



School of Mathematics, Computing & Engineering

BSc Dissertation Handbook

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This handbook contains the key information you need to know to get started with your dissertation.

2 INTRODUCTION

A dissertation or thesis is a piece of academic work requiring completion of an independent project. The aim of the project is to test your independent research skills that you are required to gain as part of your programme of study. The outcome of a dissertation project includes artefacts such as software or algorithm, hardware, a combination of these, or an academic research publication.

The dissertation is carried under the supervision of one or more tutors. However, the dissertation project is largely independent. You must read the BCS [Code of Conduct](#) and ensure that you adhere to the principles throughout your project.

3 SUPERVISOR

We encourage you to meet the staff and discuss with them any questions you have before you decide your project and supervisor. A list of supervisors and their project will be communicated to all the students via Moodle course page.

We expect that you maintain regular contact with your supervisor and discuss your progress by means of sharing and discussing experimental and written works. We strongly discourage you to disappear for long time without the knowledge of your supervisor or coordinator and then in the end return with 25,000 words report, since it's highly unlikely be accepted as a dissertation.

What should you expect from your supervisor?

1. Advice on whether a topic is suitable for dissertation
2. Suggest sources of information
3. Advice on general structure of your dissertation
4. Discuss any problems related to submission and formatting

5. Meet and discuss your work and issues
6. Guide about the research process and planning

What shouldn't you expect from your supervisor?

1. Provide you with materials related to dissertation
2. Help in data collection or processing
3. Checking your dissertation for errors
4. Select a dissertation topic for you

4 TOPICS

You should look at the research area and the projects your supervisor has advertised and have an initial supervision meeting. Please note it is your responsibility to find a suitable topic of the project and there are no hard and fast criteria for choosing a project. We recommend you come up with an initial basic idea, which can be refined and modified after discussion with your supervisor.

When you first meet with your supervisor you should have a clear idea of what kind of project you want to do. If you don't have any ideas about the projects, then you can discuss with your supervisor and take on a project that they suggest. You need to understand that there is little point in going to someone with a vague idea like "I want to look at e-healthcare", because this area might be outside their expertise. In our experience, we have found that many students find it hard to identify suitable projects. However, the following idea may help them.

Think of the modules and courses you have taken so far and identify the ones that interest you the most. You can also evaluate your understanding in terms of how deep you know about that module and how confident are you in terms of skills and expertise in that course or module. Finally, you might also like to consider any previous experience in choosing a subject area and doing a project in that area.

5 ETHICS

The University Ethics Committees at Hope University has been set up to ensure that any research investigations that involve human beings as participants confirm to the standards set by professional bodies. These standards need to be followed correctly to ensure that the rights, safety, and wellbeing of the participants is always considered. You must complete the ethics [form](#) and get it approved by your supervisor.

6 ASSESSMENT CRITERIA AND GRADES

Since dissertation is individual piece of academic work requiring completion of an independent research project. The basic criteria to assess the dissertation include:

1. The level of effort, enthusiasm and initiative shown.
2. Challenges faced and the extent to which they were overcome.
3. The level of self-organization demonstrated.
4. The level of quality and quantity of work produced.
5. The extent to which the dissertation objectives were met.
6. The organization and structure of the written work, which includes
 - a. Quality of referencing, figures, code or algorithms, appendices, figures etc.
7. Finally, the originality and innovation visible in the dissertation will also be an important assessment criterion.

You will be required to make a presentation (either in person or via Zoom), which will carry 15% percent marks. The exact details will be communicated to you later. Supervisor meetings, at least 5, are mandatory during the dissertation period, each meeting carries 1% marks (i.e. a total 5% marks).

See Appendix 3(12) for detailed breakdown of rest of the assessment criteria.

7 PLAGIARISM AND PENALTIES

Academic misconduct and dishonesty are considered serious offences by the university. Any allegation and evidence of these will be fairly investigated and appropriate action will be taken in terms of academic penalties for poor scholarship. In extreme cases, a mark of zero will be awarded. In less extreme cases, only non-plagiarized work will be used for assessment. It should be noted that when you submit the dissertation, you are required to sign a declaration that it embodies your own work and that it properly acknowledges the work of others.

The university policy on academic misconduct is available for viewing on this link [Academic Misconduct](#). You should not copy work of other authors without acknowledging them. You should clearly identify quotations and materials from original sources. If you take material from a book or an article, it may be taken in a way that support your argument or approach. You should accurately reference all the sources. We recommend [IEEE Referencing System](#) for referencing. We also recommend the use of citation software such as Endnote.

