



Year 4 Honours project guidelines

Study units numbered SOR3y01 are reserved for students undertaking exclusively project work or dissertation.

Dissertation proposal and approval

Students choosing Statistics and Operations Research as their main principal subject area in their B.Sc. (Hons) 4th year, may choose to take the dissertation option for their project.

To register for dissertation work as project, a student must

- have the consent of a member of the department, or other suitably qualified person, who serves as her/his dissertation supervisor
- have submitted a dissertation proposal which was approved by the department.

Students who intend to take the dissertation option must complete eighteen credits in dissertation work. Students must discuss the programme of work they intend to do and the dissertation they intend to submit with a prospective supervisor and the Head of Department. They should submit a brief dissertation proposal not longer than 1 page by end of September. This should consist of:

- A statement of the problem area selected pointing its relevance and significance.
- A plan of action for the dissertation work envisaged including software, advisor/s necessary to support completion of the work.

This may also include:

- Reference to and comments upon relevant work by others on the same or similar problems.
- The candidate's ideas and insights regarding the problem area.
- A statement or characterization of what kind of theoretical results, models or solutions are being sought.

Unit registration

Should students opt to do dissertation work, once departmental approval is obtained, students may register for the dissertation study unit via the usual procedure through eSIMS.

General form of the dissertation

The dissertation is an individual study/research unit, which offers the opportunity for students to appropriate themselves of relevant mathematical and statistical theories, assembling them into a focused tool of a modeling or mathematically investigative nature in contexts relevant to Probability, Statistics and Operations Research. They will also strive to integrate and further develop aspects of their taught programme and produce a written

report which sets out clearly the aims, context, content and outcome of their dissertation work.

Specifically, students are required, either to use Statistical or Operational Research techniques and theories to model and investigate some interesting real-world subsystem, or else to delve into the mathematical complexities which make Statistical and Operational Research theories true and see how current developments are affecting important research areas. Thus, broadly there are two types of dissertation: the theoretical and the applied. Both types as well as hybrids may be accepted.

Contents

As an approximate guide, a dissertation is expected to follow general lines of development:

1) Introduction

- a) Preliminary discussion of the general problem being considered
- b) Background and context of problem
- c) Theoretical framework and perspective
- d) Methodology used
- e) Notation used
- f) Structure of Dissertation

2) Review of the Literature

- a) Overview of main results
- b) Split down into main categories and main lines of attack

3) i. Methodology (Applied)

- a) Formulation of problem
- b) Identification and design of model or Identification of the relevant theories
- c) Estimation of model or Development of relevant theory
- d) Description and development of relevant algorithms if applicable
- e) Software implementation if applicable
- f) Data capture
- g) Data Analysis

3) ii. Methodology (Theoretical)

- a) Formulation of problem
- b) Identification of the relevant theories and preliminary results
- c) Development of relevant theory and major results
- d) Theoretical implications of major results
- e) Description and development of relevant algorithms if applicable
- f) Software implementation if applicable

4) Description of Findings

- a) Presentation of results and tables
- b) Interpretation of results

5) Conclusions and Implications

- a) Presentation of major results and findings in summary form
- b) Underlining of limitations
- c) Revisiting of original problem

- d) Implications for future research

Manuscript construction and format

Paper

1. The text and, whenever possible, all the material for the paper including illustrations, should be produced on A4 sized paper (297 x 210mm), white and unpatterned.
2. Use the same paper throughout the dissertation, including all tables, figures, and appendices (except for photos and maps).

Margins

1. The binding on the binding edge of the page – the back or inside margin on the left-hand edge of the recto should be not less than 40mm, to allow for binding, reading, reproduction and scanning. The other margins – the head or top margin, the tail or bottom margin, the fore-edge or outside margin – should be not less than 20mm.
2. The running head or running title with the pagination should be within the recommended margins. The same holds good for the footnote.
3. Every chapter should begin on a new page with a dropdown to about a third of the page, that is a top margin of about 100mm. (*see sample*)

Typeface/printing

1. The font design should be as clear as possible, fancy and compressed fonts are not to be used.
2. The font size 12pt is generally preferred throughout. Smaller fonts may be used in footnotes and in captions to illustrations, but care should be taken that they are not so small as to render them illegible.
3. Print must be letter quality: clear, crisp, clean and dark. Any printer (laser, inkjet) that meets the print quality may be used.
4. Printing should be on only one side of the paper – double-sided printing is not acceptable.

Line and paragraph spacing

1. Line spacing should be enough to allow readers ease of horizontal scanning. One-and-a-half line spacing (18pt high) is recommended. Single-spacing (12pt high) is to be used in footnotes.
2. Paragraphs should be indented from 5mm to 10mm. Opening paragraphs and those that follow chapter heading and subheadings are not to be indented. No additional space is to be left between paragraphs.
3. Numbered or bulleted paragraphs should be flushed left with additional line space between paragraphs.

