FACULTY OF SCIENCE

HANDBOOK 1969

THE UNIVERSITY OF NEWCASTLE
NEW SOUTH WALES 2308

Telephone
Shortland 68 0401 — Tighe's Hill 61 0461
Consult the Calendar for:

Academic Dress
University of Newcastle Act, 1964
By-laws
The Council
The Senate
Officers and Former Officers of the University
Prizes and Scholarships
University Medallists
Lists of Graduates and Diplomates

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TERM 1  March 3 to May 17
TERM 2  June 9 to August 16
TERM 3  September 8 to November 7

JANUARY
  1 Monday ... Public Holiday — New Year's Day
  15 Wednesday ... Deans available to interview "Show Cause"
                    and Provisional Matriculation
                    applicants
  17 Friday ... Last day for lodgement of Enrolment
              Applications — New Students
  20 Monday ... Deferred Examinations commence
  27 Monday ... Public Holiday — Australia Day

FEBRUARY
  1 Saturday ... Last day of Deferred Examinations
  5 Wednesday ... Last day for lodgement of Re-Enrolment
                 Applications — Old Students
  12 Wednesday ... New students report for interview
  14 Friday ... Orientation commences
  26 Wednesday ... Last day for payment of First Term Fees

MARCH
  3 Monday ... FIRST TERM commences
  20 Thursday ... Graduation Days
  21 Friday ...

APRIL
  4 Friday ... Public Holiday — Good Friday
  7 Monday ... Public Holiday — Easter Monday
  8 Tuesday ... Easter Tuesday — No lectures
  25 Friday ... Public Holiday — Anzac Day

MAY
  17 Saturday ... FIRST TERM ends
PRINCIPAL DATES FOR 1969
(continued)

JUNE
9 Monday — SECOND TERM begins
Public Holiday — Queen's Birthday
20 Friday — Last day for payment of Second Term Fees
Last day for acceptance of applications for examinations

AUGUST
16 Saturday — SECOND TERM ends

SEPTEMBER
8 Monday — THIRD TERM begins
19 Friday — Last day for payment of Third Term Fees

OCTOBER
6 Monday — Public Holiday — Six Hour Day
31 Friday — THIRD TERM Lectures end

NOVEMBER
8 Saturday — Annual Examinations begin
29 Saturday — Annual Examinations end
THIRD TERM ends

1970

JANUARY
1 Thursday — Public Holiday—New Year's Day
19 Monday — Proposed closing date for lodgement of Enrolment Applications — New Students
Deferred Examinations begin
26 Monday — Public Holiday — Australia Day
31 Saturday — Last day Deferred Examinations

FEBRUARY
4 Wednesday — Proposed closing date for lodgement of all Enrolment Applications

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FACULTY OF SCIENCE

Dean
Professor Beryl Nashar

CHEMISTRY

Professor
J. A. Allen, M.Sc.(Qld.), Ph. D.(Brist.), F.R.A.C.I.
PROFESSOR OF CHEMISTRY
HEAD OF DEPARTMENT

Associate Professors
W. F. J. Pickering, M.Sc., Ph.D.(N.S.W.), A.S.T.C.,
F.R.A.C.I.
W. R. Walker, M.Sc., Dip.Ed.(Syd.), Ph.D.(N.S.W.),
F.R.A.C.I.

Senior Lecturers
G. C. Curthoys, B.Sc.(Syd.), M.Sc., Ph.D.(N.S.W.),
A.R.A.C.I.
L. A. Summers, B.Sc., Ph.D.(Glas.), A.R.A.C.I.
F.R.I.C., F.R.A.C.I.

Lecturers
K. H. Bell, B.Sc., Ph.D.(N.S.W.), A.R.A.C.I.
E. B. Jacobs, B.Sc.(Syd.), A.R.A.C.I.

Visiting Senior Lecturer
E. A. Magnusson, B.Sc.(London.), Ph.D.(London. and N.S.W.),
A.R.A.C.I.

Honorary Research Fellow
R. Basden, B.Sc.(London.), M.Ed.(Melb.), A.S.T.C.,
Secretary
Mrs. C. Cranfield

TECHNICAL STAFF

Professional Officer
N. G. Keats, B.Sc.(N.S.W.), A.S.T.C., A.R.A.C.I.

Senior Laboratory Technician
P. Fox

Laboratory Technician
I. R. O. Scott

Laboratory Craftsman
J. Nicholson

Laboratory Assistants
N. Knagge
M. Legovich
J. Talin

Laboratory Attendants
Miss G. N. Colmer
J. Gillespie
F. Millington

GEOGRAPHY

Professor
A. D. Tweedie, M.A.(N.Z.)
PROFESSOR OF GEOGRAPHY
(HEAD OF DEPARTMENT)

Associate Professor

Senior Lecturers
W. F. Geyl, B.Sc.(Lond.), Drs.Phys.Geog.(Utrecht)
P. G. Irwin, B.A.(Syd.), B.Com.(Qld.), M.A.(N.S.W.)

