

(3RSM) Research Skills Project: Specifications and Requirements

This document provides guidance to help you with the preparation of your Research Skills (3RSM) Project and covers all of the assessment components for this 20-credit module. You should therefore ensure you study this carefully and refer to it regularly throughout the module.

1. General Information

1.1. Notional Hours

Research Skills in Mathematics in a 20-credit module and as such you should be prepared to spend 200-hours working to achieve the learning outcomes for the module. While this includes time you spend with your supervisor, attending the initial lectures and computer labs, and the assignment tasks, you will spend the majority of this time working independently on your project.

1.2. Intended Audience

You should consider your final project as forming a popular article on mathematics, and as such both your report and oral presentation should be at a level that is understandable by a student who has just completed their first-year in mathematics here at the University of Birmingham. While projects will include advanced mathematical ideas, these should be introduced and explained in such a way that makes them accessible to this target audience. As such, projects should only assume prior knowledge of material that is at a first-year level.

1.3. Mathematical Content

Your project should not contain incorrect mathematics nor should it ignore the mathematics involved in your chosen topic. It is your responsibility to ensure the accuracy of all mathematical content by checking and validating any information you find or use. For those undertaking the 'Teaching Option' where there may be less mathematical content, you should ensure you analyse and critically evaluate any evidence/data you collect or information you may find – your project supervisor will be able to advise you further on this.

1.4. Possible Projects

Through your project you are encouraged to explore an area of mathematics (or for those on the 'Teaching Option' mathematics education) that is of interest and/or relevance to you. To give you ideas, some titles of previous past projects have been made available on Canvas. You must agree with your project supervisor the title and focus for your project at, or shortly after, your first meeting.

1.5. Exemplar Projects

You can find on Canvas a number of 'good' projects, that is those that were graded as either a 1st or 2(i), to give you an idea of how your project might be set out, the level of mathematical content, writing style, etc. You should evaluate the different sample projects to identify the good features of each and consider how you might then implement these aspects within in your own work.

1.6. Penalties for Late Submission

In line with the University of Birmingham Code of Practice¹ and for all assessed components of the module, any work which is submitted late, and for which no extension has been granted by either the Welfare Tutors or the Senior Tutor, will be subject to a penalty of 5% on the mark achieved for each day that the assignment is late until 0 is reached. For example, a project mark of 67% would become 62% on day one, 57% on day two, and so on. The days counted will not include weekends, public and University closed days.

1.7. Grading Criteria

Outline grading criteria are available for all 3RSM assignments that contribute to your final mark for this module. They may be downloaded from Canvas. As an indicator of the expectations for a given grade we have:

1. [>90%]: the student has demonstrated outstanding mastery of the subject area and the manuscript is ready for submission to an internationally respected publication such as *American Mathematical Monthly*. We would expect such work to be epitomes for School AVD and open days.
2. [80-89%]: the student has demonstrated a superb mastery of the subject. There are significant novel features in each of the mathematical treatment, and the structural development of the project. The presentation of the project is outstanding
3. [70-79%]: the student has demonstrated a first class understanding of the subject area. There are novel features in either the mathematical presentation or in the structural development of the project. The presentation of the project is outstanding.
4. [60-69%]: the student has demonstrated a good understanding of the mathematical material but the essay falls short of a first class mark in that the mathematical understanding is not clearly demonstrated, the project structure is less than perfect or the presentation of the project is not outstanding.
5. [50-59%]: the student has provided good technical understanding, but the essay falls short of a first class mark in that at least two of the mathematical understanding is not clearly demonstrated, the project structure is less than perfect or the presentation of the project is not outstanding.
6. [40-49%]: the student has failed to demonstrate at least two of mathematical

¹ Code of Practice on Taught Programme and Module Assessment and Feedback 2017-18:
<http://www.birmingham.ac.uk/Documents/university/legal/taught-programme-module-assess.pdf>

accuracy, originality, scientific understanding or scholarly exposition.

7. [$<40\%$] the student has failed to demonstrate any mathematical accuracy, originality, scientific understanding or scholarly exposition.

1.8. Supervisor and Co-supervisor

You will be allocated a supervisor based upon your preferences (where possible) for a topic area expressed in the quiz before the end of last term. You will meet with your project supervisor six times throughout the module as detailed in the weekly schedule. You may also send up to two emails to your project supervisor during the module where you can ask for specific advice or guidance on your project.

Your project will also have a co-supervisor. You will not meet with them, but they will co-assess your oral presentations and will co-mark your project report.

1.9. Plagiarism

Plagiarism involves copying or incorporating the work, words or ideas of others into your own without properly acknowledging their contribution. Plagiarism can be either deliberate or accidental, but it is a form of cheating and an academic offence that the University takes very seriously. The University of Birmingham has a code of Practice on Plagiarism², provides guidance on plagiarism for students³, and offers an interactive plagiarism course that you can take⁴. Your final project will be submitted using the plagiarism detection software *Turnitin* and any plagiarised work will be detected; as such it is your responsibility to ensure that all work you submit is your own.