8 EXTENSIONS

You should apply for an extension in advance of the submission deadline by following the [link](#). You will be requested to provide supporting documentation such as a medical certificate. Any kind of computer or equipment failure is not regarded as an adequate justification for an extension. Similarly, poor time management and not failure to plan are also not normally valid reasons for extension.

9 STYLE AND LAYOUT

You should type the dissertation in a standard font such as Times or Times New Roman (avoid exotic fonts) with size of 11 (or 12). Use single spacing for text with standard margins and page numbers. The length of dissertation should be 10,000 (+/- 20%) words maximum.

We recommend the following as the typical layout:

1. Title page: see the Appendix 1 below.
2. Declaration page: see the Appendix 2 below
3. Abstract: short and focused one page review of your work
4. Acknowledgements: thanking anyone who helped you
5. Table of contents: section (and sub-section) names and their page numbers
6. Introduction: this section sets the scene, motivation, background, aims, objectives etc.
7. Literature review: this should not just be a list of reviewed papers, but a comprehensive and informative presentation of how reviewed works relate to your problem.
8. Methodology: the approach you use to solve the problem in terms of tools and technologies.
9. Description of work and results: describe your work in details and the results you get.
10. Limitations: describe the strengths and weaknesses of your work
11. Conclusion: this should include a summary of your findings, if required a comparison with any previous works and anything else you think is important to include in this section

12. References: here you should list the papers, articles, books and other publications that you refer in the text in a standard *IEEE Referencing System*, please see this [link](#) for more information.
13. Appendices: this is optional however you can include code, data, test data, manuals etc.

10 APPENDIX 1: TITLE PAGE

[Dissertation Title]

[Student Name]

Submitted Month Year, in partial fulfilment of
the conditions of the award of the degree [name of degree]

School of Mathematics, Computer Science & Engineering
Liverpool Hope University
Supervisor: Dr XYZ ABC

I hereby declare that this dissertation is all my own work, except as indicated in the text:

Signature _____

Date ____/____/____

11 APPENDIX 2: DECLARATION

This dissertation is submitted in partial fulfilment of the requirements for the degree of MSc offered by School of Mathematics, Computing and Engineering, Liverpool Hope University.

I confirm that this dissertation is my own work and wherever required I have acknowledged the work of others.

I confirm that I have obtained informed consent from all people who participated in this work and received ethics approval as appropriate to my dissertation.

I confirm that the word count for this dissertation including title page, declaration, abstract, acknowledgements, table of contents, list of illustrations, references and appendices is '**dissertation word count**'.

I also permit Liverpool Hope University to store a copy this dissertation in a public archive.

Signature:

Date:

12 APPENDIX 3: GRADE DESCRIPTOR

Criteria [Marks]	Excellent	Good	Satisfactory	Borderline	Fail
Write-up [20]	Excellent formatting, structured, and neatly presented; correct references, critical discussion of work, very interesting to read, well thought argument with discussion on future work	Follow all formatting instructions, good presentation, interesting to read, but critical discussion of work missing, dissertation argument is weak	Cover most of the formatting instructions, however critical discussion on main aspects is missing, presentation of dissertation arguments and chapters material is average	Ignorance of important formatting guidelines, issues with presentation, dissertation argument and structure	Complete ignorance of formatting, structure, referencing, and all-important aspects described above
Literature [10]	High level of engagement with current literature, critical analysis of reviewed works, interesting to read, clear presentation of key ideas related to the dissertation	Good engagement with literature, reviewed literature related to dissertation, analysis of literature with respect to student's own work	Interesting to read, average presentation and basic structure, but more works need to be reviewed, although related to student's own work but that aspect isn't clearly highlighted	Related but very limited literature, presentation and relation to student's work isn't clearly highlighted	Reviewed literature inconsistent in relation to the problem being investigated

Implementation [50]	Experimental setup without any limitations such as bugs or errors, incorporates best programming practices, well commented, well structured, non-redundant	Implementation that executes or works, follows coding principles, well-designed experimental setup	Working setup that addresses very simple or basic problem	Works with limitations, errors and bugs	Doesn't run
Evaluation [20]	Significant testing of various experiment parameters, comparison with related works, correct interpretation, and analysis, functional and non-functionally tested, repeatable	Clear analysis of the problem and results but more testing is needed to confirm the results or the main argument of the dissertation, testing approach is good but can be better	Simple and minimum evaluation with no visible drawbacks however better approaches could be employed for evaluation, no signs of functional and non-functional testing	Evaluation with clear and obvious drawbacks	No Evaluation
Overall	Demonstrates excellent understanding of computer science concepts and independent research skills, evident of student's effort that has gone beyond what's taught in the class or study programme.	High level of competency, good and correct knowledge but not beyond what's taught in the degree programme.	Good competency in all aspects, some minor visible gaps in knowledge and fundamental concepts	Clear gaps in knowledge, skills and understanding	Inadequate knowledge or complete lack of understanding and skills

