754AA Bachelor of Science (Degree with Honours)

Year and Campus:	2010 - Parkville
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Undergraduate
Duration & Credit Points:	100 credit points taken over 12 months full time. This course is available as full or part time.
Coordinator:	Melbourne Graduate School of Science
Contact:	Faculty of Science The University of Melbourne Tel: + 61 3 8344 6128 Fax: +61 3 8344 5803 Web: http://graduate.science.unimelb.edu.au
Course Overview:	The 2010 course information below is applicable to students who have completed their degree or are completing their degree in 2009 or mid-year 2010. Students who are completing their degree at the end of 2010 will be able to access information in regards to 2011 Honours programs via the Faculty of Science website **www.science.unimelb.edu.au (http://www.science.unimelb.edu.au/)** from May 2010. Honours is an extremely valuable year of study. It comprises advanced 400-level coursework and an individual research project designed to extend students' knowledge and skills. In particular, the honours programs offered by the Faculty of Science aim to enable students to define and solve problems relating to their speciality and to conduct research in the field. Honours graduates possess the skills and qualifications needed to progress to a higher degree such as a Master of Philosophy or Doctor of Philosophy, or to enter the science and technology industries. The Faculty of Science offers Bachelor of Science (Degree with Honours) programs in a number of departments located on the Parkville campus. These departments include: # **Botany** # **Chemistry** # **Computer Science and Software Engineering** # **Earth Sciences** # **Genetics** # **Geography** # **History and Philosophy of Science** # **Mathematics and Statistics** # **Optometry and Vision Sciences** # **Physics** # Psychology (please refer to the separate entry for the Bachelor of Science (Honours) course in Psychology) # **Zoology** Bachelor of Science (Honours) in Biomedical and Health Sciences programs are available in the following departments. Please refer to the separate entry, Bachelor of Science (Honours) in Biomedical and Health Sciences, 754-BM, for the full list of honours programs. # Anatomy and Cell Biology # Biochemistry and Molecular Biology # Clinical and Biomedical Sciences (Barwon Health) # Dental Science # Medical Biology (Walter and Eliza Hall Institute) # Medicine (Austin Health / Northern Health) # Medicine (Royal Melbourne Hospital) # Medicine (St Vincent's Hospital)

	# Microbiology and Immunology # Otolaryngology # Paediatrics (Royal Children's Hospital) # Pathology # Pharmacology # Physiology # Physiotherapy- not offered in 2010 # Psychiatry (Austin Health) # Surgery (Austin Health / Northern Health) Some combined and interdepartmental programs are also available. The Bachelor of Information Systems (Degree with Honours) is also available (please refer to the separate entry for this course).
Objectives:	Honours is a "fourth-year" program which gives you the opportunity to draw together your previous science or technology studies and focus your knowledge, skills and intellect on an exciting piece of original research. Honours programs are comprised of two components: # The advanced research project provides you with the chance to use your knowledge and technical skills on a research project. # The advanced coursework component continues the structured education of your previous undergraduate studies, allowing you to increase your knowledge in your particular areas of interest or expand the theoretical basis on which you will pursue your research work. Investing the additional year at University required to complete Honours gives you the opportunity to draw together your early years of study and add significant value to your resume. Honours is very different from earlier undergraduate years, allowing and requiring a greater degree of independence and flexibility that will help develop the maturity and skills for transition to employment in a range of occupations and industries or a research higher degree.
Course Structure & Available Subjects:	The Bachelor of Science (Degree with Honours) program involves the completion of one or more advanced coursework subjects and a research project subject. The relative weighting of these subjects varies between departments. Each advanced coursework subject may entail 400-level lectures and tutorials, journal clubs, literature reviews, oral presentations, and other departmental activities. In some departments students enrol in a number of advanced coursework subjects. The research project subject comprises a research project completed under the guidance of an academic who specialises in your area of interest. Students' academic transcripts will record a separate result for each advanced coursework subject they undertake as part of the BSc (Honours) course, and the research project subject. Refer to the departmental entries below for more information. Separate entries are available for the Bachelor of Information Systems (Degree with Honours) and the Bachelor of Science (Honours) course in Psychology. Honours usually involves one year of full-time study between February and November. Some departments offer a two-year part-time honours program and some offer mid-year commencement. Further details are provided in the departmental entries that follow. **Course Requirements** To qualify for the BSc (Honours) degree students must: # pass 100 points at the honours level (or a level deemed appropriate for an honours student); and # achieve an overall weighted average of at least 65 percent for their honours studies. Some departments have hurdle requirements that must also be met. Students are not allowed to repeat an honours subject/component for which they have received a mark of less than 50 percent.
Majors/Minors/ Specialisations	**Department of Botany** **Department of Botany**

Botany honours program

Overview

The honours program in botany involves:

an original supervised research project;
a minimum of 30 hours of lectures and seminars in the areas of cellular and molecular biology, systematics and evolution, plant ecology and physiology, marine botany, plant conservation biology, and fungi and plant pathology; and
reading assignments, essay writing, and presentation of seminars.

The course provides students with skills in original research in plant science, develops capacity for critical thinking and evaluation of information, instills knowledge across wide areas of plant sciences, and enhances communication skills.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the botany honours program need to complete 50 or more points of 300-level botany, or equivalent in a related field (eg. plant biochemistry, plant genetics or environmental sciences).

The Head of Department may waive the prerequisites or stipulate additional requirements.

Honours coordinator

Assoc. Prof. Rick Wetherbee

Duration and commencement of course

This particular honours program can only be undertaken on a full-time basis, and a mid-year intake is offered. The program runs either from February to November or July to May.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in the botany honours program must participate in other training courses as directed by the department.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

Botany Research Project subject = 75 percent
Botany Advanced Coursework subject = 25 percent

Advanced coursework

Students will be enrolled in two x 12.5 coursework subjects from the list below in consultation with the Honours Coordinator:

600-651 Microscopy for Biological Sciences
600-654 Global Environmental Change
606-607 Flora of Victoria
654-634 Biometry
600-651 Advanced Molecular Techniques
600-650 Metabolomics and Proteomics
One third year Botany subject, for which credit has not already been given, or an alternative postgraduate coursework elective may be chosen if core knowledge is required.

The advanced coursework subject accounts for 25 percent of the total assessment based on three components:

a literature review (3500 words);
two essays or written assignments focusing on topics presented in the series of advanced lectures (each item is less than 2500 words).

Research project

The research project subject comprises:

a written report of up to 7500 words (60 percent of the total assessment);
an oral examination concerning the research project (five percent of the total assessment);

- a 30-minute seminar (10 percent of the total assessment).

Further information

If you require further information about this honours program please contact:

School of Botany

Tel: +61 3 8344 5049

Assoc. Prof. Rick Wetherbee

richardw@unimelb.edu.au

Tel: +61 3 8344 8931

School of Chemistry
School of Chemistry

Coordinator

Professor Richard O'Hair

Administrator

Ms Vicki Burley

The School of Chemistry offers the following honours programs:

- chemistry honours program (described below);
- combined chemistry and biochemistry (chemistry coursework) honours program (described below);
- combined chemistry and biochemistry (biochemistry coursework) honours program (described under Combined biochemistry and chemistry (biochemistry coursework) honours program);
- combined chemistry and pharmacology honours program (described under Combined chemistry and pharmacology honours program).

Chemistry honours program

Overview

The honours program in chemistry is designed to:

- increase the student's knowledge and understanding of chemical science;
- develop the process and practice of chemical research;
- encourage the development of individual investigative skills, critical thought and the ability to evaluate information and to analyse experimental data;
- promote the acquisition of experimental or theoretical skills in areas currently relevant to one of the research groups in the School of Chemistry;
- improve oral and written communication skills; and
- ensure that students receive essential training in laboratory safety procedures.

