

BIRKBECK, UNIVERSITY OF LONDON
Department of Earth and Planetary Sciences

BSc Earth Science Project (SCES017D6);
BSc Environmental Geology Project (SCES020D6);
BSc Geology field-based project (SCES021D6)

60-Credit Project Guidelines

2014/15

INTRODUCTION

This booklet gives general guidance relevant to the undergraduate project that forms a major part of the B.Sc. degrees in Earth Science, Environmental Geology and Geology (field-based project). Every project is different and students should consult their tutors for specific guidance. The work you hand in for this module will be closely scrutinized by both the internal and external examiners. It will form the basis for discussions in your oral examination and, therefore, should be one of the best pieces of work that you produce during your degree. There is a heavy weighting on this module, which makes a significant contribution to your final degree grade, and you should therefore take pride in this piece of work and attempt to shine to the best of your ability.

SAFETY

You may be required to undertake hazardous procedures in a laboratory, such as sample preparation. Students must follow the advice of their supervisor or other authorised person in the laboratory at all times. **All laboratories are subject to COSHH regulations.** You must wear protective equipment or clothing if instructed to do so. Further information regarding safety in laboratories can be obtained from Dr. Andy Beard, the Department's Safety Officer. For field work you must complete a risk assessment form, available from the Department website.

PROJECT TOPICS

Almost any topic in Geology, Earth Science, or Environmental Geology, will in principle be suitable for a project. However, it is essential that a supervisor be identified, and that the supervisor judges that the proposed work is suitable for an undergraduate project. Students are encouraged to identify areas of science that interest them, and approach potential supervisors, during the early part of the Autumn Term of their penultimate academic year (usually your third year) with a view to identifying a project and supervisor by the end of October of that year. Any Birkbeck member of staff may act as a project supervisor. You are encouraged to approach several members of staff and talk to them about possible projects before finally deciding on one.

DUTIES OF SUPERVISORS

Your Project Supervisor is jointly responsible with you for the selection of a suitable project. Your supervisor (or a laboratory manager or a member of the technical staff) will show you how to use appropriate equipment and/or software. It is your supervisor's job to supply advice, at mutually convenient times, on all aspects of your project.

Please let the Module Co-ordinator Steve Hirons know who your supervisor is, and the nature/ title of your project.

COURSE REQUIREMENTS

The structure of the 'Earth Science Project', 'Environmental Geology Project' and Geology (field-based Project) was modified in October 2013 to allow it to run over two academic years and to increase its value from 30 to 60 credits. The Projects will now consist of the following elements:

- (a) A 5000 word literature review, progress report and a plan for the second year of the Project. This work will be assessed and will be worth 25% of the total project mark. It must be handed in by the end of the second (Spring) term of your penultimate year of study (usually the third year). Marks and feedback on this element of the project will be provided by the end the Summer Term.
- (b) A detailed report, of no more than 15,000 words, must be completed and submitted by the end of the second (Spring) term of your final academic year (usually the fourth year). This will be assessed and will count for 60% of the total project mark. The preparation of the Project report will take more time than you expect, so it is wise to start writing it early, preferably in the autumn term of your 4th Year. Some guidelines for the structure of this Report are given below.
- (c) Students are also required to give a 20 minute presentation describing their work to fellow students and interested members of the Department. This presentation will be assessed and will count for 15% of the final project mark. It will usually be given towards the end (usually within the last two weeks) of the second (Spring) term of your final academic year.

After submission of the literature review and progress report at the end of the Spring term of the first year of the project it is intended that work on the project will pause in the Summer term (to allow for revision and exams), but that it will resume during the Summer vacation (which is when the BSc Geology Map and Thesis students will be doing their fieldwork).

PLANNING YOUR FIELD-WORK

If you are planning to undertake extensive mapping or other field-work for your project, you are advised to consult the booklet "BSc Geology Map and Thesis" which sets out requirements for the preparation of geological maps and cross-sections.

If you are doing field work in a remote area for your project, our general policy for field work at Birkbeck is that we encourage students to work closely together, i.e., that students should be able to get in touch with each other. That means that you will work in overlapping or adjacent areas and use the same accommodation. You can confer in the field regarding the geological problem that you are addressing, but you must prepare a separate project report.

The area to be covered depends on the type of project that you are undertaking, and you will be guided by your tutor. You should aim to spend up to 20 days collecting data in the field, but this will depend on the nature of your project and the amount of time you might spend doing follow-up laboratory work. You can conduct this field work at weekends or during vacations.

LITERATURE REVIEW AND PROGRESS REPORT (25%)

The literature review and progress report are due at the end of the Spring term of the first year in which you are working on your project (usually this is the 3rd year of study for a 4-year degree).

