## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important Dates for 2014</td>
<td>2</td>
</tr>
<tr>
<td>Welcome</td>
<td>4</td>
</tr>
<tr>
<td>The School of Mathematics and Physics</td>
<td>5</td>
</tr>
<tr>
<td>School Locations and Members of Staff</td>
<td>5</td>
</tr>
<tr>
<td>Discipline Locations</td>
<td>6</td>
</tr>
<tr>
<td>Admission Requirements</td>
<td>7</td>
</tr>
<tr>
<td>Application Process</td>
<td>7</td>
</tr>
<tr>
<td>An Honours Degree</td>
<td>7</td>
</tr>
<tr>
<td>The Honours Thesis</td>
<td>7</td>
</tr>
<tr>
<td>Your Honours Supervisor</td>
<td>10</td>
</tr>
<tr>
<td>Your Honours Coordinators</td>
<td>12</td>
</tr>
<tr>
<td>Administration, Equipment and Facilities</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics</td>
<td>14</td>
</tr>
<tr>
<td>Mathematics Honours Program</td>
<td>14</td>
</tr>
<tr>
<td>Statistics Honours Program</td>
<td>14</td>
</tr>
<tr>
<td>Level of Honours</td>
<td>16</td>
</tr>
<tr>
<td>Laboratories and Equipment</td>
<td>16</td>
</tr>
<tr>
<td>Honours Coordinator</td>
<td>16</td>
</tr>
<tr>
<td>Physics</td>
<td>17</td>
</tr>
<tr>
<td>Physics Honours Program</td>
<td>17</td>
</tr>
<tr>
<td>Level of Honours</td>
<td>17</td>
</tr>
<tr>
<td>Laboratories and Equipment</td>
<td>19</td>
</tr>
<tr>
<td>Honours Coordinator</td>
<td>19</td>
</tr>
</tbody>
</table>
# Important Dates for 2014

## First Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation Week</td>
<td>Monday 24 February - Friday 28 February</td>
</tr>
<tr>
<td>Classes</td>
<td>Monday 3 March - Thursday 17 April</td>
</tr>
<tr>
<td>Mid-semester break</td>
<td>Monday 21 April - Sunday 27 April</td>
</tr>
<tr>
<td>Classes</td>
<td>Monday 28 April - Saturday 7 June</td>
</tr>
<tr>
<td>Revision period</td>
<td>Monday 9 June - Friday 13 June</td>
</tr>
<tr>
<td>Examination period</td>
<td>Saturday 14 June - Saturday 28 June</td>
</tr>
<tr>
<td>Semester ends</td>
<td>Saturday 28 June</td>
</tr>
</tbody>
</table>

## Second Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation Week</td>
<td>Monday 21 July - Friday 25 July</td>
</tr>
<tr>
<td>Classes</td>
<td>Monday 28 July - Saturday 27 September</td>
</tr>
<tr>
<td>Mid-semester break</td>
<td>Monday 29 September - Monday 6 October</td>
</tr>
<tr>
<td>Classes</td>
<td>Tuesday 7 October - Saturday 1 November</td>
</tr>
<tr>
<td>Revision period</td>
<td>Monday 3 November - Friday 7 November</td>
</tr>
<tr>
<td>Examination period</td>
<td>Saturday 8 November - Saturday 22 November</td>
</tr>
<tr>
<td>Semester ends</td>
<td>Saturday 22 November</td>
</tr>
</tbody>
</table>

## Summer Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes start</td>
<td>Mon 1 December</td>
</tr>
</tbody>
</table>

