School of Environment, Education & Development

Geography

Taught Masters programmes in Geography: Notes of guidance on dissertation preparation and submission

This Handbook contains advice and guidance for students submitting dissertations under the following programmes:

MSc Environmental Monitoring Modelling and Reconstruction
MSc Geographical Information Science
MSc Geographical Science

Year 2016/2017

Contents

1. Introduction

Students on all taught Masters programmes within the School of Environment, Education and Development are required to submit a dissertation, on a topic approved by the programme director. Dissertations should contain an element of original research which may be achieved through reflection and reading as well as through the collection of primary or secondary data. They contribute a third of a programme's assessment (60 credits of 180 for a Masters programme) and must be submitted in September of the final year of study (or December for part-time, on-campus students).

Students are free to consider a wide range of topics, subject to approval on the basis of supervisory expertise of staff delivering the programme, the feasibility of the topic within the timescale of the programme, and the extent to which the topic supplements and extends knowledge gained from following the particular programme of study.

These guidelines have been produced to help you with the process of preparing and completing a dissertation. The document sets out the initial objectives and requirements of the dissertation, advises on dissertation preparation, outlines formatting and submission arrangements and details the assessment criteria. You should use it as an aide-mémoire alongside your Programme Handbook and the advice of your supervisor.

1.1 Aims of the dissertation

The overall aims of postgraduate dissertations are to:

- provide students with an opportunity to plan, manage and conduct a programme of research on a topic related to their programme of studies;
- further students' knowledge of a relevant body of literature, and to develop powers of critical reasoning;
- allow students to seek new research findings which add to the existing body of knowledge on a particular subject area;
- develop fully students' knowledge of, and competence in, an appropriate range of research methods, including the development of a study hypothesis, an appreciation of the research methodology and analytical techniques to be utilised, the undertaking of a specific research study, the synthesis and evaluation of findings, and a clear statement of conclusions and recommendations;
- develop students' writing, presentation and bibliographic skills; and
- develop students' experience of developing and managing a specific programme of work through to final submission.

1.2 Dissertation Requirements

MSc EMMR, MSc GIS and MSc GS students should submit a dissertation of 9000 words in length requiring a total input of 600 hours of student time, comprising 100 hours during the second semester (of year one, for part-time students), and 500 hours during the period June-September (during year two for part-timers).

1.3 Submission arrangements

You must submit your final dissertation via Blackboard by **Tuesday 29th August 2017 (or by Friday 1st December 2017 for second year part-time students)**. (Details of dissertation submission procedures will be circulated at a later date). Please see section 3 and **Appendix 1** for more details.

Please be warned well in advance that **WE DO NOT** grant extensions for dissertations. The submission of the dissertation marks the completion of your degree, and we need the time following the deadline in order to mark, second mark, review and process your grades in time for the Exam Board in the Autumn and your graduation.

1.4 Penalties for Late Submission

Please note that in accordance with Faculty policy, any student who submits their dissertation after the submission deadline will receive a penalty, unless they are subsequently able to prove Mitigating Circumstances.

The penalty for late submission at postgraduate level is a loss of 10 marks per day, for which the following principles will apply:

- A loss of 10 marks per day (sliding scale) for up to 10 days;
- A 'day' is 24 hours, i.e. the clock starts ticking as soon as the submission deadline has passed;
- A day includes weekends and weekdays;

Regulations with regard to your assessment can be found in your Programme Handbook. It is your responsibility to ensure that you are fully aware of these regulations. If you are unclear regarding any aspect of the regulations then seek advice from your Programme Administrator, Programme Director or the Student Experience Administrator.

Where relevant, students should alert their supervisor to any extenuating circumstances well in advance of the submission deadline.

As with coursework assessment, the Mitigating Circumstances mechanism also applies to dissertations. Any student who considers that their dissertation may be delayed due to 'unforeseen' and 'unpreventable' circumstances should make their case using the online form *[link below]*, with supporting evidence.

http://www.seed.manchester.ac.uk/studentintranet/pgt/mitigatingcircumstances/

All work to be considered under Mitigating Circumstances should be submitted as soon as is practicable but note that any work submitted after the end of September 2017 may be too late to be marked and considered in time for the December graduation in 2017.

Students who do not submit a dissertation will normally be awarded a Diploma qualification if they have met all the other requirements of their programme. Students who fail the dissertation may be granted the opportunity to resubmit, depending upon performance in other course units.

1.5 Assessment arrangement

Once submitted, dissertations are assessed and the marking moderated by a minimum of two internal examiners. A sample of dissertations is sent to the relevant external examiner for the programme, who validates standards. Final marks are confirmed by the Board of Examiners, which meets in mid-November. A full explanation of the assessment criteria for the dissertation is set out in Section 4.

1.6 Further Reading

There is an extensive range of reading material associated with dissertation preparation and research methods and specific reading will be distributed by programme directors as appropriate. A useful generic text relevant for both Undergraduate and Masters dissertations is:

Knight, P.G. and Parsons, T. (2004) *How to Do Your Dissertation in Geography and Related Disciplines*. Routledge. 2nd Edition. 168 pages.

2. Dissertation preparation

This section offers some pointers on drafting postgraduate dissertations. It contains important information relating to the initial process of preparation and the structure of the final dissertation.

While many of the points listed below apply to virtually all pieces of research, it is important that you consult your supervisor as a means of gleaning additional advice related specifically to your dissertation. Many of the suggestions listed offer a general insight into the rules and conventions of research. **It is essential, therefore, that you read (and re-read) these carefully.**

The timetable for dissertation topic selection and submission is provided in **Appendix 1**.

2.1 Choosing a dissertation topic

It is important that you begin the process of choosing a topic as soon as possible. There are, of course, no hard-and-fast rules on how to choose a dissertation topic. However, a sensible approach is to identify a broad area of study – for example, related to one of your lecture courses – but then to narrow this down to a set of more focused research questions or hypotheses. It is important that you avoid vague and over-generalised topics. Proposals for studies like 'something on Water Quality' or 'something on land use and vegetation' are insufficiently well-focused. Try to avoid something as vague as 'issues in restoration ecology', and instead choose something tighter and more focused, like 'Scientific approaches to defining restoration objectives'.

Secondly, you must select a topic which interests you and will retain your enthusiasm for many months, but also one which is practicable within the available time.

In the initial stages, it is likely that some of you will have difficulty in selecting a topic, even where you have completed an undergraduate dissertation relatively recently. For initial ideas, it is often useful to look through recent academic journal publications to gain an idea of broad fields of contemporary research interest. In addition, trade or practice journals contain stories on areas of current professional interest, some of which may offer potential for more detailed investigation. Likewise, newspaper stories might stimulate initial ideas, though journalistic writing will need to be translated into suitably robust academic questions and hypotheses. If you would like you can look at a number of completed dissertations in SEED in the Kantorowich library, and again these can offer some initial pointers about possible research topics. Bear in mind, however, that the quality of earlier dissertations varies enormously. You will have the chance to hear presentations from staff on potential topics as part of the Environmental Research Design and Application module.

2.2 Submitting dissertation topic suggestions

You are required to indicate your proposed dissertation topic, by completing the online **Geography Dissertation Planning Form**, (by the date shown in **Appendix 1**). Further details, including the link to the online form will be circulated via email at the start of semester two. You should note that:

- Topic suggestions are indicative only, and used principally to inform the allocation of supervisors.
- It is possible for you to amend dissertation topics/titles, but you must confirm a final, formal title (see **Appendix 1** and **section 2.3** below).
- You need not, at the initial stage, agonise unduly about the precise title for the dissertation; the topic is of greater importance. Again, the final title, when it has been agreed, needs to be concise.

2.3 Ethical Applications, confirmation of title and risk assessment

All students are required to complete a **Dissertation Title and Risk Assessment Statement**. It is essential that you complete this form in order that we have an indication of your agreed dissertation title.

You should consider whether your dissertation research will constitute a 'risk' of some description. The School provides advice on most types of risk associated with independent research work through generic risk assessments detailed in **Appendix 4.** For work within the UK, this normally falls into the 'low risk' category.

If your proposed work is not covered by these risk assessments e.g. you wish to interview people as a lone researcher, then **you must complete a full risk assessment** and this will need to be accepted before you can start any work.

Any queries regarding ethical or risk assessment should be directed to your supervisor in the first instance.

