

CS941-10 Research Methods

26/27

Department

Computer Science

Level

Taught Postgraduate Level

Module leader

Till Bretschneider

Credit value

10

Module duration

10 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

The module aims to facilitate students' acquisition of a range of research methods to become able to critically review and contribute to academic publications, ensure that students are aware of the legal framework within which research is conducted, and that students are sensitive to the social and ethical issues which affect Computer Science research.

Module aims

The module will assist students in the various stages involved in undertaking a substantial research project, covering: researching and choosing a topic, finding a supervisor, writing a research proposal, narrowing the scope of the project, planning, researching, writing and finally submitting their dissertation. The module's overall aim is to offer an intellectually challenging and supportive environment which allows students to develop their research and communication skills in the context of undertaking a research project of their choice.

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.

Introduction to research methods and collaborative software tools
Use of secondary sources and bibliographic tools
Critique
Round-table research discussion
Academic writing and presenting
Opportunities and limitations of generative large language models.
Writing research proposals
Ethics and law in computer science research

Learning outcomes

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

- show a systematic understanding of the research methods used in Computer Science (CS) including time-management, project management skills and collaborative tools; distinguish between different types of academic writing; use electronic systems of bibliographic citation. avoid plagiarism of secondary sources by using a variety of writing strategies; demonstrate a comprehensive understanding of the opportunities and limitations of generative large language models.
- develop conceptual understanding to evaluate critically current research and advanced scholarship in the discipline and to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses and offer support for them through empirical evidence; conduct peer reviewing in a professional manner;
- develop conceptual understanding of ethics and law in computer science research;
- skills to deliver an effective verbal research presentation; demonstration of improved written communication skills as demonstrated through writing an effective and realistic research proposal sustaining original and sound scientific arguments and using secondary sources in their writing in an accurate and honest manner;
- qualities and transferable skills necessary for employment, including the exercise of initiative and personal responsibility; decision-making in complex and unpredictable situations; the independent learning ability required for continuing professional development;

Indicative reading list

[Reading lists can be found in Talis](#)

Research element

independent research

Subject specific skills

- Understanding the research methods used in Computer Science (CS)
- Distinguishing between different types of academic writing strategies
- Writing an effective and feasible research proposal
- Understanding the principal legal issues which affect computer science research, and be

aware of the need to recognise the ethical and social impact of computer science research activities

- Using electronic systems of bibliographic citation
- Using collaborative tools for software development
- Conduct research in CS in an effective and productive manner
- Writing a scientific paper
- Writing a research proposal
- Conducting a critical review of a scholarly article
- Managing a long research project and see it to completion
- Having a systematic understanding of the opportunities and limitations of using generative large language models

Transferable skills

Students will improve their qualities and transferable skills necessary for employment in computer science and related areas, including the exercise of initiative and personal responsibility; decision-making in complex and unpredictable situations; the independent learning ability required for continuing professional development; working in teams;

Study

Study time

Type	Required
Lectures	10 sessions of 2 hours (20%)
Seminars	2 sessions of 2 hours (4%)
Private study	36 hours (36%)
Assessment	40 hours (40%)
Total	100 hours

Private study description

Self-directed study, focused around the assessments.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time	Eligible for self-certification
Assessment component			
Research Methods Presentation	40%	16 hours	No
10 min presentation on an Ethical, Legal or Social Issue in the form of a submitted video recording			
Record a talk by yourself on an ethical, legal or social issue of your choice, related to an area of research in computer science or data analytics. Prepare either slides or a poster to support your talk. You may include in your talk one or more questions from a hypothetical audience, that you answer.			
Your video recording must not be longer than 10 minutes. In it, both yourself and the visual aids (i.e. either the slides or the poster) should be visible. Please submit the recording in MP4 format. Please submit also the slides or the poster, in PDF format.			
Marking Scheme: [Weighted 25% each]			
Originality in your choice of the ethical, legal or social issue.			
Clarity, soundness and depth of your motivation, explanation and argument.			
Quality of your visual aids (the slides or the poster).			
Quality of your talk and its delivery.			
Reassessment component is the same			
Assessment component			
Research Methods Dissertation Specification	60%	24 hours	No
Write a research proposal for your Dissertation Project.			
You are encouraged to find a supervisor for your Dissertation Project before the deadline for this assignment, and to discuss with them your ideas for this research proposal. This research proposal will be marked independently of your Dissertation Project, whose direction may evolve after submitting this assignment. You should not exceed 3,000 words for this research proposal. Please submit it in PDF.			
Marking Scheme: [Weighted 25% each]			
Motivation and clarity of the research problem.			

Weighting

Study time

Eligible for self-certification

Soundness and quality of the proposed ideas and methodology.
Measurability of the deliverables, and appropriateness of the workplan.
Quality of your writing and referencing.

Reassessment component is the same

Feedback on assessment

Individual feedback will be provided on all components of assessed coursework.

Availability

Courses

This module is Core for:

- MSc Computer Science