The structure can be flexible, but it should contain at least three elements:

- (a) A review of the scientific literature relevant to the research topic chosen for the project. This should demonstrate familiarity with the available literature and should amount to about 50% of this element of the project.
- (b) A progress report on research undertaken so far, with preliminary results if available. This should amount to about 30% of this element of the project.
- (c) A detailed plan of activities to be conducted during the second year of the project. This should amount to about 20% of this element of the project.

The total length should be about 5000 words.

ORAL PRESENTATION (15%)

Your presentation will be given towards the end of the Spring term of your final academic year. It should be based around Powerpoint slides (or equivalent) and should be aimed at a general scientific audience not familiar with details of your specific project. It should last for about 20 minutes and should aim to give both an introduction to the topic for non-specialists and a summary of your main results. Your supervisor will help you with choosing the content and advice on presentation skills if required.

SUBMITTING YOUR PROJECT

At the time of submission, you should hand in your field and/or laboratory notebook (if appropriate) and your report, with appendices containing tables of data that you have collected (structural, geochemical, pointcount, etc.) The project length should be about 15,000 words and include diagrams, tables, photos, appendices, references (as appropriate).

Your project report should provide a clear, complete and understandable explanation of your project research work and the results. It should first and foremost be a scientific document and your aim is to be clear and concise. The project report should be in double spaced typescript, with a font that is similar in size to this printed page (12pt). Text should appear on only one side of the paper and you should leave a 4 cm margin on the left hand side and 2 cm margin on the right. Every page in the project report should be numbered. The text of your project report must not exceed 15000 words in length; this corresponds to about 65 double-spaced type-written pages of text using a 12pt font. The purpose of the report is to describe, interpret and summarise the observations you made in the laboratory.

Since there is a 15000 word limit it will not be possible to describe all the data that you have obtained and therefore it is necessary to systematise and summarise, and to use diagrams, tables and photographs to avoid unnecessary descriptions. To some extent the organisation of a report will vary according to the topic of study. The structure of the main text of your report will vary according to the topic of the dissertation and must be discussed with your supervisor early in the progress of your research. However, the table of contents on the next page can be used as a general guide. The information should be presented in a logical order, as set out below.

TABLE OF CONTENTS	Page nos.
Declaration.	i
Table of Contents	ii
List of Figures	iii
List of Plates	iv
Abstract.	v
Chapter 1 Introduction (to include Aims and Objectives)	1
Chapter 2 Context/literature review/background	?
Chapter 3 Area of Study (if appropriate)	?
Chapter 4 Methods and Materials	?
Chapter 5 Results	?
Chapter 6 Discussion	?
Chapter 7 Conclusions and Recommendations for Further Work	?
References	?
Acknowledgements	?
Appendices	?

With sub-sections, the following numbering systems should be adopted:

1. first order headings used for major chapters (e.g. Chapter 5 Results);

- 1.2. second order headings for main sections (e.g. 5.2 XRD methodology);
- 1.1.1. third order headings for sub-sections (e.g. 5.1.3 Olivine compositions).

Subject Matter for each section

Declaration. Your project report must contain a declaration that it is your own work (see note below on plagiarism). A suitable declaration is as follows:

“The content of this project report is the original work of the author and has not previously been submitted for a degree at this or any other University. Other people's work is acknowledged by reference.

Typed name & signature:

Date:

*Department of Earth and Planetary Sciences
Birkbeck College, University of London”.*

Table of Contents- This should list the layout of your project report.

List of Figures- These are best numbered sequentially within each chapter (i.e. Figure 1.1, 1.2.... 3.5 etc), in case you need to add or remove one later.

List of Plates- These should be numbered sequentially, e.g. Plate 1, Plate 2, Plate 3 etc.

Abstract- This should be no more than one side A4 using 10 pt font and should summarise your findings in the area in no more than 300 words. If in doubt read some scientific journal papers to give you examples of abstracts.

Chapter 1. Introduction

The introduction is one of the most important parts of any document. It should explain clearly the purpose of the document and prepare the reader for what is to come. A good introduction should include the following:

- (a) A clear statement of the nature of the project (what is being carried out);
- (b) The location(s) where the project has been undertaken (if appropriate);
- (c) An introduction to the key problems/issues being tackled and why these are important. You are putting the work into some sort of context, and therefore you need to set the scene for the reader and clearly explain the point of carrying out the work (i.e., its rationale). Every project should have a well thought out purpose, which should have been identified through discussion with your supervisor at the outset.

At the end of the Introduction chapter you should include a statement of the aims and objectives of the project. These should clearly outline any research questions, competing hypotheses or models that you wish to test, for example:

(a) If there are competing hypotheses that you have set out to test, this section can be used to present them;

(b) If the study is comparative with earlier work (e.g. same area/different method, or different area/same method) you could explain how your study is different from previous studies and why the different approach could lead to different results;

(c) If there is a gap in the current state of knowledge, which poses a set of new questions, you might want to describe how you intend to fill or exploit that gap in knowledge.