## Public Holidays

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Year's Day</td>
<td>Wednesday 1 January</td>
</tr>
<tr>
<td>Australia Day</td>
<td>Monday 27 January</td>
</tr>
<tr>
<td>Good Friday</td>
<td>Friday 18 April</td>
</tr>
<tr>
<td>Easter Monday</td>
<td>Monday 21 April</td>
</tr>
<tr>
<td>Anzac Day</td>
<td>Friday 25 April</td>
</tr>
<tr>
<td>Queen's Birthday</td>
<td>Monday 9 June</td>
</tr>
<tr>
<td>Exhibition Day</td>
<td>Wednesday 13 August</td>
</tr>
<tr>
<td>Labour Day</td>
<td>Monday 6 October</td>
</tr>
<tr>
<td>Christmas Day</td>
<td>Thursday 25 December</td>
</tr>
<tr>
<td>Boxing Day</td>
<td>Friday 26 December</td>
</tr>
</tbody>
</table>
The information provided in this handbook supplements, but does not replace the information on rules and procedures published in the University's official 2014 Program Information handbooks. The myAdvisor website contains information on the University's academic policies and procedures www.uq.edu.au/myAdvisor. The official rules and procedures are also contained on the UQ website. Students are expected to familiarise themselves with these.

Full descriptions of courses are available on the Courses and Programs website www.uq.edu.au/study. As policies are amended, this website is updated.

Whilst all due care has been taken in compiling this publication, in the event of any conflict between the information provided in this handbook and the information provided in official University of Queensland publications, the latter will take precedence.
Welcome
Welcome to your Honours year in the School of Mathematics and Physics. We hope that you will find your studies in the School challenging and rewarding. This handbook has been written to provide information for prospective and current Honours students undertaking Honours in the School of Mathematics and Physics.

This handbook has several purposes:

- it explains the structure of programs within the School;
- it identifies key members within each Discipline; and
- it advises you on whom to see if you have any difficulties.

The Honours program is a transitional degree from undergraduate to postgraduate studies. The Honours year is a crucial year in higher education, opening up many career options not available to pass graduates. An Honours degree is tangible proof of your capacity for sustained independent work at a high level.

The benefits of undertaking an Honours year include:

- the opportunity to pursue further study in one specialist area in more depth than is possible with a pass degree;
- developing and enhancing research skills relevant to your area of specialisation;
- developing a base of knowledge and technical skills sufficient for enrolment in postgraduate research degrees, or for a specialist career;
- entry leading to an academic career;
- entry leading to a professional career where higher level research skills are required;
- facilitating progression to PhD for students attaining Honours Class I or II A.

Honours and Postgraduate students are held in high regard throughout the School as they impart knowledge and contribute to the rich array of events, research, tutoring and general life within the School. Many Honours students have distinguished themselves with University medals and awards, and have gone on to rewarding careers in a wide variety of occupations, with many holding university appointments here in Australia and abroad.

The Honours program requires hard work and commitment. We hope that you find the experience to be both rewarding and enjoyable.
The School of Mathematics and Physics

The School of Mathematics and Physics comprises the disciplines of **Mathematics** and **Physics**, and is responsible for managing the related academic programs. The School highly regards present Honours students and encourages enrolments from within undergraduate programs whilst also welcoming students from outside the University.

The academic staff supervising Honours students are involved in many areas of fundamental and applied research. The School supports a strong research interaction with many other university schools and research centres, plus off-campus organisations and industries.

**School Locations and Members of Staff**

**Finance Office:** Ground Level, Physics Annexe (6).
**Student Administration Office:** Level 3, Priestley Building (67).

Telephone: +61 (0) 7 3365 2673  
Facsimile: +61 (0) 7 3365 3328  
Email: student@smp.uq.edu.au

Office Hours: Mon–Fri: 8.30am–4.30pm

Mailing Address:  
School of Mathematics and Physics  
The University of Queensland  
St Lucia Queensland 4072  
AUSTRALIA

Web Page: [www.smp.uq.edu.au](http://www.smp.uq.edu.au)

**Head of School - Professor of Mathematics**  
Professor Joseph Grotowski  
Telephone: +61 (0) 7 3365 3260  
Email: grotow@maths.uq.edu.au

**School Manager**  
Chris Shannon  
Telephone: +61 (0) 7 3365 3272  
Email: chris.shannon@uq.edu.au
**Student Administration**
Cath Carkeet  
Student Administration Manager  
Telephone: +61 (0) 7 3365 6065  
Email: c.carkeet@smp.uq.edu.au

Marie Grove  
Student Administration Officer  
Telephone: +61 (0) 7 3365 2673  
Email: m.grove@smp.uq.edu.au

Murray Kane  
Student Administration Officer  
Telephone: +61 (0) 7 3346 7264  
Email: m.kane1@uq.edu.au

