CP70011E – Research Methods

20 Credits

Level 7

Academic Year 2024-25

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2 Module overview

This module provides students with the skills to acquire and distil knowledge so that they are fully prepared to undertake applied research at master's level in general and in diverse areas in Information Systems and Computing, in particular. Students will be able to come up with appropriate research ideas and to use appropriate data collection and statistical methods and tools to support them. A range of research methodologies and strategies are discussed in helping students prepare a research proposal for their dissertation. The assessment of the module prepares the student for the delivery of a dissertation proposal. You will be assigned a prospective dissertation supervisor who will support you on a one to one basis throughout the duration of the module and who will help you prepare a viable and quality research proposal for your dissertation.

This module will

- Assist students in the various stages involved in undertaking a substantial and independent research project at MSc level, including choosing research topic, finding supervisor, writing research proposal, conducting literature review, developing research method and strategy, writing MSc dissertation, etc.
- Enable students to plan and undertake research in various areas of computing subject.
- Provide a deep and systematic understanding of the nature and conduct of research.
- Enhance students' abilities to develop research strategies and methodologies.
- Develop students' skills to critically understand research findings from the literatures of your research areas or topics
- Enhance students' ability to identify and plan the development of transferable research skills

NOTE: This module is a pre-requisite for the MSc dissertation. Students need to pass this module before taking up their dissertation.

3 Preparing for your Assessment

A key part of your learning will be preparation for your summative assessment. You will be provided feedback on your formative assessments, and this will help you to better understand what is required of you when you submit your summative assessment. Please see below guidance on your formative assessment and how to access your feedback.

4 Summative Assessments

Summative Assessment 1

Assessment title	Written Assignment: Literature Review

Submission date and time	Week 9
Word Count (or equivalent)	1,500 – 2,500
Where to submit	Blackboard via Turnitin
Feedback date	3 weeks
Assessment Weighting	40%
PSRB requirements (if applicable)	N/A

Submitting, feedback & grades online using Blackboard

Main objectives of the Assessment

You are required to write a critical literature review on your proposed research topic/area. A minimum of 5 recent papers published on mainstream journals/conferences should be selected and reviewed. When selecting papers, you may wish to get your supervisor's opinion as to its suitability. The report should be a minimum of 1,500 words. The report should include citations to the papers selected and listed in the references section.

At this stage, you will choose a prospective dissertation supervisor, who will support you throughout the duration of the module in preparing and evaluating element 2 (i.e., dissertation proposal).

After the successful completion of this module (your dissertation proposal is approved), you will continue to work with your supervisor who will guide you on your MSc dissertation project (in a dedicated semester for MSc Dissertation module), following your dissertation proposal developed through this Research Method module.

No.	Learning Outcome	Marking Criteria
1	Demonstrate a systematic and comprehensive understanding of the nature of research as well as research techniques and skills	Rubric, provided on BB
2	Critically review and analyse academic papers at the forefront of current research and advanced scholarship in their research areas, and present reasoned arguments for or against the research topic under study	Rubric, provided on BB

Summative Assessment 2

Assessment title	Written Assignment: Dissertation Proposal
Submission date and time	Week 15
Word Count (or equivalent)	2,500 – 3,000
Where to submit	Blackboard via Turnitin
Feedback date	3 weeks
Assessment Weighting	60%
PSRB requirements (if applicable)	See points below regarding the MSc Cyber Security course, which are in line with the British Computer Society (BCS) accreditation criteria

Submitting, feedback & grades online using Blackboard

Main objectives of the Assessment

You are required to write an MSc research proposal for your MSc dissertation project. The proposal is between 2,000 to 3,000 words. **Your choice of topic and dissertation format must be relevant to your**

programme of study and agreed as such by your supervisor. A general overview of a topic with references to literature is not a research proposal and will not suffice. Broadly speaking, there are some basic types of projects:

- Design and build

  The main activities include the development of a well-designed software system for carrying out the particular task required by the project: requirements analysis, specification, program design, implementation, system testing, documentation and maintenance.