Generic skills

The honours programs in chemistry will provide students with the opportunity to establish/ develop the following generic skills:

- an ability to evaluate scientific and professional literature;
- the ability to use conceptual models to rationalise experimental data;
- a capacity to articulate their knowledge and understanding in written and oral presentations;
- a capacity to manage competing demands on time, including self-directed experimental work;
- a capacity to enhance teamwork skills as required; and
- a respect for integrity in the conduct and reporting of scientific investigations.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the chemistry honours program should typically have a major in chemistry. Applications from Science students who do not formally have a chemistry major, BBiomedSc students, and applicants from other courses and institutions will be considered on a case-by-case basis by the Honours coordinator.

Course structure

The following information is applicable to students commencing in 2009. Students who commenced in 2008 should refer to the 2008 Handbook.

This particular honours program can only be undertaken on a full-time basis, and a mid-year intake is offered. Enrolment in the program is possible between either February or November or July and June.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in this program must:

attend all Safety and Induction program lectures and successfully complete the Safety Examination. Students who fail the Safety Examination, will have to complete an additional study program and be reassessed. A pass in the Safety Examination is required before students can begin their laboratory work.
submit a 1500-word literature survey and research plan during the first semester of enrolment.

Components of assessment

The Honours course comprises a research project component and an advanced coursework component. Their relative weightings are as follows:

Chemistry Research Project component = 62.5 percent
Chemistry Advanced Coursework component = 37.5 percent

Advanced coursework

Students will enrol in the following three subjects (each worth 12.5 points):

610-681 Advanced Spectroscopy
610-682 Chemistry 4A
610-683 Chemistry 4B

[Each of these subjects will be examined by formal written examination; subject 610-681 and 610-682 at the end of semester 1 and subject 610-683 during second semester].

Research project

Students will enrol in the following research subjects:

610-412 Chemistry Research Project 25 points in semester 1
610-413 Chemistry Research Project 37.5 points in semester 2

The research project involves the completion of:

* A preliminary literature survey and research plan (1500 words, up to 5 pages), due towards the end of the first semester of study (pass/fail);

* A major thesis, page limit of 30 pages (10,000 words) due at the end of the second semester of study (90% made up from thesis evaluation (35%), oral examination (viva) on thesis (35%); supervisor’s assessment of research performance (20%) based on attendance, application, initiative, and demonstrated skills);

* A project-related oral presentation (15 minutes presentation, 5 minutes discussion) to be scheduled during the second semester of enrolment (10%);

* Successful completion of a seminar series providing advanced theoretical and/or practical training (pass/fail).

Further information

If you require further information about this honours program please contact:

Ms Vicki Burley

Tel: +61 3 8344 6495

Combined chemistry and biochemistry (chemistry coursework) honours program.

Overview

This honours program in chemistry and biochemistry is designed to:

- increase the student's knowledge and understanding of biochemical and chemical science;
- develop the process and practice of biochemical and chemical research;
- develop individual investigative skills, critical thought and the ability to evaluate information and to analyse experimental data;
- promote the acquisition of experimental or theoretical skills in areas currently relevant to one of the research groups in the School of Chemistry or Biochemistry and Molecular Biology;
- develop the ability to present research results both orally and in the written form; and
- ensure that students receive essential training in laboratory safety procedures.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the combined chemistry and biochemistry honours program should typically have a major in chemistry. Applications from Science students who do not formally have a chemistry major, BBiomedSc students, and applicants from other courses and institutions will be considered on a case-by-case basis by the Honours coordinator.

Selection into the combined honours program must be endorsed by both departments.

Honours coordinators

Professor Richard O'Hair (Chemistry)

Professor Malcolm McConville (Biochemistry and Molecular Biology)

Duration and commencement of course

This particular honours program can only be undertaken on a full-time basis, and a mid-year intake is offered. The program runs either from February to November or July to June.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in this combined chemistry and biochemistry honours program must obtain a pass in the 'Safety in the Laboratory' course. Students who fail this course will have to complete an additional study program and be reassessed. A pass in the 'Safety in the Laboratory' course is required before students begin their research and advanced coursework.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects must be taken concurrently. Their relative weightings are as follows:

- Chemistry/Biochemistry Research Project subject = 50 percent
- Chemistry Advanced Coursework subject = 50 percent

Advanced coursework

Students select five lecture subjects. Each of these subjects will be examined by formal written examination; examination and assignment; or assignment alone, and may be examined during or at the end of Semester 1. All five lecture subjects are of equal value, each one contributing up to one-fifth of the total marks available for the advanced coursework subject.

Research project

This subject comprises an original research project, supervised by one academic staff member from each of the School of Chemistry and the Department of Biochemistry and Molecular Biology. The research project continues throughout the year.

The research project subject involves the completion of:

- a written report (thesis) submitted at the end of the subject. The thesis can be a maximum of 30 double-spaced A4 pages.
- an oral examination to be held following submission of the thesis. The thesis and oral examination will be assessed by a panel of examiners and together are worth 35 percent of the overall honours mark.
- a seminar of 20 minutes during the second semester of study. The research work will be discussed in terms of aims, accomplishments and future projections. The seminar contributes 2.5 percent to the overall honours mark; and

application towards, and progress in, the achievement of the research objectives will be assessed by the research supervisor. This assessment accounts for 12.5 percent of the overall honours mark.

Further information

If you require further information about this honours program please contact:

Professor Malcolm McConville

Tel: +61 3 8344 2342

Ms Vicki Burley (School of Chemistry)

Te: +61 3 8344 6495

Combined chemistry and pharmacology honours program

Overview

This honours program in pharmacology and chemistry is designed to:

increase the student's knowledge and understanding of pharmacology and chemistry;
develop the process and practice of research in pharmacology and chemistry;
provide an introduction to medicinal chemistry and drug design;
develop individual investigative skills and the ability to evaluate information and to analyse experimental data;
promote the acquisition of experimental and theoretical skills in areas currently of relevance to one of the research groups in the Department of Pharmacology or the School of Chemistry;
develop the ability to present research results both orally and in written form; and
ensure that students receive essential training in laboratory safety procedures.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in the combined pharmacology and chemistry honours program should typically have a major in chemistry. Applications from Science students who do not formally have a chemistry major, BBiomedSc students, and applicants from other courses and institutions will be considered on a case-by-case basis by the Honours coordinator.

Selection into the combined honours program must be endorsed by both departments.

Honours coordinators

Professor Richard O'Hair (chemistry)

Professor Peter McIntyre (pharmacology)

Duration and commencement of the course

This particular honours program can only be taken on a full-time basis. The program commences in February and normally finishes in November. Mid-year commencement (July to June) will be considered on a case-by-case basis, subject to approval by the heads of both departments.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in this combined chemistry and pharmacology honours program must attend and satisfactorily complete the 'Safety in the Laboratory' and 'Animal Ethics' courses, as well as any other preliminary requirements stipulated by either the School of Chemistry or the Department of Pharmacology. Students who do not reach the required standard will be required to complete an additional study program and reassessment. A pass in 'Safety in the Laboratory' course is required before any student can commence the research project and advanced lecture course.

Components of assessment

Honours comprises a research project and an advanced coursework subject. These subjects must be taken concurrently. Their relative weights are as follows:

Chemistry/Pharmacology Research Project subject = 50 percent
Chemistry/Pharmacology Advanced Coursework subject = 50 percent

Advanced coursework

Students are required to complete five lecture modules comprising two core pharmacology lecture modules, two chemistry lecture modules and a further pharmacology or chemistry module. In all cases, students will be required to undertake the two core modules Advanced Pharmacology and Advanced Methodology and Molecular Pharmacology. Each module will be assessed by a formal written examination at the end of Semester 1, or by assignment. All five modules are of equal value, each one contributing one-fifth of the total marks available for the advanced coursework subject.