It is best to consider risk and ethical review as soon as is practicable, which normally means as you are deciding or committing to a subject area or title. This would normally be done at the FIRST meeting with your supervisor. Just imagine how frustrating it would be to have done a number of months' work on a topic, which you then discover you cannot research for risk or ethical reasons! Any amount of pleas to the Programme Director of your lost time, or your emotional commitments to a particular community, will not override a refusal of a topic or method, should it fall outside our allowable risk and ethical framework: basically, the University has a duty to protect your safety, and to respect other participants in the research process, and if it cannot cover you within its insurance policy, or is not happy that your procedures are respectful enough you will NOT be permitted to submit that work for your dissertation.

If you do proceed to undertake fieldwork with human subjects, you will be required to provide them with information about participation in your research (see Appendix 2) and to obtain their consent to participate (see Appendix 3).

All ethics applications once discussed with your supervisor should now be submitted via the new Ethical Review Manager (ERM) application system

- Ethical Review Manager (ERM)

We aim to process applications within 10 working days and you will be notified by email of the outcome. Further information on good research conduct, misconduct and policies and guidelines can be located on the Research governance, ethics and integrity webpages:

- Research governance, ethics and integrity

Further information and advice on Risk Assessments, Lone Working and DBS checks associated with an Ethics application can be located on the SEED Student Intranet pages

2.4 Taught Student Ethical Guidelines

For further information on who should use the school template for ethical applications, the type of research that can be approved at a low or medium risk level, responsibilities of and roles of the school ethics committee and the process to approve applications, please download the ethical guidelines document.

- Ethical guidelines for SEED applications

Whilst these guidelines are not exhaustive, they indicate a set of obligations to which researchers should normally adhere. Responsibility for both interpretation and compliance rests with the researcher.

Further sources of information

Source of information / act	URL
Economic and Research Council (ESRC)	www.esrc.ac.uk
Arts and Humanities Research Council (AHRC)	www.ahrc.ac.uk/
British Sociological Association	www.britsoc.co.uk
Association of Social Anthropologists	www.theasa.org/
Political Studies Association	www.psa.ac.uk/
Disclosure and Barring Service (DBS)	www.gov.uk/disclosure-barring-service-check
Central Office for Research Ethics Committee – COREC (NHS)	www.corec.org.uk
The Human Rights Act (1988)	http://www.legislation.gov.uk/ukpga/1998/42/contents
Data Protection Act (1988)	http://www.legislation.gov.uk/ukpga/1998/29/contents https://ico.org.uk/
UK Copyright Act (1988)	http://www.legislation.gov.uk/ukpga/1988/48/contents
Race Relations Act (1976)	http://www.legislation.gov.uk/ukpga/1976/74/contents

Race relations (Amendment) Act 2000	http://www.legislation.gov.uk/ukpga/2000/34/contents
Disability Discrimination Act (1995)	http://www.legislation.gov.uk/ukpga/1995/50/contents
Freedom of Information Act (2000)	http://www.legislation.gov.uk/ukpga/2000/36/contents https://ico.org.uk/
Communications Act (2003)	http://www.legislation.gov.uk/ukpga/2003/21/contents
University of Manchester • Code of Practice for Dealing with allegations of Misconduct in Research • Disability Discrimination Act Policy • Equality & Diversity Policy • Freedom of Information Act Policy • Health & Safety Policy • Harassment, Discrimination & Bullying Policy • Intellectual Property Policy (guidance on) Plagiarism and other forms of academic malpractice	www.campus.manchester.ac.uk/studentnet/policies/
University's data protection policy	http://www.dataprotection.manchester.ac.uk/

2.5 Keeping on top of the dissertation process

Planning ahead

When you are planning your schedule, please do remember that your own time and application is only one of the determining factors. You need to take into account your supervisor's time as well as your own when you are estimating overall time needed. Data collection always takes longer than you expect, as does, for example, the writing of a literature review, and even the completion of your reference list, so be on the safe side and double your first estimate. Part-time students need to be sure that they have time off for supervisor meetings and for data analysis, if this is a problem for you the University can write to your company to remind them of the time commitments required to complete a dissertation.

Organising and backing up your work

Organising your work is of key importance. You should build up separate reference files of material as the study develops including notes of all documents read, and photocopies of particularly useful papers or diagrams, and notes of all meetings and discussions. Ensure that all references are complete, using the Harvard System (see **section 3.8**). Allow time for the development of ideas and arguments through revision and redrafting and full discussions of each section of study. Preparing summaries of each section as part of the drafts can help you achieve this.

Remember to make back-up copies of work held on hard or portable disks. This can be done using your P: drive, free web-based services such as Dropbox, or a CD or DVD or USB memory stick. If you have a PC or laptop, back up copies using some of these alternatives. Note that any such 'disasters' of lost work will not justify late submission. Make sure you leave plenty of time to proof read work, format the layout and chase-up any remaining references; these invariably take much longer than you expect.

The writing process

A golden rule is to write down as much as you can from as early on as you can – and your task will become easier. Quite often, it is difficult to spot the flaws in your reasoning until it is set out on paper, so you are well advised to write up bits and pieces in draft as early as possible. Early sessions with your supervisor should be followed by a period where you get down on paper and develop ideas that have been mentioned. Another reason for writing early on is that your supervisor will want to see your reasoning is committed to paper; supervisions based on loose discussion can be unproductive. The task of 9000 words does not seem nearly so unattainable when you realise how many thousands you have already written on literature review and a description of methodology.

2.6 Working with your Supervisor

The student's role

The initiative for requesting supervisions lies entirely with you, the student. Agree methods of getting in contact with your own supervisor: email is usually the best way, and if you wish to see your supervisor, you should make an appointment. You must ensure that dissertation supervisors are kept fully informed on progress and difficulties, and are 'interviewed' with prepared questions at supervisory meetings. The onus is on you to make sure that you arrange meetings with your supervisor: you will not be 'chased' by

supervisors. There will also be periods when your supervisor is not available, either because s/he is heavily committed with other duties such as examining, or on leave for work or holiday reasons. Do make sure that you and your supervisor are aware of each other's periods of absence.

To a large extent, the dissertation is a self-managed process. The student's role is to organise the research programme as a whole, taking advice from your supervisor and taking the initiative in raising problems/difficulties. The supervisor's role is to give advice and help about the nature and standard of the work, and direct you to useful literature and appropriate methodology. But remember, the ultimate responsibility remains yours. Do NOT expect your supervisor to read drafts and re-drafts of every piece of your work. When submitted, the dissertation is referred to internal and, in some instances, external examiners who will make an independent judgment of your work in its entirety.

The role of the supervisor is to:

- give guidance concerning the nature of the research, the standard of work expected and helping to plan the programme of research involved.
- establish at an early stage the supervisor's responsibilities in relation to the student's written work, including the nature of guidance and comments to be offered as work proceeds.
- be available, where possible, for meetings, which should be agreed in advance.
- provide advice and guidance to help improve the quality of the work. At all times, however, it must be made clear to the student that dissertation preparation for a higher degree is undertaken within the general principle that the dissertation must be the student's own work.

Supervisory structure (Also see Appendix 1)

What you can expect of your supervisor

During the preparation of the proposal

Supervisors are available in office hours and by appointment to discuss and develop your proposal

During the initial stage of research (until the end of June)

This is a key period in setting up your research and supervisors are available by appointment as necessary.

During the summer period (July-September)

Dissertations are completed over the summer period when staff are engaged in research. It is also likely that at some stage in the summer your supervisor may be on holiday or away at a conference. By this stage your research should be planned and underway. You can communicate with your supervisor by e-mail but will need to plan around periods when they are away. You can set up appointments to meet your supervisor by e-mail. The frequency of meetings may vary depending on the extent to which issues can be addressed via e-mail and the nature of the project. A reasonable expectation might be that you meet with your supervisor three times during this period.

Meetings with supervisors should be used to discuss progress with the project, to address problems, to discuss the findings of the project, and to plan the writing up. Writing up the dissertation is an independent exercise, you should not expect your supervisor to edit drafts of the dissertation.

In Summary

The key to a successful student-supervisor partnership is communication. Good communication will allow you to plan around periods when your supervisor is away from the university. E-mail communication is reliable since staff can pick up e-mail when working at home or elsewhere.

What your supervisor will expect of you

The MSc thesis is an independent piece of postgraduate research. You will be expected to show initiative in designing and implementing the study.