2. Project Report

2.1. Layout and Formatting

- The project should be no shorter than 9 pages and no longer than 15 pages including the references or bibliography, tables/images/figures (if any) and any appendices (if any). Any page above or below these numbers will be penalised by 5% on the mark achieved per page.
- You should not include a title page or a contents page.
- On the first page, and at the very top, your manuscript should include the following information:
 - The title of your project (which must be written in title case);
 - Your name and student ID number.

² See: <http://www.birmingham.ac.uk/Documents/university/legal/plagiarism.pdf>

³ See: <https://intranet.birmingham.ac.uk/as/studentservices/conduct/plagiarism/guidance-students.aspx>

⁴ See: <https://intranet.birmingham.ac.uk/as/studentservices/conduct/plagiarism/interactive-course.aspx>

- The project should be written in LaTeX and uploaded to Canvas as a PDF file. Reports written using other software or not submitted as a PDF will not be accepted.
- Font: None specified – you may choose an appropriate font.
- Font Size: This should be 12pt. Please ensure you check as the typical default font size for a LaTeX document is 10pt.
- Margins must be a minimum of 2.0 cm for the right hand and left hand edges of the page and a minimum of 2.0 cm for the top and bottom edges. No text, other than page numbers, may be placed within the margins.
- A version of the Harvard (author-date) System of referencing has been adopted as the standard for the presentation of academic text at the University of Birmingham. Reference should be presented this way in your project. More details can be found here:
<https://intranet.birmingham.ac.uk/as/libraryservices/library/referencing/icite/referencing/harvard/referencelist.aspx>
Note that some of the examples use an alternative style for reference. You should use the style above.
- A failure to follow any of these requirements will result in your project being penalised for the 'Presentation' aspect as detailed in the grading criteria.

2.2. Draft Submissions

You will have the opportunity to submit two drafts of your project report upon which you will receive feedback from your peers and your supervisor. It is your responsibility to ensure you submit your draft in a timely manner so that you can benefit from the advice and guidance of others. Should you submit your draft report late, your feedback will either be delayed, limited in the detail of comments, or you may not receive any feedback at all.

3. Oral Presentation

3.1. Key Information

- All students are required to give a 10-minute presentation on their projects; this will be in front of your supervisor, co-supervisor, and your peers.
- You will also be required to answer questions (up to 5 minutes) based upon your project.
- At your fifth meeting with your supervisor you will have a chance to practice a mock oral presentation that will not count towards your mark for this assessment component but is an important opportunity to practice your presentation and get feedback.

- As part of your presentation you may wish to create presentation slides (using either Beamer or PowerPoint) and/or use a whiteboard.
- Assessed oral presentations will take place during Week 9 of the Spring term. It is possible, to coincide with the availability of both you and your supervisor and co-supervisor, that this could be on a Wednesday afternoon (13 March 2018). You are asked to keep this possibility in mind.

4. Peer Reviews

4.1. General Information

You will be required to review the work of three other fellow students. You will be allocated, at random, three project drafts for you to review and comment upon. You will complete this process twice during 3RSM, and will do so by adding comments directly to the project drafts via the annotation tools in Canvas. For details of how to use the peer review features of Canvas, please visit: <https://birmingham.instructure.com/courses/4382/pages/peerreview>.

The purpose of undertaking a peer review is to help your fellow students improve their project, and similarly you will benefit from the advice and guidance of others through their comments upon your project drafts. Further guidance on completing your peer reviews is available in the grading criteria for this task (downloadable from Canvas), but you are expected to devote at least 30-40 minutes to reading and commenting upon each draft you are allocated.

5. Teaching Option

5.1. Overview

In the 'Teaching Option' you will write a teaching-focused project and undertake a 20-hour placement in a local school during the spring term.

5.2. Key Information

- You will receive six meetings with your supervisor as detailed in the weekly schedule for the module.
- Your school will provide a short report confirming your participation in the placement.
- Those students who undertake the teaching option will be excused from doing the peer reviews (i.e. Assignments 2 and 4). While this means you won't receive feedback (other than from your supervisor) on your draft submissions, you will instead benefit from feedback by discussing your project and ideas with others as part of your teaching placement.

- All deadlines (excluding those related to Assignments 2 and 4) and other restrictions (for example those for the project report) are the same.
- Before you begin your placement in your school, and because you will be working with children, you must have completed a Disclosure and Barring Service (DBS) check⁵. While there are costs associated with making an application for a DBS check, these will be covered by the School of Mathematics. This is, however, a process that will require you to complete an application form and obtain references; as such it will take time to complete and you will need to do this during the autumn term. Further details will be provided once students have been allocated to the 'Teaching Option'.

⁵ Please see: <https://www.gov.uk/government/organisations/disclosure-and-barring-service>