Research project

This subject comprises an original research project, supervised by two staff members, one from each of the School of Chemistry and the Department of Pharmacology. The research project continues throughout the year.

The research project subject involves completion of:

a written report (thesis) submitted at the end of the subject. The thesis can be a maximum of 30 double-spaced A4 pages.
an oral examination to be held following submission of the thesis. The thesis and oral examination will be assessed by a panel of examiners and together are worth 35 percent of the overall honours mark.
a seminar of 20 minutes during the second semester of study. The research work will be discussed in terms of aims, accomplishments and future projections. The seminar contributes 2.5 percent to the overall honours mark; and
application towards, and progress in, the achievement of the research objectives will be assessed by the research supervisor. This assessment accounts for 12.5 percent of the overall honours mark.

Further information

If you require further information about this honours program please contact:

Ms Vicki Burley (School of Chemistry)

Tel: +61 3 8344 6495

Professor Peter McIntyre
Tel: +61 3 8344 5745

Department of Computer Science and Software Engineering

Department of Computer Science and Software Engineering

The Department of Computer Science and Software Engineering offers the following honours programs:

computer science;
Combined mathematics and statistics/computer science honours program.

The computer science program is described below.

Computer science honours program

Overview

The honours program in computer science is designed to:

provide an introduction to the process and practice of research in computer science;
enable the acquisition of current research skills in specific areas;
encourage the development of the ability to think critically and independently;
consolidate and extend the student's understanding of a range of aspects of the discipline of computer science; and
improve oral and written communication skills.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the computer science honours program must:

have completed at least 50 points of 300-level computer science subjects;
have passed the subject 433-255 Logic and Computation;
have passed at least 25 points of 100-level mathematics or statistics subjects.

Applications will also be evaluated with regard to prerequisites for 400-level subjects, strength in areas related to research interests in the department, and overall academic strength.

While 50 points of 300-level study in computer science is the minimum for entry to BSc (Honours), students should note that the 400-level honours subjects offered by the department have individual prerequisites that may not be satisfied by some combinations of 50 points of 300-level subjects. Students wishing to retain a wide range of options at the 400-level are advised to select at least four of: 433-303 Artificial Intelligence; 433-330 Theory of Computation; 433-341 Software Engineering Process and Practice; 433-351 Database Systems; 433-361 Programming Language Implementation; and 433-380 Graphics and Computation.

Study of mathematics or statistics at the second-year level is strongly recommended.

Students from other institutions and other backgrounds should contact the honours coordinator to determine their eligibility for entry to the BSc (Honours) course.

Honours coordinator

Dr Adrian Pearce

Duration and commencement of course

The BSc (Honours) program in computer science can be undertaken on a full-time or part-time basis, commencing in late February each year. The program requires one year of full-time study, or two years of part-time study.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in the computer science BSc (Honours) program must pass 100 points of approved subjects, including the Computer Science Research Project, and must have a weighted average mark of at least 65 percent.

Students enrolled in the computer science honours program are also expected to have a satisfactory level of attendance at departmental seminars.

Students will be advised of hurdle requirements for the individual coursework subjects at the commencement of each subject.

Components of assessment

Honours comprises a research project subject and five advanced coursework subjects. These subjects with their relative weightings are as follows:

Computer Science Research Project subject = 37.5 percent
Advanced Coursework subjects: five at 12.5 points each = 62.5 percent

The final honours grade is the weighted average mark over the 100 points included in these two components.

Advanced coursework 62.5 points

Five subjects totalling 62.5 points, consisting of any study-level 0 or study-level 6 subjects taught by the Department, with the exception of the subjects listed below.

Students may also enrol in up to 25 points of subjects at the honours or masters level of study in cognate areas from outside the Department, subject to approval being granted by the Honours Coordinator.

Students are NOT allowed to enrol in the following project-based subjects as part of the 62.5 points of Advanced coursework subjects:

433-659 Distributed Computing Project
433-690 IT Minor Research Project
433-699 Minor Research Project
433-440 Advanced Software Engineering Project
433-603 Masters Software Engineering Project
433-604 Masters Advanced Software Engineering Project

600-level computer science subjects

433-620 Engineering for Internet Software Development (Sem 2)
433-643 IT Project Management (Sem 1)
433-652 Distributed Systems (Sem 1 and Sem 2)
433-677 Networks and Parallel Processing (Sem 2)
433-678 Cluster and Grid Computing (Sem 1)

Students are reminded that to be awarded the BSc (Honours) they must complete 100 points of approved subjects including an honours research project, and must achieve a weighted average over those subjects of at least 65 percent.

Research project

In addition to the advanced coursework, students must complete a total of 37.5 points of enrolment in the Computer Science Research Project subject.

The Computer Science Research Project subject comprises a research report of up to 40 pages (20 000 words) and an oral presentation not exceeding 30 minutes. Students are required to obtain a mark of at least 65 percent in this subject.

Further information

If you require further information about this honours program please contact:

Dr Adrian Pearce

Tel: +61 3 8344 1399

Email: adrianrp@unimelb.edu.au

School of Earth Sciences

School of Earth Sciences

Earth sciences honours program

Overview

The honours program in earth sciences is designed to prepare students for industry employment and for further research. Emphasis is placed on individual research and professional presentation of results. The program includes at least twenty days of advanced coursework, a literature review of your chosen research field and a written and oral report about your research project.

The honours program offered by the School of Earth Sciences allows specialisation in the following areas: geology; atmosphere and ocean sciences; and environmental earth sciences. The departmental entry requirements for these areas differ (see the admission requirements section that follows for details).

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering honours programs in earth sciences disciplines must have achieved the following:

geology: at least 50 points of 300-level geology;
atmosphere and ocean sciences: at least 50 points in 300-level atmosphere and ocean sciences, or a science degree with a specialisation in physical or mathematical sciences. It is not necessary to have studied atmosphere and ocean sciences as an undergraduate; however, students commencing at the 400-level will be required to undertake appropriate 300-level atmosphere and ocean sciences subjects (at an advanced level). Students should discuss their plans with the head of school;
environmental earth sciences: at least 50 points of 300-level earth science (atmosphere and ocean sciences, or geology courses) including 625-307 Hydrogeology and Environmental Management. Note that 25 points from the 600-series environmental science subjects is also required for students specialising in environmental science.

Honours coordinator

Dr Kevin Walsh

Duration and commencement of course

This particular honours program can only be undertaken on a full-time basis. The program commences in early February and finishes in late October. A mid-year intake is dependent on availability of supervisors and would generally begin in July-August and finish in March-April.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in the earth sciences honours program must also attend information sessions, special lectures and relevant presentations in the school's seminar program.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

Earth Sciences Research Project subject = 75 percent
Earth Sciences Advanced Coursework subject = 25 percent

Advanced coursework

The advanced coursework subject comprises twenty days of specialist short courses chosen to complement the student's area of research. These advanced courses are chosen from the Victorian Institute of Earth and Planetary Science joint curriculum taught by a consortium of universities. More than twenty courses are usually offered, ranging from two days to one week in duration.

Research project

The research project subject comprises a scientific research report, a literature review and an oral presentation. Students will devote considerable attention to the writing and presentation of the research. Clear identification of objectives, evaluation of the methodologies adopted and critical appraisal of the results obtained form important aspects of the report.

Further information

If you require further information about this honours program please contact:

Dr Kevin Walsh

Tel: +61 3 8344 6523

Email: kevin.walsh@unimelb.edu.au

Department of Genetics

Department of Genetics

Genetics honours program

Overview

Students enrolled in the honours program in the Department of Genetics complete a research project and advanced coursework. The program allows students to acquire skills in analysing and evaluating data, and communicating scientific information in both written and oral presentations.