You will inevitably encounter some problems during your research and need to discuss this with your supervisor. Prepare for these discussions by thinking through possible solutions to the problem.

That you plan your work and seek help where necessary in good time.

2.7 Structure for dissertations: MSc Environmental Monitoring Modelling & Reconstruction

*The following suggested structure is drawn from the general SEED guidance on dissertations. It has been modified for relevance to the **MSc EMMR** but it is for guidance and not prescriptive. There are alternative ways to set out your work. Your supervisor and reference to published journal articles are the best guide.*

Dissertations in **MSc EMMR** should take the format of a published scientific paper as a broad outline of what is expected. As you have 9000 words there is some scope for the context and literature review to be slightly fuller than a typical journal paper (which might be 6000 words).

Your dissertation is likely, in the majority of cases, to be structured along the following lines, although your supervisor will be able to give you more detailed advice tailored to the specific nature of your research topic.

- ***introduction*** to the study, This should be brief outlining: (a) ***background*** to the topic, in terms of key policy and/or research questions, issues and debates; (b) the ***shape and scope*** of the dissertation, outlining for the reader the broad purpose of the study;.
- a ***literature review***. The literature review should be focussed, reviewing work relevant to the dissertation in order to justify the definition of the aims of the project. The purpose is to identify gaps in the overall body of research and to outline the (modest) ways in which your research can fill those gaps and expand the larger body of knowledge. It is *not* simply a summary of everything written on a particular topic; rather, it is an attempt to locate your research within the broader array of knowledge on a particular subject. This, in turn, will provide a detailed justification for, and explanation of, the research questions or hypotheses around which your work will be structured. It cannot be emphasized strongly enough that this section needs to be concise AND comprehensive. If the literature review is too long, often the discussion suffers from being too short. Please refer to your dissertation supervisor for specific advice.
- The ***methodology*** you have employed to attempt to answer the research questions or test the hypothesis, outlining both the broad research design and justifying the particular methods and techniques selected.
- a ***results*** chapter, outlining the findings of research undertaken (In some cases it may be more appropriate to collapse this chapter with the subsequent one. Your supervisor will advise you on this.)
- an ***analysis and evaluation*** chapter, making significant novel observations about the results, exploring the significance of the results and subsequent observations, relating them to the 'bigger picture' issues outlined in your literature review and highlighting the implications in light of the research questions or hypotheses.
- a ***concluding*** chapter, relating findings presented in the previous chapters to the research questions/hypotheses, and highlighting the implications of your work for policies, practices, theories or techniques, and setting out the ways in which your research has advanced or reinforced knowledge of your chosen subject area.
- a full ***reference list***, covering *all* works cited in the main text.
- any other relevant reference materials, which may be presented in the ***appendices***.

The following checklist gives some tips on the scope and content of each of these sections.

Chapter 1: Introduction

Background

The dissertation should begin by outlining the background to your topic. This could include both the broad policy context (where relevant), and details of other research studies which have looked at the area of study.

You must remember that this section should act as a general introduction to the study, and should therefore be short and snappy, avoiding too much detail. A common problem with dissertations is too much contextual, background material, and insufficient analytical detail or synthesis of source documents and interviews. You should merely introduce the topic, and flesh-out some of these ideas later-on in the work, particularly in the literature review, which will involve a much more detailed exploration of key research issues and questions, based on current findings.

Shape and scope of the study

The second section should build upon the background context that you have outlined, and explain in brief the purpose of the study and the broad questions and issues you will be addressing. These can be explained in greater detail at the beginning of the methods chapter, when, on the basis of the earlier literature review, you state the formal aims and objectives of the study and outline any research questions to be addressed or hypotheses to be tested.

Structure

The third section is normally an outline of the structure of the dissertation. The progression of chapters must be logical, with each building upon material covered in the preceding chapter. This will help focus your mind on the material required for the final report, and in planning your time. The precise structure adopted will be dependent on the particular topic chosen, and should be devised in consultation with your supervisor.

Chapter 2: Literature review

The second chapter might be a literature review, although again the structure will vary according to the precise topic selected and should be discussed at length with your supervisor.

The literature review is something which confuses many students. In essence, the aims of a literature review are two-fold. First, it should bring the reader up to date on **previous research findings** in the field, with particular reference to your chosen topic. This can point towards areas of general agreement (or disagreement) among researchers, highlighting what different studies say about your chosen topic. The central aim is to pull out the key ideas and findings from past research and 'locate' your study within that broader body of knowledge.

In summary, a literature review should *synthesise* others' work, highlighting the key themes to emerge from other studies and applying these to your own research. You should ***not*** treat the literature review as simply a summary or précis of policy documents, journal articles and books. **It is also vital that you avoid plagiarism**, whether unintentional or deliberate. If you lift ideas, or quote a short passage from others' work – which is, of course, perfectly acceptable – you have to acknowledge the source by full and proper referencing.

A useful starting point for literature reviews is to read a small number of core texts, and then trace back the more detailed articles that are cited.

Chapter 3: Research questions and/or hypotheses

Building on the key areas of interest you have identified in the literature review, the first part of chapter 3 would normally contain a question or set of questions to be addressed by your dissertation, a particular issue to be explored, or a set of hypotheses to be tested. It is vital that you set out in detail the research questions, hypotheses, issues or problems your study addresses. E.g.

- *research questions*, e.g. How does water table affect water quality in streams draining upland peatlands?

This aim might be developed into a series of testable hypotheses e.g.

- *hypotheses* to be tested, e.g. Higher levels of dissolved organic carbon are expected from sub catchments with higher average water table. The veracity of this hypothesis would be tested, possibly by using appropriate field and analytical methods. It is vital that you devise hypotheses which are not over-ambitious: remember that your study is limited in both time and in the length of the final dissertation.

Throughout your programme of research, you should constantly refer back to your aims/research questions to ensure that what you are doing or writing is relevant, and to ensure that it will help to meet your objectives.

Chapter 4: Methodology

Having generated relevant research questions and/or hypotheses, you have to explain clearly *how* you will go about answering or testing these. This should include both your sampling design and both field and laboratory methods. You must attempt to **justify** the choice of your particular methodology, in light of the chosen research topic: you have to try to demonstrate why the methods selected are appropriate to answering a particular question, or investigating a given hypothesis. Why have you selected particular case study areas? And how have you gone about investigating a particular case study?

Chapter 5: Fieldwork/results and analysis/evaluation/discussion

The dissertation should attempt to build upon the material covered in the literature review through a programme of fieldwork or further desk-based analysis. This might take the form, for example, of:

- A laboratory investigation
- Analysis of data from pre-existing national databases e.g. British Atmospheric Data Centre;
- A programme of field sampling and laboratory analysis
- Building or testing and developing a model of a particular environmental process.

While it is important that you consult formal published sources such as reports, books and journal articles, summaries of these alone are insufficient as original research. You must complement the literature reviewed with additional material of the sorts outlined above. In addition, you must also take care to avoid a purely descriptive study which is then dutifully described without interpretation, commentary or evaluation. You must try to develop novel observations, themes and arguments based on data collected and your analyses of your datasets. Your work must go beyond mere description, to provide deep analysis of information collected, to highlight the implications of your findings, and synthesize and compare your data to that from the literature. Use of statistics, where appropriate, is strongly recommended. Where you are undertaking a case study, for example, you should ensure that you constantly refer to the bigger picture: what, if anything, does the experience of a case study area or subject say about the broader question you are exploring through your research?

In some cases, you might opt to have two chapters devoted to 'results': a first one describing your main findings and outlining the results of any fieldwork; and a second discussing the broader implications. Whether you have one or two chapters is likely to depend upon the topic in question. Again, you will need to discuss this with your supervisor.

Chapter 6: Conclusions

The concluding chapter should not merely summarise material already covered in previous chapters. Instead, you must attempt to draw together the various messages to emerge from your review of the literature, and from your 'analysis' chapter(s). Again, it is important not to be descriptive, and to concentrate on the research questions posed at the outset of your study. In particular, you should try to highlight the implications of your study for both (a) research and knowledge of a particular topic area, and (where relevant) (b) policy and practice

2.8 Structure for dissertations: MSc Geographical Information Science

*The following suggested structures are drawn from the SEED guidance on dissertations. It has been modified for relevance to **MSc GIS** but it is for guidance and not prescriptive. There are alternative ways to set out your work. Your supervisor and reference to published journal articles are the best guide.*

Dissertations in **MSc GIS** should take the format of a published scientific paper as a broad outline of what is expected. As you have 9000 words there is some scope for the context and literature review to be slightly fuller than a typical journal paper (which might be 6000 words). However, the literature review should be comprehensive AND concise. If the literature review is too long, often the discussion suffers from being too short. Please refer to your dissertation supervisor for specific advice.

