The University of Newcastle

FACULTY OF
SCIENCE
AND MATHEMATICS
# CONTENTS

**FACULTY OF SCIENCE AND MATHEMATICS**

| SECTION ONE | FACULTY STAFF | 1 |
| SECTION TWO | FACULTY INFORMATION | 9 |
| SECTION THREE | UNDERGRADUATE DEGREE/DIPLOMA RULES | 13 |
| Undergraduate Diploma/Degrees offered in the Faculty | 13 |
| General Rules | 13 |
| Combined Degree Course Rules | 15 |
| Bachelor of Applied Science, Environmental Assessment, Management | 15 |
| Bachelor of Environmental Science | 18 |
| Bachelor of Science | 22 |
| Bachelor of Science (Aviation) | 28 |
| Bachelor of Mathematics | 31 |
| Combined Degree Courses | 31 |
| Bachelor of Science (Psychology) | 36 |
| Diploma in Aviation Science | 38 |
| Diploma in Aviation Science Rules | 38 |

| SECTION FOUR | APPROVED SUBJECT LISTS | 40 |

| SECTION FIVE | UNDERGRADUATE DEGREE SUBJECT DESCRIPTIONS | 55 |
| Guide to Undergraduate Subject Entries | 55 |
| Applied Science and Technology | 55 |
| Aviation | 61 |
| Biological Sciences | 68 |
| Chemistry | 72 |
| Geography | 77 |
| Geology | 80 |
| Mathematics | 83 |
| Physics | 95 |
| Psychology | 97 |
| Computer Science | 101 |
| Information Science | 102 |
| Philosophy : Scientific Method | 103 |
| Statistics | 104 |

| SECTION SIX | RECOMMENDED PROGRAMS | 107 |

| SECTION SEVEN | POSTGRADUATE DEGREE RULES | 114 |
| Bachelor of Science (Honours) | 114 |
| Bachelor of Science Aviation (Honours) | 116 |
| Bachelor of Mathematics (Honours) | 118 |
| Graduate Diploma in Mathematical Studies | 122 |
| Graduate Diploma in Science | 122 |
| Masters Degrees | 124 |
| Master of Environmental Studies | 125 |
| CONTENTS |
|-------------------------|---------------|
| Master of Mathematics   | 126           |
| Master of Psychology (Clinical)/Master of Psychology (Educational) | 126 |
| Master of Science       | 127           |
| Master of Scientific Studies | 128 |

**SECTION EIGHT**
**POSTGRADUATE DEGREE SUBJECT DESCRIPTIONS**

**SECTION NINE**
**SUBJECT COMPUTER NUMBERS**

**SECTION TEN**
**GENERAL INFORMATION**

- **PrINCIPAL DATES 1992 (including Medicine)**
  - Advice and Information
  - Faculty/School Secretaries
  - Student Support Office
  - Accommodation Office
  - Careers and Student Employment Officer
  - Student Loans Office
  - Sport and Recreation Office
  - Chaplaincy Centre
  - Counselling Service
  - Health Service
  - Students with Disabilities
  - Enrolment and Re-enrolment
  - Student Conduct and Responsibilities

- **EXAMINATIONS**
  - Examination Periods
  - Sitting for Examinations
  - Rules for Formal Examinations
  - Examination Results
  - Special Consideration

- **STATEMENTS OF ACADEMIC RECORD**
  - Unsatisfactory Progress — Regulations
  - Charges
  - Method of Payment
  - Higher Education Contribution Scheme (HECS)
  - Scholarship Holders and Sponsored Students
  - Loans
  - Refund of Charges

- **CAMPUS TRAFFIC AND PARKING**
  - STUDENT SERVICES
  - Banking
  - Cashier
  - Chaplaincy Service
  - Community Programmes
  - Convocation
  - Co-Op Bookshop
  - Lost Property
  - Noticeboards
  - Post Office
  - Public Transport
  - Student Insurance Cover
  - University Computing Services
  - University Libraries

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**THE DEAN'S FOREWORD**

Amalgamation in 1989 of the former University with the Hunter Institute of Higher Education and the Newcastle Conservatorium of Music, combined with the introduction of a semester degree structure have resulted in major changes to the way in which university education is presented in the Hunter Region. Many new courses have been introduced and there have been significant alterations to the Rules governing courses of study through the institution. This Handbook is designed to explain those changes to all students who have chosen to enrol in a course in the Faculty of Science and Mathematics.

The Faculty of Science and Mathematics now comprises the Departments of Applied Science, Applied Science and Technology, Biological Sciences, Chemistry, Geography, Geology, Mathematics, Physics and Psychology.

Undergraduate Degrees now handled by the Faculty include Bachelor of Science, Bachelor of Science (Aviation), Bachelor of Science (Psychology), Bachelor of Mathematics, Bachelor of Applied Science (Environmental Assessment and Management), Bachelor of Environmental Science and a number of combined degrees with other Faculties.

This Handbook provides details relating to each of these degrees. Students enrolled in a Science or Mathematics degree should be aware that they can apply to take subjects in Computer Science (offered within the Faculty of Engineering) but because of strict quota restrictions on entry to Computer Science 101, may not be successful in gaining a place. Subjects from Statistics, Information Science and a number of other disciplines can be pursued within the various degree programs.

In the Bachelor of Science and Bachelor of Mathematics degrees, students may take a sequence of subjects from outside the Faculty, thus combining expertise in basic science and/or mathematics with a wide range of elective areas such as languages and other humanities, accountancy, management, computing and engineering.

Those students entering university for the first time will find the system of instruction vastly different from that in secondary schools. The responsibility is placed on the student to extract the maximum benefit from the course. University staff will lecture to you and during this time, you are expected to make notes about the material being presented. Some students respond by trying to take down the lecture verbatim without understanding, others listen and make notes in outline form, copying down question marks or blackboard material, while a minority, overwhelmed by the volume and complexity of the subject matter, simply contemplate their next social engagement to their own disadvantage. Two issues will be important for your ultimate success.

The first is the development of an efficient note-taking system and in this, you should seek the assistance of the Student Counselling Unit which provides relevant short courses. The second is that, apart from regular tutorials, tests, and final examinations, no one will follow up your comprehension of the lecture material other than yourself. The Faculty expects you to spend at least one hour of your time on private study for every contact hour that you have with University staff. You need to allocate this from the very beginning of your course and if you delay the process you will probably never make up the lost time. A well-planned, uniform program of work to support your lectures, tutorials and laboratory classes will allow you to develop your understanding of the subjects and enjoy the many other facets of university life.

The quality of your tertiary education depends upon your ability to make efficient use of the University Library. Ensure that you take part in the orientation programs which the Library staff offer at the beginning of every year. Throughout your course, the teaching and administrative staff of the University are here to guide you along the path of self-education and if you need assistance, it is available at a number of levels. Difficulties with particular subjects should be discussed with the lecturer or tutor concerned or the Year Supervisor in each Department. Problems with your degree structure and progression are the province of the Assistant Deans and the Dean who will give guidance when required.
Office which is located in the Science Building adjoining Chemistry.

In a climate where government charges for tertiary education have risen steeply, you must make the most of your time at University by using its resources to the full. Learn to organise your thoughts, expand your mind, and develop your critical faculties to the utmost in order to provide yourself with qualifications which will lead to a successful career and satisfying life.

D.C. FINLAY,
Dean

SECTION ONE

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FACULTY INFORMATION

The Faculty of Science and Mathematics comprises the Departments of Applied Science and Technology, Aviation, Biological Sciences, Chemistry, Geography, Geology, Mathematics, Physics and Psychology. The Departments of Computer Science, Physics and Statistics also offer major sequences of qualifying subjects for the degrees of Bachelor of Science and Bachelor of Mathematics in the Faculty of Science and Mathematics.

Transition Arrangements: Exceptional Circumstances

In order to provide for exceptional circumstances arising in particular transition cases, the Dean may determine the transition program to be followed.

General Information for New Undergraduates

Students embarking on a university course for the first time may find some difficulty in adapting to the new environment. Tertiary education makes a number of demands on students: it requires them to be self-disciplined, organized, self-motivated and moreover, responsible for their own course of study. Hence it is important that students become familiar with the University structure, degree courses offered and service organizations (such as the University Counselling Service & Accommodation Service etc.) which offer assistance with study, personal and housing problems.

Often students on first entering University are not certain of their final field of interest. In fact, it is usually only after the completion of the first year of study that many students finally choose a major in a particular subject. In order to maintain flexibility (first year semester subjects (100 level subjects) should be chosen from areas where the student has some previous expertise or special interest. At the same time, they should take note of the degree requirements, particularly with regard to prescribed subjects, prerequisite and corequisites as set out in the appropriate degree/diploma Rules in this handbook.

Students should note that degrees must be structured to include a specified number of 300 level subjects. For example, a Bachelor of Science degree must include forty credit points at 300 levels in one Department, and at least forty more credit points at 500 level chosen from subjects approved by Faculty Board. Subject to the Dean's permission, a candidate may be permitted to enrol in some subjects from amongst those offered by another Faculty.

Time limits are set on the duration of an undergraduate course as indicated in the appropriate Rules. Maximum workloads are also preset, since limits are placed on the number of subjects students are permitted to undertake in any one year. For information on these restrictions consult the appropriate degree Rules.

Undergraduate Admission Requirements

In order to be considered for admission for any qualification other than a postgraduate qualification an applicant shall be required to:

(i) attain such aggregate of marks in approved subjects at the New South Wales Higher School Certificate examination as may be prescribed by the Senate from time to time; or
(ii) otherwise satisfy the Admissions & Progression Committee that the applicant has reached a standard of education sufficient to enable the approved course to be pursued.

Assumed Knowledge for Entry to the Faculty

There are no prescribed prerequisites for entry to the Faculty of Science and Mathematics; students are advised that lectures will commence on the assumption that all students will have achieved the level indicated.
SECTION TWO

Subject
Aviation 109-125
Assumed Knowledge
2-unit, 3-unit or 4-unit Mathematics. Also, 2-unit Physics or 4-unit Science (including the Physics ‘make-up’ electives) with a level of performance placing them in the top 50% of the candidates for these subjects.

Biology 101
Higher School Certificate Chemistry or 4-unit Science is appropriate and students are advised to include CHEM101 and CHEM102 in their University program. However, some lectures in background chemotherapy will be offered by the Department of Community Programmes prior to the start of the first semester. Attendance at this Preparatory Course is optional.

Chemistry 101
At least Mathematics (2-unit course), Chemistry (2-unit course), and Physics (2-unit course), with ranking in the top 50% in each case.

Geology 101
2-units of Science (preferably Chemistry) and at least 2-units of Mathematics.

Mathematics 111
Mathematics (2-unit course), or higher.

Mathematics 102
Mathematics at 3-unit level with a score of at least 120 out of 150, or have passed Mathematics 111.

Physics 101
HSC 2-unit Mathematics with a performance level in the top 30% of the candidates for this subject.

Physics 102
HSC 3-unit Mathematics mark of at least 110/150. Physics 2-unit and Science 4-unit with a performance level in the top 50% of candidates for these subjects.

Mature Age Entry
Entry into the University is available to persons who will be at least 21 years of age by 1st March of the year in which entry is sought and who have completed a limited New South Wales Higher School Certificate Program, or an equivalent program, which will enable entry into the Faculty of Science and Mathematics include four units selected from Physics, Chemistry, Mathematics (3-unit course performed), and 4-unit Science. For entry into the Bachelor of Mathematics degree, include 3-unit mathematics and one other subject recognised for admission purposes. The subjects should be presented as 2-unit courses with a result in the top 50%.

Limit on Admission
Where the Council is of the opinion that a limit should be placed upon the number of persons who may in any year be admitted to a course or part of a course or to the University, it may impose such a limit and determine the manner of selection of those persons to be admitted.

Enrolment Requirements
(a) In order to be admitted an applicant shall:
(b) satisfy appropriate Diploma/Degree Rules as set out in Section Three;

(ii) receive approval to enrol;
(iii) complete the prescribed enrolment procedures; and
(iv) pay any fees and charges prescribed by the Council.

(b) An applicant may be admitted under such conditions as the Admissions & Progression Committee may determine after considering any advice offered by the Dean of the Faculty.

(c) Except with the approval of the Faculty Board a candidate for a qualification shall not enrol in a subject which does not count towards that qualification.

(d) A candidate for a qualification shall not enrol in a course or part of a course for another qualification unless the candidate has first obtained the consent of the Dean of the Faculty and, if another Faculty is responsible for the course leading to that other qualification, the Dean of that Faculty: provided that a student may enrol in a combined degree course approved by the Senate relating to two qualifications.

(e) A candidate for any qualification other than a postgraduate qualification who is enrolled in three quarters or more of a normal full-time program shall be deemed to be a full-time student whereas a candidate enrolled in either a part-time course or less than three-quarters of a full-time program shall be deemed to be a part-time student.

Enrolment Status
A candidate for a qualification shall enrol as either a full-time student or a part-time student.

Combined Degree Courses
The decision to take a combined degree course is usually taken at the end of a student's first year in his or her original degree course, in consultation with the Deans of the Faculties responsible for the two degrees. Permission to embark on a combined degree course will normally require an average of credit levels in first year subjects.

Non-Degree Students
Notwithstanding anything to the contrary contained in these Rules, the Admissions & Progression Committee may on the recommendation of the Head of a Department offering any part of a course permit a person, not being a candidate for a qualification of the University, to enrol in any part of that course. The course will normally require an average of credit levels in first year subjects.

Faculty Policy in regard to Exemptions for Courses Completed Elsewhere
The Faculty Board may grant Exemptions in specified and unspecified semester subjects, aggregating to a maximum of 120 credit points, to a candidate in recognition of work completed in this university or another approved tertiary institution, on conditions determined by the Faculty Board. Such Exemptions to be granted may include no more than 100 credit points at 100 level, 40 credit points at 200 level or 20 credit points at 300 level.

ADDITIONAL INFORMATION

Advisory Services
Students requiring specific advice on the selection or content of subjects in the course should seek help from members of the Faculty. In particular, advice should be sought from first, second and third year subject co-ordinators in each Department, Heads of Departments, the Assistant-Dean or Dean.

Enquiries regarding enrolment, variation to program and general administrative problems should be directed to the Faculty Secretary in the School of Science and Mathematics in the School Office. For personal counselling and study skills training it is suggested that students consult the University Counselling Service.

Student Participation in University Affairs
Provision is made for students to be elected as members on Departmental and Faculty Boards as well as to other University bodies. Election of student members usually takes place in Semester One and students should watch Departmental notice boards for details of election of student members.

The Faculty Board of the Faculty of Science and Mathematics has provision for the election of four student members.

Subject Timetable Clashes
Students are strongly advised to check on possible timetable clashes before enrolling. Clashes may force students to take those subjects in different years. Although academic staff are always willing to advise students, it is the student's responsibility to ensure that subjects may be studied concurrently. Science and Mathematics students taking subjects from other Faculties must examine the timetable to ensure that clashes do not exist in their proposed courses.

Although the timetable for one particular subject may clash with that of another, this may not necessarily mean that this combination cannot be done. Often an arrangement can be made by one or both Departments to work around the clash. Therefore, see the Departmental representatives before deciding upon your final subject combinations.

Workload
The expected maximum workload for students devoting most of their time to degree studies is 40 credit points per semester. In the case of students offered over a full year (20 credit points), the workload will be rated at 10 credit points per semester. Enrolment in excess of 40 credit points per semester can only be exceeded in exceptional circumstances by students with a good academic record and requires the permission of the Dean.

Students with external commitments, such as part-time employment, should enrol in fewer subjects. Such commitments cannot be taken into consideration for an extension of time for written work, or failure to attend examinations some of which may be scheduled on Saturday mornings.

Student Academic Progress
All students are reminded of the need to maintain satisfactory progress and, in particular, attention is drawn to the Rules Governing Unsatisfactory Progress. The following should be borne in mind:

1. The Faculty Board requires that students shall pass at least two semester subjects in their first year of full-time attendance or in their first two years of part-time attendance.

2. The Faculty Board requires that students shall have passed at least eight semester subjects by the end of the first two years of full-time attendance or four years of part-time attendance.

3. The Faculty Board has determined that a student who fails a semester subject twice shall not be permitted to include that subject in the candidate's future program, and that a student who fails four semester subjects twice shall be excluded from further enrolment in the Faculty, unless the candidate shows cause to the satisfaction of the Faculty Board why the candidate should be permitted to do so.

4. Students should note that a terminating pass can be awarded only at the 100 level or 200 level and that no more than four terminating passes may count in a student's program (with no more than two at the 200 level).

Note: Where there is a change in attendance status, two part-time years will be taken at the equivalent of one full-time year for the purposes of this policy.

Examination Rules
These Rules are printed in the centre grey pages of this Handbook.

Unsatisfactory Progress
Additional Rules are printed in the centre grey pages of this Handbook.

Record of Failure
An applicant who has a record of failure at another tertiary institution shall not be admitted unless the applicant first satisfies:

(a) the Faculty Board or the Graduate Studies Committee for the Faculty to which the applicant is applying, in the case of a postgraduate qualification, or
(b) the Admissions & Progression Committee, in the case of any other qualification; that there is a reasonable prospect that the applicant will make satisfactory progress.