Research projects cover a broad range of research from molecular to population and evolutionary genetics in micro-organisms, insects, plants and animals. The research project aims to develop a range of experimental and technical skills, a capacity to set goals and to design and plan experiments. Apart from the help and guidance from their supervisor(s) each student also has a committee which regularly meets with them and provides additional help and expertise. This committee is responsible for assessment of the research project subject.

The advanced coursework comprises an essay reviewing the literature related to the research area, sets of lectures in various areas of genetics, and journal clubs where published papers are analysed and discussed. The course provides students with skills and knowledge for original research and enhanced written and oral communication skills.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, BSc or BSc combined degree students wishing to enter the genetics honours program need to complete at least 50 points of 300-level genetics subjects, including 652-304 Genetic Analysis. However in special circumstances, particularly where relevant 300-level practical subjects in other biological disciplines have been completed, these requirements may be waived by the Head of Department.

BBiomedSc students wishing to enter the genetics honours program need to have completed 652-214 Principles of Genetics, 652-216 Molecular & General Genetics Practical and at least 25 points of 300-level genetics subjects.

Honours coordinator

Professor Jim Camakaris

Duration and commencement of course

This particular honours program is normally undertaken on a full-time basis. The program commences in February and finishes in November.

Assessment

Hurdle assessment requirements

Students must satisfy the honours Course requirements.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

- Genetics Research Project subject = 62.5 percent
- Genetics Advanced Coursework subject = 37.5 percent

For information about the weighting of the components of assessment within the research project subject and within the advanced coursework subject, please contact the Department of Genetics at the start of the honours program.

Advanced coursework

The advanced coursework subject comprises a critical appraisal of the literature relevant to the research project (up to 3000 words) and a written exam and a journal club presentation on the lecture topics.

Research project

The research project subject comprises a research report of 40 pages (excluding figures, tables and appendices), and an assessment of research performance. There is also a research talk which is not assessed.

Further information

If you require further information about this honours program see http://www.genetics.unimelb.edu.au/Honours/ or contact:

Professor Jim Camakaris

Tel: +61 3 8344 5138

Email: j.camakaris@unimelb.edu.au

Ms Poppy Gatsios

Tel: +61 3 8344 6246

Department of Geography

Geography honours program

Overview

For many students honours is the most exciting and valuable year at university. Working with individual supervision and following up their special interests enables students to develop their research and writing techniques and apply the knowledge gained in earlier years of undergraduate study to the solution of real problems.
The honours program in geography and environmental studies provides an opportunity for students to carry out a small individual research project under the supervision of a staff member who is an expert in a related part of the discipline. Examples of honours theses in recent years include an investigation of Aboriginal trails in East Gippsland; greenhouse gases and the paper industry; South Korean industrial development; paleoecological studies in Northern Tasmania; and the use of rainwater tanks in Melbourne.
During the honours program, students also complete advanced coursework and a review of the literature relevant to their research area, attend a series of seminars and workshops about the philosophy and scope of the discipline, and give a short presentation about their research findings.
At the end of the program, honours graduates can either seek employment, well equipped with the skills demanded by today's employers, or they can apply for a scholarship to enable them to proceed to postgraduate study at the University of Melbourne or other universities.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the geography honours program need to:

- have specialised in geography. This involves a minimum of 25 points of 100-level and 50 points of 300-level geography subjects;
- have achieved a minimum grade of 65 percent in five geography subjects.

Students who have completed a specialisation in environmental science may also be eligible for entry to the geography honours program.

Honours coordinator

Assoc. Prof. Mark Wang

Duration and commencement of course

Honours in geography and environmental studies is undertaken on a full-time basis, and a mid-year intake is offered subject to the approval of the school. Part-time study of honours is only permitted under exceptional circumstances, subject to the approval of the head of school. Honours students are strongly advised to commence discussions with their supervisor and to start work on their research projects as early as possible.

Assessment

Hurdle assessment requirements

In addition to the honours degree Course requirements, students enrolled in the geography honours program must:

attend regular meetings with their supervisor to discuss work on the research project and the literature review;
submit a statement of research problem early in the first semester of their honours study (due date to be advised);
attend Geography and Environmental Studies research seminars; and
present a short seminar about their research.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

Geography Research Project subject = 50 percent
Geography Advanced Coursework subject = 50 percent

Advanced coursework
The advanced coursework subject comprises the following:

A course of lectures and seminars, held throughout the year, which addresses a range of issues related to contemporary research in geography and to the historical and philosophical evolution of the discipline;
Preparation of an extended review of the literature (6000 words) related to the subject matter of the student's individual thesis, covering both specific research in this area, and also the broader context within which the study is situated;
Directed Reading in Research Design and Methodology is to equip you with knowledge of the particular research strategies that are appropriate to your individual thesis project. Assessment will be equivalent to 5000 words; and
a 30-minute oral presentation of research project results.

Research project

The research project subject comprises original research on a problem selected in consultation with a supervisor and the head of the department, and involves regular meetings with the supervisor.
Students must submit a research report of up to 15 000 words (50 percent of the total mark for honours).

Further information
If you require further information about this honours program please contact:
Assoc. Prof. Mark Wang

Tel: 8344 0807

Email: myw@unimelb.edu.au

Department of History and Philosophy of Science

History and Philosophy of Science honours program.

Overview

Honours study in history and philosophy of science provides training at an advanced level in various aspects of the discipline, and prepares students with requisite background to proceed to postgraduate research.

Admission requirements
In addition to satisfying the Faculty of Science entry requirements, students interested in entering the history and philosophy of science honours program need to complete:

a minimum of 25 points of HPS subjects at 200-level;

a minimum of 37.5 points of HPS subjects at 300-level;
a grade average of H2B across five subjects in HPS at 200-level and 300-level.

Honours coordinator

Kristian Camilleri

Duration and commencement of course
This particular honours program may be undertaken on either a full-time or part-time basis, and a mid-year intake is offered. The program can be undertaken either between February and November or July and June. Students are advised to commence their supervised research projects during the non-instruction periods.
Students undertaking part-time study in HPS must complete the HPS thesis over two consecutive semesters.

Assessment
Hurdle assessment requirements

Students must satisfy the honours degree Course requirements.

Components of assessment

Students undertaking Honours in HPS must complete the following:

136-529 HPS Thesis (37.5 points)
Five 12.5 point honours subjects in HPS (totalling 62.5 points)

Advanced coursework

The advanced coursework component requires completion of five 12.5 point honours/ postgraduate subjects, chosen in consultation with the HPS Honours coordinator.
HPS advanced coursework subjects;

136-442 Directed Study (semester 1 and semester 2)
136-536 Scientific Realism and Anti-Realism (semester 2)
*other approved subjects

Honours students may take up to two existing Honours subjects offered in philosophy towards their fourth-year studies in history and philosophy of science. Subjects from the following list will be approved automatically. Other subjects may be approved on a case-by-case basis.
PHIL40005 Metaphysics and Epistemology (semester 2)
PHIL40013 Topics in Advanced Logic (semester 2)
Enrolment in all cases must be approved by the HPS Honours coordinator. No more than three philosophy and/or philosophy of science subjects may be taken as part of history and philosophy of science honours. That is, pure honours in history and philosophy of science must include at least two subjects in an area other than the philosophy of science (or philosophy).

Thesis

The HPS Thesis subject requires completion of a 12,000-word thesis on an approved topic, carried out under the supervision of a member of the department. Students meet regularly with their supervisor over two consecutive semesters. The thesis is due at the end of the second semester of enrolment.