There are two main types of MSc GIS dissertation:

1) Research dissertation;

2) Design research dissertation.

1) Research Dissertation

A traditional research dissertation is likely, in the majority of cases, to be structured along the following lines, although your supervisor will be able to give you more detailed advice tailored to the specific nature of your research topic.

- **Abstract**
- **Acknowledgements**
- **Chapter 1: Introduction**

  Three main sections

  Background or context.

  The dissertation should begin by outlining the **background** to your topic or **context**. You must remember that this section should act as a general introduction to the study. A common problem with dissertations is too much contextual, background material, and insufficient analytical detail or synthesis of source documents. You should introduce the topic here, and flesh-out some of these ideas later-on in the literature review, which will involve a much more detailed exploration of key research issues and questions, based on current findings.

  Research Aims and objectives

  The second section should build upon the background context that you have outlined, and explain the purpose of the study putting its importance into academic context. You should state your overall aim and detail the specific objectives and research questions that you will answer in order to achieve the overall aim. It is vital that you clearly set out in detail what your study proposes to address.

  For example:

  Aim *is "To determine the applicability of Small-format Aerial Photography (SFAP) to wind erosion mapping and monitoring in the rift valley of Kenya, and the main factors which affect its success."*

  Specific objectives:

  - To determine which wind erosion features, and of what dimensions, can be visually interpreted on SFAP
  - To determine the accuracy with which SFAP can be georeferenced with single-receiver GPS and mosaiced into a seamless image

  It may be advantageous to formulate a series of research questions, which when answered will allow you to achieve each objective and thus your overall aim. Try to be as specific as possible but it is vital that you devise research questions which are not over-ambitious: remember that your study is limited in both time and in the length of the final dissertation.

  Example Research Questions:

  - Can blow-outs and dunes caused by wind erosion be seen on SFAP, and if so, of what dimensions?

- What are the photointerpretation elements for different wind erosion features?
- What is the smallest wind erosion feature than can be recognised, measuring both vertically and horizontally?
- Can sufficient group control points be established to convert the set of SFAP photos to orthophoto mosaic?

Structure

The third section of chapter 1 is normally an outline of the structure of the dissertation. The progression of chapters must be logical, with each building upon material covered in the preceding chapter.

- **Chapter 2: Literature review**

  The literature review should be focussed, reviewing work relevant to the dissertation in order to justify the definition of the aims of the project. The purpose is to identify gaps in the overall body of research and to outline the ways in which your research can fill those gaps and expand the larger body of knowledge. It is *not* simply a summary of everything written on a particular topic; rather, it is an attempt to locate your research within the broader array of knowledge on a particular subject. This, in turn, will provide a detailed justification for, and explanation of, the research questions or hypotheses around which your work will be structured. Remember that this is an MSc in GIScience and thus any literature review should include sufficient focus on the GIScience aspect of the dissertation.

- **Chapter 3: Methodology**

  Explain and justify the choice of methods that you have employed to attempt to answer the research questions, outlining both the broad research design and ***justifying*** the particular methods and techniques selected.

- **Chapter 4: Results**

  A chapter, outlining the findings of research undertaken

- **Chapter 5: Analysis and evaluation**

  A chapter exploring the significance of the results, relating them to the 'bigger picture' issues outlined in your literature review and highlighting the implications in light of the research questions.

- **Chapter 6: Conclusion**

  A chapter relating findings presented in the previous chapters to the research questions, and highlighting the implications of your work for, practices, theories or techniques, and setting out the ways in which your research has advanced or reinforced knowledge of your chosen subject area. Try to use the knowledge that you have acquired throughout the study to propose future avenues of research in your project topic area.

- a full **reference list**, covering *all* works cited in the main text.
- any other relevant reference materials, which may be presented in the **appendices**.

Plagiarism

It is vital that you avoid plagiarism, whether unintentional or deliberate. If you lift ideas, or quote a short passage from others' work – you have to acknowledge the source by full and proper referencing.

2) Design Research Dissertation

A "design" research dissertation is a research topic in the form of a design. For example, you may choose to design a: (i) computer program; (ii) user interface; (iii) database structure or (iv) an algorithm.

It is important to make sure that a "design" research dissertation is still a "research level" dissertation and not just a "project". Consequently, design dissertations **must contain a high level of innovation** *(also called novelty)* e.g. create something really new or at least a new synthesis. It must result in a design that is demonstrably "better" than the alternatives. **The dissertation must both define and demonstrate this superiority.**

A design research dissertation is likely, in the majority of cases, to be structured along the following lines, although your supervisor will be able to give you more detailed advice tailored to the specific nature of your research topic.

- **Abstract**

- **Acknowledgements**

- **Chapter 1: Introduction**

  Three main sections:

  Background or context.

  The dissertation should begin by outlining the **background** to your topic or **context**. You must remember that this section should act as a general introduction to the study. A common problem with dissertations is too much contextual, background material, and insufficient analytical detail or synthesis of source documents. You should introduce the topic here, and flesh-out some of these ideas later-on in the work literature review, which will involve a much more detailed exploration of key research issues and questions, based on current findings.

  Research Aims and objectives

  The second section should build upon the background context that you have outlined, and explain in the purpose of the study putting its importance into context i.e. why is it important? You should state your overall aim and detail the specific objectives that you will answer in order to achieve the overall aim.

  Structure

  The third section of chapter 1 is normally an outline of the structure of the dissertation. The progression of chapters must be logical, with each building upon material covered in the preceding chapter.

- **Chapter 2: Literature review**

  The literature review should be focussed, reviewing work relevant to the dissertation in order to justify the definition of the aim and objectives of the project. The review should include literature related to both the geographical and technical background of the project, including key techniques and methodologies and relevant examples, referenced to appropriate literature. The purpose is to identify gaps in the overall body of research and to outline the ways in which your research can fill those gaps and expand the larger body of knowledge. It is *not* simply a summary of everything written on a particular topic; rather, it is an attempt to locate your research within the broader array of knowledge on a particular subject. This, in turn, will provide a detailed justification for, and explanation of, the research questions around which your work will be structured.

- **Chapter 3: Requirements specification**

  This chapter should begin with a clear identification of the problem to be addressed. The chapter should then proceed to provide details of the requirements of the artefact being developed (e.g. algorithm, computer program, GUI etc.). The nature of these requirements depends on the type of project being investigated. These requirements could be obtained from a number of sources:

  - Interviews;
  - User surveys
  - Market analyses;
  - A customer;
  - Literature sources.

  The chapter should indicate the ways in which the requirements have been obtained. Once obtained the requirements should be expressed and detailed in an appropriate form. As much as possible the requirements should be measurable and quantified so that it can be determined if they have been met. It should also include some analysis of the stated requirements in order to prioritise the work to be undertaken.

- **Chapter 4: Detailed solution design**

  This chapter is concerned with presenting the full design of the system / artefact (or investigation if the dissertation is of an evaluation type) and justifying how it meets the identified requirements. It is likely to consist of three parts:

  - How and why the design has been carried out - the approach and notation used etc;
  - The conceptual level design;
  - Communication and description of the design.

  As appropriate, alternatives considered may be discussed with justification for the approach taken. The design should be expressed and detailed in a suitable form. The overall appropriateness of the solution in terms of the project aim and objectives and the identified requirements should be detailed together with an explanation of why this solution is the best compared to other possible alternatives.

- **Chapter 5: Implementation**

  This chapter focuses on the realisation of the design by an implementation. The behaviour of the implementation should be described and a justification for how it satisfies the design should be given. The actual implementation should be described but not usually in great detail; it is rare that all code (produced for a system) will be included. In general, only code that highlights particular approaches or represents interesting developments, such as an improved algorithm, should be included. The appendix may include various code excerpts - for example, class headings - in consultation with the supervisor.

  It is often appropriate (and easiest) to provide a walk-through of the system to explain its behaviour and relate it to the design. In certain cases a user manual may be presented in the appendix and this can be referred to here.

  Depending on the type of project report there may be a separate chapter for “results”.