Lecturers
J. C. R. Camm, M.Sc.(Hull)
Mary R. Hall, M.A.(Manc.)
D. N. Parkes, B.A.(Dunelm), M.A.

Secretary
Mrs. E. N. Regan

TECHNICAL STAFF

Laboratory Attendants
Mrs. M. L. Graham
Miss G. D. Breeze
**GEOLOGY**

**Professor**
Beryl Nashar, B.Sc., Dip.Ed.(Syd.), Ph.D.(Tas.), M.Aus.I.M.M.
PROFESSOR OF GEOLOGY
[HEAD OF DEPARTMENT]

**Associate Professor**
A. S. Ritchie, M.Sc.(N.S.W.), A.S.T.C.

**Senior Lecturers**
C. F. K. Diessel, Dipl. Geol., Dr.rer.nat.(Berl.), A.Aus.I.M.M.
B. A. Engel, M.Sc.(N.E.)
K. H. R. Moelle, Abs., D.Phil.(Innsbruck), A.Aus.I.M.M.
S. St. J. Warne, B.Sc.(W.Aust.), Ph.D.(N.S.W.), F.G.S., F.G.A.A.

**Lecturer**
R. Offer, B.Sc., Ph.D.(Adel.)

**Senior Demonstrator**

**Demonstrator**
C. W. Mallett, B.Sc.(Qld.)

**Secretary**
Mrs. J. Odgers

**TECHNICAL STAFF**

**Laboratory Assistant**
Miss B. A. Parkinson

**Laboratory Attendants**
J. W. Brown
E. Krupic

**MATHEMATICS**

**Professor**
R. G. Keats, B.Sc., Ph.D.(Adel.)
PROFESSOR OF MATHEMATICS
[HEAD OF DEPARTMENT]

**Associate Professor**
I. L. Rose, B.E.(Syd.), Ph.D.(N.S.W.)

**Senior Lecturers**
W. Brisley, B.Sc.(Syd.), M.Sc.(N.S.W.), Dip.Ed.(N.E.)
J. A. Lambert, B.Sc.(Syd.), M.Sc.(N.S.W.)

**Lecturers**
R. F. Berghout, M.Sc.(Syd.)
W. Ficker, Prom.Mat., C.Sc., RNDr(Comenius)
J. R. Giles, B.A., Dip.Ed.(Syd.)
M. J. Hayes, B.A.(Cantab.)
W. T. F. Lau, M.E.(N.S.W.), Ph.D.(Syd.), M.A.I.A.A.
I. F. Vivian, B.Sc.(Lond.)

**Senior Tutors**
C. J. Ashman, B.A., Litt.B.(N.E.)
I. J. Brady, B.Sc.(N.S.W.)

**Secretary**
Mrs. M. Boden
PHYSICS

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C. D. Eliyett, M.Sc.(N.Z.), Ph.D.(Manc.),
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PROFESSOR OF PHYSICS
(HEAD OF DEPARTMENT)

Senior Lecturers
S. C. Baker, M.Sc.(Syd.), Ph.D.(N.S.W.), A.A.I.P.
C. S. L. Keay, M.Sc.(N.Z.), Ph.D.(Cant.), M.A.(Tor.),
J. A. Ramsey, M.Sc.(Melb.), Ph.D.

Lecturers
F. T. Bagnall, B.Sc.(N.S.W.), M.Sc.(N.E.), Grad. Inst.P.,
Grad. A.I.P.
J. D. Balfe, M.Sc.(Qld.), A.Inst.P., A.A.I.P.
J. E. Cleary, M.Sc.(N.S.W.)
B. J. Fraser, M.Sc.(N.Z.), Ph.D.(Cant.)
R. H. Roberts, B.E.(N.S.W.), A.S.T.C., Grad.I.E.(Aust.)

Secretary
Miss M. Cook

TECHNICAL STAFF

Technical Assistant
E. C. McLauchlan, R.E.A.

Senior Laboratory Technician
P. W. McNabb

Laboratory Craftsmen
H. Stiegler
G. H. Clarke

Laboratory Assistants
F. S. Daniels
J. J. Norman

Laboratory Attendants
G. L. Bottrill
M. H. Wilkinson

PSYCHOLOGY

Professor
J. A. Keats, B.Sc.(Adel.), B.A.(Melb.), A.M., Ph.D.(Princ.),
F.B.Ps.S., F.A.Ps.S.
PROFESSOR OF PSYCHOLOGY
(HEAD OF DEPARTMENT)

Associate Professor
Ph.D.(Lond.), M.B.Ps.S., M.A.Ps.S.