Re-enrolment
A candidate for a qualification shall be required to re-enrol annually during the period of this candidacy. Upon receiving approval to re-enrol the candidate shall complete the prescribed procedures and pay any fees and charges determined by the Council not later than the date prescribed for payment.

Teacher Training Courses
Prerequisites for Diploma in Education Units
Students who intend to proceed to a Diploma in Education should familiarise themselves with the prerequisites for units offered in the course.

These prerequisites are stated in terms of subjects of the University of Newcastle. Applicants whose courses of study have included subjects which are deemed for this purpose to provide an equivalent foundation may be admitted to the Diploma course at special conditions.

In the Diploma course the problems in Teaching and Learning units are grouped as follows:

10
Biological Sciences
The Australian Institute of Biology Incorporated was inaugurated in 1966. Its objectives are to represent the Biology profession in Australia, to promote education and research in Biology and to improve communication between biologists of different disciplines. The Institute confers on its members a status similar to that for other Australian professional institutes. Membership grades are: Fellow, Member, Associate and Student. Members and Fellows are able to indicate this by the appropriate letters after their qualifications. Fellowship requires distinction in Biology and nomination from the existing membership. Membership requires a first or second class Honours degree in Biology and three years relevant experience, or a pass degree with five years experience, or a Masters degree with two years relevant experience, or a PhD. An Associate requires an appropriate pass degree or contribution to the advancement of Biology.

Chemistry
Graduates holding a Bachelor of Science majoring in Chemistry, may join the Royal Australian Chemical Institute which has several categories of membership according to qualification and experience.

Geology
Graduates holding a Bachelor of Science (Honours) majoring in Geology may join the Geological Society of Australia Inc., the Australian Institute of Geoscientists and the Australian Institute of Mining & Metallurgy which has several categories of membership according to qualification and experience.

Mathematics
For employment as a Mathematician, graduates should have at least one major in Mathematics. An Honours degree is preferred by many employers. The profession is represented by the Australian Mathematical Society.

Physics
For employment as a physicist, students must have a minimum of an ordinary Bachelor of Science degree with a major in Physics. An Honours degree in Physics or combined Physics/Mathematics would be preferred.

Physics as a profession is represented by the Australian Institute of Physics. Membership is limited to graduates with a minimum of a major in Physics. The Australian Institute of Physics has a number of grades of membership which are related to experience as a physicist. There is a grade of membership for students currently working towards a degree. The Institute monitors courses in Physics at tertiary institutions and judges them in terms of suitability for admission to membership of the Australian Institute of Physics. The Institute also responds on behalf of physicists to matters relating to physicists and their role. There are no formal conditions for registration as a physicist.

Pyschology
Graduates holding a Bachelor of Science majoring in Psychology or a Bachelor of Science (Psychology) may join the Australian Psychological Society. Membership normally requires a four year degree in Psychology. Provision is also made for Student Subscribers and Affiliates.

UNDERGRADUATE DEGREE AND DIPLOMA RULES

Undergraduate Diploma & Degrees offered in the Faculty of Science and Mathematics
Bachelor of Science
Bachelor of Science (Aviation)
Diploma in Aviation Science
Bachelor of Science (Psychology)
Bachelor of Mathematics
Bachelor of Environmental Science
Bachelor of Applied Science Environmental Assessment and Management

Rules Governing Academic Awards
1. Application of Rules
   These rules shall apply to all the academic awards of the University other than the degrees of Doctor and Master.

2. Interpretation
   1) In these rules, unless the context or subject matter otherwise indicates or requires:
      "award" means the degree, diploma (including graduate diploma and associate diploma) or graduate certificate for which a candidate is enrolled;
      "course" means the total requirements of the program of study approved by the Academic Senate to qualify a candidate for the award as set out in the schedule;
      "Dean" means the Dean of a Faculty;
      "department" means the department offering a particular subject and includes any other body so doing;
      "Faculty" means the Faculty responsible for the course;
SECTION THREE

APPROVED SUBJECTS

The subjects approved by the Faculty Board for the award are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Level Prescribed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAMS101</td>
<td>Concepts of Ecology</td>
<td>10</td>
</tr>
<tr>
<td>EAMS111</td>
<td>Systems Approach to Ecology</td>
<td>10</td>
</tr>
<tr>
<td>EAMS102</td>
<td>Monitoring and Statistics I</td>
<td>10</td>
</tr>
<tr>
<td>EAMS112</td>
<td>Monitoring and Statistics II</td>
<td>10</td>
</tr>
<tr>
<td>EAMC103</td>
<td>Contemporary Environmental Philosophy</td>
<td>10</td>
</tr>
<tr>
<td>EAMC113</td>
<td>Environment and Human Values I</td>
<td>10</td>
</tr>
<tr>
<td>EAMS104</td>
<td>Environmental Planning and Pollution</td>
<td>10</td>
</tr>
<tr>
<td>EAMS114</td>
<td>Local and Regional Environmental Issues</td>
<td>10</td>
</tr>
<tr>
<td>200 Level Prescribed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAMS201</td>
<td>Agricultural Systems</td>
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</tr>
<tr>
<td>EAMS211</td>
<td>Industrial and Urban Systems</td>
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</tr>
<tr>
<td>EAMS202</td>
<td>System Dynamics and Data Analysis I</td>
<td>10</td>
</tr>
<tr>
<td>EAMS212</td>
<td>System Dynamics and Data Analysis II</td>
<td>10</td>
</tr>
<tr>
<td>EAMC203</td>
<td>Environment and Human Values II</td>
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</tr>
<tr>
<td>EAMC213</td>
<td>Development and Social Impact Assessment</td>
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<tr>
<td>20 cp from</td>
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<tr>
<td>EAMS290</td>
<td>Hydrology and Soils Analysis</td>
<td>10</td>
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<tr>
<td>EAMS291</td>
<td>Water Resources Management</td>
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</tr>
<tr>
<td>EAMS292</td>
<td>Plant Systematics and Plant Ecology</td>
<td>10</td>
</tr>
<tr>
<td>EAMS293</td>
<td>Animal Systematics and Animal Ecology</td>
<td>10</td>
</tr>
<tr>
<td>or other approved subjects at 200 level offered within the University, if approved by the Dean</td>
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<td></td>
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<tr>
<td>300 Level Prescribed</td>
<td></td>
<td></td>
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<tr>
<td>EAMS301</td>
<td>Environmental Management I</td>
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<tr>
<td>EAMS311</td>
<td>Environmental Management II</td>
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</tr>
<tr>
<td>EAMS302</td>
<td>Specialist Study</td>
<td>20</td>
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<tr>
<td>EAMS304</td>
<td>Regional and National Environmental Issues</td>
<td>10</td>
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<tr>
<td>EAMC314</td>
<td>Environmental Impact Assessment</td>
<td>10</td>
</tr>
<tr>
<td>20 cp from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAMS390</td>
<td>Soil Conservation and Management</td>
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<tr>
<td>EAMS391</td>
<td>Water and Soils: Applications and Modelling</td>
<td>10</td>
</tr>
<tr>
<td>EAMS392</td>
<td>Flora Component of Environmental Impact Assessment</td>
<td>10</td>
</tr>
<tr>
<td>EAMS393</td>
<td>Fauna Component of Environmental Impact Assessment</td>
<td>10</td>
</tr>
<tr>
<td>EAMC203</td>
<td>Occupational Hygiene and Toxicology</td>
<td>10</td>
</tr>
<tr>
<td>EAMC313</td>
<td>Social Aspects of Environmental Health</td>
<td>10</td>
</tr>
<tr>
<td>or other approved subjects at 300 level offered within the University, if approved by the Dean</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Footnotes

The normal pattern for the Bachelor of Applied Science Environmental Assessment and Management degree is 80 credit points at 100 level, 80 credit points at 200 level and 80 credit points at 300 level.

Leave of Absence — For the purposes of Rule 10 of the Rules Governing Academic Awards, a candidate shall be deemed to be in good standing if, at the conclusion of the year of last enrolment in the course, that candidate was eligible to re-enrol without restrictions.
SCHEDULE — BACHELOR OF ENVIRONMENTAL SCIENCE

1. Qualification for the Degree

(1) To qualify for admission to the degree, candidates shall pass subjects totalling 240 credit points selected from the list of Approved Subjects including the prescribed subjects unless the Faculty Board approves otherwise in a particular case.

(2) The subjects passed shall include:

(a) at least 80 credit points from 100 level subjects;
(b) at least 60 credit points from 200 level subjects; and
(c) at least 80 credit points from 300 level subjects.

2. Credit

(1) Credit may be granted for studies completed which qualified the candidate for an award of the University or for studies completed at another institution up to a total of 120 credit points including not more than:

(a) 100 credit points at the 100 level;
(b) 40 credit points at the 200 level; and
(c) 20 credit points at the 300 level.

(2) Credit may be granted for all subjects completed in the University which have not already been counted towards a completed award.

3. Time Requirements

(1) Except with the permission of the Faculty Board, a candidate shall complete the course within nine years of study.

(2) A candidate granted credit shall be deemed to have commenced the course from a date determined by the Dean at the time at which credit is granted.

APPROVED SUBJECTS

The subjects approved by the Faculty Board for the award are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL101</td>
<td>Plant &amp; Animal Biology</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL102</td>
<td>Cell Biology, Genetics &amp; Evolution</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM101</td>
<td>Chemistry 101</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM102</td>
<td>Chemistry 102</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG101</td>
<td>Introduction to Physical Geography</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOLO1</td>
<td>The Environment</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCEN101</td>
<td>Environmental Investigations I</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCI101</td>
<td>Introductory Statistics</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or GEOLO2</td>
<td>Earth Materials</td>
<td>10</td>
<td>GEOLO1</td>
<td></td>
</tr>
</tbody>
</table>

200 Level Prescribed

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCEN201</td>
<td>Environmental Investigations II</td>
<td>10</td>
<td>SCEN101</td>
<td></td>
</tr>
<tr>
<td>SCEN202</td>
<td>Environmental Planning &amp; Pollution Control</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCEN203</td>
<td>Water Resources Management</td>
<td>10</td>
<td></td>
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</tr>
</tbody>
</table>

300 Level Prescribed

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCEN301</td>
<td>Environmental Project</td>
<td>10</td>
<td>SCEN201</td>
<td></td>
</tr>
<tr>
<td>SCEN302</td>
<td>Environmental Impact Assessment Techniques</td>
<td>10</td>
<td>SCEN202</td>
<td></td>
</tr>
<tr>
<td>GEOG311</td>
<td>Hydrology</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At the 200 and 300 Level the prescribed subjects are taken from one of the three strands of Biological Sciences, Chemistry or Earth Science as follows:

Biological Sciences Prescribed

200 Level

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL207</td>
<td>Ecology</td>
<td>10</td>
<td>BIOL101, BIOL102</td>
<td></td>
</tr>
<tr>
<td>CHEM261</td>
<td>Environmental Chemistry</td>
<td>10</td>
<td>CHEM101, CHEM102</td>
<td></td>
</tr>
</tbody>
</table>

10 up from

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL102</td>
<td>Earth Materials</td>
<td>10</td>
<td>GEOL101</td>
<td></td>
</tr>
<tr>
<td>PHYS102</td>
<td>Physics 102</td>
<td>10</td>
<td>See 1</td>
<td></td>
</tr>
<tr>
<td>GEOG203</td>
<td>Biogeography &amp; Climatology</td>
<td>10</td>
<td>GEOG101</td>
<td></td>
</tr>
<tr>
<td>GEOG204</td>
<td>Geomorphology of Australia</td>
<td>10</td>
<td>GEOG101</td>
<td></td>
</tr>
</tbody>
</table>

20 cp from

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL201</td>
<td>Biochemistry</td>
<td>10</td>
<td>BIOL101, BIOL102</td>
<td></td>
</tr>
<tr>
<td>BIOL202</td>
<td>Animal Physiology</td>
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<td>BIOL101, BIOL102</td>
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<tr>
<td>BIOL206</td>
<td>Plant Physiology</td>
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<td>BIOL101, BIOL102</td>
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</table>

300 Level

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL311</td>
<td>Environmental Biology</td>
<td>10</td>
<td>BIOL101 or BIOL207</td>
<td>CHEM261</td>
</tr>
<tr>
<td>CHEM361</td>
<td>Environmental Chemistry</td>
<td>10</td>
<td></td>
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</tbody>
</table>
### CODES

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cp from</td>
<td>PHYS205  Scientific Measurement Principles, Processes and Applications</td>
<td>10</td>
<td>PHYS102</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GEOG304  The Biosphere &amp; Conservation</td>
<td>10</td>
<td>GEOG203</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GEOG305  Climatic Problems</td>
<td>10</td>
<td>GEOG203</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GEOL320  Quaternary Geology</td>
<td>10</td>
<td>GEOL102 or GEOL213</td>
<td></td>
</tr>
<tr>
<td>20 cp from</td>
<td>BIEL302  Reproductive Physiology</td>
<td>10</td>
<td>Two BIOL200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIEL303  Environmental Plant Physiology</td>
<td>10</td>
<td>Two BIOL200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIEL304  Whole Plant Development</td>
<td>10</td>
<td>Two BIOL200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIEL310  Microbiology</td>
<td>10</td>
<td>BIOL201 &amp; one other BIOL200</td>
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</tr>
<tr>
<td></td>
<td>BIEL312  Animal Development</td>
<td>10</td>
<td>Two BIOL200 incl. one of BIOL201 or BIOL204</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM211  Analytical Chemistry</td>
<td>10</td>
<td>CHEM101, CHEM102</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM261  Environmental Chemistry</td>
<td>10</td>
<td>CHEM101, CHEM102</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIEL207  Ecology</td>
<td>10</td>
<td>BIOL101, BIOL102</td>
<td></td>
</tr>
<tr>
<td>10 cp from</td>
<td>CHMM221  Inorganic Chemistry</td>
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<td>CHMM101, CHMM102</td>
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<tr>
<td></td>
<td>CHMM221  Organic Chemistry</td>
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<td>CHMM101, CHMM102</td>
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<tr>
<td></td>
<td>CHMM241  Physical Chemistry</td>
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<td>BIOL101, BIOL102</td>
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</tr>
<tr>
<td>10 cp from</td>
<td>GEOL102  Earth Materials</td>
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<td>GEOL101</td>
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</tr>
<tr>
<td></td>
<td>PHYS102  Physics</td>
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<td>CHEM101, CHEM102</td>
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<tr>
<td></td>
<td>GEOG203  Biogeography &amp; Climatology</td>
<td>10</td>
<td>GEOG101</td>
<td></td>
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<td></td>
<td>GEOG204  Geomorphology of Australia</td>
<td>10</td>
<td>GEOG101</td>
<td></td>
</tr>
<tr>
<td>300 Level</td>
<td>BIEL311  Environmental Biology</td>
<td>10</td>
<td>BIOL203 or BIOL207</td>
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</tr>
<tr>
<td></td>
<td>CHEM311  Analytical Chemistry</td>
<td>10</td>
<td>CHEM211</td>
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<tr>
<td></td>
<td>CHEM361  Environmental Chemistry</td>
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<td>CHEM261</td>
<td></td>
</tr>
<tr>
<td>10 cp from</td>
<td>CHMM313  Industrial Chemical Analysis</td>
<td>5</td>
<td>CHEM211</td>
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<tr>
<td></td>
<td>CHMM341  Trace Analysis in Environmental Systems</td>
<td>5</td>
<td>CHEM211</td>
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<tr>
<td></td>
<td>CHMM321  Inorganic Chemistry</td>
<td>10</td>
<td>CHEM211</td>
<td></td>
</tr>
<tr>
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<td>CHMM331  Organic Chemistry</td>
<td>10</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>CHMM341  Physical Chemistry</td>
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<td>CHEM211</td>
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<td></td>
<td>CHMM421  Electrochemical Solar</td>
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<td>CHEM241, MATH102</td>
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<tr>
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<td>CHMM431  Molecular Spectroscopy</td>
<td>5</td>
<td>CHEM241</td>
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</tr>
<tr>
<td>10 cp from</td>
<td>PHYS205  Scientific Measurement Principles, Processes and Applications</td>
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<td>PHYS102</td>
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### Earth Science Prescribed

<table>
<thead>
<tr>
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<th>Name</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL102  Earth Materials</td>
<td>10</td>
<td>GEOL101</td>
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<td></td>
</tr>
<tr>
<td>or</td>
<td>STAT101  Introductory Statistics</td>
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<td>GEOL203</td>
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<tr>
<td></td>
<td>GEOG203  Biogeography &amp; Climatology</td>
<td>10</td>
<td>GEOG101</td>
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<tr>
<td></td>
<td>GEOL213  Ancient Environments &amp; Organisms</td>
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<td>GEOG102</td>
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<tr>
<td>20 cp from</td>
<td>PHYS102  Physics 102</td>
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<td>BIEL207  Ecology</td>
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<td>CHEM261  Environmental Chemistry</td>
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<td>GEOG204  Geomorphology of Australia</td>
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### 300 Level

<table>
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<tr>
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<th>Credit</th>
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<th>Corequisite</th>
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<tr>
<td>GEOL304  The Biosphere &amp; Conservation</td>
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<td>GEOL305  Climatic Problems</td>
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<td>GEOL203</td>
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<td>GEOL320  Quaternary Geology</td>
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<td>300 Level</td>
<td>BIEL311  Groundwater &amp; Soils</td>
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### Footnotes

The normal pattern for the Bachelor of Environmental Science degree is 80 credit points at 100 level, 80 credit points at 200 level and 80 credit points at 300 level.