**Finance**
Linda Schumacher  
Finance Manager & HR Manager  
Telephone: +61 (0) 7 3365 2151  
Email: lms@smp.uq.edu.au

**IT Customer Service Manager**
Karl Blakeney (Room 67-545)  
Telephone: +61 (0) 7 3365 3254  
Email: science.it@uq.edu.au

**HR**
Lisa Walker  
Human Resources Officer  
Telephone: +61 (0) 7 3365 2157  
Email: hr@smp.uq.edu.au

**Communications, Marketing and Outreach**
Dr Andrew Stephenson  
Science Communicator  
Telephone: +61 (0) 7 3346 7964  
Email: a.stephenson@uq.edu.au

**Discipline Locations**

**Mathematics**
Located in the Priestley (Building 67)  
Honours Coordinator: Dr Yoni Nazarathy  
Email: y.nazarathy@uq.edu.au

Secretary: Ms Janet Seddon  
Phone: +61 (0) 7 3365 3277  
Fax: +61 (0) 7 3365 1477  
Email: admin@ maths.uq.edu.au

Administration Officer: Ms Kay Mackie  
Phone: +61 (0) 7 3365 3278  
Fax: +61 (0) 7 3365 1477  
Email: admin@ maths.uq.edu.au

**Physics**
Located in the Physics Annexe (Building 6)  
Honours Coordinator: Dr Ian McCulloch  
Email: ianmcc@physics.uq.edu.au

Secretary: Ms Danette Peachey  
Phone: +61 (0) 7 3365 3424  
Fax: +61 (0) 7 3365 1242  
Email: d.peachey@uq.edu.au
Admission Requirements

Admission to Honours is open to students who demonstrate superior achievement in their undergraduate studies. To be eligible, a student should hold:

- a Bachelor of Science degree or an award recognised by the Executive Dean as equivalent, and;
- an overall GPA of 4 and a GPA of at least 4.5 over #8 from late-year courses from Part B of the BSc list considered by the executive dean to be relevant to the proposed program of study.

An Honours application must be submitted to the School of Mathematics and Physics Student Administration Office. All applications for admission to Honours require approval by the Head of School.

Application Process

- Find a supervisor and decide on a project area before completing the application form, so you are strongly encouraged to start looking for a supervisor before the end of your third year.

- Complete the School of Mathematics and Physics Honours application form. This application form is available from [http://smp.uq.edu.au/content/honours-studies](http://smp.uq.edu.au/content/honours-studies).

- This form should be completed after the results for your last semester of third year are released. If you are starting Honours in second semester, it is recommended that you submit your application very soon after the release of results.

- Applications should be submitted to the School Student Administration Office. The School will notify applicants by email of the outcome of their application.

- After you have been advised that you have been admitted, you should enrol yourself in the courses you wish to study, as well as your Honours project.

An Honours Degree

To be awarded an Honours degree, you must complete #16 from your chosen field in Part H of the BSc list, which is made of up of a thesis and coursework. See the relevant discipline section for more information on how each program is weighted.

The Honours Thesis

The aim of the Honours thesis is to provide students with the opportunity to carry out a set piece of research in an environment and in a way that develops their research skills. Skills developed include the ability to identify a research opportunity and to define and refine a research question, to demonstrate how the question is related to existing knowledge, to identify the research tools needed to investigate the question, to prosecute the research and to analyse and write-up the results in appropriate language in a coherent, logically structured report.
Your Honours Thesis will consume a large fraction of the available time for the full academic year. A typed thesis must be submitted at the end of two full semesters and assessment will be on the basis of this thesis, a brief seminar on the thesis topic and an oral examination on the thesis material, as well as the judgment of the project supervisor and second reader. Projects are restricted to problems on which one or more staff members have the expertise and interest necessary to give detailed supervision and for which facilities are immediately available. In practice this means that the projects are closely tied to the on-going research in the discipline. A list of projects can be obtained from the relevant Honours Coordinator. This is not necessarily an exclusive list; intending Honours students may wish to suggest different projects or approach staff members not listed as project supervisors.