Senior Lecturer
B. Fenelon, B.A.(Qld.), M.A., M.A.Ps.S.

Lecturers
G. A. Halford, M.A.(N.E.), M.A.Ps.S.
A. C. Hall, B.A.(R’dg.), A.B.Ps.S., M.A.Ps.S.
A. G. Keene, M.A.(Melb.), M.A.Ps.S.
J. A. C. Price, B.A.(Qld.), A.B.Ps.S., M.A.Ps.S.,
M.S.A.A.N.Z.

Senior Demonstrator
A. Ivinskis, B.A.(Qld.), M.A.Ps.S., A.B.Ps.S.

Secretary
Miss L. McPherson

TECHNICAL STAFF

Mr. R. W. Hodge
Mr. P. J. Wolfgram
ADMINISTRATIVE STAFF

Vice-Chancellor and Principal

Vice-Principal and Deputy Vice-Chancellor
Professor B. Newton-John, M.A.(Cantab.)

Deputy Vice-Chancellor
Professor J. A. Allen, M.Sc.(Qld.), Ph.D.(Bristol), F.R.A.C.I.

Personal Assistant to Vice-Chancellor
Nell Emanuel, B.A.(N.S.W.)

Bursar
L. W. Harris, A.A.S.A., A.C.A.A., A.B.I.A.

Deputy Bursar
M. G. Talty, B.Com.(N.S.W.), A.A.S.A.

Accountant
G. W. Walker, A.A.S.A.

Assistant Bursar—Staff
R. J. Goodbody

Secretary
P. D. Alexander, B.A., Dip.Ed.(Syd.)

Enrolments Section
H. Floyer, B.Ec.(Syd.)

Examinations Section
Glennie Jones, B.A.(N.S.W.)

Publications Section
Joan Bale, B.A.(N.S.W.)

Secretariat Section
J. D. Todd, B.Com., A.A.S.A.

University Planner
Associate Professor E. C. Parker, A.S.T.C., F.R.A.I.A.

Staff Architect
D. D. Morris, B.Arch.(N.S.W.), A.S.T.C., A.R.A.I.A.

Staff Engineer

Senior Student Counsellor
P. M. Whyte, B.A.(Melb.), M.A.Ps.S.

Student Counsellors
A. P. Loftus, B.A.(Melb.), M.A.Ps.S.

Computer Unit
Computer Programmer
P. C. Cook, B.A.(N.S.W.)

Secretary/Manager of the University Union
I. H. S. Irwin

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THE UNIVERSITY OF NEWCASTLE

The University of Newcastle began its existence as the Newcastle University College of the University of New South Wales, then known as the New South Wales University of Technology. The College was formally opened on 3rd December, 1951, and the first students were enrolled in the 1952 academic year. By the University of Newcastle Act of 1964 it became an autonomous institution on 1st January, 1965.

Enrolments in the first year of the College’s existence totalled 370 of whom only five were starting degree courses — the others were seeking a diploma or were converting their diplomas into degrees. In 1954 courses in the Faculty of Arts were offered for the first time. As the New South Wales University of Technology, whose courses were given in the College, had no Faculty of Arts, supervision of these courses was entrusted to the University of New England. This relationship continued until 1959 by which time the New South Wales University of Technology had become the University of New South Wales and was empowered to offer courses in the Faculty of Arts. Enrolments have steadily increased, reaching 1000 in 1960 and 2286 in 1968.

The Newcastle University College was established on the site of the Newcastle Technical College at Tighe’s Hill and some faculties still operate there. In 1960 an area of some 200 acres was acquired at Shortland and building commenced in 1964. The transfer of the University began at the end of 1965 and work is underway to have the University fully established at Shortland by the beginning of the 1970 academic year. In 1969 courses in the Faculties of Applied Science, Arts, Economics and Commerce, and Science will be offered at Shortland excepting second and later year Chemistry subjects which will be offered initially at Tighe’s Hill but will move to Shortland during the year. Courses in the Faculties of Architecture and Engineering will be given at Tighe’s Hill. The branch library will continue to operate at Tighe’s Hill.

The University is governed by a Council of twenty-three members of whom one, the Chancellor, acts as chairman. The Council comprises representatives of the University staff, Convocation, the under-graduates, the Legislative Council and the Legislative Assembly; nominees of the Governor; and the Vice-Chancellor who is the chief executive officer of the University.


The principal academic body in the University is the Senate comprising the Vice-Chancellor, Professors, a representative of each of the Faculty Boards and certain other ex officio members. Teaching and research in each Faculty are supervised by a Faculty Board consisting principally of the permanent academic staff of the Departments in the Faculty.