Chapter 2. Context/Literature Review/Background

The title of this section will vary with the nature of the topic under investigation but it should aim to give more detail and place the subject of the project in its proper context. This section should aim to contain any information on the following:

(a) Historical background to the issue(s) being investigated;

(b) A summary of the current state of knowledge of the area/topic involved;

(c) The nature of any controversies or opposing interpretations arising from existing research.

(d) An account of relevant theory and methods of investigation.

Remember that this chapter must never become merely an encyclopaedia of other people's work but rather should attempt to interpret and draw conclusions about the current state of knowledge.

Chapter 3. Area of Study (if appropriate)

This may not be applicable to all projects. If it is not, you should omit this section, make Chapter 3 the Methods section, and number chapters following this accordingly. If you do include the 'Area of Study' chapter, it should describe the location from which samples were obtained, previous work, etc.

Chapter 4. Materials and Methods

In this chapter you have the opportunity to describe to the reader exactly how the data for the project were acquired. For these reasons, writing a methodology is often like writing a recipe. Make sure everything is clearly explained and described so that someone else would be able to repeat the exercise. It should be as concise a description as possible of the overall approach, the samples you collected, the sampling and the analytical methods, equipment, computer programs, etc. used to generate the data. Remember, though, that 'concise' does not mean 'insufficient'. The material should follow a logical sequence, for example the order in which this work was done or the ranking of techniques employed in order of importance.

Remember that the Methods and Materials chapter should link clearly with the aims and objectives defined in your Introduction chapter. The former should clearly explain how you set out to achieve the intended aims and objectives by the methods and materials you used.

Chapter 5. Results

This is an account of your observations and/or data collected, including descriptions of laboratory work. The objective is to present the results obtained in a way that is acceptable as evidence to the reader. This can usually be best achieved by presenting the data mainly in Tables and Figures, with the necessary minimum of verbal explanation. It may be appropriate, if you have a lot of data, to summarise them in tables in Appendices at the back of your Project, but to describe the data in the text in this Results Chapter.

This section might give a brief resume of some or all of the following:

- (a) How many samples were analysed and how many measurements taken;
- (b) The coverage and quality of the data;
- (c) The nature of the measurements and how they differed between samples;
- (d) Details of documentary or other secondary data sources investigated.

Chapter 6. Discussion

In this chapter the results presented in the Results Chapter should be drawn together and discussed in relation to previously published data, giving information on the advances made and presenting conclusions. Speculation about results obtained in relation to other known facts may also be useful. In addition, you should discuss the possible theoretical or practical significance of your results. The purpose is to bring the various findings together in an interpretative manner. The discussion is often the most difficult part of a project to write and you should bear in mind that repetition to emphasise a point usually serves to labour it and often detracts from clarity.

Chapter 7. Conclusions and Recommendations for Further Work

This section should consist of a concise recapitulation of the objectives, results obtained and conclusions and possible future research objectives. However, care should be taken to avoid repeating verbatim the Abstract or material already presented in the Discussion chapter.

References. All cited references should be listed here in full. The list should be in alphabetical order and should conform to the style of a major international journal, such as the Journal of the Geological Society.

Acknowledgements. These should include sources of funding, relatives, pets etc.

Appendices. These should be listed as Appendix 8.1, Appendix 8.2, etc. and should include tables of data.

Figures and Plates

In general, try to illustrate your report as fully as possible. This does not necessarily mean photographs. Graphs, histograms and summary diagrams will improve your report. Remember to include scale and geographical co-ordinates where necessary and always label diagrams as clearly as possible. Good illustrations with informative and concise captions save words in the main text, and are often more helpful to the reader than long descriptions. Text within the diagrams looks much better if it is computer-generated.

Photographs should be carefully chosen to illustrate specific points, not simply to make the report look pretty. If photographs are used they must include a scale and a comprehensive caption. Computer-generated text on photographs should be used to pick-out specific features on photographs.

Tables

Tables should be clearly numbered and have a clear caption relevant to their content. Tables should be included in the body of the text. Large quantities of data, such as 'raw' statistical output, should not normally be placed in tables in the text but should be placed in an appendix.

Plagiarism

You are reminded that all work submitted as part of the requirements for any examination of the University of London must be expressed in your own words and incorporate your own ideas and judgments. Plagiarism - that is, the presentation of another person's thoughts or words as though they were your own - must be avoided. Direct quotations from the published or unpublished work of others must always be identified as such by using quotation marks, and a full reference to their source must be provided in the proper form. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as does a single un-acknowledged long quotation from a single source. Equally, if you summarise another person's ideas or judgments, you must refer to that person in your text, and include the work referred to in your reference list. Failure to observe these rules may result in allegation of cheating. You should therefore consult your tutor if you are in any doubt about what is permissible. In general, keep quotations from published works to a minimum. The examiner is trying to judge you, not other authors.