Leave of Absence — For the purposes of Rule 10 of the Rules Governing Academic Awards, a candidate shall be deemed to be in good standing if, at the conclusion of the year of last enrolment in the course, the candidate was eligible to re-enrol without restrictions.

3 Advisory entry requirement: HSC 3 unit Mathematics with a mark of at least 110/150 and 2 unit Physics or 4 unit Science with a performance in the top 50% of candidates for these subjects.
SECTION THREE

SCHEDULE — BACHELOR OF SCIENCE

1. Interpretation
In this schedule, “discipline” means a branch of learning recognized as such by the Faculty Board.

2. Qualification for the Degree
(1) To qualify for admission to the degree, candidates shall pass subjects totaling 240 credit points selected from the list of Approved Subjects and comprising:
   (a) at least 60 credit points from 100 level subjects;
   (b) at least 60 credit points from 200 level subjects;
   (c) at least 80 credit points from 300 level subjects.
(2) The subjects shall be chosen in accordance with the following conditions:
   (a) the 60 credit points at the 100 level shall be comprised of at least 20 credit points chosen from each of three disciplines;
   (b) a sequence of at least 20 credit points at the 100 level, 30 credit points at the 200 level and 40 credit points at the 300 level shall be chosen from a single discipline;
   (c) not more than 150 credit points may be chosen from a single discipline; and
   (d) subjects at the 300 level may not be chosen from more than three disciplines.

3. Credit
(1) Credit may be granted for studies completed which qualified the candidate for an award of the University or for studies completed at another institution up to a total of 120 credit points including not more than:
   (a) 100 credit points at the 100 level;
   (b) 40 credit points at the 200 level, and
   (c) 20 credit points at the 300 level.
(2) Credit may be granted for all subjects completed in the University which have not already been counted towards a completed award.

4. Time Requirements
(1) Except with the permission of the Faculty Board, a candidate shall complete the course within nine years of study.
(2) A candidate granted credit shall be deemed to have commenced the course from a date determined by the Dean at the time at which credit is granted.

5. Combined Degrees
A candidate may undertake one of the following combined degree programs in accordance with Rule 12 of the Rules Governing Academic awards, namely:
Science/Arts
Science/Computer Science
Science/Mathematics
Science/Engineering.

SECTION THREE

APPROVED SUBJECTS
The subjects approved by the Faculty Board for the award are in the discipline areas of Biological Sciences, Chemistry, Geography, Geology, Mathematics, Physics and Psychology and are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL101</td>
<td>Plant &amp; Animal Biology</td>
<td>10</td>
<td>BIOL101, BIOL102</td>
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<tr>
<td>BIOL102</td>
<td>Cell Biology, Genetics &amp; Evolution</td>
<td>10</td>
<td>BIOL101, BIOL102</td>
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<tr>
<td>BIOL201</td>
<td>Biochemistry</td>
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<td>BIOL202</td>
<td>Animal Physiology</td>
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<tr>
<td>BIOL204</td>
<td>Cell &amp; Molecular Biology</td>
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<td>BIOL205</td>
<td>Molecular Genetics</td>
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<td>BIOL206</td>
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<td>Ecology</td>
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<tr>
<td>BIOL301</td>
<td>Cell Processes</td>
<td>10</td>
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<tr>
<td>BIOL302</td>
<td>Reproductive Physiology</td>
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<tr>
<td>BIOL303</td>
<td>Environmental Plant Physiology</td>
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<td>Two BIOL200</td>
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<tr>
<td>BIOL304</td>
<td>Whole Plant Development</td>
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<tr>
<td>BIOL305</td>
<td>Immunology</td>
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<tr>
<td>BIOL307</td>
<td>Molecular Biology of Plant Development</td>
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<td>Two BIOL200 incl. one of BIOL201 or BIOL204 or BIOL205</td>
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<tr>
<td>BIOL309</td>
<td>Molecular Biology</td>
<td>10</td>
<td>Two BIOL200 incl. one of BIOL201 or BIOL205</td>
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<tr>
<td>BIOL310</td>
<td>Microbiology</td>
<td>10</td>
<td>BIOL201 &amp; one other BIOL204 (if BIOL204 is advisable)</td>
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<tr>
<td>BIOL311</td>
<td>Environmental Biology</td>
<td>10</td>
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<tr>
<td>BIOL312</td>
<td>Animal Development</td>
<td>10</td>
<td>Two BIOL200, including one of BIOL201 or BIOL204</td>
<td>Students who have completed BIOL308 are not eligible to do this subject</td>
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CHEMISTRY

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<td>CHEM241</td>
<td>Physical Chemistry</td>
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<tr>
<td>CHEM251</td>
<td>Applied Chemistry</td>
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<td>Environmental Chemistry</td>
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<td>CHEM311</td>
<td>Analytical Chemistry</td>
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<td>CHEM312</td>
<td>Chemometrics</td>
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<tr>
<td>CHEM313</td>
<td>Industrial Chemical Analysis</td>
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<td>CHEM314</td>
<td>Trace Analysis in Environmental Systems</td>
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<tr>
<td>CHEM321</td>
<td>Inorganic Chemistry</td>
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### UNDERGRADUATE DEGREE AND DIPLOMA RULES

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<td>CHEM23</td>
<td>Bioinorganic Coordination Chemistry</td>
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<td>CHEM31</td>
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<td>Heterocyclic Chemistry</td>
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<td>Organic Reaction Mechanism</td>
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<td>CHEM34</td>
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<td>CHEM342</td>
<td>Electrocatalysis Solar Energy Conversion</td>
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<td>CHEM343</td>
<td>Molecular Spectroscopy</td>
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### GEOGRAPHY

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<td>GEOG102</td>
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<td>GEOG204</td>
<td>Geomorphology of Australia</td>
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<td>Contemporary Australia &amp; East Asia</td>
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<td>GEOG203</td>
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<td>GEOG306</td>
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<td>GEOG313</td>
<td>Behavioural Ecology</td>
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### GEOLOGY

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<td>Ancient Environments &amp; Organisms</td>
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<td>GEOI24</td>
<td>Geological Structures &amp; Resources</td>
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<td>Igneous Petrology &amp; Crustal Evolution</td>
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<td>GEOI32</td>
<td>Metamorphic Petrology</td>
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<td>Structural Geology &amp; Geophysics</td>
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<td>GEOI34</td>
<td>Stratigraphic Methods</td>
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<td>GEOI22</td>
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<td>GEOI35</td>
<td>Sedimentology</td>
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<td>GEOI36</td>
<td>Geology of Fuels</td>
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<td>GEOI37</td>
<td>Resource &amp; Exploration Geology</td>
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### MATHEMATICS

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<td>MATH12</td>
<td>Mathematics 112</td>
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<td>MATH103</td>
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<tr>
<td>MATH201</td>
<td>Multivariate Calculus</td>
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<td>MATH203</td>
<td>Partial Differential Equations</td>
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<td>Complex Analysis 1</td>
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<td>MATH209</td>
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<td>Differential Geometry</td>
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<td>Group Theory</td>
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<td>MATH212</td>
<td>Discrete Mathematics</td>
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<td>MATH214</td>
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<td>Linear Algebra 1</td>
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1. MATH201, MATH202 or MATH111 and MATH112
2. MATH201, MATH202, MATH111 and MATH112
3. MATH201, MATH202 or MATH111 and MATH112
4. MATH201
5. MATH201, MATH202, MATH111 and MATH112
6. MATH201
7. MATH201, MATH202 or MATH111 and MATH112
8. MATH201, MATH202, MATH111 and MATH112
9. MATH201
10. MATH201, MATH202, MATH111 and MATH112
11. MATH201
### Code | Name | Credit Points | Prerequisite | Corequisite |
--- | --- | --- | --- | --- |
MAT118 | Linear Algebra 2 | 5 | (MAT102 & MAT110) or (MAT111 & MAT112 & MAT109) | |
MAT101 | Logic & Set Theory | 10 | 20 c.p. from 200 level MATH incl. one of MATH120, 209, 211, 212, 214 | |
MAT102 | General Tensors & Relativity | 10 | MATH120, MATH118 | |
MAT103 | Variational Methods and Integral Equations | 10 | MATH120, MATH121, MATH122 | |
MAT104 | Ordinary Differential Equations 2 | 10 | MATH120, MATH122, MATH124 | |
MAT105 | Partial Differential Equations 2 | 10 | MATH120, MATH122, MATH124 | |
MAT106 | Fluid Mechanics | 10 | MATH120, MATH122, MATH124 | |
MAT107 | Quantum & Statistical Mechanics | 10 | MATH120, MATH122, MATH124 | |
MAT108 | Geometry | 10 | 20 c.p. from 200 level MATH incl. one of MATH129, MATH121, MATH124 | |
MAT109 | Combinatorics | 10 | MATH121 | |
MAT110 | Functional Analysis | 10 | MATH120 | |
MAT111 | Measure Theory & Integration | 10 | MATH120, MATH121 | |
MAT112 | Algebra | 10 | MATH120 & one of MATH120, MATH120 | |
MAT121 | MATH120 | |
MAT113 | Numerical Analysis (Theory) | 10 | MATH120, MATH121 | |
MAT114 | Optimization | 10 | MATH120, MATH121, MATH122 | |
MAT115 | Mathematical Biology | 10 | MATH120, MATH121, MATH122, MATH124 | |
MAT116 | Industrial Modelling | 10 | MATH120, MATH121, MATH122, MATH124 | |
MAT117 | Number Theory | 10 | 30 c.p. from 200 level MATH incl. one of MATH120, MATH121 | |
MAT118 | Topology | 10 | MATH120, MATH121 | |

### PHYSICS

| Code | Name | Credit Points | Prerequisite | Corequisite |
--- | --- | --- | --- | --- |
PHYS101 | Physics 101 | 10 | | |
PHYS102 | Physics 102 | 10 | See 1 & PHYS101 | |
PHYS103 | Physics 103 | 10 | See 1 & PHYS101 | |
PHYS201 | Quantum Mechanics & Electromagnetism | 10 | MATH103, PHYS103 | |
PHYS202 | Mechanics & Thermal Physics | 10 | MATH102, PHYS102 | |
PHYS203 | Solid State & Atomic Physics | 10 | PHYS101 | |
PHYS205 | Scientific Measurements: Principles, Processes & Applications | 10 | PHYS102 | |
PHYS301 | Mathematical Methods & Quantum Mechanics | 10 | PHYS101, MATH101, MATH103 | |
PHYS302 | Electromagnetism & Electronics | 10 | PHYS101, MATH101 | |
PHYS303 | Atomic, Molecular & Solid State Physics | 10 | PHYS101, PHYS103 | |
PHYS304 | Statistical Physics & Relativity | 10 | PHYS101, MATH101 | |

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**Footnotes**

1. Students should note that GEOG101 and GEOG102 are prerequisites for a major study in Geography, and for admission to Geography Honours GEOG401.
2. Entry requirement HSC 3 unit Mathematics with a mark of at least 120/150.
3. This option is for students who take MATH103 in second semester.
4. MATH103 in 1990.
5. Students who have passed Mathematics I in 1989 or before do not need MATH124.
6. Advisory entry requirement HSC 2 unit Mathematics with a performance in the top 50% of candidates.
7. Advisory entry requirement HSC 3 unit Mathematics with a mark of at least 110/150 and 2 unit Physics or 4 unit Science with a performance in the top 50% of candidates for these subjects.
8. Students achieving a credit level or better in PHYS101 and PHYS102 may be admitted with the approval of the Head of Department.
9. Credit cannot be obtained for both MATH112 and MATH102.
10. Credit cannot be obtained for both MATH117 and MATH118.
SCHEDULE — BACHELOR OF SCIENCE (AVIATION)

1. Qualification for the Degree

(1) To qualify for admission to the degree, candidates shall pass subjects totaling 240 credit points selected from the list of Approved Subjects and comprising:
   (a) at least 60 credit points from 100 level Group A subjects;
   (b) at least 60 credit points from 200 level subjects of which 50 credit points shall be from Group A; and
   (c) at least 80 credit points from 300 level subjects of which 40 credit points shall be from Group A.

2. Credit

(1) Credit may be granted for studies completed which qualified the candidate for an award of the University or for studies completed at another institution up to a total of 120 credit points.

(2) Credit may be granted for all subjects completed in the University which have not already been counted towards a completed award.

3. Time Requirements

(1) Except with the permission of the Faculty Board, a candidate shall complete the course within nine years of study.

(2) A candidate granted credit shall be deemed to have commenced the course from a date determined by the Dean at the time at which credit is granted.

APPROVED SUBJECTS

The subjects approved by the Faculty Board for the award are:

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
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<td>Introductory Meteorology</td>
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<td>AVIA110</td>
<td>Introductory Navigation</td>
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<td>Introductory Aerodynamics</td>
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<tr>
<td>AVIA113</td>
<td>Aircraft Performance &amp; Systems</td>
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<tr>
<td>AVIA114</td>
<td>Flight Rules &amp; Procedures</td>
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<td>AVIA115</td>
<td>Reciprocating Engines</td>
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<td>AVIA116</td>
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<td>AVIA208</td>
<td>Instrument Navigation</td>
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<td>Long Range Navigation</td>
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<td>Aircraft Structures &amp; Materials</td>
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<td>Aircraft Structures</td>
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<td>Aviation Climatology</td>
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GROUP B SUBJECTS

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<th>Corequisite</th>
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<td>Aircraft Performance &amp; Loading</td>
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<td>Aircraft Fatigue Management</td>
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<td>AVIA221</td>
<td>Human Performance in Multi-Crew Operations</td>
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<td>AVIDA316</td>
<td>Flight Deck Performance</td>
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<td>AVIDA307, AVIDA310</td>
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Footnotes
The normal pattern for the Bachelor of Science (Aviation) degree is 80 credit points at 100 level, 80 credit points at 200 level and 80 credit points at 300 level.

Leave of Absence — For the purposes of Rule 10 of the Rules Governing Academic Awards, a candidate shall be deemed to be in good standing if, at the conclusion of the year of last enrolment in the course, that candidate was eligible to re-earn without restrictions.

* Refers to the list of approved subjects in the Schedule — Bachelor of Science

SCHEDULE — BACHELOR OF MATHEMATICS

1. Qualification for the Degree
   (1) To qualify for admission to the degree a candidate shall pass subjects totalling 240 credit points from the list of Approved Subjects and comprising:
   (a) not more than 80 credit points from 100 level subjects of which 20 credit points shall be from Group A;
   (b) at least 70 credit points from 200 level subjects of which:
      (i) at least 25 credit points shall be from Group A;
      (ii) at least 5 credit points shall be from Group B subjects; and
      (iii) at least a further 30 credit points shall be from Group B and/or Group C;
   (c) at least 80 credit points from 300 level subjects of which:
      (i) at least 40 credit points shall be from Group A; and
      (ii) at least a further 40 credit points shall be from Group A and/or Group C.

2. Credit
   (1) Credit may be granted for studies completed which qualified the candidate for an award of the University or for studies completed at another institution up to a total of 120 credit points including not more than:
      (a) 100 credit points at the 100 level;
      (b) 40 credit points at the 200 level; and
      (c) 20 credit points at the 300 level.
   (2) Credit may be granted for all subjects completed in the University which have not already been counted towards a completed award.

3. Time Requirements
   (1) Except with the permission of the Faculty Board, a candidate shall complete the course within nine years of study, from its commencement.
   (2) A candidate who has been granted credit shall be deemed to have commenced the course from a date determined by the Dean at the time at which credit is granted.