The University is financed by grants from the New South Wales and Commonwealth Governments and fees paid by students. The State and Commonwealth Governments contribute equally to the cost of buildings and major items of equipment whilst with respect to recurrent expenditure, the Commonwealth contributes $1 for every $1.85 received by way of State grant and student fees.
MATRICULATION

The By-laws governing matriculation and admission to courses are set out below. The University does not conduct its own matriculation examination but recognises the New South Wales Higher School Certificate Examination and the University of Sydney Matriculation Examination for this purpose.

* By-law 5.1 — Matriculation

1. (1) Except as provided in By-law 5.3.3, a candidate, before being admitted to matriculation, shall:—
   (a) have passed in the New South Wales Higher School Certificate Examination or the University of Sydney Matriculation Examination in at least five recognised matriculation subjects, one of which shall be English and any three of which shall be passed at least at second level; and
   (b) have attained in that examination the aggregate of marks prescribed by Senate from time to time and calculated in the manner determined by Senate.

(2) The recognised matriculation subjects shall be:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject</th>
</tr>
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<tbody>
<tr>
<td>English</td>
<td>English</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Science</td>
<td>Science</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Agriculture</td>
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<tr>
<td>Modern History</td>
<td>Modern History</td>
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<tr>
<td>Ancient History</td>
<td>Ancient History</td>
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<tr>
<td>Geography</td>
<td>Geography</td>
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<tr>
<td>Economics</td>
<td>Economics</td>
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<tr>
<td>Greek</td>
<td>Chinese</td>
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<td>Latin</td>
<td>Japanese</td>
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<td>French</td>
<td>Hebrew</td>
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<td>German</td>
<td>Dutch</td>
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<tr>
<td>Italian</td>
<td>Art</td>
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<tr>
<td>Bahasa Indonesia</td>
<td>Music</td>
</tr>
<tr>
<td>Spanish</td>
<td>Industrial Arts</td>
</tr>
<tr>
<td>Russian</td>
<td>Russian</td>
</tr>
</tbody>
</table>

(3) Mathematics and Science, both passed as full courses, together shall, for the purpose of sub-section (1)(a) of this section, be counted as three subjects, but otherwise, each shall count as one subject.

(4) The qualification for matriculation must be achieved at one examination.

2. A person who has applied to undertake a course of study as a matriculated student shall upon —
   (a) the approval of his admission to a Faculty and the payment of such fees as may from time to time be determined by the Council; and
   (b) signing the Matriculation Register of the University become a matriculated student of the University and shall be deemed to have accepted the privileges and obligations of membership of the University.

* Subject to approval by the Governor.

By-law 5.3 — Admission to Courses

1. (a) A candidate for any first degree of the University shall satisfy the conditions for admission to matriculation set out in By-law 5.1.1. or shall have been admitted to matriculation under section 3 of this By-law before entering on any course for such degree. Compliance with the conditions for admission to matriculation shall not in itself entitle a person to enter upon a course.

(b) A person who has satisfied the conditions for admission to matriculation may on the payment of such fees as may be determined by the Council from time to time be provided with a statement to that effect.

2. A candidate for any degree shall before entering on the course for that degree have satisfied any special conditions prescribed under By-law 5.2.

3. The Council may, with the advice of the Senate, admit as a matriculated student, under such conditions and with such standing as it may determine, any person who has satisfied the Council that he has reached a standard of education sufficient to enable him to pursue his proposed course.

4. The Council may, with the advice of the Dean of the Faculty concerned, permit any person to enrol in a subject or subjects on payment of such fees as may be determined from time to time by the Council. Such a person, not being a matriculated student, shall not have the privileges of a matriculated student and shall not be eligible to proceed to a degree.

PRE-REQUISITES

Although pre-requisites are not prescribed, lectures in the following faculties, courses or subjects will be given on the assumption that students will have studied the subjects listed below to the level indicated:

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>ASSUMPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Science</td>
<td>Second level Short Course Mathematics and Science including Physics and Chemistry options.</td>
</tr>
<tr>
<td>Architecture</td>
<td>Second level Short Course Mathematics and Science.</td>
</tr>
<tr>
<td>Arts</td>
<td>English I — Second level English. French I — Second level French.</td>
</tr>
<tr>
<td>Engineering</td>
<td>Second level Short Course Mathematics and Science including Physics and Chemistry options.</td>
</tr>
<tr>
<td>Science</td>
<td>Second level Short Course Mathematics and Science.</td>
</tr>
</tbody>
</table>

There is no compulsory pre-requisite for admission to the Faculty of Economics & Commerce, but students entering the Faculty are advised to have passed mathematics at the N.S.W. Higher School Certificate examination at least at the second level short course standard or to have achieved an equivalent standard in mathematics.
PROCEDURES

HOW TO ENROL

All documents relating to enrolment are obtainable from the Student Records Office, Room No. G.63, Building 'A', Shortland site.

