



# STAT836

## Research Project Extended

S1 External 2013

*Statistics*

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## General Information

Unit convenor and teaching staff Unit Convenor Georgy Sofronov <a href="mailto:georgy.sofronov@mq.edu.au">georgy.sofronov@mq.edu.au</a> Contact via <a href="mailto:georgy.sofronov@mq.edu.au">georgy.sofronov@mq.edu.au</a> E4A536 Friday 11am-1pm
Credit points 4
Prerequisites
Corequisites STAT835
Co-badged status
Unit description This unit is a continuation of STAT835 Research Project. It is part two of a two part extended research project which either reviews or develops an area of methodology or which discusses the use of statistical methods in a particular subject area.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

Research Project for Master of Applied Statistics

## Assessment Tasks

Name	Weighting	Due
<a href="#">Project proposal</a>	10%	21 June 2013
<a href="#">Literature review</a>	30%	21 June 2013
<a href="#">Project Report</a>	60%	21 June 2013

## Project proposal

Due: **21 June 2013**

Weighting: **10%**

Project proposal and preparation.

## Literature review

Due: **21 June 2013**

Weighting: **30%**

Review of literature, data and statistical methods.

## Project Report

Due: **21 June 2013**

Weighting: **60%**

### ***Aim of the units:***

STAT835 & STAT836 are research units **designed mainly for Master of Applied Statistics students who intend to apply for a PhD candidature in future.** If you do not belong to this category you should undertake STAT825.

**VERY IMPORTANT INFORMATION:** STAT835/836 WILL NOT BE OFFERED AFTER 2013. Students may enroll in STAT835 in S1 2013 and STAT836 in S2 2013 but these units will not be available after this year.

***Note: It is strongly recommended that you enrol STAT835 in one session and STAT836 in the session followed. You are expected to make a substantial progress in your project during the session in which you are enrolled in STAT835 although you submit the project at the end of the session in which you are enrolled in STAT836.***

### ***Getting started:***

The first priority is to settle on a project topic that appeals to you and for which we can offer suitable supervision. Please note STAT835 & STAT836 are two parts of one research project, so that your project must be research oriented.

The first thing you need to do is to contact a potential supervisor who is willing to supervise you, and discuss with him/her your ideas or ask for suggestions of the research topic. The research interests of our department staff are available at [http://www.stat.mq.edu.au/our\\_staff](http://www.stat.mq.edu.au/our_staff). If you have difficulties to locate a supervisor you may seek help from the Unit Convenor.

Out of these discussions with the potential supervisor the student will choose or be guided to a particular topic. The student must then secure an agreement with the supervisor to supervise the topic and **inform the Unit Convenor**, via email, of this agreement. Bear in mind that you are asking the staff member to commit considerable time to work with you. Many supervisors will prefer you to work on a project of *their* choice, particularly if you do not have very specific plans of your own, as the work will then have continuing benefit for and support from both participants. You should communicate with your supervisor regularly by email or in person (eg, once per week), regarding your project.

**When you have found a member of staff who is willing to supervise your project you must email the Unit Convenor the supervisor's name and the project topic.**

### ***Requirements of the project:***

#### **1. Scope of the project.**

The project should involve at least some (but not necessarily all) of the following:

- Literature search and review. The Science Citation Index, the Current Index of Statistics and the CD-ROM directories in the Library are invaluable tools for such work. Also Mathematical Reviews and Zentralblatt für Mathematik may be useful.
- Problem formulation, such as model specification and analysis.
- Survey of recent developments in a field. This will involve literature search and review with the above suggestions relevant.
- Your approaches to solve the problem.
- Results, such as simulation studies or applications to real data.

- Conclusions.
- Bibliography.

## 2. Format.

A common format for many projects usually includes the following items:

Title page (including unit code, eg, STAT835/STAT836)

Abstract

Content page(s)

*Main body of the project in sections (or chapters) (**headings are only explanatory; you may change the headings**):*

- o Introduction
  - o Literature review
  - o Methods
  - o Results
  - o Discussion and Conclusion
- Bibliography
- Appendix

As sections of your first draft are written ask your supervisor to read them and comment. Then work on the suggestions and rewrite.

Note that the project must be typed using a word processor with mathematical capability, if necessary. We recommend using Latex to type your thesis. You may first download and install MikTeX (free) on your PC, and then download and install Tex editing software Texmaker (free) which enables you to edit, manage and run the Latex files.

### 3. Length

Excluding index, references and appendices, the project length should be between 11,000 and 15,000 words although for certain topics (for example those with considerable theoretical content) fewer than 11,000 words may be acceptable.

### 4. Standard of English

The project needs to be written up in English of an acceptable standard. If English is not your first language, you should seek the help of an English-speaking person to correct your grammar and spelling, or use the services of professional editors.

### 5. Dates for Submission of Project

Projects have to be **submitted by the 21<sup>st</sup> of June 2013 (one week before the last day of the examination period of the session when you are enrolled in STAT836).**

Three spiral-bound copies should be submitted to the Unit Convenor in person, via your supervisor or by mail. One copy is for your supervisor to keep, and the other two copies will be examined by two markers.

