Mathematics Honours Project (6 units)

STAT6010 (Semester 1 start)
STAT6020 (Semester 2 start)

Course Coordinator: Dr Victor Scharaschkin
STAT6010/20
Mathematics Honours Project (6 units)
Semesters 1 and 2, 2006

Brief description of course content (e.g. handbook description)

Pure, applied, financial or computational mathematics project on topic approved by course director. Report to be submitted, seminar to be presented. Students commencing in Semester 1 enrol in MATH6010; students commencing in Semester 2 enrol in MATH6020.

Course Coordinator

Name Dr Victor Scharaschkin
Room number/ Building Room 544 Priestley Building (building 67)
Phone number 3365 2321
Email victors@maths.uq.edu.au
Consultation hours: By appointment

Web page The course profile and course material can be found on the web at the following address: http://www.maths.uq.edu.au This also contains up-to-date news about the course material and announcements for students. Please check this regularly during the semester.

Class contact hours: as agreed with supervisor; generally weekly contact (of about 1 hour per week).

Assumed background/Entry Requirement:
Bachelor of Science or Bachelor of Art degree of this University or an award recognized by the Executive Dean as equivalent, GPA of at least 4.5 for at least #8 from late year courses from Part A of the BSc List; considered by the Executive Dean and the Head of School to be relevant to the proposed programme of study. If you are in doubt about this, please ask at the office of the School of Physical Sciences.

Application Procedure for admission to Honours can be found from the School of Physical Sciences webpage http://www.sps.uq.edu.au/index.html?id=2692&pid=2674.
Course goals/rationale:
On completing this course students will:

- Be able to plan, develop and carry out an independent research project.
- Obtain in-depth knowledge of the specific topic area through a thorough literature review.
- Develop research skills and be able to locate and use information sources.
- Present result of research in a written report or thesis.
- Present results of research in an oral seminar.

Graduate Attributes:
The following graduate attributes will be developed in the course –

1. In-Depth Knowledge of the Field of Study

- A comprehensive and well-founded knowledge of the topic of study and relevant research literature.
- An understanding of the project in a broad scientific context and its relation to other scientific disciplines.

2. Effective Communication

- The ability to collect, analyse, and organise information, ideas, and experimental data and to convey those ideas clearly and fluently, through a written thesis and oral seminar.
- The ability to interact effectively with supervisor, associates and peers in order to work towards a common outcome.
- The ability to select and use the appropriate level, style and means of communication for the written thesis and oral seminar.

3. Independence and Creativity

- The ability to plan and carry out an independent project.
- The ability to generate ideas and think creatively for solution to problems posed within the project.
- The ability to identify problems, create solutions, review research literature and apply knowledge to project topic.

4. Critical Judgement

- The ability to define and analyse problems arising through the project.
- The ability to apply critical reasoning to issues relating to the project topic through independent thought, analysis of literature and informed decisions on project results.
- The ability to evaluate opinions presented in research literature, make decisions on findings and to reflect critically on the justifications for decisions.
5. Ethical And Social Understanding

- An appreciation of the philosophical and social contexts of the discipline.
- A knowledge and respect of ethics and ethical standards in relation to the thesis topic Study.

For more information on the University policy on development of graduate attributes in courses, refer to the web http://www.uq.edu.au/hupp/index.html?policy=3.20.5

Teaching and Learning Methods

Students will be required to carry out an independent project on a topic agreed between the supervisor and the student. The project is largely self-directed but students should meet regularly with their supervisor to discuss progress, problems and direction of their research. Students will be required to conduct a search of the relevant literature and present their findings through a written thesis and oral seminar.

ASSESSMENT

Required assessment tasks:

Written thesis, progress report, seminar, and oral defence

Mathematics Discipline Policy on Project Supervision, Feedback, and Assessment

Each student will select a project and supervisor from a range offered. Before starting on the project, the student and supervisor will discuss the project and what it entails, and reach an agreement on what both expect from the project. The supervisor will advise the student as to which lecture courses might be helpful in completing the project. Within the first week, the supervisor will assist the student to write up a research proposal (1-2 pages long) for the work over the next two semesters. After the Examiner has agreed the proposal, the supervisor submits a copy to the Honours Coordinator as a record. Generally the supervisor and student will meet on at least a weekly basis to discuss progress.