I. PERSONS ENROLLING IN AN UNDERGRADUATE COURSE AT THE UNIVERSITY OF NEWCASTLE FOR THE FIRST TIME

(i) WITH NORMAL MATRICULATION

Step 1—Intending students, who have obtained passes at the N.S.W. Higher School Certificate Examination, the N.S.W. Leaving Certificate Examination or the Sydney University Matriculation Examination entitling them to matriculation status should lodge an "Application for Admission" with the Student Records Office before 5.00 p.m. on Monday, 20th January, 1969.

Step 2—The University will post a "Notification of Acceptance" to all students approved for admission — a letter will be sent to anyone whose enrolment cannot be accepted.

Step 3—Intending students will be required to report at the University, Shortland site, within the period Wednesday, 12th February to Friday, 14th February, 1969, to discuss their intended course with an academic adviser. Details of the location of such interviews will be given with the "Notification of Acceptance".

Step 4—Student completes enrolment by payment of fees. Wednesday, 26th February, 1969 is the last day for payment of fees.

(ii) WITH PROVISIONAL MATRICULATION

Step 1—Prospective students, seeking admission to the University and whose educational qualifications do not appear to entitle them to normal matriculation, should arrange to interview the Dean of the appropriate Faculty during the period Wednesday, 15th January, to Friday, 17th January, 1969, between the hours of 1.00 p.m. to 7.00 p.m. Each applicant will be required to:

(a) complete an “Application for Admission — Admissions Committee Case”

(b) produce documentary evidence of educational qualifications claimed

(c) hand both to the Dean at the time of interview. This procedure will not apply to students who will have already been advised of approval for admission or whose cases are already under consideration.

Step 2—The University will post a letter to the applicant notifying the decision on his/her application.

(iii) INTERSTATE AND OVERSEAS STUDENTS

Students relying for matriculation on examinations taken outside New South Wales will be required to produce evidence of matriculation to their local university or some other recognised university, for example, University of London.

Step 1—Intending students should lodge with this University before, say, Friday, 17th January, 1969 an "Application for Admission — Admissions Committee Case" supported by a statement as indicated above and documentary evidence of their educational qualifications.

Step 2—The University will post a letter to all applicants notifying the decision on his/her application. Details will be given in this letter of the procedure to be followed by student to complete enrolment.

II. PERSONS RE-ENROLLING IN UNDERGRADUATE COURSES

Undergraduates re-enrolling will be required to complete an Enrolment Form and lodge it with the Student Records Office on or before Wednesday, 5th February, 1969.

Students awaiting Deferred Examination Results — see Late Enrolments section below.

IMPORTANT

Owing to the expected increase in enrolments in 1969, new students enrolling or old students re-enrolling late, if accepted, may be allocated to the less convenient laboratory, seminar or tutorial times.

Re-enrolment forms when approved will be posted to the students.

III. CANDIDATES FOR POSTGRADUATE DIPLOMA COURSES

DIPLOMA IN APPLIED PSYCHOLOGY

Candidates for admission to this course are required to complete the enrolment form "Postgraduate Diploma" and lodge it with the Student Records Office on or before Wednesday, 5th February, 1969.

Each candidate will be required to attend the University for interview before enrolment in the course is approved.
LATE ENROLMENTS

Candidates for admission to this course are required to complete the enrolment form “Postgraduate Diploma” and lodge it with the Student Records Office on or before Wednesday, 5th February, 1969.

Notices will be displayed on the University Notice Boards giving information as to where and when prospective candidates will be interviewed concerning their studies.

DIPLOMA IN INDUSTRIAL ENGINEERING

Candidates for admission to this course are required to complete the enrolment form “Postgraduate Diploma” and lodge it with the Student Records Office on or before Wednesday, 5th February, 1969.

IV. CANDIDATES FOR THE DEGREE OF MASTER, OR DOCTOR OF PHILOSOPHY

Candidates Re-Enrolling

A letter will be sent by the University to each candidate whose re-registration is approved. A higher degree enrolment form will be enclosed with the letter and the candidate is required to complete the form and return it to the University Cashier together with the appropriate fees on or before Wednesday, 26th February, 1969.

Candidates Registering for the First Time

These persons should complete an “Application for Registration as a Candidate for a Higher Degree” and lodge it with the Student Records Office.

V. CANDIDATES FOR QUALIFYING COURSES FOR HIGHER DEGREES

Graduates intending to pursue qualifying studies for admission as a candidate for the degree of Master, or Doctor of Philosophy should complete the special form for this purpose and lodge it with the Student Records Office, preferably before Wednesday, 5th February, 1969.