Further information

If you require further information about this honours program please contact:
Dr Kristian Camilleri
Tel: +61 3 8344 7573

Department of Mathematics and Statistics

Department of Mathematics and Statistics

The Department of Mathematics and Statistics offers the following honours programs:

mathematics and statistics;
combined mathematics and statistics/computer science;
combined mathematics and statistics/physics.

Information about these programs is provided below.

After completing honours, graduates wishing to pursue a non-academic career will have the advantage of the experience of project work and directed research not usually provided by a pass degree. Many employers view an honours degree as the minimal professional

qualification. Students interested in further academic work will be well placed for entry into postgraduate programs at the University of Melbourne or other world-class institutions.

Mathematics and statistics honours program

Overview

The honours program in mathematics and statistics is designed to train graduates in advanced mathematics and statistics topics and to provide an opportunity for students to participate in research. The program involves completion of an advanced coursework subject and a research project subject.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students willing to enter the mathematics and statistics honours program need to have attained an H3 or better in at least four 300-level mathematics/statistics subjects. Students who do not meet these requirements, but who have achieved very good results in other areas, may be considered for entry to honours on the recommendation of the head of the Department of Mathematics and Statistics.

Prospective honours students should refer to the suggested 300-level specialisation subjects for guidance in selecting their 300-level mathematics/statistics subjects. It is strongly recommended that more than four 300-level mathematics/statistics subjects are taken, since the number of options available at the 400-level would be restricted if only four 300-level mathematics/statistics subjects had been completed. If only four 300-level mathematics/statistics subjects are taken, at most one of 620-352 Graph Theory and 620-381 Computational Mathematics should be included.

To retain the widest possible choice of honours options, students are recommended to include the following subjects in second year: 620-295 Real Analysis with Applications or 620-252 Analysis, 620-231 Vector Calculus and at least two of 620-201 Probability, 620-202 Statistics, 620-297 Group Theory and Linear Algebra, 620-232 Mathematical Methods, and 620-290 Discrete Mathematics and Operations Research.

Recommendations in terms of the 300-level subjects offered in 2009
For the names & descriptions of the subjects with the codes mentioned below, please see the old version of the university Handbook at **http://www.unimelb.edu.au/HB/areas/SMATH.html (http://www.unimelb.edu.au/HB/areas/SMATH.html)**
A. Pure Mathematics. The subjects 620-311, 620-312, 620-321 and 620-322 are strongly recommended. Additional useful subjects are 620-351, 620-352 and 620-353.
B. Applied Mathematics and Mathematical Physics. For the Applied mathematics component of this stream, 620-331, 620-332 and 620-342 are strongly recommended. An additional useful subject is 620-381. For the Mathematical Physics component, 620-231, 620-221 (or 620-252), 620-331 and 620-332 are strongly recommended. Additional useful subjects are 640-321 and 640-322 from the Physics Department.
C. Discrete Mathematics and Operations Research. For the Discrete Mathematics component of this stream, 620-221 (or 620-252), 620-352 and 620-353 are strongly recommended. Additional useful subjects are 620-351, and 620-381. For the Operations Research component, 620-361 and 620-362 are strongly recommended. Additional useful subjects would be any two 300 level Mathematics and Statistics subjects.
D. Statistics and Stochastic Processes. For the Statistics and Applied Statistics component of this stream, 620-371, 620-372 and 620-374 are strongly recommended. Additional useful subjects are 620-301 and 620-302. For the Probability and Stochastic Processes components of this stream, 620-301, 620-302 and 620-381 are strongly recommended. Additional useful subjects are 620-361, 620-371 and 620-374.

Recommendations in terms of the New Generation Subjects
First of all, it is strongly recommended that all students choose the following 200-level subjects: Real Analysis with Applications (or equivalent); Vector Calculus; Probability. Further, they should choose at least two of following the 200-level subjects: Group Theory with Linear Algebra; Dynamical Systems and Chaos; Discrete Mathematics and Operations Research; Statistics.

Specific 300-level recommendations related to the four specializations are listed below.

A. Pure Mathematics.
Essential: Group Theory with Linear Algebra; Complex Analysis; Algebra; Metric and Hilbert Spaces. Strongly recommended: at least three of the following, with one being essential (excluding Partial Di erential Equations): Graph Theory; Geometry; Discrete Mathematics; Partial Differential Equations.
B. Applied Mathematics and Mathematical Physics.

Essential: Dynamical Systems and Chaos; Complex Analysis; Numerical and Symbolic Mathematics; Partial Di erential Equations. Strongly recommended: at least two of the following: Graph Theory; Discrete Mathematics; Stochastic Modelling.
C. Discrete Mathematics and Operations Research.
Essential: Discrete Mathematics and Operations Research; Complex Analysis; Decision Making and Discrete Mathematics. Also essential: at least two of the following: Techniques in Operations Research; Graph Theory; Stochastic Modelling.
D. Statistics and Stochastic Processes.
Essential: Statistics; Linear Statistical Models; Stochastic Modelling. Also essential: at least one of the following: Probability and Statistical Inference; Modern Applied Statistics. Strongly recommended: Complex Analysis. Statistics: To do honours in statistics, usually a student is required to do 620-301, 620-371 and 620-372. It is also recommended that students do 620-302 and 620-374.

Honours coordinator

Dr Sanming Zhou

Duration and commencement of course

This particular honours program can be undertaken on a full-time or part-time basis, and a mid-year intake is offered. The program can be undertaken either between February and November or July and June.

Assessment

Hurdle assessment requirements

Students must satisfy the honours degree Course requirements.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

- Mathematics and Statistics Research Project subject = 25 percent
- Mathematics and Statistics Advanced Coursework subject = 75 percent

Advanced coursework

Students should select 6 x 12.5 point subjects from the following list in consultation with the Honours Coordinator:

- 620-500 Random Walks and Random Structures
- 620-501 Scheduling and Optimisation
- 620-502 Mathematics of Risk
- 620-616 Optimisation for Industry
- 620-617 Phase Transitions and Critical Phenomena
- 620-618 Probability for Inference
- 620-619 Representation Theory
- 620-620 Statistical Inference
- 620-624 Stochastic Processes
- 620-634 Algebraic Topology
- 620-635 Advanced Materials Modelling
- 620-636 Commutative Algebra
- 620-637 Computational Differential Equations
- 620-638 Consulting and Applied Statistics
- 620-645 Measure Theory
- 620-646 Advanced Discrete Mathematics
- 620-664 Topics in Dynamical Systems
- 620-712 Experimental Mathematics
- 620-324 Complex Analysis
- 620-714 Geometric Group Theory

Each Master of Science (coursework) subject is one semester in length and comprises 36 contact hours (usually one two-hour lecture plus one one-hour practical class per week). Full-

time students are advised to undertake four Master of Science coursework subjects in the first semester and two Master of Science coursework subjects in the second semester.

The advanced coursework subjects are clustered in ten streams: algebra, number theory and representations, analysis and set theory, complex systems, continuum modelling, discrete mathematics and algebraic combinatorics, geometry and topology, mathematical physics and statistical mechanics, operations research, statistics, stochastic processes. Students usually take at least two subjects from two different streams, one of which will normally be in the stream related to the topic of their research project.

In determining the final grade, only the best six advanced coursework subjects will be considered.

Research project

Honours students are required to conduct research under the supervision of their supervisors. Intending honours students should approach individual staff members to discuss possible research projects. Information about the department's research groups and possible supervisors can be found at the following websites respectively:

http://www.ms.unimelb.edu.au/research/

http://www.ms.unimelb.edu.au/Students/supervisorList.php

Any difficulties in reaching decisions about research topics should be discussed with the honours coordinator. Preliminary reading should commence in the first month of the program, with the bulk of the project being completed in the second half of the program.