4. Combined Degrees
   A candidate may undertake one of the following combined degree programs in accordance with Rule 12 of the Rules Governing Academic awards, namely:
   - Mathematics/Arts;
   - Mathematics/Commerce;
   - Mathematics/Engineering;
   - Mathematics/Economics;
   - Mathematics/Computer Science;
   - Mathematics/Surveying;
   - Mathematics/Science.
### APPROVED SUBJECTS

The subjects approved by the Faculty Board for the award are:

#### GROUP A SUBJECTS

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<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
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<td>Mathematics 102</td>
<td>10</td>
<td>See or MATH111</td>
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<tr>
<td>MATH103</td>
<td>Mathematics 103</td>
<td>10</td>
<td>See or MATH102 or (MATH111 &amp; MATH112)</td>
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<tr>
<td>MATH112</td>
<td>Mathematics 112</td>
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<td>MATH111</td>
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<tr>
<td>MATH201</td>
<td>Multivariable Calculus</td>
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<td>(MATH102 &amp; MATH103) or (MATH111 &amp; MATH112)</td>
<td>(MATH102 &amp; Permission of H.O.D.)</td>
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<td></td>
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<td>or (MATH102 &amp; Permission of H.O.D.) or (MATH111 &amp; MATH112)</td>
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<tr>
<td>MATH203</td>
<td>Ordinary Differential Equations 1</td>
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<td>(MATH102 &amp; MATH103) or (MATH111 &amp; MATH112)</td>
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<td>or (MATH102 &amp; Permission of H.O.D.) or (MATH111 &amp; MATH112)</td>
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<tr>
<td>MATH204</td>
<td>Real Analysis</td>
<td>5</td>
<td>(MATH111 &amp; MATH112 &amp; MATH103)</td>
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<tr>
<td>MATH206</td>
<td>Complex Analysis 1</td>
<td>5</td>
<td>MATH102 &amp; MATH103 or (MATH111 &amp; MATH112) or (MATH102 &amp; Permission of H.O.D.)</td>
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<tr>
<td>MATH218</td>
<td>Linear Algebra 2</td>
<td>5</td>
<td>MATH102 &amp; MATH103 or (MATH111 &amp; MATH112) or (MATH102 &amp; MATH103)</td>
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<tr>
<td>MATH201</td>
<td>Logic &amp; Set Theory</td>
<td>10</td>
<td>20 credit points from 200 level MATH incl. one of MATH204, MATH209, MATH211, MATH212, MATH218 &amp; MATH218*</td>
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<tr>
<td>MATH202</td>
<td>General Tensors &amp; Relativity</td>
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<td>MATH201, MATH218*</td>
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<tr>
<td>MATH203</td>
<td>Variational Methods &amp; Integral Equations</td>
<td>10</td>
<td>MATH201, MATH203</td>
<td>MATH204, MATH204*</td>
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<tr>
<td>MATH304</td>
<td>Ordinary Differential Equations 2</td>
<td>10</td>
<td>MATH201, MATH203, MATH204, MATH204*</td>
<td>MATH218 &amp; MATH218*</td>
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<tr>
<td>MATH305</td>
<td>Partial Differential Equations 2</td>
<td>10</td>
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<td>MATH204, MATH204*</td>
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<td>MATH306</td>
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<td>MATH307</td>
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<tr>
<td>MATH308</td>
<td>Geometry</td>
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<td>20 credit points from 200 level MATH incl. one of MATH209, MATH211, MATH218 &amp; MATH218*</td>
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<td>MATH309</td>
<td>Combinatorics</td>
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<td>MATH310</td>
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<td>MATH311</td>
<td>Measure Theory &amp; Integration</td>
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<td>MATH312</td>
<td>Algebra</td>
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<td>MATH218* or one of MATH209, MATH210, MATH211</td>
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<tr>
<td>MATH313</td>
<td>Numerical Analysis (Theory)</td>
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<tr>
<td>MATH314</td>
<td>Optimization</td>
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### GROUP B SUBJECTS

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<th>Name</th>
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<th>Corequisite</th>
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<td>MATH213</td>
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<tr>
<td>MATH214</td>
<td>Mechanics</td>
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<tr>
<td>MATH215</td>
<td>Operations Research</td>
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### GROUP C SUBJECTS

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<td>Mathematics 111</td>
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<td>2 unit HSC Mathematics</td>
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<td>MATH202</td>
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<td>MATH103</td>
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<td>Algebra</td>
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### PHYSICS

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<td>Nuclear Physics &amp; Advanced Electromagnetism</td>
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**STATISTICS**

<table>
<thead>
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<th>Corequisite</th>
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<tr>
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<tr>
<td>STAT202</td>
<td>Regression Analysis</td>
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<td></td>
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<td>equivalent level</td>
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<td>STAT203</td>
<td>Queue &amp; Simulation</td>
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<td>MATH112/ MATH102</td>
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<tr>
<td>STAT205</td>
<td>Engineering Statistics²</td>
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**COMPUTER SCIENCE**

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<td>COMP205 &amp; either</td>
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<td>COMP202</td>
<td>Computer Architecture</td>
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<tr>
<td>COMP203</td>
<td>Assembly Language</td>
<td>5</td>
<td>COMP101 or COMP212</td>
<td>MATH212</td>
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<tr>
<td>COMP204</td>
<td>Programming Language Semantics</td>
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<td>Programming in C</td>
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<tr>
<td>COMP206</td>
<td>Theory of Computation</td>
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<td>COMP101 COMP212</td>
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<tr>
<td>COMP212</td>
<td>Introduction to Programming</td>
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<td>COMP241</td>
<td>Cognitive Science</td>
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<td>COMP301</td>
<td>Compiler Design</td>
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<td>COMP101 or COMP212</td>
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<td>COMP302</td>
<td>Artificial Intelligence</td>
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<td>COMP201</td>
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<tr>
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<td>Computer Networks</td>
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<tr>
<td>COMP304</td>
<td>Database Design</td>
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<td>COMP201</td>
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</tr>
<tr>
<td>COMP305</td>
<td>Design &amp; Analysis of Algorithms</td>
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<td>COMP201 COMP206</td>
<td>MATH216</td>
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<tr>
<td>COMP306</td>
<td>Computer Graphics</td>
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<td>COMP201 MATH216</td>
<td>MATH218</td>
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<td>COMP202</td>
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*Footnotes*

The normal pattern for the Bachelor of Mathematics Degree is 80 credit points at 100 level, 80 credit points at 200 level and 80 credit points at 300 level.

*Leave of Absence* — For the purposes of Rule 10 of the Rules Governing Academic Awards, a candidate shall be deemed to be in good standing if, at the conclusion of the year of last enrolment in the course, that candidate was eligible to re-enroll without restrictions.

1. Credit cannot be obtained for both MATH112 and MATH1102.
2. Advisory entry requirement HSC 3 unit Mathematics with a mark of at least 120/150.

* Statistics

1. Students who have passed Mathematics I in 1989 or before do not need MATH102.
2. Advisory entry requirement HSC 2 unit Mathematics with performance in the top 50% of candidates.
3. Advisory entry requirement HSC 3 unit Mathematics with a mark of at least 110/150 and 2 Unit Physics or 4 Unit Science with a performance in the top 50% of candidate for these subjects.
4. Students achieving a Credit level or better in PHYS101 and PHYS102 may be admitted with approval of the Head of Department.
5. Credit cannot be obtained for both STAT201 and STAT205.
7. COMP307 requires attendance at lectures in Semester 1 and completion of a Project report in Semester 2.
8. Other approved subjects may be chosen from the schedules for the degrees offered elsewhere in the University, if approved by the Dean.
SECTION THREE

SCHEDULE — BACHELOR OF SCIENCE
(PSYCHOLOGY)

1. Interpretation
In this schedule, "discipline" means a branch of learning
recognized as such by the Faculty Board.

2. Qualification for the Degree
(1) To qualify for admission to the degree, a candidate shall
pass subjects totalling 120 credit points from the list of
Approved Subjects and comprising:
(a) at least 60 credit points from 100 level subjects of
which:
(i) 20 credit points shall be from Group A subjects;
and
(ii) 40 credit points shall be comprised of 20 credit
points from each of two disciplines;
(b) at least 60 credit points from 200 level subjects of
which 40 credit points shall be from Group A
subjects;
(c) at least 60 credit points from 300 level subjects of
which 60 credit points shall be from Group A
subjects; and
(d) 80 credit points from 400 level subjects taken from
Group A subjects.

3. Grading of the Degree
(1) The degree shall be conferred as an ordinary degree
except that, where the performance of a candidate has
reached a standard determined by the Faculty Board to
be of sufficient merit, the degree shall be conferred with
Honours.
(2) There shall be three classes of Honours, namely Class I,
Class II and Class III. Class II shall have two divisions,
namely Division I and Division 2.

4. Credit
(1) Credit may be granted for studies completed which
qualified the candidate for an award of the University or
for studies completed at another institution up to a total
of 120 credit points including no more than:
(a) 100 credit points at the 100 level;
(b) 40 credit points at the 200 level; and
(c) 20 credit points at the 300 level.
(2) Credit may be granted for all subjects completed in the
University which have not already been counted towards
a completed award.

5. Time Requirements
(1) Except with the permission of the Faculty Board, a
candidate shall complete the course within eleven years
of study, from its commencement.
(2) A candidate who has been granted credit shall be deemed
to have commenced the course from a date determined
by the Dean at the time at which credit is granted.

APPROVED SUBJECTS
The subjects approved by the Faculty Board for the award consist of the prescribed Group A subjects and Group B subjects:

GROUP A SUBJECTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
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<td>PSYC102</td>
<td>Psychology Introduction 2</td>
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<tr>
<td>PSYC201</td>
<td>Foundations for Psychology</td>
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<td>PSYC102</td>
<td>PSYC201</td>
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<tr>
<td>PSYC202</td>
<td>Basic Processes</td>
<td>10</td>
<td>PSYC102</td>
<td>PSYC201</td>
</tr>
<tr>
<td>PSYC203</td>
<td>Developmental &amp; Social Processes</td>
<td>10</td>
<td>PSYC102</td>
<td>PSYC201</td>
</tr>
<tr>
<td>PSYC204</td>
<td>Individual Processes</td>
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<td>PSYC102</td>
<td>PSYC201</td>
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<tr>
<td>PSYC301</td>
<td>Advanced Foundations for Psychology</td>
<td>10</td>
<td>PSYC201, PSYC202</td>
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</tr>
<tr>
<td>PSYC302</td>
<td>Independent Project</td>
<td>10</td>
<td>PSYC201</td>
<td>PSYC301</td>
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</table>

and 40 c.p. from

<table>
<thead>
<tr>
<th>Code</th>
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<th>Prerequisite</th>
<th>Corequisite</th>
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</thead>
<tbody>
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<td>Basic Processes 1</td>
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<td>PSYC201</td>
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<tr>
<td>PSYC304</td>
<td>Basic Processes 2</td>
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<td>PSYC307</td>
<td>Advanced Applied Topics in Psychology</td>
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<td>PSYC308</td>
<td>Advanced Applied Topics in Psychology 2</td>
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<td>PSYC309</td>
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</table>

GROUP B SUBJECTS

GROUP B subjects are in the following discipline areas: Biological Sciences, Chemistry, Geography, Geology, Mathematics and Physics: they are referred to in the Bachelor of Science Schedule of Approved Subjects (excepting the discipline of Psychology).
### APPROVED SUBJECTS

The subjects approved* by the Faculty Board for the award are:

#### GROUP A SUBJECTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credit Points</th>
<th>Prerequisite</th>
<th>Corequisite</th>
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<tbody>
<tr>
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<td>Introductory Meteorology</td>
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<td>AVIA110</td>
<td>Introductory Navigation</td>
<td>5</td>
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<tr>
<td>AVIA111</td>
<td>Introductory Aerodynamics</td>
<td>5</td>
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<tr>
<td>AVIA113</td>
<td>Aircraft Performance &amp; Systems</td>
<td>5</td>
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<tr>
<td>AVIA114</td>
<td>Flight Rules &amp; Procedures</td>
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<tr>
<td>AVIA115</td>
<td>Reciprocating Engines</td>
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<td>AVIA116</td>
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<td>AVIA117</td>
<td>Navigation</td>
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<td>AVIA118</td>
<td>Aerodynamics</td>
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<td>AVIA114</td>
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<td>AVIA120</td>
<td>Aviation Law, Commercial Flight Rules &amp; Procedures</td>
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<td>AVIA121</td>
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#### GROUP B SUBJECTS

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<td>Aviation Psychology &amp; Medicine</td>
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<td>AVIA120</td>
<td>Aircraft Performance &amp; Loading</td>
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<td>AVIA113</td>
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#### Footnotes

The normal pattern for the Diploma in Aviation Science course is 80 credit points at 100 level and 80 credit points at 200 level.

Leave of Absence — For the purposes of Rule 30 of the Rules Governing Academic Awards, a candidate shall be deemed to be in good standing if, at the conclusion of the year of last enrolment in the course, that candidate was eligible to re-enrol without restrictions.

* Refers to the list of approved subjects in the Schedule — Bachelor of Science.
### APPROVED SUBJECTS FOR THE BACHELOR DEGREES

List of Approved Subjects Referred to in Bachelor Degree Schedules

F = Full Year, S1 = Semester 1; S2 = Semester 2

<table>
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<tr>
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<th>Subject</th>
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<th>H/W</th>
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<td>4</td>
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</tbody>
</table>

<p>|        | Environmental Management I                    | 10     | S1   | 4   | EAM504              |                    | EAM511            |                    |
|        | Environmental Management II                   | 10     | S2   | 4   | EAM504              |                    | EAM511            |                    |
|        | Specialist Study                              | 20     | F    | 4   | All Prescribed      |                    |                   |                   |
|        | Regional and National Environmental Issues (incl. Inv. Law) | 10 | S1   | 4   | EAM504              |                    | EAM514            |                    |
|        | Environmental Impact Assessment                | 10     | S2   | 4   | EAM504              |                    | EAM514            |                    |
|        | Soil Conservation and Management              | 10     | S1   | 4   | EAM504              |                    | EAM514            |                    |
|        | Water and Soils: Applications and Modelling   | 10     | S2   | 4   | EAM504              |                    | EAM514            |                    |
|        | Flora Component of Environmental Impact Assessment | 10 | S1   | 4   | EAM504              |                    | EAM514            |                    |</p>
<table>
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<tr>
<th>Number</th>
<th>Subject</th>
<th>Points</th>
<th>When</th>
<th>H/W</th>
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<td>S1</td>
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**Footnote**

1 Students should note that GEOL101 and GEOL102 are prerequisites for a major study in Geography, and for admission to Geography Honours GEOL401

**GEOL101**
- The Environment
  - Points: 10, When: S1, S2
  - Prerequisites: GEOL101

**GEOL102**
- Earth Materials
  - Points: 10, When: S2
  - Prerequisites: GEOL101

**GEOL210**
- Optical Mineralogy
  - Points: 5, When: S1
  - Prerequisites: GEOL102

**GEOL212**
- Introductory Petrology
  - Points: 10, When: S1
  - Prerequisites: GEOL211

**GEOL213**
- Ancient Environments & Organisms
  - Points: 10, When: S2
  - Prerequisites: GEOL102

**GEOL214**
- Geological Structures & Resources
  - Points: 10, When: S2
  - Prerequisites: GEOL102

**GEOL215**
- Geology Field Course 215
  - Points: 10, When: S1, 14 days
  - Prerequisites: GEOL102

**GEOL216**
- Geology Field Course 216
  - Points: 5, When: S2, 7 days
  - Prerequisites: GEOL215

**GEOL311**
- Igneous Petrology & Coastal Evolution
  - Points: 10, When: S2
  - Prerequisites: GEOL212

**GEOL312**
- Metamorphic Petrology
  - Points: 10, When: S1
  - Prerequisites: GEOL212

**GEOL313**
- Structural Geology & Geophysics
  - Points: 10, When: S1
  - Prerequisites: GEOL214

**GEOL314**
- Stratigraphic Methods
  - Points: 10, When: S2
  - Prerequisites: GEOL212

**GEOL315**
- Sedimentology
  - Points: 10, When: S2
  - Prerequisites: GEOL212 & GEOL213

**GEOL316**
- Geology of Plains
  - Points: 10, When: S1
  - Prerequisites: GEOL213

**GEOL317**
- Resource & Exploration Geology
  - Points: 10, When: S1
  - Prerequisites: GEOL212 & GEOL214

**GEOL318**
- Geology Logging Course 318
  - Points: 5, When: S1, 7 days
  - Prerequisites: GEOL215

**GEOL319**
- Geology Field Course 319
  - Points: 5, When: S2, 10 days
  - Prerequisites: GEOL216

**GEOL320**
- Quaternary Geology
  - Points: 10, When: S2
  - Prerequisites: GEOL102

**GEOL321**
- Groundwater & Soils
  - Points: 10, When: Not in 1992
  - Prerequisites: T.B.A.

**MATH111**
- Mathematics 111
  - Points: 10, When: S1, S2
  - Prerequisites: 2 unit HSC Mathematics

**MATH112**
- Mathematics 112
  - Points: 10, When: S1, S2
  - Prerequisites: MATH111

**MATH102**
- Mathematics 102
  - Points: 10, When: S1
  - Prerequisites: see 2 or MATH102 or (MATH111 & MATH121) or (MATH102 & Permission of H.D.P.)

**MATH201**
- Multivariable Calculus
  - Points: 5, When: S1
  - Prerequisites: MATH201

**MATH202**
- Partial Differential Equations I
  - Points: 5, When: S2
  - Prerequisites: MATH202 & MATH102 or MATH102 & Permission of H.D.P.

**MATH203**
- Ordinary Differential Equations I
  - Points: 5, When: S2
  - Prerequisites: MATH102 or MATH111 & MATH121 or (MATH202 & Permission of H.D.P.)