Such suggestions can be accepted only when we are satisfied that they will lead to viable projects. You can find information about research currently happening in the School by visiting our website at www.smp.uq.edu.au and clicking on the Research link.

Once a project has been assigned, the student is expected to consult widely and regularly with his/her supervisor so that satisfactory progress occurs. Early in the project students should develop a plan, in consultation with their supervisor, for the progression of work that might need to be carried out by the Mechanical and Electronic workshops. These sections work to schedules and are not always able to accommodate last minutes rushes. Supervisors also expect a draft copy of a report/thesis well before the final submission date in order to advise students of potential problems.

In order to graduate with an Honours degree and to determine what grade of Honours you receive at the end of your Honours program, a mark and percentage will need to be recorded for each course that you study in your Honours year. To pass each course you will need to achieve a grade of 4 or higher in each course as this is considered the lowest grade for a pass. The exact nature and expected content of the thesis, the desired length, and in particular, the amount of original research required, will vary according to the discipline. Students should consult the individual discipline guidelines for further details. Details and deadlines for the submission of preliminary reports, as well as the requirements for a seminar and/or oral examinations (“thesis defense”) associated with the Honours Thesis, are also discipline specific and will be discussed in the relevant subsection.

The Honours thesis will normally be examined by two members of the relevant discipline’s academic staff who will be appointed after consultation with the Honours Coordinator and/or your supervisor.

**Level of Honours (Assessment)**

In 2014, Honours are awarded as Honours Class I, Honours Class IIA, Honours Class IIB and Honours Class III and are determined by the aggregate percentage results of the Honours courses.
In 2014, the Honours grade is formulated on the basis of the following score equivalents.

<table>
<thead>
<tr>
<th>Weighted Percentage %</th>
<th>Class of Honours</th>
</tr>
</thead>
<tbody>
<tr>
<td>80.00 and above</td>
<td>I</td>
</tr>
<tr>
<td>70.00 - 79.99</td>
<td>IIA</td>
</tr>
<tr>
<td>60.00 - 69.99</td>
<td>IIB</td>
</tr>
<tr>
<td>50.00 - 59.99</td>
<td>III</td>
</tr>
<tr>
<td>Below 50.00</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Information relating to the award of honours is published in the UQ Policy and Procedures Library (policy 3.50.12) [https://ppl.app.uq.edu.au/content/3.50.12-award-honours](https://ppl.app.uq.edu.au/content/3.50.12-award-honours).

**Examination of the Thesis**

In accordance with University guidelines for all project assessment, comparison should be made not with other students within the year, but with previous students and with standards at other Australian and overseas universities, keeping in mind that Honours results should reflect not only an assessment of achievements within the Honours year, but also a judgment on the potential of students to carry out independent research work in the future.

There are five components to the assessment of your Honours thesis. These components are:

- a preliminary research proposal (due early in the first semester of Honours);
- a written progress report (due early in your second semester);
- an oral presentation or presentations (the Honours seminar);
- the written report (the thesis);
- an oral examination on the thesis.

The specific requirements and weightings given to each component are determined by the individual discipline and the students should consult the relevant course profiles.

**Plagiarism**

Plagiarism involves the use of other peoples’ ideas and works without acknowledging the source of the information. To avoid plagiarism, you must give credit whenever you:

- quote from a person’s actual spoken or written words;
- use another person’s ideas, opinions or theories in an assignment etc.);
- paraphrase another person’s spoken or written word.

To avoid unintentional plagiarism you can:

- use quotation marks around everything that comes directly from a text or article;
- summarise ideas and arguments in your own words;
- check that you have correctly paraphrased original ideas;
• check your summary against the original text.
If you are suspected of plagiarism, it is a very serious matter that will be
investigated and you may be subject to an academic misconduct hearing with the
Head of School or a higher authority.

The UQ Library website http://www.library.uq.edu.au/how-to-guides/avoiding-
plagiarism provides information on avoiding plagiarism.

The University's Student Integrity and Misconduct policy (3.60.04) is at
http://ppl.app.uq.edu.au/content/3.60.04-student-integrity-and-misconduct.

Ethics Clearance
The University of Queensland has stringent policies and guidelines for research
involving ‘human experimentation’ which is defined widely to include all research
involving human participants. See http://www.uq.edu.au/research/integrity-
compliance/human-ethics for details. Consult your supervisor if you believe your
Honours project requires ethical clearance.