- Experimental

  These projects involve the investigation and evaluation of a new piece of technology. This may involve a substantial amount of (software / hardware) implementation and the application of scientific measurements and investigations to ascertain its properties and usefulness. Such a project will necessarily have a report which will describe the theoretical foundations of the technology, a description of the implementation and the experimental procedures used and an analysis of the results, together with an assessment of the relationship between the project work and other published work.

- Theoretical

  This type of projects tend to concentrate on introducing the relevant concepts with suitable examples, investigating further examples, making and testing conjectures, developing theorems and proofs, where appropriate, and assessing the results, attention given in suitable cases to possible applications.

- Literature analysis

  This literature-based studies may follow a systematic literature review methodology and aim to answer a specific research question. The work can be placed in a defined context and a critical judgment of the work can be made regarding its value, quality and contribution to theory and practical application.

Important notes for students on MSc Cyber Security course:

- **Your dissertation project must be on certain cyber security topic(s) that incorporates sufficient cyber security elements/components in your research.**
- **Your dissertation project is restricted to undertake practical work of some sort, most typically achieved by the creation of an artefact as the focus for covering all or part of an implementation lifecycle. Dissertations based solely on literature review activity and/or user/market surveys are not acceptable.**

No.	Learning Outcome	Marking Criteria
3	Critically evaluate research designs & methodologies and develop critiques of them and, where appropriate, to propose new hypotheses	Rubric, provided on BB
4	Present a critical awareness of current problems and/or new insights at the forefront of their research areas, and demonstrate self-direction and originality in developing a research proposal to underpin dissertation or research project.	Rubric, provided on BB

Assessment criteria:

Title	Literature review (Element 1, weighting 40%)	
Task details	You are required to write a critical literature review on your proposed research topic/area. A minimum of 5 recent papers published on mainstream journals/conferences or suitable professional materials should be selected and reviewed. When you select papers you may wish to get your supervisor's opinion as to its suitability. The report should be a minimum of 1,500 words and should include a citation the papers you selected.	
Criteria		**Max Mark**
Background	Topic/area of study clearly identified; Background and context of the area / topic to be investigated well presented	10
Critical Analysis	Relevant and appropriate literature selected to the topic/area of study (minimum 5 recent papers published in journals/conferences); Critical analysis presented on the strengths and limitations of each literature; Evaluation and synthesis of literature conducted and inference drawn	15
Gap & Motivation	Gap in the literature identified. The motivation, impact and significance of the research topic explained.	5
Reference and Citation	Reference formatted in Harvard style and accurate; Citation style correct and consistent	5
Presentation	Logical and fluent organization of review; Appropriate grammar, punctuation, spelling and language use; Professional expression and style used consistently	5
	Total	**40**

Title	Dissertation proposal (Element 2, weighting 60%)
Task details	You are required to write a research proposal on your proposed research topic/area. The proposal should be 2,000 – 3,000 words.

Criteria		Max Mark
Introduction	Subject area well introduced. Research issues to be investigated within the subject area clearly described	5
Literature Review	Literature review improved in line with the feedback from assignment 1, especially the analysis, synthesis and evaluation of related literature	5
Aims and Objectives	Research questions clearly and specifically defined; Motivation and importance of proposed research well addressed, and supported by literature review; Aims, objectives and work scope clearly defined – specific, measurable and achievable	20
Methodology	Overall research design and process described in detail; Method/approach well-argued and justified	15

Project Plan	Timeline and steps of the project clearly outlined in a logical order; Research plan is realistic and achievable.	5
Reference and Citation	Reference formatted in Harvard style and accurate; Citation style correct and consistent	5
Presentation	Logical and fluent organization of the research proposal; Appropriate grammar, punctuation, spelling and language use; Professional expression and style used consistently	5
	Total	**60**

5 Learning materials

The reading list for this module is available on Blackboard in the module area and online by searching readinglists. This shows real-time availability of books in the library and provides direct links to digital items, recommended by your lecturer.