**MATH204**
- Real Analysis
  - Points: 5, When: S1
  - Prerequisites: MATH102 & MATH103 or MATH111 & MATH121

**MATH205**
- Analysis of Metric Spaces
  - Points: 5, When: S2
  - Prerequisites: MATH102 & MATH103
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**Footnotes**

1 Entry requirement - 100 unit Mathematics with a mark of at least 100/150
2 This is optional for certain students who take MATH103 in second semester
3 For students who have passed Mathematics 1 in 1989 or before this is unnecessary
4 Credit cannot be obtained for both MATH112 and MATH102
5 Credit cannot be obtained for both MATH217 and MATH218.

Subjects provided by the Division of Quantitative Methods to Bachelor of Education courses in the Faculty of Education in 1992

These subjects are available only to Bachelor of Education students.

**B.Ed (Mathematics Education)**

- MAQM335 Mathematics IA: 20 F 4
- MAQM336 Mathematics IB: 20 F 4
- MAQM335 Mathematics IA: 20 F 4
- MAQM336 Mathematics IB: 15 F 3
- MAQM337 Mathematics IIC: 15 F 3
- MAQM431 Mathematics IVA: 16 F 4
- MAQM432 Mathematics IVA: 16 F 4
- MAQM433 Mathematics IVC: 16 F 4

**B.Ed (Primary Education)**

- MAQM146 Foundation Studies in Elementary Mathematics: 20 F 4

**B.Ed (Early Childhood)**

- MAQM147 Mathematics IEC: 10 F 4

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**Footnotes**

* Advisory entry requirement - 100 unit Mathematics with a mark of at least 100/150
2 Advisory entry requirement - 100 unit Mathematics with a mark of at least 100/150 and Physics 2 unit or Science 4 unit with a performance in the top 50% of candidates for these subjects.
3 Students achieving a credit level or better in PHYS101 and PHYS102 may be admitted with approval of the Head of Department.

**PSYCHOLOGY**

- PSYC101 | Psychology Introduction 1 | 10 | S1 | 5 | PSYC101 |
- PSYC102 | Psychology Introduction 2 | 10 | S2 | 5 | PSYC101 |
- PSYC201 | Foundation for Psychology | 10 | S1 | 4 | PSYC102 |
- PSYC202 | Basic Processes | 10 | S1 | 4 | PSYC102 |
- PSYC203 | Developmental & Social Processes | 10 | S2 | 4 | PSYC102 |
- PSYC204 | Individual Processes | 10 | S2 | 4 | PSYC102 |
- PSYC205 | Applied Topics in Psychology 1 | 10 | Not in | 4 | PSYC102 |
- PSYC206 | Applied Topics in Psychology 2 | 10 | Not in | 4 | PSYC102 |
- PSYC301 | Advanced Foundations for Psychology | 10 | S1 | 4 | PSYC201, 202 |
- PSYC302 | Independent Project | 10 | F | 2 | PSYC201 |

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50
### List of Other Approved Subjects

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<td>COMP241</td>
<td>Cognitive Science</td>
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<td>COMP299</td>
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<tr>
<td>COMP301</td>
<td>Compiler Design</td>
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<tr>
<td>COMP302</td>
<td>Artificial Intelligence</td>
<td>10</td>
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<td>COMP101 or COMP212</td>
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<td>COMP303</td>
<td>Computer Networks</td>
<td>10</td>
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<tr>
<td>COMP304</td>
<td>Database Design</td>
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<tr>
<td>COMP305</td>
<td>Design and Analysis of Algorithms</td>
<td>10</td>
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<td>COMP201, COMP206</td>
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<tr>
<td>COMP306</td>
<td>Computer Graphics</td>
<td>10</td>
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<td>COMP201, MATH216, and either MATH217 or MATH218</td>
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<tr>
<td>COMP307</td>
<td>Software Engineering</td>
<td>10</td>
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<td>COMP201</td>
<td>COMP202</td>
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<td>COMP308</td>
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<td>COMP201</td>
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<td>COMP391</td>
<td>Special Topic 1</td>
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<td>COMP202</td>
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**Footnotes**

**COMP307 requires attendance at lectures in Semester 1 and completion of a project report in Semester 2.**

1COMP306 may not be available in 1992 to which case students will take COMP391 or an alternative subject approved by the Course Coordinator.
### INFORMATION SCIENCE
- **INFO101 Introduction to Information Systems**
  - 10 S1 5

### PHILOSOPHY
- **PHIL207 Scientific Knowledge & Scientific Method**
  - 10 S1 3

### STATISTICS
- **STAT101 Introductory Statistics**
  - 10 S1, S2 5
- **STAT201 Mathematical Statistics**
  - 10 S1 4
    - MATH103 or STAT101 & MATH112 or MATH112 (or equivalent level of Mathematics)
- **STAT202 Regression Analysis**
  - 10 S2 4
  - STAT201 or STAT101 & MATH112 or MATH112 (or equivalent level of Mathematics)
- **STAT203 Queues & Simulation**
  - 5 S1 2
    - MATH112 or MATH112 (or equivalent)
- **STAT204 Non-parametric Statistics**
  - 5 S2 2
    - STAT201 or STAT101 & MATH112 or MATH112 (or equivalent)
- **STAT205 Engineering Statistics**
  - 5 S1 2
    - MATH112 or MATH112 (or equivalent)
- **STAT301 Statistical Inference**
  - 10 S1 3
    - STAT201
- **STAT302 Study Design**
  - 10 S1 3
  - STAT201
  - STAT202
- **STAT303 Generalized Linear Models**
  - 10 S2 3
  - STAT201 & STAT202
    - Advisory STAT301
- **STAT304 Time Series Analysis**
  - 10 S2 3
  - STAT201 & STAT202
    - Advisory STAT301

### FOOTNOTE
* Credit cannot be obtained for both STAT201 and STAT205

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### UNDERGRADUATE DEGREE SUBJECT DESCRIPTIONS

#### Guide to Undergraduate Subject Entries

Subject outlines and reading lists are set out in a standard format to facilitate easy reference.

An explanation is given below of some of the technical terms used in this Handbook.

1. **Prerequisites** are subjects which must be passed before a candidate enrols in a particular subject.
2. **Corequisites** refer to subjects or topics on which the candidate must either pass before enrolling in the particular subject or be taking concurrently.
3. **Examinations** (including mid-year examinations) are only held for the final grade of a candidate in a subject.
4. **Essential Texts** are books recommended for purchase.

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### UNDERGRADUATE DEGREE SUBJECT DESCRIPTIONS

#### Applied Science and Technology

**BACHELOR OF APPLIED SCIENCE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT**

- **EAMS101 CONCEPTS OF ECOLOGY** 10cp
  - **Hours 4 hours per week for one semester.**
  - **Examination:** Written reports and end of semester examination.

**Content**

The fundamental concepts of ecology are examined in relation to various natural systems, including dry forests, rain forests, heathlands, lakes, and wetlands. The ecosystem processes of energy flow, nutrient and water cycling, population dynamics, and succession are studied through both theoretical considerations and relevant field and laboratory investigations.

**Text**


**References**


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**EAMS111 SYSTEMS APPROACH IN ECOLOGY** 10cp

**Prerequisite:** EAMS101.

- **Hours 4 hours per week for one semester.**
- **Examination:** Written reports and end of semester examination.
Content

Text

References

EAMC030 CONTEMPORARY ENVIRONMENTAL PHILOSOPHY
10cp

Hours: 2 hours per week for one semester.

Examination: Tutorial work and assessment, essay, take-home examination.

Content
The historical foundations of despotic and destructive attitudes toward the natural environment, contemporary responses to the need for an environmental ethic, eg, Stewardship, Animal and Ecological Rights - Liberation, the Land Ethic, Deep Ecology, Eco-feminism, Social Ecology and Eco-anarchism, Gaia and other "New Age" environmental philosophies.

Reference
An extensive list of references will be provided at the commencement of lectures.

EAMC113 ENVIRONMENT AND HUMAN VALUES I
10cp

Prerequisite: EAMC030.

Hours: 2 hours per week for one semester.

Examination: Tutorial assessment, essay, take-home examination.

Content
A. An examination of the major responses from economists to "green" philosophies and science. Responses include; Green Capitalism, Eco-Socialism, Buddhist Economics, Negative Growth Economics, Steady-State Economics and Biologically Sustainable Development (SSD).
B. The values that underpin scientific and technological knowledge and achievements. The Philosophy of Science, the social shaping of Science and Technology, Technology and Development.

References
An extensive list of references will be provided at the commencement of lectures.

EAMC104 ENVIRONMENTAL PLANNING AND 10cp POLLUTION CONTROL LEGISLATION

Hours: 4 hours per week lectures, field work and directed reading.

Examination: Progress assessment plus final examination.

Content
This course examines the environmental planning and development control system in NSW and pollution control legislation. The emphasis in the course is to understand the system which regulates development and requires environmental studies to be undertaken.

Text

Reference

EAMC114 LOCAL AND REGIONAL ENVIRONMENTAL ISSUES
10cp

Prerequisite: EAMC104.

Hours: 4 hours per week lectures, field work and directed reading.

Examination: Progress assessment plus final examination.

Content
Case studies of particular local and regional environmental issues including the environmental impact of mining, solid waste disposal, water quality management, industrial development and sewage treatment. Introduction to environmental assessment techniques and analysis of sources of conflict. Particular attention is given to skills in communication.

References

EAMC201 AGRICULTURAL SYSTEMS
10cp

Prerequisite: EAMC104 or EAMC113.

Hours: 4 hours per week for one semester.

Examination: Assignments and final examination.

Content
The effect of human disturbance of natural ecosystems is studied using agriculture as the focus. Systems concepts are further developed using a series of agricultural systems of increasing complexity and energy demand.

Text

Reference

EAMC202 SYSTEMS DYNAMICS AND DATA ANALYSIS I
10cp

Prerequisite: EAMC112.

Hours: 5 hours per week for one semester.

Examination: Progress assessment and final examination.

Content
This module develops systems dynamics theory using Forrester system dynamics language as applied to natural and man made systems. It examines positive and negative feedback control loops, rates, levels, auxiliaries, sources, sinks, information feedback and system boundaries. Models are developed taking account of perspective, reference modes, time horizons and policy choices. Emphasis is placed upon the importance of group work and action research.

Models of a chosen catchment are developed as part of an ongoing catchment management study.

The data analysis program runs parallel. It reviews and further develops tools of significance using the minilab software program.

References

EAMC212 SYSTEMS DYNAMICS AND DATA ANALYSIS II
10cp

Prerequisite: EAMC202.

Hours: 5 hours per week for one semester.

Examination: Progress assessment and final examination.
SECTION FIV

APPLIED SCIENCE AND TECHNOLOGY SUBJECT DESCRIPTIONS


References:

EAMC203 ENVIRONMENT AND HUMAN VALUES II 10cp
Prerequisite: EAMC103, EAMC113.
Hours: 2 hours per week for one semester.
Examination: Tutorial assessment, essay, take-home examination.

Content:
- Public policy and environmental issues: eg energy policy, ecologically sustainable development, ethics and a sustainable society, ethics and acceptable risk. Policy and green political thought in the national and international contexts.

References:
- An extensive set of references for this subject will be given to students at the commencement of the semester.

EAMC213 DEVELOPMENT AND SOCIAL IMPACT ASSESSMENT 10cp
Prerequisites: EAMC103, EAMC113.
Hours: 2 hours per week for one semester.
Examination: Tutorial assessment, essay, take-home examination.

Content:
The role of Social Impact Assessment (SIA) in Environmental Impact Assessment (EIA). Theory and methods of SIA, social variables studies by SIA, Heritage considerations and the National Estate, Cultural values and SIA.

References:
- An extensive set of references for this subject will be given to students at the commencement of the semester.

EAMC290 HYDROLOGY AND SOILS ANALYSIS 10cp
Prerequisites: EAMC102, EAMC104.
Hours: 4 hours per week lectures and practicals, field work and directed reading.
Examination: Progressive assessment plus final examination.

Content:
- Basic components of the hydrologic cycle and soil classification and identification. Topics include rainfall-runoff analysis (RATIONAL method), soil moisture and permeability, interception, flood analysis, solute mixing, pollutant loading, instrumentation and small catchment hydrology.

References:
- EAMC293 ANIMAL SYSTEMATICS AND ANIMAL ECOLOGY 10cp
Prerequisites: EIS101S, EIS102S and EIS104S, or equivalent.

EAMS291 WATER RESOURCES MANAGEMENT 10cp
Prerequisite: EAMS290.
Hours: 4 hours per week lectures and practicals, field work and directed reading.
Examination: Progressive assessment plus final examination.

Content:
- Examination of many of the major environmental issues associated with water resources development. Topics covered include reservoir and catchment management, water use, entrenchation, thermal stratification of storages, floodplain management, irrigation, salination and wastewater disposal to land and water bodies.

References:

EAMS301 ENVIRONMENTAL MANAGEMENT III 10cp
Prerequisites: EAMS201, EAMS211.
Hours: 4 hours per week for one semester.
Examination: Assignments, field reports and final examination.

Content:
- The skills, attitudes and knowledge needed for environmental management practitioners will be developed through experiential and team learning strategies. The economics of the ecologically sustainable utilisation of natural resources will be a prime focus. Management practitioners in Australia and selected foreign countries will be studied.

Text To be advised.

References:

EAMS311 ENVIRONMENTAL MANAGEMENT IV 10cp
Prerequisites: EAMS201, EAMS211, EAMS301.
Hours: 4 hours per week for one semester.
Examination: Assignments, field reports and final examination.

Content:
- The principles of land management and people management will be explored in relation to the impacts of developments in Australia. Restoration and rehabilitation techniques and practices will be studied in conjunction with cost/benefit analysis and the maintenance of biodiversity, freshwater, soil and marine resources.

Text To be advised.

References:

EAMS314 ENVIRONMENTAL IMPACT ASSESSMENT 10cp
Prerequisites: EAMS104, EAMS114, EAMS304.
Hours: 4 hours per week, field work and directed reading.
Examination: Progressive assessment plus final examination.

Content:
- This course covers the rationale and methodology of environmental impact assessment (EIA). Also covered are impact assessment techniques in the practice, the role of International Aid agencies, current developments in environmental management, environmental audits and risk analysis.

Texts:

References:
APPLIED SCIENCE AND TECHNOLOGY SUBJECT DESCRIPTIONS

EAMS390 SOIL CONSERVATION AND MANAGEMENT 10cp
Prerequisites EAMS200, EAMS291.
Hours 4 hours per week lectures and practicals, field work and directed readings.

Examination Progressive assessment plus final examination.

Content
Examination of soils, land use and conservation, particularly in relation to soils of NSW. Soil and water management principles for various types of land use including urban development. Practical analysis of control structures, sizing and pumping. Use of soils for domestic and industrial wastewater disposal and site rehabilitation.

Text

Reference

EAMS391 WATER AND SOILS: APPLICATIONS AND MODELLING 10cp
Prerequisites EAMS290, EAMS291, EAMS950.
Hours 4 hours per week lectures and practicals, field work and directed readings.

Examination Progressive assessment plus final examination.

Content
The use and application of micro-computers to model water balances, runoff, stormwater quality, non-point source pollution and soil erosion. Specific examination of practical applications using POLLUT, SOILLOSS (USLE), ANSWIRS, CREAMS, GPT and other software models to simulate hydrologic processes and water quantity and pollutant variables.

References

EAMS392 FLORA COMPONENT OF ENVIRONMENTAL IMPACT ASSESSMENT 10cp
Prerequisite EAMS292.
Hours 4 hours per week for one semester.

Examination Assignments, field reports, and final examination.

Content
A study of the skills and knowledge required for competence in the compilation of vegetation surveys in connection with environmental impact studies and plans of management in connection with both development projects and the conservation and management of natural ecosystems. The use of relevant field techniques of transect studies, species composition analyses, and assessment of physical and chemical factors will be studied.

Text
No set text

References

EAMS393 FAUNA COMPONENT OF ENVIRONMENTAL IMPACT ASSESSMENT 10cp
Prerequisite EAMS293.
Hours 4 hours per week for one semester.

Content
A study of the assessment of the faunal factor in environmental impact studies and plans of management. Fluctuations in animal populations due to various factors such as: season, drought, fire and developmental impact will be studied.

Text
No set text

References
Reader’s Digest 1988, Complete Book of Australian Birds, Reader’s Digest Services, Pty Ltd.

EAMC303 OCCUPATIONAL HYGIENE AND TOXICOLOGY 10cp
Prerequisites EAMC203, EAMC213 or equivalent.

Hours 2 hours per week for one year.

Examination Two major written assignments and an examination at the end of each semester.

Content
A study of human organ systems and the nature of environmental pollutants and their adverse effects on human health. This subject also studies hazard identification, hygiene standards and the control of environmental conditions in the workplace. Visits to industrial sites are undertaken together with practice in the use of monitoring and protective devices.

Text

References
An extensive list of references will be provided at the commencement of lectures.

EAMC313 THE SOCIAL ASPECTS OF ENVIRONMENTAL HEALTH 10cp
Prerequisites EAMC203, EAMC213.
Hours 2 hours per week for one semester.

Examination Tutorial assessment, essay, take-home examination.