Assessment of the research project will consider: clarity and exposition; mathematical accuracy; mathematical insight displayed; coverage of the field and references, and may be complemented by one or more of the following: description of the application and/or business context; mathematical modelling; presentation and analysis of numerical results.

Honours students will be required to give two seminars before their results are finalised, including one presentation on their research projects towards the end of the program. Honours students should consider themselves a part of the research strength of the department and view departmental seminars as a method of broadening their knowledge. It is therefore expected that students will attend all research seminars in the broad area of their chosen field.

Further information

If you require further information about this honours program please contact the honours coordinators:

Department of Mathematics and Statistics

Tel: +61 3 8344 5550

Combined mathematics and statistics/physics honours program

Overview

This honours program is available only in consultation with the honours coordinators of both mathematics/statistics and physics. It is designed to train graduates in advanced mathematics/ statistics and physics topics, and to provide an opportunity for students to participate in research.

The program involves completion of an advanced coursework subject and a research project subject.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students should plan a course of study that is approved by both the mathematics/statistics and physics honours coordinators. An H3 average will be required in the subjects that are prerequisites for the honours level subjects the student plans to study.

Selection into the combined honours program must be endorsed by both departments.

Honours coordinator

Dr Sanming Zhou (Mathematics and Statistics)

Dr Nicole Bell (Physics)

Duration and commencement of course

This particular honours program can be undertaken on a full-time or part-time basis commencing at the start of semester one. Subject to the approval of both departments, an

applicant who is able to devise an appropriate course plan in conjunction with both departments may be considered for mid-year entry.

Assessment

Hurdle assessment requirements

Students enrolled in honours need to obtain a minimum of 65 percent for both the research project subject and the advanced coursework subject.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

Mathematics and Statistics and Physics Research Project subject = 25 percent
Mathematics and Statistics and Physics Advanced Coursework subject = 75 percent

Advanced coursework

Students should establish with the honours coordinators the relative weighting of each piece of mathematics/statistics or physics work that is required for this subject.

Research project

The research project is marked by two examiners appointed by the coordinators. Assessment of the research project will consider: clarity and exposition; mathematical accuracy; mathematical insight displayed; coverage of the field and references, and may be complemented by one or more of the following: description of the application and/or business context; mathematical modelling; presentation and analysis of numerical results.

Students are expected to submit a detailed outline of their research project by the end of their first semester of honours study. They are also required to give two seminars before their results are finalised, including one presentation on their projects towards the end of the program.

Honours students should consider themselves a part of the research strength of the departments and view departmental seminars as a method of broadening their knowledge. They are therefore expected to attend all research seminars in the broad area of their chosen field.

Further information

If you require further information about this honours program please contact the honours coordinators:

Department of Mathematics and Statistics

Tel: +61 3 8344 5550

Combined mathematics and statistics/computer science honours program

Overview

This honours program is available only in consultation with the honours coordinators of both mathematics/statistics and computer science. It is designed to train graduates in advanced mathematics/statistics and computer science topics, and to provide an opportunity for students to participate in research.

The program involves completion of an advanced coursework subject and a research project subject.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students should plan a course of study that is approved by both the mathematics/statistics and computer science honours coordinators and have completed the prerequisite subjects with at least an H3 average.

Selection into the combined honours program must be endorsed by both departments.

Honours coordinators

Dr Sanming Zhou (Mathematics and Statistics)

Dr Adrian Pearce (Computer Science)

Duration of course and commencement of course

This particular honours program can be undertaken on a full-time or part-time basis commencing at the start of semester one. Subject to the approval of both departments, an applicant who is able to devise an appropriate course plan in conjunction with both departments may be considered for mid-year entry.

Assessment

Hurdle assessment requirements

Students must satisfy the honours degree Course requirements.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

Mathematics and Statistics and Computer Science Research Project subject = 25 percent
Mathematics and Statistics and Computer Science Advanced Coursework subject = 75 percent

Advanced coursework

Students should establish, with the honours coordinators, the relative weighting of each piece of mathematics and statistics or computer science work that is required for this subject.

Research project

The research project is marked by two examiners appointed by the coordinators. Assessment of the research project will consider: clarity and exposition; mathematical accuracy; mathematical insight displayed; coverage of the field and references, and may be complemented by one or more of the following: description of the application and/or business context; mathematical modelling; presentation and analysis of numerical results.

Students are expected to submit a detailed outline of their research project by the end of their first semester of honours level study. They are also required to give two seminars before their results are finalised, including one presentation towards the end of the program.

Honours students should consider themselves a part of the research strength of the departments and view departmental seminars as a method of broadening their knowledge. They are therefore expected to attend all research seminars in the broad area of their chosen field.

Further information

If you require further information about this honours program please contact the honours coordinators:

Department of Mathematics and Statistics

Tel: +61 3 8344 5550

Department of Optometry and Vision Sciences

Department of Optometry and Vision Sciences

Vision Sciences Honours program

Overview

The honours program offered by the Department of Optometry and Vision Sciences involves advanced coursework and a research project. Students are encouraged to develop the ability to define and solve problems and to learn how to conduct research in vision sciences or optics.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students must have a major study in at least one of biochemistry, mathematics, neuroscience, physiology, pharmacology, physics, psychology, vision sciences or zoology. Majors in other areas from related disciplines will be considered.

Honours coordinator

Dr Larry Abel

Duration and commencement of course

This honours program is normally only available on a full-time basis. Students may commence:

in February (completing in November), or
mid-year at the commencement of semester two in late July (completing in the following June).

Structure

The Honours program comprises a research project subject and an advanced coursework subject. These subjects, and their relative weightings in the 100-point course, are as follows:

Vision Science Research Project subject = 75 percent
Vision Science Advanced Coursework subject = 25 percent

Research project

Under the supervision of an academic staff member, students conduct research and prepare a report in the form of a thesis not exceeding 15,000 words.

A list of the research interests of the Department is available in the document, Research Areas in Optometry and Vision Sciences, from the Department Office or on the Department's website (http://www.optometry.unimelb.edu.au/research/labs.html). Potential Honours students should approach the Honours Coordinator or specific academic staff in the areas of research interest to discuss possible research projects. Further guidelines for thesis formatting, etc., are provided in the Department's Honours manual distributed at the commencement of the course.

The thesis is normally due for submission in the first week of November (for students who commenced at the beginning of the year), or in the first week of May (for students who commenced mid-year). The student's supervisor will provide a mark (7.5% of the total Honours mark) that reflects the student's performance in the laboratory. The examiners will normally include the Honours Coordinator and one other member of the Department's academic staff, and they will provide a mark for the thesis (60% of the total Honours mark). The thesis examiners will also assess the student's oral presentation made after the thesis has been submitted (7.5% of the total Honours mark).

A 20-minute oral presentation at each of two honours mini-symposia during the course is also a hurdle requirement: (i) a presentation during the first 2 months of commencement outlining the planned research project; (ii) a presentation following the submission of the written research project presenting the key outcomes.

Advanced coursework

In addition to the honours degree course requirements, students enrolled in the Vision Sciences Honours program are required to attend and participate in Departmental seminars, including the Vision Science Seminar Series and Journal Club.

Students are required to undertake the compulsory Advanced Research Methods subject plus one other elective module (each component contributes 12.5% to the total Honours mark):

(semester two, compulsory) Advanced Research Methods: a directed learning module which runs in conjunction with the Department's Journal Club. Students will be required to participate in web based blogs and discussion forums led and moderated by an academic staff member to discuss issues of research practice or methodology related to the Journal Club presentations. Assessment for this module is based on a series of written tasks completed throughout the semester (detailed on the Department’s website www.optometry.unimelb.edu.au/current/honours.html);

Plus an elective subject:

(semester one or two) An elective subject, normally chosen from the Department's coursework listings at 300-level or above. Assessment for each subject is specified in the Handbook. This is particularly suitable for students who have not previously studied vision science or optics.