Chapter heading and sub-headings

1. Headings or chapters, which should always begin on a new page, are to be centred and of a larger font (14-18pt), and may be in uppercase.
2. Subheadings of divisions within chapters should not begin on a new page, nor should they normally be centered but set over to the left-hand margin in a separate line and marked by extra spacing. They should be distinguished by indentation, or a slightly larger font size (12-14pt), or both.

Page numbers

1. Page numbers must be placed at least three-fourths inch up from the bottom of the page aligned with the right side margin.
2. All pages are to be numbered consecutively from Chapter 1 through Appendices, including figures, tables, and photographs.
3. The introductory pages such as the Abstract, Table of Contents, Acknowledgments, etc. should be numbered at bottom center in small roman numerals (ii, iii, iv, etc.). The title page should not be numbered. It is assumed to be the page i.

Title page

1. The title page must include the title, author, date of submission with the phrase “dissertation submitted to the Department of Statistics & OR, Faculty of Science in part fulfillment of the B.Sc. Honours degree”.
2. The title page is NOT numbered. It is assumed to be Page i.

Abstract

Every dissertation must include an Abstract, which should summarize the content in not more than 20 lines, and can either be single or double spaced. The suggested heading is:

ABSTRACT
John Borg, B.Sc. (Hons)
Department of Statistics & OR, Month & Year of Graduation, e.g. June 2005
University of Malta

Footnotes/endnotes

Footnotes should be placed within the recommended margins (*see sample page*) (e.g., Borg, 2000), and should be clearly separated from the main text by about 15mm. Both footnotes and endnotes should be single-spaced and in a smaller character size (*usually 2pt smaller*) than the main text. There must be overall consistency.

Tables, figures, illustrations, and photographs

1. Charts, graphs, diagrams, maps, figures, musical scores, photographs and other pictorial components must be clear, clean and pertinent to the subject matter of the dissertation. All such items should be firmly fixed or securely enclosed in the dissertation. Symbols or labels should be used in graphs/charts for identification rather than color. (It is recommended that the color blue not be used in graphic illustrations as it does not photocopy.)
2. Colour or black/white xerox illustrations are acceptable, as well as colour used in charts, figures, etc.
3. Materials that will not fit within the margins such as large, folded maps, questionnaires that due to copyright laws cannot be shrunk, video tapes, etc, might need the following provisions:
 - Copier reduction of the size of the item until it fits- as long as it is still readable.
 - Page folded out- always so it opens to the right.
 - In the case of CDs, material is to be placed in a packet at the back of the dissertation.
4. Tables, figures, etc. should be placed in the text immediately following discussion of the topic portrayed (i.e., on the same page if space is available, or on the following page.) If there are several tables or figures that interrelate to one another, they may be placed at the end of a chapter, end of the manuscript, or in an appendix. If this is the case, a List of

Figures and List of Tables should be provided immediately following the Table of Contents.

5. Figures and Tables must be numbered. The table/figure caption can be on the same page, or on a page either preceding or facing the table/figure.

References

1. The reference list, including all publications referred to in the dissertation, should appear at the end of the dissertation.
2. References should be listed in conformity with standard bibliographical rules adhered to in scientific publications. Students should consult standard style manuals like *A Manual for Writers of Term Papers, Theses, and Dissertations*, by K. Turabian (LB2369 .T8 1987), the *Chicago Manual of Style* (Z253 .U69 1993). A good guide on how to cite electronic resources, e.g. Internet sites, consult *Electronic Styles is Handbook for Citing Electronic Information*, second edition, by Xia Li and Nancy B. Crane (PN171.F56 L5 1996).

Number of copies and binding

Three preliminary copies are required by the department. These may be presented initially in a spring-back binder. After correction and approval, two hardbound copies are to be submitted to the department. On the spine of the dissertation the candidates surname and the title (abbreviated if necessary) should be blocked in gold lettering with the surname at the bottom. Submission must be accompanied by a completed form 'Submission of Dissertation and Certificate of Completion', available from the Department. After examination, dissertations are retained in the department. Some may be placed in the library.

Due to the provisions of the data protection laws, the 'Declaration of Authenticity' form should no longer be bound with the hard copy of the dissertation/thesis or included with the electronic version but submitted separately to the departmental secretary.

Dissertations Board

Once the dissertation has been completed it has to be submitted to the department. A departmental dissertations board is set up and consists of:

- chairperson
- an external examiner
- 2 internal examiners

The dissertation supervisor will:

- help the student define clearly the scope of the dissertation with reference to length and depth
- help the student identify background reading and literature searches which might be necessary
- define assessment criteria and convey them to her/his board colleagues
- hold regular meeting with the student
- read and comment on drafts of the dissertation as it develops
- participate in the students' dissertation defense

Dissertation defense and assessment

After all the members of the board have read the dissertation a meeting for the formal defense of the dissertation will be convened. The board and the student authoring the dissertation, and possibly other invited academics, will meet for: a brief presentation by the student of his work

- questions from the board members and invitees
- appraisal and discussion by board members in the absence of the candidate.