Content
The social origins of disease, case studies and history, social aspects of disease control, eg the sanitation movement, lifestyle related disease, standards of living and health, environmental degradation and health, ecologically sustainable development and health, the social construction of health related terminology, eg “risk”, risk taking and risk aversion, health protection policies, justice and the political economy of health at national and international levels.

References
An extensive set of references will be provided at the commencement of lectures.

AVIA109 INTRODUCTORY METEOROLOGY 5cp
Hours 3 hours per week for one semester.

Examination Progressive assessment based on assignments and tutorials plus a 2 hour final examination.

Content
Introduction to atmospheric and horizontal pressure, wind, humidity, thermodynamics, cloud, precipitation and icing; structure of the atmosphere; introduction to Aviation forecasts and meteorological reports.

Text
To be advised.

AVIA110 INTRODUCTORY NAVIGATION 5cp
Hours 3 hours per week for one semester.

Examination Progressive assessment based on assignments and tutorials plus a 2 hour examination.

Content
Practical methods of pilot navigation flight planning. The theoretical aspects of navigation; the form of the earth; map projections, scales and scale variation, conformity; navigational astronomy; the vector triangle and its solution by plotting and by computing; flight and navigational instruments, theoretical aspects, accuracy, errors and use.

Text
Aeronautical Information Publication (CAAA).

AVIA111 INTRODUCTORY AERODYNAMICS 5cp
Hours 3 hours per week for one semester.

Examination Progressive assessment plus examination.

Content
Basic fluid mechanics of an incompressible flow, Reynold’s No., Bernoulli’s equation. The generation of lift, drag, induced drag.
AVIA112 INTRODUCTORY HUMAN FACTORS 5cp
Hours 4 hours per week for one semester.
Examination Progressive assessment based on class tests, seminars, assignments and a 2 hour examination.
Content Information processing; vision; balance; spatial disorientation; perception; memory; decision making; motor control.

AVIA113 AIRCRAFT PERFORMANCE AND SYSTEMS 5cp
Hours 2 hours lecture and 2 hours tutorial a week for one semester.
Examination Progressive assessment plus a final examination.
Content
(a) Principles of operation of aircraft fuel, hydraulic and electrical systems, undercarriage and flight controls. The application of mechanical linkages, and electrical circuits to these systems. Basic circuit theory.
(b) Aircraft weight and balance, performance and structural weight limitations, determination of take-off and landing weight and control of gravity, aerodynamics reasons of centre of gravity limitations, use of aircraft loading systems (mathematical and graphical approaches), adjustment of weight and centre of gravity, regulatory requirements.
(c) International Standard Atmosphere, factors affecting aircraft performance, use of performance charts for take-off and landing, limitations and safety considerations, regulations and requirements for Authorised Landing Areas.
Texts
Civil Aviation Regulations (CAA).
Civil Aviation Orders 20-99 (CAA).
Aeronautical Information Publication (CAA).
Aerodrome Diagrams (CAA).

AVIA114 FLIGHT RULES AND PROCEDURES 5cp
Hours 2 hours per week for one semester.
Examination Progressive assessment plus a final examination.
Content
Overview of International aviation regulations. Australian Civil Aviation Regulations and Orders governing aircrew procedures and the airworthiness of aircraft and their design standards. Aircrew licencing requirements, Air Traffic Control procedures and pilot’s airworthiness responsibilities including the Maintenance Release. The course introduces CAA requirements to the level of the Private Pilot Licence.
Texts
Civil Aviation Regulations (CAA).
Civil Aviation Orders 20-99, 100, 101, (CAA).
Encourage Supplement — Australia (CAA).
Aeronautical Information Publication (CAA).
Aerodrome Diagrams (CAA).

AVIA115 RECIPROCATING ENGINES 5cp
Hours 2 hours per week for one semester.
Examination Progressive assessment based on assignments plus end of semester examination.
Content
Air standard thermodynamic cycles, two and four stroke cycles, petrol and diesel engines, construction features, induction, lubrication and cooling, engine instrumentation, effect of altitude and mixture on combustion, power output, aircraft engine operation, turbo superchargers, thermodynamic efficiency, vibrations and balancing.
Texts

AVIA116 COMMERCIAL METEOROLOGY 5cp
Prerequisite AVIA109
Hours 3 hours per week for one semester.
Examination Progressive assessment based on assignments, tutorials, seminars, and a 2 hour final examination.
Content
Atmospheric and horizontal pressure, wind, humidity and thermodynamics, cloud, precipitation and icing, Orographic effects, thunderstorms, tropical meteorology, Synoptic situations and fronts; jet streams. Hazardous weather: wind shear, microbursts and microburst.
Text To be advised.

AVIA117 NAVIGATION 5cp
Prerequisite AVIA110
Hours 3 hours per week for one semester.
Examination Progressive assessment based on assignments, tutorials presentations and a 2 hour final examination.
Content
Theoretical aspects of Rhambe line navigation. The development of pilot navigation techniques from airplot and trackplot methods. The development of MDR and of orientation systems. Pilot navigation radio aids. Their basic principles, signal propagation, use, errors. Flight planning for twin piston engined aircraft. The point of no return and critical point.
Text Aeronautical Information Publication (CAA).

AVIA118 AERODYNAMICS 5cp
Prerequisite AVIA111
Hours 3 hours per week for one semester.
Examination Progressive assessment based on laboratory reports and assignments plus a final examination.
Content
References

AVIA119 AVIATION PSYCHOLOGY AND MEDICINE 5cp
Prerequisite AVIA112
Hours 3 hours per week for one semester.
Examination Progressive assessment based on class tests, assignments, tutorials and a 2 hour examination.
Content
Medicine: altitude, atmosphere and respiration; acceleration, vision, hearing, air sickness, health, drugs; first aid, pilot fitness; fatigue; Psychology: attention, workload, stress, personality, communications.
Texts
O'Hare, D. & Roscoe, S. 1990, Flightdeck Performance — The Human Factor, Iowa U.P.
References

AVIA120 AVIATION LAW, COMMERCIAL FLIGHT RULES & PROCEDURES 10cp
Prerequisite AVIA114
Hours 4 hours per week for one semester.
Examination Progressive assessment based on assignments and tutorials plus a 2 hour final examination on Part A and a 3 hour final examination on Part B.
Content
Part A: The origins of Law in Australia; Legal Institutions in Australia; Constitution; Tort; Negligence; Criminal Law; Contract (Tort & Insurance); Criminal Law; Denegulation of the Aviation Industry; International Conventions; Administrative Law;
Part B: Australian Civil Aviation Regulations and Orders governing aircrew licensing and procedures to the level of Commercial Pilot Licence.
Texts
Civil Aviation Regulations (CAA).
Civil Aviation Orders 20-99, 100 (CAA).

AVIA121 AIRCRAFT SYSTEMS AND PROPULSION 5cp
Prerequisites AVIA113, AVIA115
Hours 3 hours per week for one semester.
Examination Assessment based on assignments and laboratory reports plus a final examination.
Content
Electrical, hydraulic and mechanical systems on aircraft, air conditioning and pressurisation including thermodynamics, ice protection and fire systems. Electrical circuits, analog devices, basic circuit analysis using Kirchoff and Thrunberg methods, tuning circuits, filters. Introduction to computers; programming structures; layout, subroutines, nested loops, variables, data bases.
References
Smith, R.J. 1987, Electronics Circuits and Devices, Willey.
Lombardo, D.A. 1988, Aircraft Systems — Understanding Your Aeroplane, TAB.

AVIA123 AIRCRAFT PERFORMANCE AND OPERATIONS 5cp
Prerequisite AVIA113
Hours 3 hours per week for one semester.
Examination Progressive assessment plus a final examination.
Content
(a) Mean Aerodynamic Chord; advanced use of loading charts; adjustment of weight and centre of gravity.
(b) Multi-engine operations and performance considerations; use of take-off enroute; landing performance charts for single and multi-engine aircraft, knowledge of the performance and operation of the Echo MK IV aeroplane.

62
AVIATION SUBJECT DESCRIPTIONS

AVIA207 AVIATION METEOROLOGY 5cp
Prerequisite AVIA116.
Hours 3 hours per week for one semester.
Examination Progressive assessment plus a 2 hour final examination.
Content Operational meteorology, tropical meteorology, complex thermodynamics, micro and meso-scale winds, surface synoptic charts, dynamics of lows and highs, visibility, fog, hazardous weather analysis.
Text To be advised.

AVIA208 INSTRUMENT NAVIGATION 5cp
Prerequisite AVIA117.
Hours 3 hours per week for one semester.
Examination Progressive assessment plus a 2 hour final examination.
Content Radio Navigation Systems and Aids; Radio Navigation techniques using conventional aids; ADF/NOB, VOR, DME, ILS, Flight Director, Radar; Principles and errors of radio and radar aids.
Texts Enroute Charts (CAA).
Departure and Approach Procedures (CAA).
Terminal Area Charts.
CAO's Enroute supplement.
AIP's.

AVIA209 LONG RANGE NAVIGATION 5cp
Prerequisite AVIA117.
Hours 3 hours per week for one semester.
Examination Progressive assessment plus a 2 hour final examination.
Content The construction properties and use of orthomorphic charts suitable for long range navigation. The calculation of great circle tracks and distances. Grid navigation; navigation in polar regions; navigation on the climb and descent; high speed/high altitude navigation including the use of radio aids and area navigation systems; weather radar; inertial navigation systems; operational problems including the use of off track alternate; searchers.
Text To be advised.

AVIA210 COMPRESSIBLE AERODYNAMICS 5cp
Prerequisite AVIA118.
Hours 2 hours per week for one semester.
Examination Progressive assessment, tutorials plus a final examination.
Content Thermodynamics of a compressible perfect gas, Prandtl- Gladstone equation, Mach angle, weak and strong shocks. Supersonic and transonic aerofoils and wings, wave drag, area ruling. Vortex lift at low speeds from delta wings and streamlines.

AVIA211 JET ENGINES 5cp
Prerequisite AVIA202.
Hours 2 hours per week for one semester plus field trip.
Examination Progressive assessment plus final examination.
Content Characteristics of gas turbine engines and basic thermodynamic analysis. Airflow through compressors and turbines, blade designs and cooling. Engine lubrication and fuel control. Combustion requirements. The operation of several examples of turbofan and turboprop engines. Developments in transonic, supersonic and hypersonic propulsion systems.

AVIA212 HUMAN FACTORS 10cp
Prerequisite AVIA119.
Hours 4 hours per week for one semester.
Examination Progressive assessment plus a 2 hour examination.
Content Ergonomics; displays; aircraft control; automation; simulation; training; stress/strain; flight physiology; fatigue.

AVIA213 AIRCRAFT STRUCTURES AND MATERIALS 5cp
Prerequisite AVIA121.
Hours 2 hours per week for one semester.
Examination Progressive assessment based on assignments and lab reports plus a final examination.
Content Properties of materials commonly used in aircraft construction and typical fabrication methods. Aircraft structural loading, the manoeuvre envelope, Type Certification. Material stress and strain, strength and ductility. Metallic corrosion and methods employed in protection.
AC 43.13 Acceptable Methods, Techniques and Practices (FAA/ TAP).

AVIA214 JET AIRCRAFT FLIGHT PLANNING 10cp
Prerequisite AVIA208, AVIA209.
Hours 6 hours per week for one semester.
Examination Progressive assessment and a 2 hour final examination.
Content This course provides the core component of the study of flight planning, bringing together jet aircraft performance; safety requirements; legal requirements; the economics of aircraft operation; the state structure. The requirements for all stages of the flight, (including emergency operations) are considered and evaluated.
References Jet Transport Operations and Performance, Manuals — as available.

AVIA215 ADVANCED AIRCRAFT PERFORMANCE 5cp
Prerequisite AVIA123.
Hours 3 hours per week for one semester.
Examination Progressive assessment plus a final examination.
Content Application of knowledge and skills gained in principles of flight, engines, systems, and instrumentation; aircraft performance and operations; navigation; meteorology; and flight rules and procedures to the operation of multi-engine aeroplanes. Use of flow charts for flight planning.
(a) Fuel requirements, fuel planning for holding or alternate requirements, fuel planning for multi-stage flights, finding the minimum or maximum fuel.
(b) Determining the maximum take-off weight, establishing a performance-limited or landing weight, finding the maximum payload, picking up or dropping off weight at intermediate landing points.
(c) Weight and Balance, adding weight while keeping the Centre of Gravity in the same place, shifting weight to place the aircraft on the forward or aft Centre of Gravity limits.
(d) Flight planning and operations requirements, critical point, planning for alternate aerodromes, holding requirements, forecast changes, operations requirements imposed by aerodrome lighting.

AVIA216 HIGH ALTITUDE METEOROLOGY AND FORECASTING 5cp
Prerequisite AVIA207.
Hours 3 hours per week for one semester.
Examination Progressive assessment plus a 2 hour final examination.
Content Upper air meteorology, jet streams, clear air turbulence, complex flows, thermal winds, wind shear, forecasting using radar, use of satellites, forecasting meso-scale phenomena.
Text To be advised.

AVIA220 AIRCRAFT FATIGUE MANAGEMENT 5cp
Prerequisite AVIA213.
Hours 2 hours a week for one semester.
Examination Progressive assessment plus final examination.
Content The mechanism of fatigue, stress concentration, dynamic load spectra, crack propagation, introduction to fracture mechanics, fatigue life determination, limitations of fatigue test methods, non-destructive inspection techniques, damage tolerance ratings, certification requirements, aircraft structural inspection programs, managing the "aging aircraft" fleet.

AVIA221 HUMAN PERFORMANCE IN MULTI-CREW OPERATIONS 5cp
Prerequisite: AVIA212.
Hours: 3 hours for one semester.
Examination: Progressive assessment based on seminars, exercises (including demonstrated instruction), assignments and a final examination.
Content
Personality, communications, group processes, leadership, cabin safety.
Text

AVIA222 MANAGEMENT OF AVIATION 5cp
Prerequisite: AVIA120.
Hours: 5 hours per week for one semester.
Examination: Progressive assessment based on seminars, projects, exercises, plus a final examination.
Content
References
CBO’s 80 and 82, 100 - 104 series (CAA).
CAR’s (CAA).

AVIA223 AVIATION COMPUTER AND ELECTRONICS 5cp
Prerequisite: AVIA 121.
Hours: 3 hours per week for one semester.
Examination: Progressive assessment plus a final examination.
Content
Amplification and switching circuits using p-n junctions. Boolean logic, logic gates, TTL and CMOS logic devices, multiplexers, comparators, analog-digital converter, computer architecture, interfacing standards. The application of electronic circuits and computers in the control of aircraft systems; an overview of the glass cockpit, fault trees and BIT. Transducers; the application of electronic circuits and computers in data acquisition and the control of servo devices.
References
Lancaster, D. 1987, United Airlines Avionics Fundamentals, IAP.

AVIA305 AIRCRAFT DESIGN 5cp
Prerequisite: AVIA310.
Hours: 3 hours per week for one semester.
Examination: Progressive assessment based on individual and syndicate tasks plus final examination.
Content
Parametric design of aircraft, performance estimation, power requirements, international design standards, feasibility studies. Aircraft stability and control, aerodynamic coupling, stick fixed/Free longitudinal static stability, neutral point, cg margin, static margin, lateral and directional stability, configuration effects, control surface sizing.
References
Civil Aviation Orders 101, 103, 108 series.

AVIA306 ADVANCED AIRCRAFT OPERATIONS 10cp
Prerequisite: AVIA214.
Hours: 4 hours per week for one semester.
Examination: Progressive assessment by class tests, tutorial presentations and assignments.
Content
Standard and computerized flight planning. The evaluation of aircraft types for particular types of operations. The development of operational procedures and policy.
Text
To be advised.
References
Performance Manuals and Flight Planning.
Data of Current Aircraft Types.

AVIA308 AVIATION INSTRUCTION 10cp
Prerequisite: AVIA221.
Hours: 4 hours lecture and 2 hours tutorial a week for semester one.
Examination: Progressive evaluation based on seminar preparation and presentation, practice teaching, assignments and examinations.
Content
The psychology of learning, instructional methods, evaluation of instruction and learning, lesson planning and preparation of teaching aids. Teaching in the aviation environment.
Texts

GENERAL INFORMATION

Principal Dates 1992
(See separate entry for the Bachelor of Medicine degree course).

January
1 Wednesday Public Holiday — New Year’s Day
6 Monday Last day for enrolment in Enrolment Application Forms — Continuing Students
17 Monday New students must enrol
21 Tuesday New students accept UAC main round offer
27 Thursday Friday last day for payment of General service charge

February
3 Friday New students accept UAC main round offer
10 Friday First Semester begins
15 Tuesday Last day for (a) variation of program in relation to HICS liability for Semester 1, and (b) additions of Semester 2 and full year subjects

March
1 Monday First Semester begins
15 Friday Good Friday — Easter Recruit commencements
27 Monday — Lectures Resume

June
1 Monday Public Holiday — Queen’s Birthday
11 Friday First Semester concludes — Last date for withdrawal from Semester 1 subjects.
15 Monday Mid year Examinations begin
30 Tuesday Closing date for applications for selection to the Bachelor of Medicine and Bachelor of Science (Aviation) June 1992.