NON-ACCEPTANCE

The student whose enrolment is not accepted will be notified in writing.

LATE ENROLMENTS

(i) Students who are unable to lodge their Application Form or Enrolment Form by the prescribed date, shall make written application to The Secretary for an extension of time. This application must be received by The Secretary on or before Monday, 20th January, 1969 in the case of new students, or Wednesday, 5th February, in the case of students re-enrolling, otherwise the University reserves the right not to accept the student’s application or enrolment.

(ii) No enrolments will be accepted after 31st March of each academic year without the approval of The Secretary which shall be given only in exceptional circumstances.

(iii) Deferred Examinations

A student who has taken a deferred examination will be required to lodge an Enrolment Form with the Student Records Office after the publication of the examination results and not later than Wednesday, 14th February, 1969.

(iv) “Show Cause” Students

A student, who, by failure at the Annual Examinations wishes to “Show Cause”, will be required to interview the Dean of his Faculty between the hours of 1.00 p.m. to 7.00 p.m. in the period Wednesday, 15th January to Friday, 17th January, 1969, or, by failure at the Deferred Examinations, to interview the Dean between the hours of 2.00 p.m. to 4.30 p.m. and 5.30 p.m. to 7.30 p.m. on Friday, 14th February, 1969.

A letter will be sent to all students who “Show Cause”. Those whose re-enrolment is approved will also be sent an enrolment form and details of procedure for student to complete enrolment.

(v) Sydney University Matriculation

Students relying on this examination for matriculation should call at the Student Records Office, Shortland site, after the publication of results and obtain an “Application for Admission” and an “Enrolment Form”. After completion of these forms, the student will be directed to an academic adviser.

UNIVERSITY SKILLS ASSESSMENT

All new first year students will be required to attend the University on Thursday and Friday, 27th and 28th February, 1969, for University Skills Assessment. Full-time attendance on both days will be required. Further details will be posted to the student during the enrolment period.

MATRICULATION CEREMONY

A Matriculation Ceremony will be held during first term and as part of the proceedings new students, excepting those who have been admitted with provisional matriculation status, will be expected to sign the Matriculation Register.

ENROLMENT IN CORRECT SUBJECTS

Considerable inconvenience is caused to the University and to the student if he reads a subject in which he has not enrolled. It is essential for the student to determine before submitting his Enrolment Form, the subjects he will read for the year. Particular attention should be made to the inclusion of Honours courses where these are taken.

WITHDRAWAL FROM COURSE REGARDED AS FAILURE

Approval to withdraw from a course is not automatic. It should be noted that a student is regarded as having failed in a course if he enrols in it and does not pass the annual examinations — i.e. not sitting for the examination is regarded as not passing the examination (unless withdrawal has been approved).

A student is required to notify The Secretary of the University in writing of his withdrawal within seven (7) days of the date
of withdrawal. With the exception of students in the Faculty of Arts and the Faculty of Economics and Commerce, no student will be allowed to withdraw without penalty after the sixth Monday of second term unless, in the opinion of the Dean of the Faculty, there is good reason why he should be permitted to do so.

In the Faculty of Arts and the Faculty of Economics and Commerce, a student who withdraws after the second Friday in second term from a subject in which he has enrolled, shall be deemed to have failed in that subject. However, such a student may apply to the Dean, who, after consultation with the Head of the Department concerned, may allow him to withdraw without penalty.

AMENDMENTS

The following matters are regarded as amendments to course programmes and are required to be documented:

1. complete withdrawal from course *
2. withdrawal from subject(s)
3. substituting subject(s)
4. transferring from full-time to part-time within degree
5. transferring from part-time to full-time within degree
6. transferring from one degree to another
7. transferring from one faculty to another
8. standing in degree course on account of subjects completed within this University †

NOTES

* The student is liable for fees up to the date on which his application to withdraw is received by the University.
† When requesting exemption in subject unit(s) or substituting unit(s) within a subject, no Variation Application is required. BUT the Head of the Department concerned must be formally notified in writing.

HOW TO DOCUMENT WITHDRAWALS AND AMENDMENTS

All withdrawals and amendments should be recorded on a Variation Application Form.

It is essential that these variations be completed before 31st March, 1969. Automatic approval is not given; the student must have valid and sufficient reasons for making the change and these reasons should be stated on the Variation Application Form.

Variation Application Forms (pink) are available from the Student Records Office.

CHANGE OF ADDRESS

Students are responsible for notifying the Student Records Office in writing of any change in their address as soon as possible. Failure to do this could lead to important correspondence or course information not reaching the student. The University cannot accept responsibility if official communications fail to reach a student who has not notified Student Records Office of a change of address.

The Transport Authorities may challenge a student whose address on his identity token is incorrect.