- **Chapter 6: Evaluation / testing**

  The purpose of this chapter is to evaluate both the work done and the approach taken. The evaluation may be considered in three stages:

  - Internal: testing the “artefact”: to what extent does it produce the expected results? – as appropriate, test strategy, and test data and results may be included.
  - External: to what extent does the “artefact” satisfy the stated requirements?
  - Meta-level: has the approach taken been a valid one? - reflection on the process / method involved in performing the investigation, what lessons have been learned etc?

  At each stage, evidence and justification should be produced. These can be obtained from a number of sources: if the aim was to improve performance or accuracy then it is relatively easy to evaluate; in other cases the evaluation may be via a user set. The latter is often of particular importance in projects that involve user interfaces, web-based activity, social aspects of computing etc.

  Depending on the type of project, it may be necessary to show how the solution produced - usually small and prototypical - would scale up to a real-world system.

- **Chapter 7: Conclusion**

  This chapter should present conclusions about the investigation and outline further work which could be carried out to improve the project and the associated deliverable. The chapter should summarise what has been achieved in the investigation. The lessons learned from the overall investigation should be presented with appropriate examples. The evaluation together with new ideas should naturally lead to further work that would “improve” the work in some sense.

Reference list, covering *all* works cited in the main text.

2.9 Structure for dissertations: MSc Geographical Science

Please follow either the EMMR or GIS guidelines as appropriate. Please seek advice from your individual supervisor or Course Director (Jamie Woodward).

3. Submission Format

3.1 General information

All dissertations must be written in English; quotations, however, may be given in the language in which they were written. In exceptional circumstances variation of this regulation may be approved by the University for candidates to submit a dissertation predominantly in their language of research.

Students will be asked to submit their dissertation in electronic form through Blackboard. Further instructions will follow via email nearer to the submission date.

3.2 Presentation

Marks will be awarded for the degree of professionalism in the style and layout of the dissertation. The overall structure must be clearly presented (e.g. with an organised hierarchy of fonts and typefaces for chapter and section headings), with logical layout of chapters and paragraphs, and with text and graphics integrated in an overall 'house' style. For tips on professional style and layout, consult any of the main Remote Sensing, GIS, Environmental Science, Earth Sciences or Geography journals.

3.3 Style and Language

Formal scientific writing should be used in the dissertation in the style of most English-language international journals. Avoid using 1st person form when writing, e.g. "I collected six samples from Upper North Grain". Instead write "Six samples were collected from Upper North Grain".

Sentences are best kept short (maximum of around three lines), but their length should be varied to avoid monotony. Paragraphs should be of reasonable length (normally 3-6 sentences in length) and help to build up argument sensibly, allowing the reader time to digest one idea or theme before introducing another. It is important to use language which is neutral when matters of race and gender are involved. Terminology is often used as verbal shorthand to convey complex ideas (e.g. 'multiplier effect', 'regime approach') and terms employed must be used accurately in the sense by which they are understood among those familiar with the subject.

The most frequently used abbreviations are - *i.e.* (that is), *e.g.* (for example), *etc.* (*et cetera*, other things of the same class), *viz.* (namely), *cf.* (compare with), *no.* (number), *ibid*. (the same place), *idem*. (the same), *sic* (*sic passim*, thus, typically used to denote an error in a quote), *et al* (and others) – be sparing in the use of these in the main text. Where title abbreviations are used it is common practice to use the full term followed in brackets by the abbreviation on the first occasion of use in the text, and thereafter use the abbreviation only e.g. New Deal for Communities (NDC), Environmental Impact Assessment (EIA). The punctuation between the initial letters of well known organisations should be omitted in the text e.g. EU, RTPI. Do not abbreviate units of measurement unless they are preceded by an exact number e.g. 17ft; do not add an *s* to the plural of an abbreviation e.g. 40cm, 18lb.

3.4 Word limit

The word count for dissertations is 9000 words. This is a **maximum** word count and should not be exceeded. Markers can take into account minor transgressions of up to 10% within the existing marking criteria, which means that you can lose marks for not being concise. Going over the 9000 word limit, while permissible, is not encouraged or advised.

The word count includes:

- Chapter footnotes and endnotes
- Contents pages
- Abstract
- Quotations
- Text written in tables (but not numbers)
- Table and figure captions

It does **not** include:

- Declaration
- Intellectual Property Statement
- Reference list
- Appendices (which should be for supporting, illustrative material only and may not be used to elaborate or extend the argument)

You **must** include a word count on the bottom of your contents page. Failure to indicate the word count, or the provision of a false word count, may lead to disciplinary action.

What are the penalties for exceeding the word count?

- If you exceed word count by between 10% - 50%, your final dissertation mark will be capped at 50%. You will still be able to pass the dissertation element, but your mark may be lower than you would have otherwise achieved
- Work exceeding the word count by more than 50% will be viewed as not having met the requirements of the assessment. The work will not be marked and a mark of zero will be recorded.

3.5 Graphical material

Maps, statistical tables, figures, diagrams, graphs and photographs often provide a useful means of summarising complex information. They can also add to the work in a presentational sense. However, you should take care to use these sparingly in a manner appropriate to the topic. For example, dissertations are too often sprinkled haphazardly with too many irrelevant photographs, which bear no relation to (and are not mentioned in) the text. Any graphical figures must be referred to in the main body of text and properly labelled. All illustrations must have a designation, number and caption immediately above or below, usually with the prefix of Figure or Table in capital letters. Table captions should be placed above the table and figure captions below the figure. Ensure that you can obtain or draw illustrations easily for the final draft. Illustrations may be reproduced from other sources, if properly acknowledged.

Statistical tables or graphs should normally be no greater than a single A4 size page. All rows and columns should have unambiguous headings, and use ruled lines sparingly. Graphs should only have as many grid lines as are needed for comprehension of trends and relationships (normally 4/5 being the maximum), and with legends and descriptive notes normally standing clear of the grid lines.

All figures, graphs, and tables must have a minimum of 10 pt font for axis and information labels. All lines, shapes, and text must be clearly visible and not “fuzzy”. Moreover, all figures need to have a clear and concise figure caption.

Note also that students should not use the University logo in any correspondence (e.g. letters or online questionnaires).

3.6 Proof reading

The final draft of your dissertation should be read, where possible, by another person in order to eliminate errors of syntax and grammar, and any typographical errors which are not picked up by standard word processor spell-checkers. ***Note that it is not your supervisor’s role to proof-read final drafts***.

3.7 Plagiarism

The University’s regulations covering plagiarism (copying work from others without reference to the source) is fully set out in your programme handbook. It is regarded as a serious malpractice, and may lead to severe penalties for the work submitted as well as being recorded on the student’s record. The most common way in which plagiarism occurs is by the verbatim reproduction of another author’s work without acknowledgement, or the ‘lifting’ of a concept from a specific source without attribution. Reports which contain long quotations or illustrations which are not the writer’s own work cannot be published without the express consent of the copyright holder, although dissertations are not generally perceived to be ‘publication’. Full and proper referencing of sources is a vital safeguard against plagiarism.

3.8 Reference list and referencing

References must be consistent throughout the dissertation. A reference list of all literature cited should be given and properly referenced using the Harvard System, following the standard guidelines for work in Geography and outlined in the programme handbook. All work cited in the main text should appear, fully referenced, in the reference list; all works in the reference list should appear in the main text. **It is vital that you adopt the proper referencing system, otherwise you will lose marks**.

In your text, references **must** take the following forms:

For single authored work	either Braithwaite (1990) or (Braithwaite, 1990)
With two authors:	either Braithwaite and Zhang (1997) or (Braithwaite and Zhang, 1997)
With more than two authors:	either Braithwaite *et al.* (2006) or (Braithwaite *et al.*,

2006)

Where one author quotes another: Braithwaite in Evans (1990)

Page numbers **must** be shown with the date [e.g. (Braithwaite, 1990, 25-36)] if you are giving a direct quotation from a text, or you wish to direct your reader to a particular part of the cited text for reference.

Less than full and proper referencing in all submitted student work will be penalised when the work is assessed, and especially in dissertation work

At the end of the text, in the reference list, the full reference takes a slightly different form depending on the type of publication. Please remember that all works cited anywhere in your text **must** have an appropriate entry in your reference list.

Referencing for a book

Hughes, P.D., Castree, N. and Evans, J.Z. (2005). *Referencing for Geographers*. Braithwaite Press, New Mills, 36-42.

