WM9Q1-30 Fundamentals of Artificial Intelligence Research, Development and Management

26/27

Department
WMG
Level
Taught Postgraduate Level
Module leader
Ninna Makrinov
Credit value
30
Module duration
23 weeks
Assessment
100% coursework
Study locations
University of Warwick main campus, Coventry Primary
Distance or Online Delivery

Description

Introductory description

This module provides participants with essential knowledge related to the MSc Artificial Intelligence course focusing on managerial and research aspects with the field of Artificial Intelligence. It offers practical guidance on conducting academically rigorous and technically proficient research projects emphasising the importance of adhering to sound academic and research practices. Students will gain a comprehensive understanding of the primary research methods and techniques applicable to technical projects, project planning and their implications for businesses. Furthermore, the module explores the alignment of student work with contemporary roles in Artificial Intelligence development, highlighting how their contributions can effectively support these roles.
This module is designed to provide students with a solid academic foundation in research methods while offering comprehensive insights into the opportunities, challenges, emerging trends, and critical issues with the realm of Artificial Intelligence.

Module aims

The module aims to empower students' careers by developing consultancy skills to integrate evidence-based artificial intelligence solutions to achieve industry's needs. It will give students an academic grounding in research methods and an in-depth knowledge of the opportunities, challenges, trends and issues facing the field of Artificial Intelligence.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Careers in Artificial Intelligence (AI): AI roles in industry, futures thinking and trend identification, searching for literature, evaluating and synthesising sources, writing academically for a lay audience.
Opportunities, challenges and trends in Artificial Intelligence: working with industry, the research process, critically analysing literature, completing a literature review, critical writing for an academic audience, ethics in AI research.
Designing Artificial Intelligence Research: Consultancy skills (identification of industrial needs, design thinking, project planning and management), Research Skills (research questions and objectives, qualitative, quantitative and mixed methods, data collection methods, applied data analysis and interpretation), Generating a research project plan.
Disseminating Artificial Intelligence' Role in Industry: Writing technical and academic research reports, delivering effective presentations.

Learning outcomes

By the end of the module, students should be able to:

- Collaboratively evaluate the contribution that contemporary roles in artificial intelligence development make to the achievement of industry's needs.
- Apply advanced project planning and management techniques to solving industrial problems, accounting for ethical considerations and data governance.
- Propose artificial intelligence evidence-based solutions informed by academically rigorous and technically competent research of published literature.
- Create a research project plan that addresses opportunities, challenges, emerging trends or critical issues in industrial applications of artificial intelligence.
- Deliver a professional presentation on the research-based artificial intelligence solutions to a mixed technical and lay audience.

Indicative reading list

Specific reading list for the module

Research element

This module provides students with the grounding on research methodologies that will allow them to critique academic research and plan a research project to address relevant gaps in the artificial intelligence literature. Students will be expected to search the literature for adequate publications, be able to summarise and present them. They will be able to analyse the work critically and develop their own research strategies. Further, they will be able to propose evidence-based solutions to industrial problems and design a research proposal.

Interdisciplinary

The module is interdisciplinary in nature, drawing on social sciences knowledge to explore careers in artificial intelligence. It provides a practical understanding of the major research methods from a variety of disciplines and their applications in the field of artificial intelligence and the related business aspects within the AI field.

International

The module draws on artificial intelligence research and practice from around the world, critically analysing the potential impacts of the continued development of technology. Students will be invited to consider how inequality, social injustice and wealth distributions affect the opportunities, challenges, emerging trends, and critical issues with the realm of Artificial Intelligence.

Subject specific skills

Within the research fields around AI, students will learn to:
Make appropriate use of academic and professional resources.
Communicate ideas, principles and theories effectively in written form.
Search appropriate literary sources and databases for relevant information.
Read academic texts critically and effectively.
Construct and present bibliographies and references.
Develop an academic writing styles.
Prepare and deliver presentations.

Transferable skills

Critical thinking
Communication
Digital literacy
Ethical values
Information literacy
Organisational awareness
Problem solving
Professionalism
Sustainability
Teamwork

Study

Study time

Type	Required
Lectures	(0%)
Seminars	52 sessions of 1 hour (17%)
Project supervision	(0%)
Supervised practical classes	(0%)
Online learning (scheduled sessions)	8 sessions of 1 hour (3%)
Online learning (independent)	30 sessions of 1 hour (10%)
Private study	90 hours (30%)
Assessment	120 hours (40%)
Total	300 hours

Private study description

Students will be expected to read around the subject and investigate literature to inform evidence-based research design.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A1

Assessment component	Weighting	Study time	Eligible for self-certification
Group Presentation	20%	24 hours	No

Students will present on the opportunities that Artificial Intelligence technology presents for industry, as it applies to a case study. Peer adjustment will be used to reflect individual contributions to the presentation.

	Weighting	Study time	Eligible for self-certification

Reassessment component

Individual presentation — No

Students will record a video presentation on the opportunities that Artificial Intelligence technology presents for industry, as it applies to a case study.

Assessment component

Research project proposal — 70% — 84 hours — Yes (extension)

Students will present a literature review that addresses evidence-based solutions to an industry case study, a research project plan to address a gap identified in the literature, and evidence of reflective engagement in the production of the research proposal. It should be noted that the content of the literature review not be reused within the dissertation module.

Reassessment component

Research Project Proposal — No

Students will present a literature review that addresses evidence-based solutions to an industry case study, a research project plan to address a gap identified in the literature, and evidence of reflective engagement in the production of the research proposal. It should be noted that the content of the literature review not be reused within the dissertation module.

Assessment component

Group essay — 10% — 12 hours — No

Students will collaboratively write an essay that evaluates the contribution that a specific role in artificial intelligence development makes to the achievement of industry’s needs. Peer adjustment will be used to reflect individual contributions to the submitted essay.

Reassessment component

Individual essay — No

Students will individually write an essay that evaluates the contribution that a specific role in artificial intelligence development makes to the achievement of industry’s needs.

Feedback on assessment

Verbal and written feedback for individual presentation. Written feedback for assignments.

Availability

There is currently no information about the courses for which this module is core or optional.