Your Honours Supervisor
Choosing a topic and your supervisor
Choosing a supervisor and a thesis topic is a critical step in the successful
completion of the Honours program. The selection of an appropriate topic and
supervisor are the responsibility of the student. The following steps offer some
guidance in this process:

• to assist with choosing a specialised area of interest, review reports
and theses of previous students (Honours, PhD & MPhil), examine the
research profiles of the School’s academic staff, talk with other
students and also review the work assignments from your
undergraduate studies.

• identify proposed course areas well before the first semester of
commencing your Honours program so that a suitable supervisor may
be approached.

• select two or three academics whose research interests coincide with
your proposed thesis topic. Approach and discuss your proposed topic
with each of the academics you have identified.

• if you are having difficulties selecting the topic or supervisor, discuss
the issues with the Discipline Honours Coordinator.

• having selected an appropriate supervisor, define the topic as soon as
possible to ensure the thesis can be completed by the submission
date.

The role of your Supervisor
The role of the supervisor is to:

• assist in the development of a study plan ensuring that it is
scientifically sound and possible to implement with the resources likely
to be available;
• be available for consultation on a regular basis for an appropriate period of time;
• encourage completion of the thesis;
• regularly discuss progress and assist in the development of appropriate research habits;
• read drafts of the thesis as each section is produced and read the entire thesis before it is prepared for submission;
• provide appropriate feedback on work throughout the year;
• help you choose and refine your topic and field area;
• provide advice about the scope of the thesis;
• help locate and identify appropriate reading;
• help set goals and monitor progress;
• guide your field and laboratory work if appropriate;
• ensure that your work is satisfactorily written up and presented.

**Working with your supervisor**

You should arrange periodic meetings with you supervisor to discuss the progress and direction of your work. It is not the supervisor’s role to pursue you in order to monitor your progress.

Although your supervisor will assist you with style and the initial editing of your thesis, providing prompt feedback on drafts of submitted work, you should not expect him or her to read thesis material that you have not already edited. Remember that your supervisor has other students and duties and cannot be expected to read a thesis draft at short notice. You should attempt to get a draft of your introductory chapters to your supervisor well ahead of the deadline for submission, so that problems with style and grammar can be identified and rectified at an early stage. If you are dissatisfied with your supervisor you may present a case in the first instance to the Honours Coordinator for a change in supervisor. Such a request will be treated confidentially.

An Honours student is expected to:

• formulate with the help of the supervisor, a concise statement of the aims of the project, and to layout a rough timetable for the work required. This is part of the process of learning to conduct research;
• work out with their supervisor a preferred timetable and method of working which is suitable to both. Of course the timetable may need to alter as pressures mount or recede during the year, or as other commitments must be taken into account. But a regular schedule of meetings with supervisors is as critical to success as a schedule for lectures in a lecture-driven course;
- write their own thesis, including drafts. Learning to write an extended report in clear concise language in an appropriate professional style forms a fundamental part of research training;
- proof read written material before submitting it to their supervisor and keep scheduled meetings.

The student charter, available in the UQ Policy and Procedures library (3.60.01) at https://ppl.app.uq.edu.au/content/3.60.01-student-charter, sets out the general rights and responsibilities of the students at the University of Queensland.

Honours is a demanding year. Success requires a high level of dedication. It is important to achieve a balance between time spent on your thesis and time spent on your coursework. At the same time, it is important to participate in the broader intellectual life of the School and of the University. Honours students are expected to attend not only the seminars presented by their peers, but also the Research Seminars held in their areas as well as the School Colloquia on a regular basis. These talks form an integral part of your training as a research scholar and attendance is expected. It is also important to participate in other activities that occur within the School, such as outreach events, recruitment activities, lead positions in clubs and societies and the annual School Postgraduate Poster Day.

**Your Honours Coordinators**

The Honours Coordinator in each discipline is responsible for the overall management and administration of their Discipline’s Honours Program. The coordinator monitors program requirements, provides academic counselling, appoints examiners, chairs the oral discussions of theses, and schedules Honours seminars. The Honours Coordinator should be your first port of call for information regarding any aspects of your Honours Program. Contact details for each discipline Honours Coordinator can be found within the discipline chapter contained in this Handbook.