#### Very Important Note:

***Students who fail to complete their project (stat835 and stat836) by the due date but have made satisfactory progress in their project during the session(s) may re-enrol stat836 in the following session to complete the project.***

***Students who do not complete nor have made substantial progress in their project in the session(s) will NOT be given permission to re-enrol and an F or FA grade will be awarded to both stat835 and stat836 unless there are special circumstances.***

### 6. Academic Honesty Policy

Academic honesty is an integral part of the core values and principles contained in the Macquarie University Ethics Statement. Its fundamental principle is that all staff and students act

with integrity in the creation, development, application and use of ideas and information. You must read the University's policy on Academic Honesty. This can be found on the MQ web site at:

[http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html).

Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Discipline Committee.

## 7. Examination and grading

Two examiners will examine your project according to the Marking Guide attached at the back of this document. You will be awarded a grade (with a numerical mark) of HD, D, Cr, P or F for your project, ie, for both STAT835 and STAT836. Some information on the requirements for awarding these grades is given below.

HD: An excellently written research project with novel ideas or procedures.

D: A well written project with a clear description of the research problem. Solutions to this research problem are clearly explained and tested. There are some clear research components in the project. However, its content falls below HD standard due to lack of novelty or other problems.

Cr: A good quality project with clear contents, but which falls below HD or D standard.

P: A reasonable project which may have very mild lack of clarity in its problem definition, solutions or simulation studies.

F: A very poor project with most of its contents being extremely unclear.

***Note: Students must be aware that you only have one opportunity to submit the project and the two markers will grade your project according to the two submitted copies. You do not have a chance to correct and resubmit.***

## 8. Examiners

Two examiners (internal or external) will exam your project and provide numerical marks. These marks are then averaged to give the final grade to the project.

## 9. Presentation

Candidates may be requested to give a talk based on their work in a 30 minute seminar after submitting the project.

## MARKING GUIDE for STAT835/STAT836 Research Project

### ASPECTS

#### ITEM

#### Project Description

(10%)

Background: Rationale for project

Aim: Clear statement of objectives

Other:

#### Statistical Methods

(30%)

Understanding of the key statistical issues

Appropriate choices of statistical methods



Adequate justification and explanation of methods chosen

Other:

### **Data Analysis/Simulation**

(30%)

Clear data/simulation description

Initial data/simulation analysis, cleaning and manipulation

Correct implementation, including software

Other:

### **Presentation of Data/Results**

(10%)

Quality and appropriateness of tables

Quality and appropriateness of graphs

Other:

### **Interpretation of Results**

(10%)

Understanding statistical principles (CIs, tests, power, etc)

Correct summaries of results

Discussion of model successes and limitations

Conclusions consistent with results

Other:

### **Presentation/**

### **Writing**

(10%)

Clear, concise, correct English

Appropriate referencing

Other:

***Note: The weightings of the aspects may be varied at the examiners' discretion as appropriate. For example, a more theoretical project would have less weighting for data analysis.***

On successful completion you will be able to:

- Research Project for Master of Applied Statistics

## Delivery and Resources

### Technology used and required

This unit is a Master of Applied Statistics Project. There will be no lectures, practicals or tutorials.

Changes since the last offering of this unit

STAT835/836 WILL NOT BE OFFERED AFTER 2013. Students may enroll in STAT835 in S1 2013 and STAT836 in S2 2013 but these units will not be available after this year

## Unit Schedule

Projects have to be **submitted by the 21<sup>st</sup> of June 2013 (one week before the last day of the examination period of the session when you are enrolled in STAT836).**

## Learning and Teaching Activities

### Project writing

Research Project for Master of Applied Statistics

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy <http://www.mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://www.mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://www.mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy [http://mq.edu.au/policy/docs/grievance\\_management/policy.html](http://mq.edu.au/policy/docs/grievance_management/policy.html)

Special Consideration Policy [http://www.mq.edu.au/policy/docs/special\\_consideration/policy.html](http://www.mq.edu.au/policy/docs/special_consideration/policy.html)

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

## Student Support

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at: <http://students.mq.edu.au/support/>

### UniWISE provides:

- Online learning resources and academic skills workshops [http://www.students.mq.edu.au/support/learning\\_skills/](http://www.students.mq.edu.au/support/learning_skills/)

- Personal assistance with your learning & study related questions.
- The Learning Help Desk is located in the Library foyer (level 2).
- Online and on-campus orientation events run by Mentors@Macquarie.

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

Details of these services can be accessed at <http://www.student.mq.edu.au/ses/>.

## IT Help

If you wish to receive IT help, we would be glad to assist you at <http://informatics.mq.edu.au/help/>.

When using the university's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students and it outlines what can be done.

## Graduate Capabilities

### PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

#### Learning outcome

- Research Project for Master of Applied Statistics

### PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

#### Learning outcome

- Research Project for Master of Applied Statistics

### PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create

new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

### **Learning outcome**

- Research Project for Master of Applied Statistics

## **PG - Effective Communication**

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

### **Learning outcome**

- Research Project for Master of Applied Statistics

## **PG - Engaged and Responsible, Active and Ethical Citizens**

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

### **Learning outcome**

- Research Project for Master of Applied Statistics

## **PG - Capable of Professional and Personal Judgment and Initiative**

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

### **Learning outcome**

- Research Project for Master of Applied Statistics