Remember to log into Blackboard daily to receive all the latest news and support available at your module information sites!

Subject guides are also available to help you find relevant information for assignments, with contact details of the Subject Librarian for your School.

1. Research methods, design, and analysis

- Authors: Christensen, Larry B., Johnson, Burke, Turner, Lisa Anne
- Publisher: Pearson
- https://www.vlebooks.com/Product/Index/438023 81292068466
- Year: 2014
- Global edition

2. Practical research: planning and design

- Authors: Leedy, Paul D., Ormrod, Jeanne Ellis
- Publisher: Pearson
- https://ebookcentral.proquest.com/lib/uwestlon/detail.action?docID=6142159
- Year: 2020
- 12th edition

3. Research methods for business students

- Authors: Saunders, M. N. K., Lewis, Philip, Thornhill, Adrian
- Publisher: Pearson
- https://ebookcentral.proquest.com/lib/uwestlon/detail.action?docID=7219451
- Year: 2023
- 9th edition

6 Maintaining Academic Honesty and Integrity

Academic Integrity means avoiding plagiarism and cheating and owning your own work, the use of essay mills and AI content is also considered academic misconduct. This is when you submit a piece of work which is not completely your own, but which you are presenting as your own without acknowledging the author or properly referencing the original source. All your work must demonstrate Academic Integrity; it must be an honest and fair submission, complying with all the requirements of the assessment. Failure to meet these standards of behaviour and practice is academic misconduct, which can result in penalties being applied under the Academic Offences Regulations. You can get support with your academic writing by speaking to our Study support team.

7 Meeting Deadlines

You should always try your best to submit your work on time. If your circumstances mean that you are not able to submit on time or are unable to attend an in-person assessment like an exam or in-class test, then you can request Exceptional circumstances for the assessment. An **extension** allows you to submit coursework up to 10 calendar days late without penalty, (calendar days include all weekends and bank holidays where the University is open). Without an extension, the maximum mark you will be able to get for that work will be the pass mark. **Mitigation** allows you a further attempt without penalty if you fail an assessment or do not submit.

You can apply for an extension or mitigation by self-certifying that you have exceptional circumstances which affected your ability to undertake the assessment. **Self-certifying** means that evidence does not have to be provided, although the University reserves the right to request evidence. All self-certified requests must be made before the deadline and detail the exceptional circumstances that have prevented you from submitting by the original submission deadline. **You can only self-certify three assessments per academic year.** If you have used all your self-certification opportunities, or requested mitigation after the deadline, you will need to provide evidence of your exceptional circumstances for your request to be granted.

8 Getting Support

There may be times when you experience circumstances outside of your control and talking to your Module Leader/Tutor and seeking help from other support services in the university will keep you on track with your studies. You can access support and guidance and confidential help at our Support for current students page and by vising the Student Hub. It is equally important to consider your safety and the safety of others around you, especially how to stay safe online and ensure your communications are secure and appropriate. You should also familiarise yourself with the University Safeguarding Policy, process, and procedure.

Your Students' Union Advice Team can help you to obtain the right support.

9 Glossary and Acronyms

Terms and definitions

10 Appendix – Research ethics and integrity

Research ethics guidance for students

1. What is research ethics? Why it matters

You will be asked to seek ethical approval for all your research projects undertaken in the course of your studies at UWL. Research ethics provides a framework for conducting research that might range from a short questionnaire devised by an undergraduate student through to a multi-million-pound project carried out by a group of professional researchers. All researchers, across all disciplines, should be mindful of ethical issues when planning, conducting, and reporting on their work.

Research ethics works to preserve the safety and rights of research participants in addition to safeguarding the well-being and integrity of the researcher, and the trustworthiness of the research. The University does not adhere to the principles of research ethics in order to prevent research taking place, but to facilitate good research; respecting the interests of all parties, mitigating risks to participants and researcher, and delivering research outcomes that are robust.