**Administration, Equipment and Facilities**

Please contact the secretary in your relevant discipline for information on:

- after-hours building access;
- common room;
- computer accounts;
- desk allocation and furniture;
- facsimile;
- keys and swipe cards;
- mail;
- stationery;
- photocopying;
- telephones.
**Accommodation and Building access**

Desk space will be arranged by the Honours Coordinators in conjunction with the discipline secretaries. Keys to Honours offices are available from the secretary in each discipline on a refundable deposit of $50.00.

Honours offices are intended as quiet rooms and in particular should not be used for food. Please use the designated tea rooms.

Mathematics students who wish to remain in Priestley Building (#67) after official working hours may negotiate access through the Mathematics secretary.

**Photocopying**

As an Honours student you have access to the photocopier. You may have to obtain a PIN number from the office of your discipline.

**Mailbox**

University and other notices directed toward Honours students, telephone messages and regular mail will be placed in the appropriate marked mailbox areas of your discipline.

**Computing**

Computers, scanners and printers are available for student use in the computer laboratories of the disciplines.

Students will be allocated an account and details of printing allocation and other administrative matters will be provided at the start of their Honours year. Students are reminded that their computer usage is governed by PPL 6.20.11 Acceptable Use of UQ ICT Resources [https://ppl.app.uq.edu.au/content/6.20.01-acceptable-use-uq-ict-resources](https://ppl.app.uq.edu.au/content/6.20.01-acceptable-use-uq-ict-resources). All software must be legal and students must conform to the University of Queensland bylaws regarding computer and internet use.

**Tutoring**

If you wish to be considered for appointment to casual tutoring to first year classes, please see the School’s website for information [http://smp.uq.edu.au/casual-tutoring](http://smp.uq.edu.au/casual-tutoring). The application process is different depending on whether you wish to tutor in mathematics or physics. It is never clear until shortly before semester begins how much tutoring will be available for Honours students, but there are generally at least a few positions.

**Library**

The Dorothy Hill Engineering & Sciences Library contains the most extensive science collection in the southern hemisphere. The Research Support Librarian for Mathematics and Physics is Mr Michael Whiteway (m.whiteway@library.uq.edu.au).

**myAdvisor**

Students should refer to the myAdvisor website ([www.uq.edu.au/myadvisor](http://www.uq.edu.au/myadvisor)), as a primary source of information about a range of student-related matters,
including information relating to enrolment, assessment, changing your program, as well as the relevant forms associated with a variety of administrative process.

**Mathematics and Statistics**

*Mathematics Honours Program*

The Mathematics Honours thesis component is weighted at #6 with the remaining #10 as coursework electives. The table below explains in brief the structure and weighting for the remaining components of the Honours year. For further details, please see the course profiles.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weighting</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Thesis         | #6        | MATH6010 (commencing Semester 1)  
|                |           | MATH6020 (commencing Semester 2)                  |
| Coursework     | #10       | at least #6 from PART H (Mathematics) plus at      |
| Electives      |           | most #4 from other appropriate advanced level      |
|                |           | courses approved by the Head of School            |
| **Total**      |           | #16                                                |

*Statistics Honours Program*

The Statistics Honours Thesis component is weighted at #6 with the remaining #10 as coursework electives. The table below explains in brief the structure and weighting for the remaining components of the Honours year. For further details, please see the course profiles.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weighting</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Thesis      | #6        | STAT6010 (commencing Semester 1)  
|             |           | STAT6020 (commencing Semester 2)                  |
| Compulsory  | #4        | from STAT4401, STAT4402, STAT4403 and STAT4404    |
| Electives   | #6        | Select from STAT6003, STAT6004 and Part H field   |
|             |           | of Mathematics or other appropriate advanced level|
|             |           | courses approved by Head of School                |
| **Total**   |           | #16                                                |
Mathematics and Statistics PART H courses

SEMESTER 1
MATH4091 Financial Calculus
MATH4105 General Relativity
MATH6006 Special Topics A (both semester 1 and 2)
MATH6007 Special Topics B (both semester 1 and 2)