The board's major task is to

- assess the student's ability to discuss points touched by the dissertation
- assess the student's competence in defending the decisions taken as the dissertation was progressing
- check whether format, editorial and grammatical aspects of the dissertation are acceptable
- discuss the various intellectual contexts and implications of the dissertation.

During the appraisal and discussion session the student will be asked to leave the room while the board members review the performance. The board will then make its recommendations which will result in one of the following options:

- approval of the dissertation
- provisional approval of the dissertation subject to the student making revisions as deemed suitable
- rejection of the dissertation on the grounds of insufficiency or significant flaws in overall design and validity.

In the case of provisional approval, the supervisor is to ensure that all the board's recommendations are met.

Once the dissertation is approved a grade has to be awarded in compliance with recommendations made by the dissertations board. The grading has to follow the faculty regulations. Eventually a document has to be filed with departmental official records, bearing the signature of all board members declaring the defense of the dissertation to be successful.



Title of thesis line 1
Line 2
Line 3

John Smith

May (insert year)

Supervisor: *Insert Supervisor name*
Co-supervisor: *Insert Co-supervisor name (if needed)*

A dissertation presented to the Faculty of Science in part fulfilment of the requirements for the degree of Bachelor of Science (Hons.) at the University of Malta

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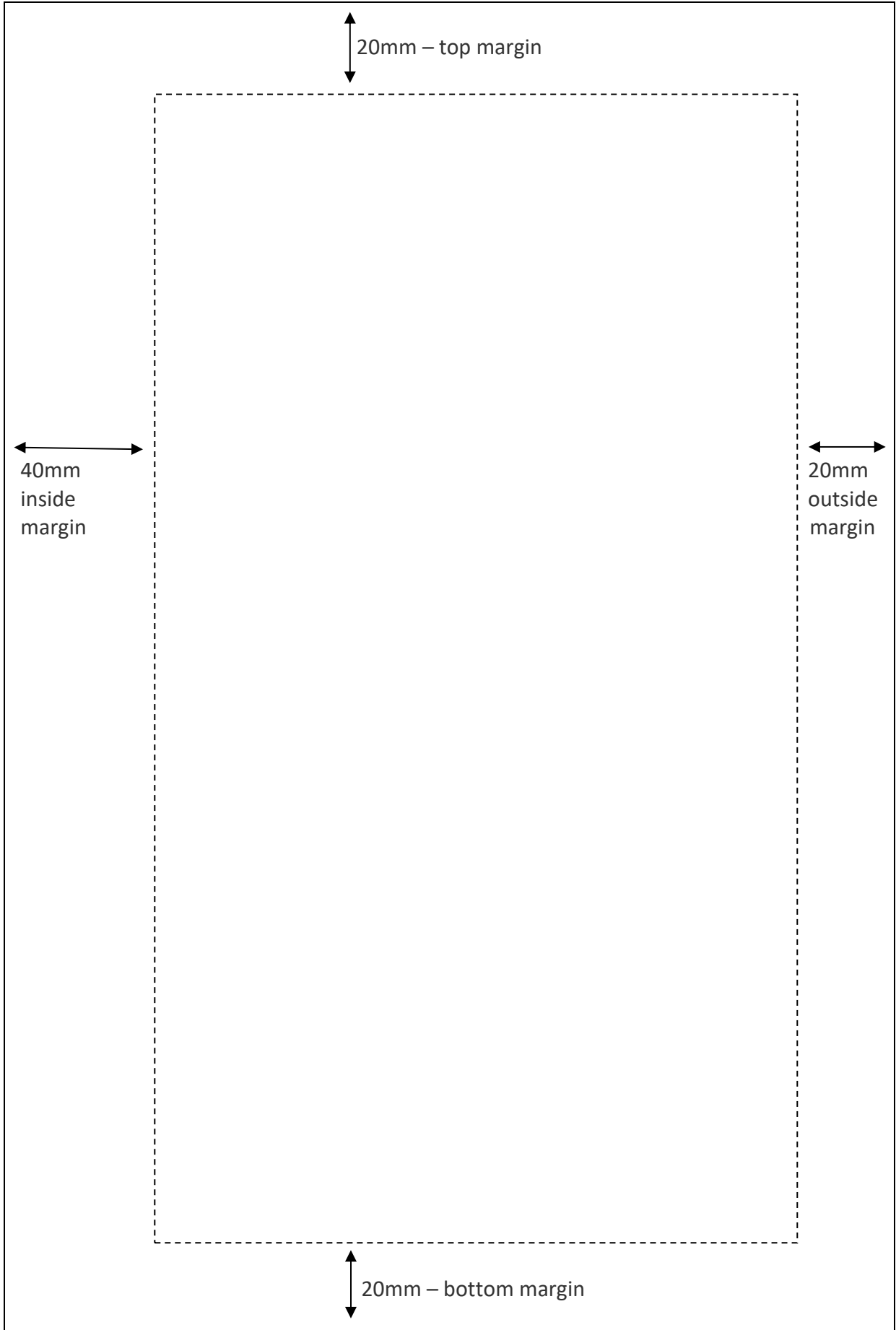
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