13 APPENDIX 4: SUPERVISORS

Name	Research Areas	Publications	Project Ideas	Academic Profile
Dr Ogbonnaya Anicho	High Altitude Platform Stations (HAPS), Digital Connectivity, Multi-UAV/HAPS Networks and Coordination. FML202a.	Ogbonnaya Anicho - Google Scholar		Academic Profiling System (hope.ac.uk)
Dr Neil Buckley	Secret sharing-based cryptography Applications of metaheuristic algorithms. Artificial intelligence and machine learning. Cellular Automata. Steganography, blockchain, etc. Anything I've covered in lectures. I'm in room FML308B	Neil Buckley - Google Scholar	1. The use of metaheuristics or machine learning in secret sharing 2. Quantum secret sharing 3. Multi-player game theory and applications.	https://www.hope.ac.uk/si/dr-neil-buckley.html
Dr Kapil Dev	Computer Graphics, HCI, Deep Learning, Computational Creativity, AI, Artistic Renderings. FML302	Kapil Dev - Google Scholar	Object Detection/Recognition. Hand drawn sketch synthesis. Creativity and AI.1. Hand drawn sketch synthesis using deep learning 2. Measuring beauty of objects using machine learning 3. 3D shape classification using deep neural networks 4. Creativity and	Academic Profiling System (hope.ac.uk)

			AI 5. Machine learning in art and design	
Dr Nicolas Garron	Theoretical Particle Physics, Quantum Computing	Nicolas Garron - Orcid Inspire	1. Numerical Simulations 2. MonteCarlos, Quantum models 3. MarkovChainMonteCarlos 4. spin system, critical phenomena, Random walks, Self avoiding walks	Academic Profiling System (hope.ac.uk)
Prof David Reid	Spiking and Deep Belief Neural Networks, Virtual Reality technologies and Applications. FMLxxx	David Reid - Orcid		Academic Profiling System (hope.ac.uk)
Prof Raouf Naguib	Healthcare Informatics, Healthcare Knowledge Management, Biomedical Computing, Biomedical Image Processing, Environmental Health	Raouf Naguib - Google Scholar		Academic Profiling System (hope.ac.uk)
Dr Pedro Cavestany	Computer vision, 3D vision with focus on robotics, Deep Learning-based depth estimation. FML 200a.	Pedro Cavestany - Google Scholar	1. Deep Learning techniques for depth estimation and pose estimation. 2. Multiview 3D reconstruction systems. 3. 3D vision and navigation applied to mobile platforms 4. Computer Vision algorithms for object recognition, tracking and classification	-
Dr Brett Drury	Natural Language Processing, Financial Text Mining, Bayesian Reasoning, Intelligent Graphs, Semantics, semi-supervised learning and Causal Inference	Brett Drury - Google Scholar	1. Stance detection 2. Stock market prediction from social media or news. 3. Prediction of next day news 4. Detection of manipulative speech. 5. Prediction of harvest results from agricultural news. 6. Crop Named Entity Detection. 6. Emotion Analysis.	
Dr. Mark Greenwood	Software Engineering, Enterprise Architectures			
Dr Mark Baxendale	Deputy Head of School. Interests: Brain-based robotics, electronics. FML206	Mark Baxendale (0000-0003-4581-4844) (orcid.org)	1. SNN models for robots (various) 2. Deep learning for sound source localisation 3. Predictive coding for robot audition	Academic Profiling System (hope.ac.uk)
Dr Anuradha Ranasinghe	Haptics, Human-robot interactions, Miniaturized haptic-based sensors and actuators	Anuradha Ranasinghe - Google Scholar	1. Object classification using GelSight sensor 2. Development of social distancing sensor 3. Texture detection using ROI simulator 4. Slip and shear force estimation in robotic grasping	Academic Profiling System (hope.ac.uk)
Dr Emanuele Secco	Robotics, Sensors, Wearable Sensors, Biomimetic Devices. FML213	Emanuele Lindo Secco - Google Scholar	1. Development of a GUI for robotic applications 2. Keepon: a toy or a tool? 3. Design of a re-configurable robot	Academic Profiling System (hope.ac.uk)