Odd Years
MATH4302 Combinatorial Designs
MATH4403 Partial Differential Equations III/IVH
STAT4404 Advanced Probability & Stochastic Processes II

Even Years
MATH4303 Advanced Combinatorics
MATH4402 Ordinary Differential Equations III/IVH
STAT4403 Advanced Probability & Stochastic Processes I

SEMESTER 2
MATH4090 Computation in Financial Mathematics
MATH4202 Advanced Topics in Operations Research
MATH6006 Special Topics A (both semester 1 and 2)
MATH6007 Special Topics B (both semester 1 and 2)

Odd Years
MATH4104 Advanced Hamiltonian Dynamics & Chaos
MATH4107 Advanced Mathematical Methods and Models B
MATH4201 Applications of Scientific Computing
MATH4301 Advanced Algebra
MATH4404 Functional Analysis III/IVH
STAT4402 Advanced Statistics II

Even Years
MATH4106 Advanced Mathematical Methods and Models A
MATH4205 Advances in Scientific Visualisation and Graphics
MATH4304 Number Theory
MATH4405 Measure Theory
MATH4406 Control Theory III/IVH
STAT4401 Advanced Statistics I

Statistics PART H

Odd Years
STAT4402 Advanced Statistics II (Semester 2)
STAT4404 Advanced Probability & Stochastic Processes II (Semester 1)
STAT6003 Special Topics A (both semester 1 and 2)
STAT6004 Special Topics B (both semester 1 and 2)

Even Years
STAT4401 Advanced Statistics I (Semester 2)
STAT4403 Advanced Probability & Stochastic Processes I (Semester 1)
STAT6003 Special Topics A (both semester 1 and 2)
STAT6004 Special Topics B (both semester 1 and 2)
Level of Honours

The Honours thesis is undertaken as one of the courses MATH6010/STAT6010 (if you start in first semester) and MATH6020/STAT6020 (starting in second semester). As such, the precise and current details of aims, assessment and associated procedures are to be found in the associated course profiles.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weighting</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>Feedback only</td>
<td></td>
</tr>
<tr>
<td>Progress report</td>
<td>10%</td>
<td>5-10 pages. Due beginning of semester two</td>
</tr>
<tr>
<td>Written thesis</td>
<td>90%</td>
<td>20,000 – 30,000 words. Two copies. Due end of semester two</td>
</tr>
<tr>
<td>Oral defense</td>
<td></td>
<td>To be conducted on Monday of the second examination week in your second semester.</td>
</tr>
</tbody>
</table>

In the Honours thesis, a novel presentation of the research in the chosen area is encouraged, and might involve new proofs of known results, extra calculation, some numerical experimentation, etc. The thesis should be written in the style of an extended research paper, and should present a coherent account of the material studied. A thesis of around 20,000 - 30,000 words would normally be expected.

The Mathematics discipline requires you to submit to the examiners on the Monday of first week of second semester, a written progress report on your research, including a review of relevant literature of 5-10 pages in length. This requirement is to protect you against any misunderstandings that could arise, and to ensure that the project you undertake will be achievable by the end of the year.

The thesis itself (two copies) is required by 9am on the Monday of first week of examinations, in your second semester. An oral defense of the thesis conducted with the student and the examiners will be held before the thesis is graded. The oral defense will be conducted on Monday of the second examination week in your second semester.

Laboratories and Equipment

Specialist laboratories are not generally an issue for Honours students in mathematics unless they are doing combined Honours. Specialist computing requirements (for example time-intensive numerical calculations or specific graphics requirements) can generally be accommodated and should be discussed with your project supervisor.

