 |
| 3.8 Total no. of hours per semester | 75 |
| 3.9 No. of ETCS credit points | 3 |

## 4. Prerequisites (where applicable)

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|---|---|
| 4.1 of curriculum | ❖ - |
| 4.2 of competencies | ❖ - |

## 5. Conditions (where applicable)

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| 5.1 For the development of the course | ❖ Online course conducted through the MS Teams platform |

[1] E - exam, ME - multi-term examinations, C - collocutional examination/assessment test
[2] OB - core module, OP - elective module, F - extracurricular module

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| 5.2 For the development of the seminar/laboratory | ❖ |

**6. Specific skills acquired**

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| **Professional skills** | **Knowledge and understanding**<br>❖ Evaluate the validity of arguments using semantic/analytic tableaux<br>❖ Evaluate the validity of arguments using the truth table method<br>❖ Construct rigorous proofs using natural deduction systems<br>❖ Evaluate the soundness of arguments<br>❖ Discern various types of reasoning<br>❖ Discern the logical structure of arguments/reasonings<br>❖ Identify hidden assumptions and/or premises in arguments and reasonings<br><br>**Explanation and interpretation**<br>❖ Interpret arguments, ideas, theses, according to the principle of charity<br>❖ Explain key concepts and distinctions in the logical approach to arguments/reasoning<br><br>**Instrumental - applicative**<br>❖ Use semantic/analytic tableaux to determine the validity of arguments/reasonings<br>❖ Use truth tables to determine the validity of arguments/reasonings<br>❖ Use natural deduction systems to construct rigorous proofs<br>❖ Supplement precarious arguments/reasonings in order to become valid/sound<br>❖ Develop valid, sound, arguments in scientific writing<br><br>**Attitude**<br>❖ Manifest a critical-thinking approach to discourses, ideas, theses, arguments, generally, to available information.<br>❖ Manifest an analytical-thinking approach to problems, puzzles, etc.<br>❖ Manifest a scientifically-oriented approach. |
| Interdisciplinary skills | ❖ Develop rigorous, sound, evidence-based arguments<br>❖ Identify fallacies and biases in scientific/everyday discourses<br>❖ Identify the logical joints, hidden assumptions, and premises of arguments<br>❖ Logically and critically evaluate arguments<br>❖ Asses the consistency of beliefs, ideas, theses, and premises<br>❖ Use a critical thinking approach to discourses, ideas, arguments, problems<br>❖ Develop analytic thinking skills<br>❖ Structure information in a sound logical manner<br>❖ Communicate ideas and arguments eloquently and more effectively |

**7. Course objectives** (based on list of acquired skills)

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| 7.1 General objective | ❖ Familiarize students with the formal and informal procedures for evaluating arguments.<br>❖ Familiarize students with logical and cognitive approaches to reasoning. |

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|---|---|
| 7.2 Specific objectives | ❖ Present traditional, truth table-based, and state of the art (semantic/analytic tableaux) proof procedures for testing the validity of arguments/the consistency of propositions/beliefs, and automated reasoning software based on semantic/analytic tableaux.<br>❖ Present a version of natural deduction for propositional logic and proof assistants for natural deduction.<br>❖ Classify and present criteria for evaluating reasonings.<br>❖ Classify and identify logical fallacies.<br>❖ Classify and identify reasoning/cognitive biases. |

**8. Contents**

| **8.1 Course** | Teaching methods | Observations |
|---|---|---|
| 1. Identifying arguments. The general structure of arguments. Argument evaluation: basic concepts and distinctions.<br>*Keywords*: premises, conclusion, premise indicators, conclusion indicators, semantic and structural ambiguities, truth values. | Presentation, conceptual clarifications. | |
| 2. Types of reasoning. Applications.<br>*Keywords*: deductive reasoning, inductive reasoning, abductive reasoning. | Presentation, knowledge synthesis, conceptual clarification, practical activities, group activities, guided discovery. | |
| 3. Modeling arguments: fundamental distinctions.<br>*Keywords*: serial arguments, convergent arguments, divergent arguments. | Presentation, knowledge synthesis, conceptual clarifications. | |
| 4. Nuts and bolts of propositional logic.<br>*Keywords*: sentences, propositions, atomic sentences, compound sentences, logical connectives, regimenting sentences in propositional logic, regimenting arguments in propositional logic | Presentation, knowledge synthesis, conceptual clarifications, practical activities, group activities, guided discovery. | |
| 5. Modeling arguments in propositional logic. Applications.<br>*Keywords*: truth tables, semantic | Presentation, knowledge synthesis, conceptual clarifications, practical | |

| | | |
|---|---|---|
| tableaux rules/analytic tableaux rules, validity tests. | activities. | |
| 6. Modeling arguments in modal propositional logic. Applications. *Keywords*: analytic tableaux rules, validity tests. | Presentation, knowledge synthesis, conceptual clarifications, practical activities, group activities, guided discovery. | |
| 7. Logical fallacies: fallacies of relevance. *Keywords*: formal and informal fallacies, fallacies of relevance. | Presentation, conceptual clarifications, practical activities. | |
| 8. Logical fallacies: fallacies in causal reasoning. *Keywords*: causal fallacies, correlation, spurious correlation, spurious causation, mediation, moderation. | Presentation, conceptual clarifications, practical activities. | |
| 9. Biases in reasoning. *Keywords*: anchoring bias, apophenia etc. | Presentation, conceptual clarifications, practical activities, group activities, guided discovery. | |
| 10. Biases in research. *Keywords*: confirmation bias, availability bias, etc. | Presentation, conceptual clarifications, practical activities, group activities, guided discovery. | |
| 11. The branches of rhetoric. The cannons. The appeals. Case studies. *Keywords*: forensic/judicial rhetoric, epideictic/display rhetoric, deliberative rhetoric, invention/discovery, arrangement, style, memory, delivery, ēthos, pathos, logos. | Presentation, conceptual clarifications, practical activities, group activities, guided discovery. | |
| 12. Traditional rhetorical devices and effects. Applications. *Keywords*: rhetorical question, metaphor, irony, analogy, anaphora, apophasis, diasyrmus, etc. | Presentation, conceptual clarifications, practical activities. | |
| 13. Contemporary techniques of manipulation. Applications. *Keywords*: manipulation in social-media, the rhetoric of advertising, etc. | Presentation, conceptual clarifications, practical activities. | |
| 14. Review of the topics. Significance and relevance. | Debate, interactive teaching. | |

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Walton, D. (2006). Fundamentals of Critical Argumentation. Cambridge, U.K: Cambridge University Press.

| **8.2 Seminar/Laboratory** | Teaching methods | Observations |
|---|---|---|

**9. The correspondence between the content of the course and the expectations of the academic community, professional associations and representative employers in the field:**

The course develops analytic thinking skills coupled with a critical-thinking and scientifically-oriented approach to discourses, ideas, arguments, problems. The course also offers state of the art research skills that are transferable to any scientific and applied field of knowledge

**10. Assessment**

| Type of activity | 10.1 Assessment criteria | 10.2 Assessment methods | 10.3 Percentage of the final grade |
|---|---|---|---|
| 10.4 Course | Writing examinations (3 Multiple Choice Tests) | Evaluation of the tests | 90 |
| 10.5 Seminar/ Laboratory | | | |
| | | | *Ex officio*: 1 point |
| 10.6 Minimum standard of performance | | | |
| For grade 5: obtain cumulatively 4 points at the examinations. | | For grade 10: obtain cumulatively 9 points at the examinations. | |

Date …… Course holder signature …… Seminar holder signature ……

Date of departmental approval …… Head of department signature ……