Assessment criteria

- After one semester of work, each student will submit a brief written progress report (5-10 pages long), including a literature review, to his/her supervisor. The supervisor and examiner will assess this report which will contribute 10% to the final mark for the project.
  Progress reports for MATH6010 are due by 5pm Monday 24 July 2006.
  Progress reports for MATH6020 are due by 5pm Monday 26 Feb 2007.
- In the second half of the second semester of work, each student will present a seminar to the department. Although the seminar is not marked separately, students who fail to present a seminar will lose 10% of their mark for MATH6010/20.
- At the end of their second semester of work, each student submits two copies of his/her thesis, the final written report of around 20,000-30,000 words in length.
Theses for MATH6010 are due at 9am on Monday 6 November 2006. Theses for MATH6020 are due at 9am on Monday 11 June 2007.

- On Monday of the second examination week of his/her final semester, each student shall attend an oral examination with two assessors (supervisor and examiner) who have read the report and attended the seminar. (If a student has an examination on that day for other course(s), then his/her oral defence will be conducted on Tuesday or another suitable time.) The Honours Coordinator will also be present. **After the oral defence and discussion, the assessors will submit a joint percentage mark** conforming to the standard guidelines for grades of honours. In all project assessment, comparison will be made not with other students within the year, but with previous students and with standards at other Australian and overseas universities, bearing in mind that honours results should reflect an assessment of achievements within the honours year.

### Summary of Assessment Dates

<table>
<thead>
<tr>
<th>Activity</th>
<th>S1 start 2006 (MATH6010)</th>
<th>S2 start 2006 (MATH6020)</th>
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<tbody>
<tr>
<td>Progress written report</td>
<td>Monday 24 July</td>
<td>Monday 26 Feb 2007</td>
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<tr>
<td>Project seminar</td>
<td>Monday 18 September</td>
<td>Monday 7 May 2007</td>
</tr>
<tr>
<td>Thesis report submission</td>
<td>Monday 6 November</td>
<td>Monday 11 June 2007</td>
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### Criteria for the award of grades

Your grade for this course will be determined by which of the following levels of achievement that you consistently display in the items of summative assessment.

Grade of 7 (86-100%): the student demonstrates an excellent understanding of the thesis topic with an outstanding report on the research. Excellent critical analysis and an ability to synthesise information from a variety of sources. The report is free of errors and factual inaccuracies.

Grade of 6 (75-85%): the student demonstrates a comprehensive understanding of the thesis topic and has presented a competently written report on the outcomes of the research. Very good critical analysis including references from a variety of sources. The report has very few errors and factual inaccuracies.

Grade of 5 (65-74%): the student demonstrates a good understanding of the thesis topic and has presented an entirely satisfactory written report on the outcomes of the research. Competent critical analysis and referencing. The report has few errors or factual inaccuracies.

Grade of 4 (50-64%): the student demonstrates a satisfactory understanding of the thesis topic and has presented a satisfactory written report on the outcomes of the research. Adequate analysis and referencing. The report has some errors and factual inaccuracies.

Grade of 3 (46-49%): the student demonstrates some understanding of the thesis topic but has presented an inadequate written report on the outcomes of the research. Some attempt at analysis of material and referencing. Some of the information included is inaccurate or irrelevant.
Grade of 2 (26-45%): the student does not demonstrate a satisfactory understanding of the thesis topic. The written report on the outcomes of the research is limited, with inadequate analysis and referencing.

Grade of 1 (0-25%): the student demonstrates very limited understanding of the theory of the thesis topic with a very limited written report. Very limited understanding of key concepts.