July
3 Friday Mid Year Examinations end
10 Monday Second Semester begins

August
31 Last day for (a) variation of program in relation to HICS liability for Semester 2, and (b) additions of Semester 3 subjects.

September
26 Saturday Mid Semester exam begins

PRINCIPAL DATES 1992

30 Wednesday Closing date for UAC applications for enrolment in 1993 (Undergraduate courses other than Medicine)

October
5 Monday Public Holiday — Labour Day

November
6 Friday Final Semester concludes — Last date for withdrawal from Semester II and Full Year subjects
9 Monday Annual Examinations begin
27 Friday Annual Examinations end

1993 February
23 Monday First Term begins

DATES FOR THE 1992 ACADEMIC YEAR FOR THE BACHELOR OF SCIENCE PROGRAM

Year 1
Semester 1
continuance respite resumes Monday 2 March, 1992
Friday 17 March, 1992
to
Friday 24 March, 1992
resumes Monday 27 March, 1992
continuance Friday 3 April, 1992

Semester 2
continuance resumes Monday 20 July, 1992
Monday 20 July, 1992
to
Saturday 29 July, 1992
resumes Monday 5 September, 1992
continuance Friday 9 October, 1992

Examinations common to Monday 9 November, 1992
Monday 9 November, 1992
conclude Friday 6 December, 1992

Mini-Intensive common to Monday 23 November, 1992
Friday 20 November, 1992
conclude Friday 4 December, 1992

Date to be finalized
### ADVICE AND INFORMATION

**Year Two**

**Semester One**
- coursework: Monday 2 March 1992
- exams: Monday 24 April to Friday 17 April 1992
- results: Monday 27 April 1992
- resits: Monday 12 October 1992
- re-exams: Wednesday 16 November 1992

**Semester Two**
- coursework: Monday 20 July 1992
- tests: Monday 28 September to Friday 9 October 1992
- re-exams: Monday 12 October 1992
- resits: Wednesday 16 November 1992

**Examinations (unseen)**
- coursework: Monday 9 November 1992
- tests: Monday 20 November 1992

**Mini-Examinations**
- coursework: Monday 23 November 1992
- tests: Friday 4 December 1992

Note: Two 2.44 courses are compulsory from the University of Newcastle's Semester menu.

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### Faculty Secretaries
For general enquiries about University regulations, Faculty rules and policies, students within the University and so on, students may consult the Faculty Secretaries.

#### Faculty
- **Architecture:** Ms Sheila Prouse/ Ms Vicki Dove
- **Art, Design & Communication:** Ms Sheila Prouse/ Ms Vicki Dove
- **Art:** Mr David Donnelly
- **Economics:** Mrs Linda Harrigan
- **Commerice:** Mr Neville Dowling
- **Education:** Mr David Munn
- **History:** Mr Kenneth Booth-Kitke
- **Music:** Mr Lewis Blyth
- **Neurology:** Mrs Neida Yee
- **Engineering:** Mr Geoff Gordon
- **Health Sciences:** Mr Jim Purvis
- **Mathematics:** Mr Roger Cramer
- **Science & Technology:** Mr Helen Hodge
- **Social Science:** Ms Susan Eady/Mrs Jeanne Gow

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### STUDENTS WITH DISABILITIES
The University of Newcastle has a policy to provide equal opportunity to students with Special Needs.

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### STUDENT SERVICES

**Advisors & Support Officers**
- Ms Arthur Kingland (049) 215783
- Mr Bruce Wilson 21606
- Ms Janis Munn 215371

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### ENROLMENT OF NEW UNDERGRADUATE STUDENTS

Students currently enrolled in an undergraduate course who wish to transfer to a different undergraduate course in 1992 must apply through the University Admissions Centre (UAC) by 30 September, 1991. Late applications would be accepted through UAC until 31 October. Such applications will only be considered after applications that have been submitted through UAC are processed. If a student's request to transfer to another course is successful, the student must complete a new Higher Education Credit system (HECS) Payment Order form for the new course at enrolment time.

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### RE-ENROLMENT FOR CONTINUING STUDENTS

- **Quarterly Enrolment:**
  - Submit your course to the University by the 28th of the month to secure your place.
  - Enrolment is required for all courses.
  - Enrolment is required to secure your place.
  - Enrolment is required to secure your place.

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### RE-ENROLMENT KIDS

Re-enrolment kits for 1992 will be mailed to students in November. The re-enrolment kit contains the student's Enrolment Application and Statistical Form, the 1993 Class Timetables, the 1992 General HECS blocks and re-enrolment instructions.

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### STUDENT CARDS

Students will be mailed their Identification Card in early February. The Student Card should be carried at all times when on University premises. The Student Card has
machine-readable version for users who require access to this information electronically. This is a revised version of the document, containing the following sections:

**RE-ADMISSION AFTER ABSENCE**

Students are urged to take good care of their Student Card. If the card is lost or destroyed, there is a service charge of $3 payable before the card will be replaced.

**RE-ADMISSION AFTER ABSENCE**

A student who withdraws completely from studies should return the Student Card to the Student Division Office.

**ATTENDANCE STATUS**

A candidate for any qualification other than a postgraduate qualification who is enrolled in three quarters or more of a full-time program shall be deemed to be a full-time student whereas a candidate enrolled in either a part-time course or less than three-quarters of a full-time program shall be deemed to be a part-time student.

**CHANGE OF ADDRESS**

The University holds records on record both for correspondence and for correspondence with the University. The address details are subject to change in their address. A Change of Address form should be used and is available from the Student Division Office.

**FAILURE TO PAY OVERDUE DEBTS**

Any student who is in arrears with respect to any promised debts as defined by the applicable laws, and who has not paid any overdue debts shall be not permitted to:

- accept enrolment in a following year;
- receive a certificate of academic standing;
- graduate or be awarded a Diploma; or
- receive a replacement Student ID Card until such debts are paid.

**CHANGE OF NAME**

Students who change their name should advise the Student Division Office. A marriage or death certificate should be presented for confirmation in order that the change can be recorded on University records.

**CHANGE OF PROGRAM**

Approval may be sought for any changes to the program for which a student has enrolled. This includes adding or withdrawing subject(s).

All proposed changes should be entered on the Progress Program section on the reverse side of your Confirmation of Program form. Reason for changes and where appropriate documentary evidence in the form of medical or other appropriate certificates must be submitted.

**WITHDRAWAL**

Applications to withdraw from a subject should be made on the Program Variation section on the reverse side of your Confirmation of Program form and lodged at the Student Division Office or mailed to the Academic Registrar.

Applications received by the appropriate date listed below will be approved for withdrawal without a failure being recorded against the subject or subject in question.

**Withdrawal Dates**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
<th>Full Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 June 1992</td>
<td>6 November 1992</td>
<td></td>
</tr>
</tbody>
</table>

**Examinations**

In accepting membership of the University, students undertake to observe the by-laws and other regulations of the University.

Students are expected to conduct themselves at all times in a decorous manner. Smoking is not permitted during lectures, examinations, or in the University Library. Gambling is forbidden.

Members of the academic staff of the University, senior administrative officials, and other persons authorized by the University to have authority to report on disorderly or improper conduct occurring in the University.

**NOTICES**

Official University notices are displayed on the notice boards and students are expected to be acquainted with the contents of these announcements which concern them.

A notice based on the following notice to students in all faculties is inserted in the Examination List B and is used for the specific purposes of displaying examination timetables and other notices about examinations.

**EXAMINATIONS**

Tests and assessments may be held in any subject from time to time in the assessment of a student's progress in a university course, consideration will be given to work, assignments, and any written examinations or other tests conducted throughout the year. The results of such assessments and classwork may be incorporated with those of formal written examinations.

**EXAMINATION PERIODS**

Written examinations take place on prescribed dates during the following periods. Saturdays may be included:

- Mid Year: 15 June - 3 July 1992
- Final Year: 9 to 27 November, 1992

**SITTING FOR EXAMINATIONS**

Programs for examinations, where prescribed, are compulsory. Students should consult the final timetables in advance to find the date, time, and place of their examinations and should allow themselves plenty of time to get to the examination room so that they can take advantage of the 15 minutes reading time that is allowed before the examination commences. Normally, entry into the examination room will be permitted 15 minutes before the actual commencement of the examination writing time. This is to allow the candidate time to locate the allocated seat and complete the necessary attendance slip and any related necessary registration details before the commencement of reading time.

**RULES FOR FORMAL EXAMINATIONS**

Examining Authority for a candidate means an examiner, not being a member of the faculty of the University, appointed to sit in the examination processes within a Department.

**Faculty Board** means the Faculty Board of the Faculty responsible for the course in which a candidate is enrolled and includes the Academic Registrar and members of the Academic Board.

**Subject** means any part of a course of study for which a result may be recorded.

**Supervisor** means the supervisor for an examination appointed in the absence of a formal written examination by the Academic Registrar, and in the case of any other examination, by the Head of Department.
EXAMINATIONS

"supplementary examination" means an examination administered to a candidate in respect of whom any doubts exist as to the judgement to be recorded in an examination return.

PART 1 - GENERAL

Examinations other than in single department

3. (1) Where a Faculty is not composed of departments, the functions and responsibilities of the Head of a Department and the Departmental Examinations Committee shall be undertaken solely by the person or body of the Faculty approved for the purpose of those Rules by the Academic Registrar.
(2) Where a subject is not the responsibility of a single Department, the person or body under whose functions and responsibilities the Head of the Department of the Representative of the Head, who shall be vested with any examinations held at the Faculty Board on the subject is the subject or examination is held at the Faculty Board in respect of that subject shall be decided by the Faculty Board concerned or, where Departments from more than one Faculty are involved, by the Academic Senate.

4. Each Faculty Board shall determine the nature and extent of examining in the subjects in the scheme for which the Faculty is responsible and such examining may be written, oral, clinical or practical or any combination of these.

Publication of requirements

5. The Head of Department shall ensure the publication of the Departmental examinations requirements in each subject by the end of the second week of the semester in which the subject concerns, including the weight and timing of each task comprised in the scheme.

Penalties

6. An infringement of any of the Rules set out in Rule 16(1), other than pursuant to Rule 16(2), or the instructions referred to in Rule 19 shall constitute an offence against discipline.

PART 3 - PROCEDURES

External Examiners

7. (1) The Academic Senate may, on the recommendation of a Faculty Board or on the recommendation of a Head of Department, appoint one or more external examiners for the Department. Such appointment shall be for a term of one year and, except with the approval of the Academic Senate, no external examiner for the Department shall be reappointed for more than four consecutive terms of office.
(2) Where the appointment of an external examiner for a candidate is prescribed by the Rules for an award, or where the Academic Senate considers that an additional examiner is necessary, the appointment shall be made by the Faculty Board or as otherwise prescribed in the Rules for that award.

Examining

8. The Head of each Department shall arrange for the member or members of the academic staff responsible for each of the subjects offered by the Department:
(a) to prepare the examination papers in the subjects;
(b) in consultation with other members of staff involved in the teaching or supervision of the candidates, and in consultation with other workers submitted by candidates and, if required, provide a further or supplementary examination for any candidate; and
(c) to record in an examination return a judgement in respect of each candidate for submission to the Departmental Examinations Committee.

Departmental recommendations of results

9. The Departmental Examinations Committee shall consider the judgements recorded for candidates and shall make recommendations to the Faculty Board as to the result in the subject in which the candidate has been examined.

Determination of results in subjects

10. (1) The recommendations of the Departmental Examinations Committees shall be presented to the Faculty Board by the Head of the Department or the representative of the Head, who shall be vested with any examinations held at the Faculty Board on the subject is the subject or examination is held at the Faculty Board in respect of that subject shall be decided by the Faculty Board concerned or, where Departments from more than one Faculty are involved, by the Academic Senate.
(2) The Dean shall ensure that, in making its recommendations, the Departmental Examinations Committee has considered any request for special consideration made by a candidate pursuant to Rule 13.
(3) Each Faculty Board shall consider the recommendations of the Faculty Examinations Committee and, taking into account any changes as a recommendation under sub-rule (1) or (2), shall either:
(a) confirm the result;
(b) defer the decision pending the outcome of any other action as the Faculty Board deems appropriate.

Grading of results in subjects

11. The result awarded in a subject to a candidate shall be one of those in the list of approved results determined by the Academic Senate from time to time.

Review of result in subject

12. (1) A candidate may apply for a review of any result awarded in a subject to the Head of Department.
(2) An application made under sub-rule (1) shall be made in the prescribed form and shall be accompanied by the prescribed fee.
(3) A review of the result shall include a check:
(a) that each required part of the exam has been included in the final determination of the result;
(b) that the content of examination scripts has been fairly considered, including, where possible, a review of marks given to each question or essay answer;
(c) that all marks contributing to the final grade have been correctly weighted and their total accurately obtained but shall not include any review of earlier assessments which have been made available to the candidate on a continuous basis throughout the subject;
(d) that a transcript is prepared for the candidate on a continuous basis throughout the subject;
(e) that the Faculty Board, on the recommendation of the Head of the Department concerned or the representative of the Head, changes the result following review, the fee shall be refunded
to the candidate.

Special Consideration

13. (1) A candidate who claims that:
(a) during the course of the examination, or at or after the examination, was unable to proceed as a result of illness, disability, or circumstances beyond the candidate's control or on account of illness, disability, or circumstances beyond the candidate's control;
(b) any of the circumstances set out in Rule 13(1) have been satisfied;
(c) any other appropriate evidence to the Academic Registrar and request that they be taken into account in the assessment of the examination results of that candidate. Such request shall be made on the prescribed form.

(2) A candidate pursuant to sub-rule (1) shall be submitted by the candidate within seven days after any absence arising from the illness or event on which the request is based, or longer period as may be specified by the Dean of the Faculty in which the candidate is enrolled.

(3) A request pursuant to sub-rule (1) shall be submitted by the candidate not later than three days after the examination, or within such further period as the Dean of the Faculty in which the candidate is enrolled may permit.

(4) Where a candidate is personally unable to take the action prescribed under this sub-rule, some other person may take such action on behalf of that candidate.

(5) The Academic Registrar may, in his or her discretion, call for such evidence in support of the candidate's application to be adduced before a committee if he or she deems it necessary.

(6) A candidate who is granted special consideration may be required to attend a further examination or undertake further assessment to determine a result.

PART 4 - FORMAL WRITTEN EXAMINATIONS

Responsibility

14. The Academic Registrar shall be responsible for the administration and supervision of the formal written examinations of the University.

Timetable for formal written examinations

15. (1) The Academic Registrar shall publish a timetable showing when and where formal written examinations will be held and shall be the responsibility of the candidate to attend those examinations prescribed for the subject in which they are enrolled.
(2) Notice will be published of formal written examinations, which shall be the responsibility of the candidate to attend those examinations prescribed for the subject in which they are enrolled.

Rules for formal written examinations

16. (1) Formal written examinations shall be conducted in accordance with the following rules:
(a) candidates shall comply with any instructions given by a supervisor relating to the conduct of the examination;
(b) before the examination begins candidates shall not read the examination paper until granted permission by the supervisor which shall be given ten minutes before the start of the examination;
(c) no candidate shall enter the examination room after thirty minutes from the time the examination has begun;
(d) no candidate shall leave the examination room during the first thirty minutes or the last ten minutes of the examination;
(e) no candidate shall re-enter the examination room after leaving it during the full period of absence that candidate has been under approved supervision.

(a) a candidate shall not bring in the examination room any bag, book, written material, device or thing whatever, or other than such as may be specified for the particular examination;
(b) a candidate shall not by any means obtain or endeavour to obtain improper assistance, give or endeavour to give assistance to any other candidate, or contravene any breach of the good order;
(c) a candidate shall not take from the examination room any examination papers, or book, any examination paper as marked, graph paper, drawing paper or other material issued for use during the examination;
(d) no candidate may smoke in the examination room.
(2) The provision of sub-rule (1) may be relaxed:
(a) by the Academic Registrar; and
(b) with the exception of paragraphs (a), (b), and (d) by the supervisor upon the direction of the Academic Registrar or at the discretion of the supervisor, provided that the circumstances of the case are such that discretion has been exercised shall be reported in writing to the Academic Registrar immediately following the conclusion of the examination.

PART 5 - OTHER EXAMINATIONS

Responsibility

17. The Head of Department shall be responsible for the administration and supervision of the examinations of the University, other than formal written examinations, in the subjects offered by the Department.

Timetable

18. (1) Where appropriate, the Head of Department shall publish a timetable showing when and where examinations will be held and shall be the responsibility of the candidate to attend those examinations prescribed for the subject in which they are enrolled.
(2) Notice will be published of other formal examinations, which shall be the responsibility of the candidate to attend those other examinations prescribed for the subject in which they are enrolled.

Rules for other examinations

19. Candidates shall comply with any instructions given by the Head of Department or the supervisor relating to the examination.

Compliance with instructions

Candidates who fail to comply with any of the Rules of this Part shall be subject to the penalties provided for in the University's Regulations.