Honours Coordinator

Dr Yoni Nazarathy
Mathematics Honours Coordinator
Phone: +61 (0) 7 3346 9032
Nazarathy (y.nazarathy@uq.edu.au)
Physics

Physics Honours Program

The Physics Honours thesis component is weighted at #8 with the remaining #8 consisting of compulsory coursework and electives. The table below explains in brief the structure and weighting for the remaining components of the Honours year. For further details, please see the course profiles.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weighting</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td>#8</td>
<td>PHYS6487 (commencing Semester 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PHYS6488 (commencing Semester 2)</td>
</tr>
<tr>
<td>Coursework</td>
<td>at least #4 from</td>
<td>MATH4105, PHYS4030 and PHYS4040</td>
</tr>
<tr>
<td>Semester 1</td>
<td>up to #4 from</td>
<td>MATH3103, MATH4104, PHYS4055, PHYS4070 and PHYS6004 plus at most #2 from other appropriate advanced level courses approved by the Head of School.</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>#16</td>
<td></td>
</tr>
</tbody>
</table>

The fourth year physics lecture courses offered (each nominally of 32 lecture hours (#2) on selected topics, with various third level pre-requisites) are listed below.

Physics PART H Courses

SEMESTER 1
MATH4105 General Relativity
PHYS4030 Condensed Matter Physics: Electronic properties of crystals
PHYS4040 Advanced Quantum Theory
PHYS6004 Special Topics in Physics (both semester 1 and 2)

SEMESTER 2
MATH3103 Algebraic Methods of Mathematical Physics
PHYS4055 Laser Physics & Quantum Optics
PHYS4070 Advanced Computational Physics
PHYS6004 Special Topics in Physics (both semester 1 and 2)

Odd Years
MATH4104 Advanced Hamiltonian Dynamics & Chaos

Level of Honours

The Physics Honours project is undertaken as one of the compulsory courses PHYS6487 (first semester start) or PHYS6488 (second semester start). The precise current details of aims, assessment and associated procedures are to be found in the corresponding course profiles.
The project is worth #8 and can be theoretical or experimental. The work is normally carried out in association with one of the research groups in Physics and original novel outcomes are expected, in many cases leading to publication in refereed journals. Students normally base their project on a topic from a list available near the end of the previous year, and are expected to make arrangements with a supervisor.

After one semester of work, each student will present a 20 minute seminar to the discipline on the project. Each student will also submit a brief written progress report, including a literature review, to the Honours Coordinator. This will be assessed by the supervisor and two examiners, who will each provide written feedback. Grading is by pass/fail. The student will also receive feedback from the seminar audience and should discuss this and their interim assessment with him/her.

At the end of the second semester of work, each student will present a second seminar to the discipline, submit a written report of around 50 pages in length, and attend an oral examination by two examiners who have read the report and attended the seminar. The supervisor and Honours Coordinator will also be present. Although the seminar is not marked separately, students who fail to present a seminar will suffer a penalty of 10%. The examiners will be appointed by the Honours Coordinator with the intention that one will have expertise in the general area of the project, while the other will not. They will be provided with a form (see course profile) to assist their assessments of the report and oral examination. After discussion they will each submit a mark confirming to the standard guidelines for grades of Honours. The supervisor will also submit a mark, taking into account more subjective factors, and their detailed knowledge of the problems faced by the student, and any unusual assistance the student may have received. At an examiners’ meeting the marks will be reviewed and discussed before a final mark is awarded. The default is that the supervisor’s mark and the assessors’ mark should carry equal weight.
Project reports (3 hard copies plus a PDF copy emailed to the Honours Coordinator) must be submitted by a deadline set out in the course profile, normally the end of the second semester lecture periods, and oral examinations will be held during the normal examination period. Students must be available during the whole of this period for their oral. In scientific report writing, verbosity is a vice that will be penalised. The ideal report length is less than 50 typed pages, although appendices with large diagrams, computer programs, detailed derivations, etc. may be added to the number. The discipline does not pay the cost of typing, but for reports of normal length, the production of multiple copies may be done, without charge, on the discipline photocopier.

**Laboratories and Equipment**
Consult the electronic workshop for assistance with high voltage circuits. Take appropriate precautions with other equipment (eg. gas cylinders, hot or very cold items, chemical containers). Report any mishaps immediately to your supervisor. Note that no person is permitted to work in SMP laser laboratories unless they have received Laser Safety training and had their eyes tested for damage. This will be arranged in the first week of classes.

**Honours Coordinator**
Dr Ian McCulloch
Physics Honours Coordinator
Phone: +61 (0) 7 3365 2473
ianmcc@physics.uq.edu.au