Assessment policy

Nonconformity with assessment requirements including late submission is unacceptable. Students should be familiar with the rules which relate to assessment in their degrees as well as general university policy such as found in the General Award Rules. These are set out on myAdvisor on the UQ website at


Plagiarism:

The thesis project is expected to be the student’s own work. Students are encouraged to study together and to discuss ideas, but this should not result in students handing in the same or similar assessment work. Where it is necessary to include the work of others in the report their contributions should be acknowledged. This includes diagrams copied from books or papers.

The University has adopted the following definition of plagiarism:

“Plagiarism is the action or practice of taking and using as one’s own the thoughts or writings of another, without acknowledgment. The following practices constitute acts of plagiarism and are a major infringement of the University’s academic values:

- Where paragraphs, sentences, a single sentence or significant parts of a sentence are copied directly, and are not enclosed in quotation marks and appropriately footnoted;
- Where direct quotations are not used, but are paraphrased or summarised, and the source of the material is not acknowledged either by footnoting or other simple reference within the text of the paper; and
- Where an idea which appears elsewhere in printed, electronic or audio-visual material is used or developed without reference being made to the author or the source of that material.”

When a student knowingly plagiarises someone’s work, there is intent to gain an advantage and this may constitute misconduct in the University of Queensland Statute No 4 (Student Discipline and Misconduct) 1999.

For more information on the University policy on plagiarism, please refer to http://www.uq.edu.au/hupp/index.html?page=25128&pid=25075
Supplementary examinations

There are no supplementary examinations in this course.

Special examinations

If a student is unable to sit a scheduled examination for medical or other adverse reasons, she/he can and should apply for a special examination. Applications made on medical grounds should be accompanied by a medical certificate; those on other grounds must be supported by a personal declaration stating the facts on which the application relies.

Applications for special examinations for central and end-of-semester exams must be made through the Student Centre. Applications for special examinations in school exams are made to the course coordinator.

More information on the University’s assessment policy may be found at http://www.uq.edu.au/hupp/index.html?page=25113&pid=25075

EPSA Faculty policy on the award of special exams may be found via the Faculty Guidelines on Examinations from the EPSA student page http://www.epsa.uq.edu.au/index.html?page=7640&pid=7563

Feedback on assessment:

You may request feedback on assessment in this course progressively throughout the year from your project supervisor. Feedback on assessment may include discussion, written comments on work, model answers, lists of common mistakes and the like.

Information on the University’s policy on access to feedback on assessment may be found at http://www.uq.edu.au/hupp/index.html?page=25114&pid=25075

EPSA Faculty policy on assessment feedback and re-marking may be found at http://www.epsa.uq.edu.au/index.html?page=7674&pid=7564

Textbook and references

There is no textbook for this course. Your supervisor will suggest useful books and references to start you off.

Library contact:

The liaison librarian for Physical Sciences is located in the Dorothy Hill Physical Sciences and Engineering Library in the Hawken Building and may be consulted for assistance in the course:
Leith Woodall  
Email: l.woodall@library.uq.edu.au  
Extension: 52367

**Students with disabilities:**

Any student with a disability who may require alternative academic arrangements in the course is encouraged to seek advice at the commencement of the semester from a Disability Adviser at Student Support Services.

**Assistance for Students:**

Students with English language difficulties should contact the course coordinator or tutors for the course.

Students with English language difficulties who require development of their English skills should contact the Institute for Continuing and TESOL Education on extension 56565.

The Learning Assistance Unit located in the Relaxation Block in Student Support Services. You may consult learning advisers in the unit to provide assistance with study skills, writing assignments and the like. Individual sessions are available. Student Support Services also offers workshops to assist students. For more information, phone 51704 or on the web http://www.sss.uq.edu.au/index.html.

**Student Liaison Officer:**

The School of Physical Sciences has a Student Liaison Officer as an independent source of advice to assist students with resolving academic difficulties. The Student Liaison officer during 2005 is Prof. Peter Adams, Room 547 Priestley building, (email pa@maths.uq.edu.au )

**Programme of work for the semester:**

You should map out a programme of work with your supervisor in the first few weeks of your project, and discuss updates of the programme at regular intervals. Note the dates given above for presentation of oral and written reports. Although you may wish to take some short recreational breaks you are encouraged to work on your project during the breaks between semesters.