(i.e. published by Braithwaite Press which is based in New Mills)

ⓘ Page numbers are only needed for books if it is a particular section which is relevant, or to give the page numbers of a specific chapter, if multi-authored, or for a quotation or diagram you are copying.

Referencing for a journal article

Evans, J.Z. (2002). 'Pubs and the Modern Geographer', *Modern Geography Viewpoint*, 63(6), 456-504.

(i.e. Volume 63, Number 6, pages 456 to 504)

ⓘ Page numbers are **always** given, though they may apply only to part of the article, or a single quote, figure or table.

Referencing for an article from an edited book

Hughes, P.D. (2006). Effects of Prehistoric Brewing Effluent on the Environment', In: Braithwaite, R.J. (Ed.) *The Geography of Brewing*. Routledge, London, 345-388.

(similar in style and reasons to a journal article reference)

ⓘ (Ed.) = Editor. Where there is more than one editor use (Eds.).

ⓘ **Always** give page numbers.

Referencing for an on-line article

NASA (2012). GISS Surface Temperature Analysis (GISTEMP). http://data.giss.nasa.gov/gistemp/ (Accessed 24th January 2012).

3.9 Appendices

Appendices, if necessary and if relevant, can also be included in your dissertation. However, the use of appendices has to be justified and legitimate: they should not just be a repository of disparate information which does not fit anywhere else; nor should they be used to avoid exceeding the word limit. Instead, appendices might usefully contain material such as the character of sampling sites, extensive statistical results, tables of data, etc. Interview transcripts should not be included in the appendix.

3.10 Presentation conventions for text and formatting

There are a number of conventions to which you must adhere when submitting your completed dissertation. These are listed below.

Title The title must be short, unambiguous and accurate, and finalised by the time you submit the 'Title and Risk Assessment Declaration' form (Key date 3 - Appendix 1).

Title page

This should provide a statement as follows:

- Title of the dissertation
- The following text: 'A dissertation submitted to the University of Manchester for the degree of xxx in the Faculty of Humanities'
- the year of submission (not including the month).
- the ID Number
- the name of the candidate's School ('School of Environment, Education and Development').

Table of Contents

A list of contents, giving all relevant sub-divisions of the dissertation and a page number for each item (in Arabic numerals throughout). The final word count, including footnotes and endnotes, must be inserted at the bottom of the contents page. If illustrative materials are integrated within the text a separate list of illustrations should be prepared.

List of Illustrations

The term 'illustration' refers to all tables, maps, plans, graphs, diagrams, photographs. The list of illustrations should provide number, title, and page references. This usually appears on a separate page unless included in the table of contents.

Abstract

All dissertations must include an abstract. This should be undertaken when the dissertation is otherwise complete. The abstract should precede the introduction so that the reader/examiner can quickly see what the text is about prior to more detailed reading. Typically the abstract defines the problems the writer sets out to solve, the main procedures adopted, and the principal results and conclusions; it should occupy a single A4 page, and can be single-spaced.

Acknowledgements

Assistance given to the student in the preparation of their work must be acknowledged, and would usually include the supervisor and any key individuals (other academics, individuals from the agencies under study etc) who have helped. Acknowledgments should not normally exceed one or two paragraphs.

Declaration

A declaration stating that: 'No portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning'.

Intellectual Property Statement

All four of the following notes on copyright and the ownership of intellectual property rights must be included as written below:

i. The author of this dissertation (including any appendices and/or schedules to this dissertation) owns certain copyright or related rights in it (the "Copyright") and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

ii. Copies of this dissertation, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has entered into. This page must form part of any such copies made.

iii. The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the "Intellectual Property") and any reproductions of copyright works in the dissertation, for example graphs and tables ("Reproductions"), which may be described in this dissertation, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

iv. Further information on the conditions under which disclosure, publication and commercialisation of this dissertation, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see The University of Manchester Intellectual Property Policy, in any relevant Dissertation restriction declarations deposited in the University Library, The University Library's regulations (see http://www.library.manchester.ac.uk/about/regulations/) and in The University's Guidance for the Presentation of Dissertations.

Text

Text should formatted as double or 1.5 spacing, with a minimum font size of 12 for the main text. Single-spacing should be used for indented quotations of more than three lines, footnotes and references. Chapter headings section headings should be bold and capitalised; sub-section headings should be bold.

Page sizes and margins

The margin at the edge of any page must be not less than 40mm; other margins must be not less than 15mm. The required page size is A4 (197mm x 210mm).

Page numbering

Page numbering must consist of one single sequence of Arabic numerals (i.e. 1, 2, 3 …) throughout the dissertation. Page numbers must be displayed on all pages except the title page. The pagination sequence will include not only the text of the dissertation but also the preliminary pages, diagrams, tables, figures, illustrations, appendices, references etc. Roman numerals must not be used for page numbering.

Maps

Maps should be clearly presented, with sources referenced. See **Section 3.5 Graphical Material**

Diagrams and tables

These should be clearly presented, properly sourced, and explained in the text. See **Section 3.5 Graphical Material**

Photographs

See **Section 3.5 Graphical Material**

Quotations

Direct prose quotation exceeding three lines of text should be set out in a separate inset paragraph in single line spacing (indented about 25mm to the right and left of the main text), without inverted commas. Shorter quotations should be enclosed within the main text, in double inverted commas. If there are gaps in the quotation use three dots '…' to indicate where the words are left out. For all quotes, the author and page number must be stated. If it is desired to draw attention to a phrase in a quotation do this by italics, but note in the reference whether any italics are in the original or have been added by you as author (e.g. Smith, 2005, emphasis in original; or Jones, 2005, emphasis added).

Footnotes

These should be used very sparingly, if at all. Where footnotes are deemed absolutely necessary, they should be of direct relevance to the topic. They should be placed at the bottom of the page. They should be numbered consecutively throughout the dissertation as a whole. The font should be 9 point (in Time New Roman or similar). Text should be single spaced.

References

Should be in Harvard style (see information above and in your handbook for further details). All references must be included in the reference list, which should be arranged by alphabetical order of author surname. Where there is more than one reference by the same author n the same year each should be differentiated by a, b, c, etc (e.g. Jones 2003a, Jones2003b)

3.11 Dissertation Checklist

You need to check your draft for what might be termed continuity errors. Roughly speaking, this means checking that the whole text is consistent with itself from beginning to end. If you have changed some sections, there might be section headings to re-number, for example. To help you eliminate such errors, here is a checklist:

- are the headings and sub-headings in the contents list the same as those in the text?
- have you given lists of tables and figures as well as chapters in your contents?
- are they all numbered consecutively? numberings from earlier versions may persist and you may have two chapter 4s or no chapter 6. Using the automated Table of Contents wizard in Word can help enormously in this respect.
- are all the cross-references to other sections of the study correct?
- do all the references in the text have a corresponding entry in the reference list, with the same date as the reference in the text?
- where you refer to an article within an edited collection, have you included the full book reference, with editors, as well as the chapter reference?
- are all the references complete, i.e. have you included the publication date and place, as well as the publisher's name?
- tables: check that their numbers and titles are correct, and that references to them in the text are correct.
- figures: as for tables
- have you checked all the calculations in your tables? Have you got correct totals in the tables?
- is there enough labelling information in your tables and graphs? (e.g. if you refer to percentages, is it clear exactly what they are percentages of? Do you make it clear whether raw scores or percentages are being referred to?)
- have you calculated all the figures to the same number of decimal places?
- are you consistent about abbreviations?

None of these proof-checking tasks are the responsibility of your supervisor.

