

Elective Course: Responsible AI

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| Title | Elective Course: Responsible AI |
| Semester | E2023 |
| Master programme in | Computer Science / Digital Transformation |
| Type of activity | Course |
| Teaching language | English |
| Study regulation | Read about the Master Programme and find the Study Regulations at ruc.dk |

REGISTRATION AND STUDY ADMINISTRATIVE

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| Registration | <p>You register for activities through stads selvbetjening during the announced registration period, which you can see on the Study administration homepage.</p> <p>When registering for courses, please be aware of the potential conflicts and overlaps between course and exam time and dates. The planning of course activities at Roskilde University is based on the recommended study programmes, which should not overlap. However, if you choose optional courses and/or study plans that goes beyond the recommended study programmes, an overlap of lectures or exam dates may occur depending on which courses you choose.</p> |
| Number of participants | |
| ECTS | 5 |
| Responsible for the activity | Jens Ulrik Hansen (jensuh@ruc.dk) |
| Head of study | Henrik Bulskov (bulskov@ruc.dk) |
| Teachers | |
| Study administration | IMT Registration & Exams (imt-exams@ruc.dk) |
| Exam code(s) | U60596 |

ACADEMIC CONTENT

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| Overall objective | The purpose of elective courses is to give the student opportunities to specialize within a specific subject area, where the student acquires knowledge, skills and competences in order to translate theories, methods and solutions ideas into their own practice. |
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Detailed description of content

Artificial Intelligence (AI) as a technology is seeing a rapid increase of use-cases across all domains. While many of these applications of AI help advance humanity and help us in our daily lives, there are also a growing number of cases that are deeply concerning such as AI used to derive sentences in the court of law, profile socially disadvantaged, or surveil citizens, as well as numerous cases of AI systems being biased against minority groups. Thus, although the benefits of implementing AI systems are to great not to give up the technology, we need to be really careful in choosing which AI systems to develop and how to develop them – we need Responsible AI!

In this course, we will look both at the challenges of AI systems, as mentioned above, but also at possible responsible ways to mitigate these challenges. More specifically, potential topics covered are: Ethics and AI, Accountability and Responsibility, Transparency and explainability, The data science process and the epistemology of data science, Responsibility in practice, Bias and Fairness, Privacy and legislation, Misinformation and democracy, Responsibility of Generative AI, Human-centric AI design, and Responsible AI in healthcare.

Note that, the course is not an introductory course to artificial intelligence and basic knowledge of central AI concepts are assumed – however, it is possible to individually catch up on such concepts during the beginning of the course. Moreover, no programming skills are assumed and the course is suited for students from multiple educational programs such as Computer Science and Digital Transformation.

Course material and Reading list

to be announced on Moodle

Overall plan and expected work effort

The course will have the form of in-person seminars with an active learning style, i.e., introduction to theory in combination with hands-on in-class exercises and discussions based materials read in advance. Students are expected to read the required material before class and to show up physically and take part in the discussions and exercises.

Study effort: The course's 5 ECTS correspond to a total of 135 hours workload with:

- 40 hours lectures and exercises,
- 70 hours of preparation over a 10 week course period, and
- 25 hours for the exam and preparation before the course period.

Format

Evaluation and feedback

Evaluation form to be filled out (anonymously) plus open discussion during the course.

Programme

ASSESSMENT

Overall learning outcomes

After completing this course, students will be able to:

- demonstrate knowledge within a defined subject area.
- demonstrate an overall overview and understanding of the general principles behind the field's theory, methods and technological solutions.

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| | <ul style="list-style-type: none"> • choose and apply appropriate methods and techniques relevant to the field to analyse, design and implement solutions • work with it-related problems within their field, both individually and in groups. • be proficient in new approaches within the subject area in a critical and systematic way and thereby independently take responsibility for their own professional development. |
| Form of examination | <p>Individual oral exam based on a written product</p> <p>The character limit of the written product is maximum 48,000 characters, including spaces. The character limits include the cover, table of contents, bibliography, figures and other illustrations, but exclude any appendices.</p> <p>Time allowed for exam including time used for assessment: 20 minutes. The assessment is an overall assessment of the written product(s) and the subsequent oral examination.</p> <p>Permitted support and preparation materials for the oral exam: All.</p> <p>Assessment: 7-point grading scale. Moderation: Internal co-assessor.</p> |
| Form of Re-examination | Samme som ordinær eksamen / same form as ordinary exam |
| Type of examination in special cases | |
| Examination and assessment criteria | <p>The assessment will be based on the extent to which the student can:</p> <ul style="list-style-type: none"> • (1) Explain theories and concepts covered in class, and • (2) relate these theories and concepts to relevant AI cases, to • (3) critically discuss societal, ethical, human, and implementation challenges, as well as • (4) elaborate on potential responsible responses to these challenges. |
| Exam code(s) | Exam code(s) : U60596 |

Course days:

Hold: 1

Responsible AI (COMP)

time 15-09-2023 08:15 til
 15-09-2023 12:00

location 07.1-021 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 22-09-2023 08:15 til
22-09-2023 12:00

location 44.2-40 - theory room (50)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 29-09-2023 08:15 til
29-09-2023 12:00

location 07.1-021 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 06-10-2023 08:15 til
06-10-2023 12:00

location 07.1-061 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 13-10-2023 08:15 til
13-10-2023 12:00

location 07.2-061 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 20-10-2023 08:15 til
20-10-2023 12:00

location 07.1-021 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 27-10-2023 08:15 til
27-10-2023 12:00

location 43.3-29 - teorirum (50)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 03-11-2023 08:15 til
03-11-2023 12:00

location 07.1-021 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 10-11-2023 08:15 til
10-11-2023 12:00

location 07.1-061 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI (COMP)

time 17-11-2023 08:15 til
17-11-2023 12:00

location 07.1-021 - undervisningslokale (30)

Teacher Jens Ulrik Hansen (jensuh@ruc.dk)

Responsible AI - Hand-in (COMP)

time 24-11-2023 10:00 til
24-11-2023 10:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

Responsible AI - Oral examination (COMP)

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| time | 02-01-2024 08:15 til 03-01-2024 18:00 |
| forberedelsesnorm | ikke valgt |
| forberedelsesnorm D-VIP | ikke valgt |

Responsible AI - Reexam hand-in (COMP)

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| time | 13-02-2024 10:00 til 13-02-2024 10:00 |
| forberedelsesnorm | ikke valgt |
| forberedelsesnorm D-VIP | ikke valgt |

Responsible AI - Oral reexamination (COMP)

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| time | 20-02-2024 08:15 til 20-02-2024 18:00 |
| forberedelsesnorm | ikke valgt |
| forberedelsesnorm D-VIP | ikke valgt |