If a student is unable to choose a subject from the Department, the student's supervisor will assist the student to choose a coursework subject at 300-level or above from other departments at the University of Melbourne.

However if a student is still unable to choose a subject from the departments, the following option may be taken.

(semester one) A literature-based assignment not exceeding 4,000 words. The assignment topic, which is to be decided upon in consultation with the student's supervisor and the Honours coordinator, is to be drawn from a different but possibly related area to the research project. The student's supervisor and one other member of the Department's academic staff will assess the assignment.

Further information

Information about departmental research areas is available on the Department's website (http://www.optometry.unimelb.edu.au/research/labs.html).

If you require further information about this honours program please contact:

The Department of Optometry and Vision Sciences Office

Tel: +61 3 8344 7012

Email: optom-info@unimelb.edu.au

Dr Larry Abel

Honours Coordinator

Tel: +61 3 8344 7007

Email: label@unimelb.edu.au

School of Physics

School of Physics

The School of Physics offers the following honours programs:

physics honours program;
Combined mathematics and statistics/physics honours program (described under Combined mathematics and statistics/physics honours program);

The physics program is described below.

Physics honours program

Overview

The honours program in physics is designed to:

enhance students' knowledge of physics on a broad front and to a professional level, and to allow students to develop their abilities to an international level for all career paths;
introduce students to current research literature in specialised areas; and
engage students in their own research by participation in the activities of a research group in the school.
on completion of the physics honours program, students will be able to:
demonstrate a knowledge and understanding of physics at a superior level;
demonstrate an understanding of the process and practice of physics research;
demonstrate individual and collaborative investigative skills;
think critically, evaluate information and interpret experimental data and/or theoretical results;
present research results both orally and in the written form; and
understand and apply laboratory safety procedures.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the physics honours program must have completed the four core 300-level physics subjects:

640-321 Quantum Mechanics (Advanced) [or 640-341 Quantum Mechanics]
640-322 Thermal Physics (Advanced) [or 640-342 Thermal Physics]
640-323 Electrodynamics (Advanced) [or 640-343 Electrodynamics]
640-353 Atomic, Molecular and Solid State Physics

PLUS completion of one of the following additional conditions:
1. 25 points of 300-level physics laboratory work; or
2. 12.5 points of 300-level physics laboratory work (ie. 640-393 or 640-394) and 25 points of 300-level mathematics selected from the following: 620-311 Metric Spaces, 620-312 Linear Analysis, 620-321 Algebra, 620-322 Topology, 620-331 Applied Partial Differential Equations, 620-332 Integral Transforms and Asymptotics, [03]620-341 Dynamical Systems and Chaos and 620-342 Industrial and Applied Mathematics;
3. 12.5 points of 200-level physics laboratory work (ie. 640-299) and 50 points of 300-level mathematics subjects selected from 620-311 Metric Spaces, 620-312 Linear Analysis, 620-321 Algebra, 620-322 Topology, 620-331 Applied Partial Differential Equations, 620-332 Integral Transforms and Asymptotics, [03]620-341 Dynamical Systems and Chaos and 620-342 Industrial and Applied Mathematics.

Note that undertaking the third means of satisfying the entry requirements is recommended for only those students with a strong background and genuine interest in mathematics. All students are urged to consult the School of Physics for advice regarding their 300-level course plans. Students entering honours in any of the above ways may apply to join any of the research groups within the School of Physics.
The Head of the School of Physics has the discretion to waive any of the above departmental requirements in special cases.

Honours coordinator

Dr Nicole Bell

Duration and commencement of course

This particular honours program can be undertaken on a full-time or part-time basis. The program commences in February and finishes in November. There is no mid-year intake.

Assessment

Hurdle assessment requirements

Students must satisfy the honours degree Course requirements.

Components of assessment

Honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

- Physics Research Project subject = 50 percent
- Physics Advanced Coursework subject = 50 percent

Research project
The research project subject comprises an original, supervised research project (experimental and/or theoretical) in one of the school's current fields: pure and applied nuclear physics (including photonuclear reactions, proton microprobe and microanalysis), gravitation, astrophysics, optics (with light, X-rays, neutrons, atoms), particle physics, atomic physics or solid state physics (including high-resolution electron microscopy and physics of materials). The assessment is based on a written report (main text of the order of 20 pages) and a 15-minute talk on the research done during the year. The talk will be presented to the School of Physics shortly after the report has been submitted.

Advanced coursework

All subjects are 12.5 points each. Students must take:

- 640-610 Quantum Mechanics

Students should select three subjects from the following list in consultation with the Honours Coordinator:

- 640-611 Quantum Field Theory
- 640-614 General Relativity
- 640-604 Statistical Mechanics
- 600-656 Experimental Methods
- 640-615 Condensed Matter Physics
- 640-613 Particle Physics
- 640-612 Physical Cosmology
- 640-603 Quantum and Advanced Optics

Information about these subjects can be found at http://physics.unimelb.edu.au/Future-Students/Postgraduates/MSc-Physics

Further information

If you require further information about this honours program please contact:
Dr Nicole Bell
Tel: +61 3 8344 3112
Email: n.bell@unimelb.edu.au

Department of Zoology
Department of Zoology

Zoology honours program

Overview
The honours program in the Department of Zoology is offered in two streams: discovery and links.
The streams are equivalent in merit, academic rigour and intellectual content. Both can lead to higher degree study. The emphasis in the discovery stream is on development of the ability to identify research questions and make original discoveries in science. In the links stream, the emphasis is on the ability to use the scientific method in an industrial or applied context.

Students select a project offered in one stream or the other in consultation with a department supervisor and remain in that stream for the duration of the course.

Discovery stream

The honours program in the discovery stream in the Department of Zoology is designed to:

induct students into the processes and practice of research in zoology;
provide students with personal experience of the philosophy and methods used for identifying research questions and making original discoveries in science;
enable students to acquire current research skills in specific areas;
enhance students' understanding of biological sciences across a wide area;
introduce students to grant writing and evaluation methodology;
encourage students to develop the ability to think critically and independently, evaluate information and analyse biological data;
improve oral and written communication skills; and
participate in the production of research communications and publications.

The program comprises a major, original, supervised research project, and a series of lectures and workshops covering design of experiments in biology, statistical analysis of biological data. It emphasises the development of organisational skills, particularly in scientific writing and oral presentation.

Links stream

The honours program in the links stream in the Department of Zoology is designed to:

provide an introduction to the processes and practice of research in zoology;
provide students with personal experience of the application of the scientific method in an industrial or applied context;
enable students to extend their scientific skills in specific areas;
encourage students to develop the ability to think critically and independently;
develop the ability of students to approach externally generated biological data sets and to systematise and evaluate them;
enhance students' understanding applications of biological sciences across a wide area;
improve oral and written communication skills;
develop the ability of students to write clear and concise reports for industry, government agencies and other users of biological information and technology; and
develop an understanding of how biological training is utilised by industry, government agencies and other users of biological information and technology and to develop links with such bodies.

The program comprises a minor project linked to, co-supervised by, or designed to be of practical value to industry, a government agency or other user of biological information and technology, workshops on handling and evaluating biological data sets, a series of lectures and workshops covering design of experiments in biology, and a statistical analysis of biological data. It emphasises oral and written communication across the boundaries between the biological sciences and other spheres of activity such as business or government and the ability to operate in group and team environments and to meet deadlines.