2. Surely some types of research raise more ethical issues than others?

Yes. Typically, research that involves the following would raise ethical issues:

- human subjects,
- vulnerable individuals or groups,
- personal data,
- any type of clinical/physical intervention,
- when conducted in a sensitive or potentially dangerous location, or
- security sensitive information

These ethical issues require appropriate planning in the design of the research to identify and mitigate the risks to the participant or researcher.

Interviewing people as part of your research or collecting their data, including your peers or friends on certain issues to do a research project is, for example, a typical case where ethical approval is required to ensure that you have in place appropriate safeguards to protect their welfare. You must also ensure that you will be protected if your research involves accessing areas or information that may pose a risk to you.

Desk-based research centred on journal articles and books would be unlikely to pose acute ethical issues, except in relation to the way the researcher might select the articles, and report on their findings.

In any case, no research should be undertaken without research-ethics approval.

3. How will UWL help me understand and apply research ethics?

First and foremost, research ethics will be addressed by your tutor or supervisor as part of your teaching. It may also be part of your recommended reading. Different disciplines conduct a range of research using a variety of approaches, so your teaching will cover ethical issues that are most likely to apply to your subject. If you have any questions about the design or conduct of research that you are planning, then you should seek the guidance of the tutor responsible for the module.

Secondly, UWL operates an Online Research Ethics Risk Assessment system that you are required to complete before commencing your project. This assessment helps the University to identify and improve research projects that might raise ethical issues. Just as importantly it will help you work

through the potential ethical dimensions of your research in a structured step-by-step way and to ensure that appropriate safeguards are in place.

4. Further guidance

This guidance should be read in conjunction with the Research Governance Policy and University Research-Ethics Code of Practice, and the Data-Protection Act:
http://www.uwl.ac.uk/research/supporting-research/research-strategy-and-codes-practice
Applying for ethics approval – here is the link to the 'Research-ethics and integrity risk assessment form'.

Easy steps to ethical approval

- Remember, the ethics application form **must** be submitted and approved **before** any research project starts and **before** any potential participants are approached.
- Make sure you have discussed any possible ethical issues with your Supervisor/Tutor/Module Leader before submitting your application. **You need your Supervisor's/Module Leader's/Tutor's approval and feedback on your proposal and any other complementary documents you will be required to upload before getting started with the online approval.**
- All ethics applications are completed online. Here is the link to the School/College.
- You don't have to complete the form in one go – you can save and finish it later

At various points you will be asked to upload documents. **Your application cannot be processed without these. You are advised to first type your project description in a Word Document (this is good practice for all applications and research proposals generally).** Make sure you include the following where your project utilises these research methods and instruments (A and B compulsory for all projects):

A. The completed risk assessment form
B. A completed *Project Proposal*
C. A participant-information sheet
D. An informed-consent form

} Discuss these with your supervisor since details may vary according to project

E. A copy of interview questions and/or the questionnaires/instruments you intend to use **or**, if you do not have these questionnaires/instruments, a statement of what will be used (in MS Word, with your application ID at the top)
F. A data management and storage statement (available on Blackboard – simply add your name and application ID at the end)

- **How it works**

1. The School/College Ethics Panel will review your application – **this is normally within two weeks of submission**
2. **You and your supervisor** will be informed of the outcome by email
3. Outcomes will be one of the following categories:
   - **Conditional** approval subject to review and re-submission (you must make the changes specified by the panel before you can start)
   - **Provisional** approval subject to additional information and re-submission (you can start your project, but you will need to provide further information at a date determined by the School/College Ethics Panel)
   - **Final** approval (the approval is final, and you do not need to re-submit unless you make subsequent changes to the project)
   - **Rejection** (you must discuss issues raised with your Supervisor)
   - **Referral** to University Research Ethics Committee where risk is identified that requires such referral.