IDENTITY TOKENS

Each student wishing to obtain a travel concession, to borrow a book from the Library or to confirm his membership of the University of Newcastle Union is required to produce on demand the identity token which will be given to him.

The student should present his fee receipt to the Student Records Office on or after Monday, 10th March, 1969 and he will be given an identity token for 1969.

Students re-enrolling are permitted to use their 1968 identity tokens up to Friday, 7th March, 1969.

Loss of Identity Token

If a student loses his identity token, he should pay to the University Cashier, the sum of 50c., and present the receipt to the Student Records Office for the purpose of obtaining a replacement token. A delay of approximately ten days is involved in this procedure.

Return of Identity Token

Each student, who during the academic year withdraws completely from his course, will be required to hand his Identity Token to the Student Records Office before leaving the University.

Non-Degree Students and Identity Token

Each non-degree student, who does not elect to pay the General Services Fee, will be issued with an embossed plain white token. This token is to be produced each time a travel concession is requested. It must also be shown on request to prove status as a student of the University.

TRAVEL CONCESSIONS

The various transport authorities provide fare concessions for certain classes of students.

Application forms for these concessions may be obtained at the Student Records Section, Building "A," Shortland Site.

The Student's Identity Token has to be produced each time a concession is required.

OMNIBUS — Concessions are available to:

(a) students under 18 years of age irrespective of whether they are employed or receive income or remuneration.
(b) students between 18 and 30 years of age who are not in employment nor in receipt of any income or remuneration.

Note: Income or remuneration includes allowances paid to Colombo Plan students, Public Service trainees, etc., but does not include allowances paid to holders of Commonwealth Scholarships, Teachers' College Scholarships or Scholarships granted by the State Bursary Endowment Board.
TRAIN —

(a) Periodical tickets are available during term time to full-time students not in employment nor in receipt of any remuneration.

(b) Daily concession fare tickets are available to part-time students, whether employed or otherwise, for the purpose of travelling to and from class held in connection with their course of instruction.

(c) Vacation travel concessions are available to students qualifying under (a) above.

AIRCRAFT —

Concession fares for travel overseas, inter-state and intra-state are available under the conditions ruling for the various operating companies.

FEES

GENERAL INFORMATION

COMPLETION OF ENROLMENT

Enrolment is completed by the payment of fees. Fees should be paid on or before Wednesday, 26th February, 1969. After that, a late fee will apply (see below). Fees will not be accepted after the 31st March unless The Secretary's approval to enrol is obtained in writing. This will only be given in exceptional circumstances.

Payment of fees by mail is encouraged. Money Orders should be made payable at the Newcastle University Post Office. Fees should be paid to the Cashier on the first floor of Building "A" Shortland site. The Cashier's office is open at the following times: Monday to Friday ... 9.00 a.m. to 11.00 a.m.

1.00 p.m. to 4.30 p.m.

During enrolment periods the Cashier's hours are extended and details are published in the press and on University Noticeboards.

PAYMENT OF FEES BY TERM

Students may pay Course Fees by the term, in which case they are required to pay First Term Course Fees and the whole of the General Services Fee before Wednesday, 26th February, 1969.

Students paying fees under this arrangement will receive accounts for Second and Third Term fees prior to the commencement of these terms. These fees must be paid within the first two weeks of each term, otherwise late fees will apply.

EXTENSION OF TIME IN WHICH TO PAY FEES

Students who are unable to pay fees by the prescribed date may apply in writing to the Vice-Principal for an extension of time to pay fees. Special forms for this purpose are available from the Student Records Office. Applications must state fully the reasons why fees cannot be paid and must be lodged before the date on which the late fee becomes payable.

SCHOLARSHIP HOLDERS AND SPONSORED STUDENTS

Students are required to submit authorised enrolment forms together with vouchers or other documentary evidence that fees are covered by a scholarship or will be paid by a sponsor, where this type of financial assistance is received. Where such documentary evidence is not available, students are expected to make payment by the due date to avoid late fees and apply for a refund of fees when the authority required is available.

DATES FOR PAYMENT OF FEES IN 1969

<table>
<thead>
<tr>
<th></th>
<th>FIRST TERM</th>
<th>SECOND TERM</th>
<th>THIRD TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees payable before or on</td>
<td>Wednesday, 26th Feb.</td>
<td>Monday, 17th March</td>
<td>Monday, 19th Sept.</td>
</tr>
<tr>
<td>Late fee</td>
<td>$6.00 payable on and after</td>
<td>Monday, 17th March</td>
<td>Monday, 19th Sept.</td>
</tr>
<tr>
<td></td>
<td>$10.00 payable on and after</td>
<td>Monday, 31st March</td>
<td>Monday, 22nd Sept.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monday, 7th July</td>
<td>Monday, 6th October</td>
</tr>
</tbody>
</table>
FAILURE TO PAY FEES

Any student who is indebted to the University and who fails to make a satisfactory settlement of his indebtedness upon receipt of due notice ceases to be entitled to membership and privileges of the University. Such a student is not permitted to register for a further term, to attend classes or examinations, or to be granted any official credentials. The student is not eligible to attend the annual examinations in any subject where any portion of his Course Fees for the year is outstanding by the end of the fourth week of third term. In very special cases the Vice-Principal may grant exemption from this disqualification upon receipt of a written statement setting out all relevant facts.