Admission requirements

In addition to satisfying the Faculty of Science entry requirements, students interested in entering the zoology honours program need to complete at least 50 points of 300-level zoology, or relevant 300-level subjects in other biological disciplines. BBiomedSc or environmental science students wishing to enter the zoology honours streams need to complete at least 25 points of 300-level zoology subjects in addition to BBiomedSc or environmental science core 300-level subjects and other 300-level subjects selected according to the regulations for their bachelors degree. In special circumstances, the Head of Department may waive these prerequisites. Admission is also subject to the availability of suitable topics and supervisors, and placement is competitive.

Honours coordinators

Dr Steve Swearer

Dr Laura Parry

Duration and commencement of course

Subject to the availability of projects, both streams of the honours program in the Department of Zoology can be undertaken on a full-time or part-time basis.

The course involves the equivalent of two semesters of full-time study and, subject to negotiation with the supervisor, may be commenced in Semester 1 or Semester 2. Students are required to be available for the first meeting of their semester group which is normally held in the first week of semester.

Assessment: Discovery stream

Hurdle assessment requirements

Students enrolled in honours need to obtain a minimum of 65% in the research project subject and advanced coursework subject of their course.
Some research project subjects involve the use of animals in experiments. Students should ascertain which projects require such experimentation as exemption is not possible where it is essential to the project.

Components of assessment

The discovery stream of honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows:

Zoology (Discovery) Research Project subject = 75 percent
Zoology (Discovery) Advanced Coursework subject = 25 cent

Advanced coursework

The advanced coursework subject entails the following work.
Hurdle requirements that must be completed satisfactorily but do not contribute directly to the assessment include:

attendance at designated lectures;
participation in a series of honours workshops;
development of and participation in a Discovery Day presentation in which the student's or research group's science is communicated to the public; and
participation in an experimental design and statistics workshop.

Requirements that contribute to assessment:

a literature review (10 percent of the total honours mark);
a second written assignment (10 percent of the total honours mark); and
a formal seminar presenting original results (five percent of the total honours mark).

Research project

The research project subject entails the work noted below.
Hurdle requirements that must be completed satistfactorily but do not contribute directly to the assessment include:

preparation of a grant proposal justifying, costing and explaining the methodology for carrying out the honours research project;
participation in peer review panels to evaluate and allocate limited resources to the grant proposals;
a seminar presentation outlining the research proposal; and
participation in workshops on the preparation and presentation of scientific seminars and papers.

Requirements that contribute to assessment:

a written thesis not exceeding 10 000 words submitted at the end of the program (75 percent of the total honours mark); and
students will be invited to discuss their report with an examining committee, which may take the discussion into account in their assessment.

Assessment: Links stream

Hurdle assessment requirements

Students enrolled in honours need to obtain a minimum of 65 percent in the research project subject and advanced coursework subject of their course.
Some research project subjects involve the use of animals in experiments. Students should ascertain which projects require such experimentation as exemption is not possible where it is essential to the project.

Components of assessment

	The links stream of honours comprises a research project subject and an advanced coursework subject. These subjects with their relative weightings are as follows: # Zoology (Links) Research Project subject = 50 percent # Zoology (Links) Advanced Coursework subject = 50 percent **Advanced coursework** The advanced coursework subject entails the following work. Hurdle requirements that must be completed satisfactorily but do not contribute directly to assessment, include: # attendance at designated lectures; # participation in a series of honours workshops; # development of and participation in a Discovery Day presentation in which the linkage project is communicated to the public; # participation in workshops on the analysis and reporting of complex data sets and an assignment; # participation in workshops on report writing; and # participation in workshops led by representatives from industry, government agencies or other users of biological information on various aspects of their activities and policy. Requirements that contribute to assessment: # a review of a body of literature associated with the linked project and a report of its implications for the industry, government agency or other user of biological information (15 percent of the total honours mark); # participation in an experimental design and statistics course and performance on a designated analytical problem (15 percent of the total honours mark); # preparation of a formal project brief for the industry partner (15 percent of the total honours mark); and # a formal oral presentation (to the industry partner) communicating the outcomes of the linked project (five percent of the total honours mark). **Reseach project** The research project subject entails the following work. Hurdle requirements that must be completed satistfactorily but do not contribute directly to the assessment include: a written evaluation of part or all of the designated linked project; and participation in an oral presentation justifying and explaining the methodology for carrying out the designated linked project. Requirements that contribute to assessment: # a written report or individual contribution to a group report not exceeding 7000 words, including an executive summary, submitted at the end of the program (50 percent of the total honours mark); and # students will be invited to discuss their report with an examining committee, which may take the discussion into account in their assessment. **Further information** If you require further information about this honours program please contact: Dr Steve Swearer Tel: +61 3 8344 6253 Email: s.swearer@unimelb.edu.au Dr Laura Parry Tel: +61 3 8344 5341 Email: ljparry@unimelb.edu.au
Entry Requirements:	To be eligible to enter honours you must satisfy both the Faculty of Science entry requirements and the requirements of the department offering the honours program you wish to undertake. If you are interested in applying for an honours program it is critical to consider these requirements when planning your undergraduate course. **Faculty of Science entry requirements** There are two faculty entry requirements which must be satisfied:

	1. Admission to the BSc (Honours) requires completion of the BSc, BBiomedSc, BASc or equivalent qualification recognised by the Faculty of Science. The only exception to this is for those applicants currently enrolled in a BSc combined course at the University of Melbourne. These applicants need to have completed at least 300 course points, within which the science requirements of their combined course need to have been satisfied. 2. Graduates of the University of Melbourne must normally have a Science Honours Score of at least 65 percent, see Faculty Honours Score. Applicants who have completed their degree at other institutions must demonstrate that they have achieved an average of 65 percent for the third year science subjects they have studied. **Faculty Honours Score** To determine students' eligibility for admission to the honours programs of the Faculty of Science the faculty calculates a Science Honours Score (SHS) which is calculated as follows: 1. For graduates of the BSc single degree or the BBiomedSc, their SHS is the weighted average mark of their best 87.5 points of science study at 300-level. 2. For graduates of a BSc combined course or the BASc, or students who are still enrolled in a BSc combined course and have completed at least 300 points within which the requirements of the BSc have been satisfied, their SHS is the weighted average mark of completed science subjects at 300-level, or their best 87.5 points of science study at 300-level, whichever is greater. For students and graduates of the BASc and BA/BSc courses, History and Philosophy of Science subjects and Geography subjects must count towards the Arts component of their combined degree and therefore they are not considered in calculating their SHS. **Departmental Requirements** Departments usually require the completion of certain 300-level subjects, and/or a minimum number of 300-level points from a particular department, to be eligible for entry into their honours program. These requirements are specified in the departmental entries.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Further Study:	Graduates who successfully complete a Bachelor of Science (Honours) degree with the required average of 75% (H2A) are eligible to apply for admission to a M.Phil. - Science or PhD - Science.
Graduate Attributes:	Graduates will have:drawn together the theory and practical skills gained in previous undergraduate studies;developed new research and professional skills to take into the workforce or further study; andgained an in-depth knowledge in a particular discipline.
Links to further information:	http://www.science.unimelb.edu.au/future/home
Notes:	Students should refer to the Faculty of Science website for application requirements: **http://www.ssc.science.unimelb.edu.au/career/further/honours/application (http://www.ssc.science.unimelb.edu.au/career/further/honours/application)** Timely applications are to be submitted by 20 November, 2009. Applications received after this date may be considered. Applicants for Honours in Psychology must apply on-line: **http://www.psych.unimelb.edu.au/courses/fourthyear/ (http://www.psych.unimelb.edu.au/courses/fourthyear/)** Additional information about honours programs is available on the Faculty of Science website at the URL: **http://www.science.unimelb.edu.au/future/home (http://www.science.unimelb.edu.au/future/home)** Please contact the honours coordinator in the department/s of your choice for further information.