EXAMINATION RESULTS

End of year examination results will be mailed not later than December. Examination results for Semester 2 will be mailed not later than the end of July. A candidate shall be notified of the examination result for the subject in which he or she has been examined. No results will be notified by telephone.

After the release of the examination results, the candidate shall review the results and inform the Department of any disagreement with the results. If the candidate disagrees with the results, the candidate should request a formal review of the results. The request for a formal review must be submitted in writing to the Academic Registrar within 14 days of the release of the examination results. The results will not be changed unless there is clear evidence of error or fraud.
SPECIAL CONSIDERATION REQUESTS

All applications for special consideration shall be made on the Application for Special Consideration form.

The granting of Special Consideration could involve a further examination or assessment held shortly after the formal examination. Any further examination or assessment administered will be by the Department that offered the subject. Consequently you must therefore check with the Department that offered the subject to ascertain that Department's requirements. You should also check the Department's noticeboard for further advice concerning Special Consideration.

Application Forms may be obtained from your Faculty Office, Student Division Enquiry Counter, Student Health Service, Student Counselling Unit and Examinations & Services Counter, Hunter Building.

Part C of the University's Examination Rules specifies procedures relating to Special Consideration Requests, for details see page (vi) and the necessary application form. You should read the instructions on the application form before applying for Special Consideration.

STATEMENTS OF ACADEMIC RECORD

If you wish to be issued with a statement of your academic record, you must complete the appropriate application form and lodge it with the University Administrator along with the appropriate fee (see page x). The statement will be mailed out as soon as it becomes available, to the nominated address. Applicants should allow adequate time for this to occur. Copies produced earlier than stated cannot be mailed within a week. Statements involving pre-1979 records might be expected to take longer to produce. Instruct each applicant to check their details before statements can be issued. Application forms may be obtained from the Student Division Enquiry Counter, Chancellery Building and the Examination and Services Counter, Hunter Building.

UNSATISFACTORY PROGRESS

The University has adopted Regulations Governing Unsatisfactory Progress which are set out below.

Students who become liable for action under the Regulations will be informed accordingly by mail after the release of the End of Year examination results and will be informed of the procedure to be followed if they wish to 'show cause'. Appeals against exclusion must be lodged together with Enrolment Application forms by Friday 4 January 1992.

The Faculty's progress requirements are set out elsewhere in this volume.

Regulations Governing Unsatisfactory Progress

1. These Regulations are made in accordance with the powers vested in the Council by By-law 5.1.2.

2. These Regulations shall apply to all students of the University except those who are candidates for a degree of Master or Doctor.

The courts, except the course or subject matter otherwise indicated or required.

"Admissions Committee" means the Admissions Committee of the Senate constituted under By-law 2.3.3;

"Dean" means the Dean of a Faculty in which a student is enrolled.

"Faculty Board" means the Faculty Board of a Faculty in which a student is enrolled.

2. (1) A student's enrolment in a subject may be terminated by the Head of the Department of offering that subject subject to a notice in accordance with the Faculty Board of the Department. In determining whether a student is failing to maintain satisfactory progress the Head of Department may take into consideration such factors as:

(a) unsatisfactory attendance at lectures, tutorials, seminars, laboratory classes or field work;

(b) failure to complete laboratory work;

(c) failure to complete written work or other assignments;

(d) failure to complete field work.

(2) The enrolment of a student in a subject shall not be terminated pursuant to regulation 2 (1) of these Regulations unless the student has been given prior written notice of the intention to consider the matter with brief particulars of the grounds for doing so and has also been given a reasonable opportunity to make representations either in person or in writing or both.

(3) A student whose enrolment in a subject is terminated under regulation 2 (1) of these regulations may appeal to the Faculty Board which shall determine the matter.

(4) A student whose enrolment in a subject is terminated under this Regulation shall be deemed to have failed the subject.

3. (1) A Faculty Board may review the academic performance of a student who does not maintain a rate of progress considered satisfactory by the Faculty Board and may determine:

(a) that the student be permitted to continue the course;

(b) that the student be permitted to continue the course subject to such conditions as the Faculty Board may decide;

(c) that the student be excluded from further enrolment:

(i) in the course;

(ii) in the course and any other course offered in the Faculty;

(iii) in the Faculty;

(iv) if the Faculty Board considers its powers to deal with the case are inadequate, that the case be referred to the Admissions Committee together with a recommendation for such action as the Faculty Board considers appropriate.

(2) Before a decision is made under regulation 3 (1) (b) or (c) or of the power to exclude a student shall be given an opportunity to make representations with respect to the matter either in person or in writing or both.

(3) A student may appeal against any decision made under regulation 3 (1) (b) or (c) or of the power to exclude a student:

(i) in the course;

(ii) in the course and any other course offered in the Faculty;

(iii) in the Faculty;

(iv) if the Faculty Board considers its powers to deal with the matter are inadequate, that the case be referred to the Admissions Committee together with a recommendation for such action as the Faculty Board considers appropriate.

4. Where the progress of a student who is enrolled in a remanded course or who has previously been excluded from enrolment in another course or Faculty is considered by the Faculty Board to be unsatisfactory, the Faculty Board shall refer the matter to the Admissions Committee together with a recommendation for such action as the Faculty Board considers appropriate.

5. (1) An appeal made by a student to the Admissions Committee pursuant to regulation 3 (1) (b) or of these Regulations shall be in such form as may be prescribed by the Admissions Committee and shall be made within fourteen (14) days from the date of notification to the student of the decision or decision by the Admissions Committee.

(2) A student whose appeal is rejected by the Admissions Committee may appeal to the Vice-Chancellor.

(3) In hearing an appeal the Admissions Committee may take into consideration any circumstance whatever including matters not previously raised and may seek such information as it thinks fit concerning the academic record of the appellant and the making of the determination by the Faculty Board. Neither the Dean nor the Sub-Dean shall act as a member of the Admissions Committee on the hearing of any such appeal.

(4) The appellant and the Dean or the Dean's nominee shall have the right to be heard in person by the Admissions Committee.

(5) The Admissions Committee may confirm the decision made by a Faculty Board or may substitute for it any other decision which the Faculty Board is empowered to make pursuant to these Regulations.

6. (1) The Admissions Committee shall consider any case referred to it by a Faculty Board and may:

(a) make exceptions which the Faculty Board itself could have made pursuant to regulation 3 (1) (a), (b) or (c) of these Regulations;

(b) exclude the student from enrolment in each other subject, course, or Faculty as it thinks fit;

(c) exclude the student from the University.

(2) The Committee shall not make any decision pursuant to regulation 6 (1) (b) or (c) of these Regulations unless it has first given to the student the opportunity to be heard in person by the Committee.

(3) A student may appeal to the Vice-Chancellor against any decision made by the Admissions Committee under this Regulation.

7. Where there is an appeal against any decision of the Admissions Committee made under Regulation 6 of these Regulations, the Vice-Chancellor may refer the matter back to the Admissions Committee with a recommendation or shall arrange for the appeal to be heard by the Council. The Council may confirm the decision of the Admissions Committee or may substitute for it any other decision which the Admissions Committee is empowered to make pursuant to these Regulations.

8. (1) A student who has been excluded from further enrolment in a Faculty may enrol in a course in another Faculty only with the permission of the Faculty Board of the Faculty in which he or she is enrolled at the time of the decision which excluded the student.

(2) A student who has been excluded from further enrolment in any course, Faculty or University under these Regulations may apply for permission to enrol therein again provided that on re-enrolment there shall be no need for readmission to the University and the student has not been excluded from enrolment in any course at the time of the decision which excluded the student.

(3) A student who is excluded from enrolment in a single course or a single Faculty;

(4) (a) by the Faculty Board, where the student has been excluded from a single course or a single Faculty;

(b) by the Admissions Committee, in any other case.

9. (1) A student whose application to enrol pursuant to Regulation 8 (1) or (2) of these Regulations is rejected by a Faculty Board may appeal to the Admissions Committee.

(2) A student whose application to enrol pursuant to Regulation 8 (2) of these Regulations is rejected by the Admissions Committee may appeal to the Vice-Chancellor.

CHARGES

The General Services Charge (details below) is payable by all students. New undergraduate students are required to pay all charges when they enrol.

Re-enrolling students receive a 10% discount on each course, as part of their re-enrolment kit, a Fees and Charges Notice. Students are expected to pay charges in advance of re-enrolment at any Wespace Bank. The last date for payment of charges with the Wespace Bank is 8 March 1991.

1. General Services Charge

   (a) Students Proceeding to a Degree or Diploma

      Per Annum

      $258

   (b) Non-Degree Students

      Per Annum

      $35

   (c) External Students

      Per Annum

      $37

   (d) Late Charges

      Where the Fees and Charges Notice is lodged with all charges payable after the 28 February 1992

      $50

2. Other Charges

   (a) Examination under special supervision

      $15 per paper

   (b) Review of examination results, per subject

      $25

   (c) Replacement of Re-enrolment kit

      $10

   (d) Replacement of Student Card

      $5

   (e) Statement of Matriculation for non-member of the University

      $10

   (f) Statement of Academic Record, per copy

      $10

   (g) Additional copy

      $1

   (h) Graduands will be provided with two copies of their statement free upon notification of eligibility to graduate.

   (i) Statements will be issued on request free of charge to other tertiary education institutions...

4. Indebted Students

   All charges, including debt outstanding to the University, must be paid before or upon enrolment — part payment of total amount due will not be accepted.

METHOD OF PAYMENT

Students are requested to pay charges due to any Wespace Bank up to and including 28 February 1992. After 28 February 1992, payment of charges still is to be paid at any Wespace Bank but a $50.00 fee will also apply.

HIGHER EDUCATION CONTRIBUTION SCHEME (H.E.C.S.)

The Higher Education Contribution Scheme (H.E.C.S.) requires students to contribute towards the cost of their higher education. Each semester a student's H.E.C.S. liability is calculated according to his or her Student Load. The liability for 80 credit points full-time load in 1992 is $2250. Student Load is calculated as the greatest number of consecutive i.e. 31st March to Semester ONE and 31st August to Semester TWO. If you fail a subject, or withdraw after the census date, your H.E.C.S. liability remains unchanged.
SCHOLARSHIP HOLDERS AND SPONSORED STUDENTS

Some course fees are exempt form H.E.C.S. charges and some students are exempt. Exception from payment of the Higher Education Contribution (HECS) applies to:

- a fee-paying student in a "fee-approved postgraduate award course"
- a student in a "basic nurse education course"
- a "full-fee-paying overseas student"
- a "student who has paid the Overseas Student Charge"
- a "fully sponsored overseas student"
- a student in an "enabling course"
- a student in a "non-award course"
- a student who has been awarded a "HECS postgraduate scholarship"

Basic Nurse education courses will not be exempt from HECS fees. After 1993. Currently enrolled students continuing their studies in such courses will also be eligible for HECS in 1994 and subsequent years. HECS is administered as part of the enrolment process. Students commencing new courses must select one of three sections on the HECS Payments Form.

On enrolment students must do one of the following:

(a) Eject to pay up-front which will require payment of 85% of the constitution for the semester, with the balance to be paid by the Commonwealth. Students electing to pay up-front will be asked to pay at the commencement of each semester.

(b) Defer their HECS and elect to pay through the taxation system in which case they must either provide a tax file number or apply for a tax file number as part of their enrolment. Institutions are required to notify the Reconciliation program given by students of their tax file number application is the same as that on their enrolment form.

Students electing to defer their HECS and pay through the taxation system are not required to make a payment towards their constitution until such time that their income exceeds a minimum threshold level. For the 1991-92 income year the minimum threshold is $27,098. This amount will be increased each year as the Currrent.

(c) Provide evidence of exemption from the HECS.

All students entering in a new course must complete a Payment Options form selecting one of the above three options. Deferred or upfront no enrolling students will automatically retain their selected payment option. Students must complete a new Payment Options form if they change courses or wish to change their payment option. Students who wish to change their Payment Option in any semester must do so before the census date for that semester. Changes to the Uplink options will not be permitted after this date due to payment for Upfront Front accounts (approximately one month before the course date).

FAILURE TO PAY UPFRONT ACCOUNTS BY THE DUE DATE OR CHANGE TO THE DEFERRED OPTION BEFORE THE CENSUS DATE WILL LEAD TO AUTOMATIC CANCELLATION OF YOUR ENROLMENT.

LATE PAYMENTS WILL NOT BE PERMITTED.

Please contact the H.E.C.S. Offices if you have any query about your H.E.C.S. obligations.

SCHOLARSHIP HOLDERS AND SPONSORED STUDENTS

Students holding scholarships or receiving other forms of financial assistance must lodge with the Cashiers their Fees and Charge Notice together with a warrant or other written evidence that charges will be paid by the sponsor. Sponsors must provide a separate warrant or letter for each student sponsored.

LOANS

Students who do not have sufficient funds to pay the general service charge should seek a loan from their bank, building society, credit union or other financial institution. An application for a loan from the student loan funds is possible when no other help is available. Appointments for loan from the student loan funds must be made before the 28 February, 1992 to avoid the addition of a late fee. Student loan funds are available for other essential needs. Contact the Student Loans Officer, Ms Anne Laing, phone (049) 21.5599 or Student Support Officer, Mr Annette Rankill, phone (049) 215766 to arrange an appointment.

REFUND OF CHARGES

A refund of the General Services Charge on enrolment will be made when the student notifies the Student Division of a conflict with the refund policy from studies by the following dates:

For students enrolled in normal award programmes for the full year:

Notification on or before Semester 1 HECS Census Date 100% refund
Notification after Semester 1 HECS Census Date No refund
For students permitted to enrol in Semester 2 early:

Notification on or before Semester 2 HECS Census Date 100% refund
Notification after Semester 2 HECS Census Date No refund
For students enrolled in non-award programmes or subjects:

Notification on or before Semester 1 HECS Census Date 100% refund
Notification on or before Semester 2 HECS Census Date 100% refund
Notification after Semester 1 HECS Census Date 100% refund
Notification after Semester 2 HECS Census Date 100% refund

The Traffic and Parking Regulations are stated in full in the Calendar, Volume 1.

The University Conservation of Music, located at the corner of Gibson and Anabolt Street in the centre of Newcals, has no parking facilities, however, there is a Car-park block in Gibson Street.

BANKING

Commonwealth Bank

The University Newcaslch Branch of the Commonwealth Bank is located adjacent to the McMillan Building. An automatic teller machine is located outside. Hours of Opening:

Monday to Friday 9.30am - 4.00pm
Friday 9.30am - 5.00pm

An agency of this branch is located adjacent to the Human Union Bar on the west side of the campus.

Westpac Banking Corporation

Agency of the Hamilton Branch of Westpac is located inside the Student Union. It offers normal banking facilities and services. Hours of Opening:

Monday to Friday 9.30am - 9.00pm
Closed over the Christmas period.

Credit Union

The main branch of the University Credit Union is located on the Student Union on the former University side of the campus. Hours of Opening:

Monday to Friday 9.00am - 4.00pm
An agency is located in the Human Union Building.

CASHIER

The cashiers' office on-campus is located on First Floor, Chancellor Building.

Hours of Opening

(a) During Semester 9.00am - 4.00pm
(b) Vacation Period 10.00am - 12.30pm
2.00pm - 4.00pm

CHAPLAINCY SERVICE

The Chaplain's office is located in the temporary buildings adjacent to the Computer Teaching Building and opposite the Mathematics Building and also in CS9 in the Human Building.

Pastoral care is available to students from the University the Conservancy of Music from the following denominations:

Anglican Catholic Baptist Presbyterian Uniting Church Assembly of God Seventh Day Adventist

Hours of Opening for both centres

Monday to Friday 8.30am - 5.00pm
A Chaplain is also available at the Central Cost Campus Tuesday 9.30am - 3.00pm.

COMMUNITY PROGRAMMES

The Department of Community Programmes offers bridging courses for students in Summer Sessions (January and February), as well as courses for people who do not have to be formally accepted as University students.

Students interested in bridging courses should call at the Department's office in Room V1, Ground Floor of the Mathematics building. Courses, workshops and seminars for the public can be virtually any subject area, and these interested should telephone (049) 215551 or 215558 for further details.

CONVOCATION

All students of the University of Newcastle become members of Convocation upon graduating. Convocation is the graduate body of the University of Newcastle and, under the provisions of the University of Newcastle, Act 1966, the organisation of the Convocation of the University. By virtue of the Act and the University By-Laws, the University has a voice in the government of the University through it's right to elect members of Council and the Standing Committee's right to direct communication with the Council and the Senate. Through its membership of the Australian University Graduation Conference, Convocation also co-operates with its counterparts in other universities in give effective expression of opinion on matters of concern to graduates.

The Convocation Officer may be contacted on (049) 216466.

CO-OP BOOKSHOP

The Co-op Bookshop is located within the Student Union, It stocks textbooks, general publications, computer discs and other software, audio-visual cassettes. Discount are available to Co-op members.

Hours of Opening

Monday, Wednesday and Friday 9.00am - 5.00pm
Tuesday and Thursday 9.00am - 6.00pm
First two weeks of semester 8.30am - 7.00pm