4. Assessment criteria

MSc dissertations will be assessed against the following criteria:

Percentage Mark	Characteristics
90-100	Exceptional in several respects. Shows a high degree of novelty in methods or findings. Study design is elegant and sophisticated. High quality data demonstrating a complete command of appropriate techniques and a high level ability to interpret the empirical findings. Novel or exemplary analysis, well written, and high quality presentation. Clear demonstration of significant implications of the work for the area of study. Publishable in an international journal.
80-89	Outstanding in some respects. Some novel findings or methods derived from a very well designed and executed study. High quality data and data analysis clearly presented. Appropriate demonstration of the academic context and implications of the research. Well written and potentially publishable
70-79	**Minimum mark for Distinction.** A very good thesis.. Well designed study with elements of novelty. Techniques applied appropriately. Thorough and well executed analysis. Well presented with good use of diagrams and tables. The study and findings are clearly situated in the scientific literature. Well written, contains some publishable elements.
60-69	**Minimum mark for Merit.** A good thesis that demonstrates clear competence in research design and appropriate techniques. The analysis is correct and clearly addresses the research question. The research questions and findings have appropriate academic context Clearly written and well presented with appropriate tables and diagrams.
50-59	**Minimum mark for pass at MSc level.** A fair thesis. A basic context to the research is presented. The research questions and design are basically sound. if not sophisticated. Appropriate data and routine analysis executed with some competence. Presentation and use of diagrams is fair but perhaps uninspired. Sensible conclusions
40-49	**Minimum mark for pass at Diploma level.** A basic dissertation at the level of a diploma pass. Research design is simplistic or somewhat flawed. Limited data. Analysis broadly correct but simple and descriptive. Rather limited academic context for the research questions. Adequate presentation of data and use of table and diagrams.
20-39	**Fail.** Poorly conceived or executed. Weak or badly flawed design and poorly contextualised in the scientific literature. Very limited data and weak analysis. Poorly written, structured and presented
0-20	**Fail.** Misconceived or fundamentally flawed. Seriously deficient in quantity or quality. Contains little or not data of merit. Analysis absent, muddled, or incorrect. Little effort apparent.

The following from the SEED dissertation handbook contains some general guidance on good practice and some guidance on the nature of the judgements which inform the marking criteria.

Dissertations are judged against a set of guiding criteria. The order in which the points are set out below implies no particular weighting. Again, please seek advice from your dissertation supervisor about the importance of each component with respect to your topic.

4.1 Content

- **Relevance to fields associated with the programme of study**

  i) Is the dissertation relevant to the discipline of the programme and policy development within this specified field? Does the student demonstrate an appreciation of the relevance of the work for policy development, or to deeper academic understanding of the discipline?

  ii) Does the work deal adequately with relevant theoretical and methodological issues, and where appropriate, highlight the policy implications of the work, within the topic defined? Does it avoid superfluous detail?

- **Aims, objectives and purpose of study**

  i) Does the writer spell out the aims and objectives of the study clearly? Do the objectives substantiate the achievement of the broader aims?

  ii) Do the research questions or hypotheses set out clearly the analytical path of the study?

- **Use and knowledge of literature**

  i) Where appropriate, does the literature review demonstrate a clear appreciation of key questions and areas of debate relevant to the topic, and the strengths and weaknesses of these perspectives?

  ii) Does the literature review offer an adequate review of related research, and demonstrate an understanding of the strengths and weaknesses of other studies? Does it suggest an understanding of the remaining gaps in the research conducted on the chosen topic?

  iii) Has the writer made use of an adequate range of sources? Is sufficient attention paid to academic and theoretical arguments as well as technical reports and policy documents? Are there relevant references which have been omitted? Are sources acknowledged?

  iv) Are references listed fully, and in the correct way?

- **Methods**

  i) Does the writer set out clearly the adopted research methodologies? Do the research methods used involve original research (e.g. data collection by interviews, surveys or analysis of secondary data).

  ii) Are the methods selected appropriate to the study topic? Do they flow logically from the literature review?

  iii) Are the methods selected used effectively?

  iv) Where case studies are used, is justification offered for selection? Are case studies linked to broader topics?

- **Fieldwork**

  i) To what extent are empirical data relevant to the aims/hypotheses and methods selected for the study? Are there any gaps in data collected?

  ii) Where relevant, is the sampling design adequate?

  iii) Have study sites been appropriately selected and justified

  iv) Has the writer gone beyond the obvious, showing initiative or imagination in finding relevant data in original places?

  v) Does the writer show an appreciation of data access difficulties?

- **Quality of argument and analysis**

  i) Are analytical techniques appropriate to the date collected and executed correctly

  ii) Is there novelty or originality in the nature of the data collected and the analytical framework

  iii) Are any modelling approaches properly explained and justified.

  ii) Is there an appropriate balance between description and analysis? Is each piece of description supported by an appropriate piece of analysis, demonstrating the meaning, significance, or implications of the events or phenomena which have been described?

  iii) Is the line of argument presented clear and justified, or, conversely, does it tend to be incoherent, unstructured and repetitive?

  iv) Are conclusions drawn adequately supported by empirical evidence, by statistical information, by appropriate quotations or by relevant examples or case studies? Does the work avoid assertion and unsubstantiated inference? Where the available evidence does not enable clear conclusions to be drawn, is there a clear appreciation of this?

v) Does the work show an appreciation of the implications of arguments presented in one portion of the dissertation, for material covered elsewhere? Do arguments flow in a logical fashion and avoid contradiction?

vi) To what extent is there an imbalance between refraction of other complementary analyses, on one hand, and offering isolated interpretations (insufficiently linked to the wider body of research), on the other?

vii) Do the conclusions offer original interpretations and novel lines of argument, or merely rehash the findings of other studies?

- **Conclusions**

i) Are empirical findings used to highlight wider policy or theoretical implications?

ii) Are the conclusions reached at the end of the dissertation clearly related to the questions posed at the beginning?

iii) Does the writer show an awareness of the limitations of the research and provide suggestions for future research?

4.2 Structure

- Is the division into sections, parts, or chapters clear and logical? Does it help the reader to understand the method of enquiry or the structure of the argument which the writer has adopted?
- Does each chapter lead logically into the next chapter?
- Is appropriate use made of appendices, so that material which is vital to the structure of the dissertation is in the main text itself, and only contributory or supplementary material relegated to the appendices?
- Is there a clearly explained, logical relationship between the argument presented, and any diagrams, tables, maps, or other illustrations? Are the latter placed in the text at the right points, so that their relationship to the argument is made as clear as possible?
- Are paragraphs structured in clear and logical fashion? Are sentences structured concisely to convey points clearly? Are vital points buried in over-long and poorly structured sentences, inappropriately placed in footnotes, or otherwise lost? Is it obvious what the writer thinks is crucial and what he/she thinks is subsidiary?

4.3 Presentation

- Is the dissertation written in comprehensible, plain English, unencumbered by pretentious, obscure language, and ill-understood jargon?
- Does citation of other work seem to have been done mainly to help, or to impress? Has work been cited to help the reader follow the argument, to understand its intellectual origins, and to check on points which may be of interest?
- Does the dissertation look reasonably professional and presentable? Or is it badly laid out, grubby, messy or untidy?
- Have supporting photographs, charts, tables and maps been used in an effective way?
- Has the dissertation been carefully proof read, or are errors left, apparently unnoticed?

Appendices

Appendix 1

School of Environment, Education and Development

Postgraduate Dissertation Timetable

For Geography MSc programmes

Semester 1	
January	Preliminary identification of possible dissertation topics and areas of interest.
Semester 2	
February	• The dissertation process is formally introduced in the module Dissertation Support. • Potential topics are advertised to students early in the semester. Students are also encouraged to think about independent research projects. All students are encouraged to identify potential supervisors. • Students submit proposed titles/topics via the online 'Dissertation Planning Form' on or before **Thursday 23rd February 2017. The form is available at** https://apps.mhs.manchester.ac.uk/surveys//TakeSurvey.aspx?SurveyID=9l13376M • Allocation of supervisors – by end of February 2017
March / June	• Notification of title and risk assessment: You will be asked to complete a form, to be sent to you via your Programme Administrator, on which you should write your proposed title, which should then be signed by your supervisor. This form should be returned to the 2nd Floor Student Information Desk (ALB) on or before **Friday 26th May 2017** See **Section 2.3 Ethical Applications, confirmation of title and risk assessment** for more information.
September	**SUBMISSION FOR FULL-TIME STUDENTS** • You should submit an electronic copy of your dissertation in the approved format by **Tuesday, 29th August 2017 (full-time students)**. • Dissertations **must** be submitted via Blackboard and **not** to your supervisor. Details of the submission process will be communicated by your Programme Administrator in the final weeks before submission is due. See **1.3 Submission arrangements** and **3.0 on Submission format** for more information. • Notice of submission: on submission of your dissertation, you are also required to complete an electronic Notice of Submission form, which will be sent to you via your Administrator on receipt of your dissertation title form.
December	**SUBMISSION FOR PART-TIME STUDENTS** • **Friday 1st December 2017** you should submit an electronic pdf copy of a dissertation in the approved format on or before 4pm on this date**.** • Dissertations **must** be submitted via Blackboard and **not** to your supervisor. Details of the hand-in process will be communicated by your Programme Administrator in the final weeks before submission is due. See **1.3 Submission arrangements** and **3.0 on Submission format** for more information.

Appendix 2

University of Manchester
School of Environment, Education and Development

Participant Information Sheet

[complete each section]

What is the title of the research?

Who will conduct the research?

What is the aim of the research?

Why have I been chosen?

What would I be asked to do if I took part?

What happens to the data collected?

How is confidentiality maintained?

What happens if I do not want to take part or if I change my mind?

Will I be paid for participating in the research?

What is the duration of the research?

Where will the research be conducted?

Will the outcomes of the research be published?

Contact for further information

What if something goes wrong?

Appendix 3

University of Manchester
School of Environment, Education and Development

[insert title of dissertation/project/research]

[remove questions 3 and 4 if not relevant within your research]

Consent Form

If you are happy to participate please read the consent form and initial it:

	Please Initial Box
1. I confirm that I have read the attached information sheet on the above project and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.	
2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason and without detriment to any treatment/service	
3. I understand that the interviews will be audio/video-recorded	
4. I agree to the use of anonymous quotes	

I agree to take part in the above project

Name of participant	Date	Signature
Name of person taking consent	Date	Signature

Appendix 4

School of Environment, Education and Development

Risk Assessment

This information can be found on the student intranet at
http://www.seed.manchester.ac.uk/studentintranet/healthandsafety/

Full Risk Assessment

Generic Risk Assessment – UK

Generic Risk Assessment - Low Risk Overseas Destinations

Generic Risk Assessment - Normal Office Work on Campus

Notes to accompany General Risk Assessment Forms

These forms are the ones recommended by Health & Safety Services, and used on the University's risk assessment training courses. It is strongly suggested that you use them for all new assessments, and when existing assessments are being substantially revised. However, its use is not compulsory. Providing the assessor addresses the same issues; alternative layouts may be used.

(1) **Date**: Insert date that assessment form is completed. The assessment must be valid on that day, and subsequent days, unless circumstances change and amendments are necessary.

(2) **Assessed by**: Insert the name and signature of the assessor. For assessments other than very simple ones, the assessor should have attended the University course on risk assessments (link to STDU)

(3) **Validated by**: Insert the name and signature of someone in a position to validate that the assessment has correctly identified hazards and addressed the risks. This will normally be a line manager, supervisor, principal investigator, etc.. who should be competent to identify the hazards and assess the risks. This person should have attended the University's risk assessment course, or equivalent.

(4) **Location** : insert details of the exact location, i.e. building, floor, room or laboratory etc

(5) **Assessment ref no** : use this to insert any local tracking references used by the school or administrative directorate

(6) **Review date**: insert details of when the assessment will be reviewed as a matter of routine. This might be in 1 year's time, at the end of a short programme of work, or longer period if risks are known to be stable. Note that any assessment must be reviewed if there are any significant changes – to the work activity, the vicinity, the people exposed to the risk, etc

(7) **Task / premises**: insert a brief summary of the task, e.g. typical office activities such as filing, DSE work, lifting and moving small objects, use of misc electrical equipment. Or, research project [title] involving the use of typical laboratory hardware, including fume cupboards, hot plates, ovens, analysis equipment, flammable solvents, etc.

(8) **Activity**: use the column to describe each separate activity covered by the assessment. The number of rows is unlimited, although how many are used for one assessment will depend on how the task / premises is sub-divided. For laboratory work, activities in one particular lab or for one particular project might include; use of gas cylinders, use of fume cupboard, use of

computer or other electrical equipment, use of lab ovens, hot plates or heaters, use of substances hazardous to health, etc

(9) **Hazard**: for each activity, list the hazards. Remember to look at hazards that are not immediately obvious. For example, use of a lathe will require identification of the machine hazards, but also identification of hazards associated with the use of cutting oils (dermatitis), poor lighting, slipping on oil leaks, etc. The same activity might well have several hazards associated with it. Assessment of simple chemical risks (e.g. use of cleaning chemicals in accordance with the instructions on the bottle) may be recorded here. More complex COSHH assessments e.g. for laboratory processes, should be recorded on the specific COSHH forms (link).

(10) **Persons in danger**: insert everyone who might be affected by the activity. Remember those who are not immediately involved in the work, including cleaners, young persons on work experience, maintenance contractors, Estates personnel carrying out routine maintenance and other work. Remember also that the risks for different groups will vary. E.g. someone who needs to repair a laser may need to expose the beam path more than users of the laser would do.

(11) **Existing measures to control the risk**: list all measures that already mitigate the risk. Many of these will have been implemented for other reasons, but should nevertheless be recognised as means of controlling risk. For example, restricting access to laboratories or machine rooms for security reasons also controls the risk of unauthorised and unskilled access to dangerous equipment. A standard operating procedure or local rules (e.g. for work with ionising radiation, lasers or biological hazards) will often address risks. Some specific hazards may require detailed assessments in accordance with specific legislation (e.g. COSHH, DSEAR, manual handling, DSE work). Where this is the case, and a detailed assessment has already been done in another format, the master risk assessment can simply cross-reference to other documentation. For example, the activity might be use of a carcinogen, the hazard might be exposure to hazardous substances, the existing control measures might all be listed in a COSHH assessment. Controls might also include use of qualified and/or experienced staff who are competent to carry out certain tasks; an action plan might include training requirements for other people who will be carrying out those tasks.

(12) **Risk Rating**: the simplest form of risk assessment is to rate the remaining risk as high, medium or low, depending on how likely the activity is to cause harm and how serious that harm might be.

The risk is **LOW** - if it is most unlikely that harm would arise under the controlled conditions listed, and even if exposure occurred, the injury would be relatively slight.
The risk is **MEDIUM** - if it is more likely that harm might actually occur and the outcome could be more serious (e.g. some time off work, or a minor physical injury.
The risk is **HIGH** - if injury is likely to arise (e.g. there have been previous incidents, the situation looks like an accident waiting to happen) and that injury might be serious (broken bones, trip to the hospital, loss of consciousness), or even a fatality.

Schools or administrative directorates may choose to use other rating systems. Typical amongst these are matrices (of 3x3, 4x4, 5x5 or even more complex) which require the assessor to select a numerical rating for both “likelihood that harm will arise” and “severity of that harm”. These may give a spurious sense of accuracy and reliability – none are based on quantitative methods. There are methods of estimating risk quantitatively, and these may be appropriate for complex design of load bearing structures and the like. Advice on methods of risk assessment is available from HSS. Whatever system of assessment is adopted, it is **essential** that the assessor has received suitable training and is familiar with the meaning of the terms (or numbers) used.

(13) **Result**: this stage of assessment is often overlooked, but is probably the most important. Assigning a number or rating to a risk does not mean that the risk is necessarily adequately controlled. The options for this column are:

T = trivial risk. Use for very low risk activities to show that you have correctly identified a hazard, but that in the particular circumstances, the risk is insignificant.

A = adequately controlled, no further action necessary. If your control measures lead you to conclude that the risk is low, and that all legislative requirements have been met (and University policies complied with), then insert A in this column.
N = not adequately controlled, actions required. Sometimes, particularly when setting up new procedures or adapting existing processes, the risk assessment might identify that the risk is high or medium when it is capable of being reduced by methods that are reasonably practicable. In these cases, an action plan is required. The plan should list the actions necessary, who they are to be carried out by, a date for completing the actions, and a signature box for the assessor to sign off that the action(s) has been satisfactorily completed. Some action plans will be complex documents; others may be one or two actions that can be completed with a short timescale.

U = unable to decide. Further information required. Use this designation if the assessor is unable to complete any of the boxes, for any reason. Sometimes, additional information can be obtained readily (e.g. from equipment or chemicals suppliers, specialist University advisors) but sometimes detailed and prolonged enquiries might be required. E.g. is someone is moving a research programme from a research establishment overseas where health and safety legislation is very different from that in the UK.

For T and A results, the assessment is complete.
For N or U results, more work is required before the assessment can be signed off.

(14) **Action Plan**. Include details of any actions necessary in order to meet the requirements of the information in Section 11 'Existing measures to control the risk'. Identify someone who will be responsible for ensuring the action is taken and the date by which this should be completed. Put the date when the action has been completed in the final column.