FEE ADJUSTMENTS

Should an application to withdraw from a course or a subject be approved, an adjustment of course fees may be made, based on the date the application is received by the University; fees accrue up to that date.

Where notification of withdrawal from a course is received by the Dean of the Faculty before the first day of First Term, a refund will be made of all Course Fees. Where a student for acceptable reasons notifies the termination of a course before the end of the fifth week of term, one-half of the Course Fees for the term may be refunded. If the student notifies termination of a course after the end of the fifth week of term, no refund will be made.

THE UNIVERSITY RESERVES THE RIGHT TO DEFER UNTIL AFTER THE END OF THE SIXTH WEEK OF TERM THE PROCESSING OF APPLICATIONS FOR FEE REFUNDS RECEIVED IN THE EARLY PART OF FIRST TERM.

The University Administration does not refund any portion of the General Services Fee. However, students withdrawing from courses may enquire of the Union, Sports’ Union and Students’ Association regarding refund possibilities.

DESIGNATION OF STUDENTS

A Full-Time Student is a student who enrols in more than half the subjects of a normal first year course and such a student remains classified as a full-time student until the written approval of the Dean of the Faculty is given that he be re-classified as a part-time student. This re-classification would be exceptional.

A Part-Time Student is either one who enrols in half or less than half of the subjects of a normal first year course or one who enrols in a part-time course. In subsequent years, the enrolment as a part-time student requires the approval of the Dean of the Faculty.

A Non-Degree Student is a student who is permitted to read one or more subjects of a first degree course. Such a person is not eligible to proceed to a degree and cannot enjoy the privileges of a matriculated student. A student enrolled in the Professional Accounting Studies course in the Faculty of Economics & Commerce is classified as a Non-Degree student reading one subject.

GENERAL SERVICES FEE

(a) Students Proceeding to a Degree or Diploma

All registered students must pay a General Services fee of $42.00 per annum which includes a Library Fee. In addition, students joining the University of Newcastle for the first time, are required to pay an entrance fee of $12.00. This fee must be paid by the prescribed time in First Term.

(b) Non-Degree Student

Payment of the General Services Fee by a non-degree student is optional. A student cannot elect to pay portion of this fee.

UNDERGRADUATE COURSE FEES

Full-Time Courses:

- Faculties of Arts, Economics & Commerce .... $276 per annum
- All other Faculties .... .... .... .... $330 per annum

Part-Time Courses:

- All Faculties .... .... .... .... .... $165 per annum
- Non-Degree Subject: .... .... .... .... .... $90 per annum

The abovementioned fees are current at the time of publication and may be varied by the Council without notice.

OTHER FEES

1. Where an application to sit for examinations is accepted after the closing date ..... $4
2. Deferred examinations, per subject ..... $4
3. Examination under special supervision, per paper ..... $8
4. Review of Examination result, per subject ..... $6
5. Statement of Matriculation Status ..... $6
6. Laboratory Kit (Chemistry), per kit ..... $8

POSTGRADUATE DIPLOMA COURSE FEES

- Diploma in Education .... .... .... ...... $278 p.a.
- Diploma in Applied Psychology .... .... .... .... $165 p.a.
- Diploma in Industrial Engineering .... .... .... .... $165 p.a.

HIGHER DEGREE FEES

Course and Supervision Fee

This fee for Higher Degree candidates is assessed on a term basis; the period of registration being from the first day of the term to the Friday immediately preceding the first day of the following term. Candidates proceeding to a Higher Degree must enrol or re-enrol at the beginning of each academic year at the normal enrolment time. The usual late fees apply in respect of late enrolments.

Where a candidate withdraws during a term, no portion of the term fee will be refunded.
General Services Fee

Higher Degree candidates are required to pay the General Services Fee (see page 31). Where a Higher Degree candidate’s enrolment is effective from first or second term, the General Services Fee covers a period of registration from the first day of the term to the Friday immediately preceding the first day of first term in the following academic year. Where a Higher Degree candidate enrols on or after the first day of third term, the General Services Fee paid will cover his liability in respect of this fee to December 31st of the subsequent year.

Re-submission of Thesis

A candidate required to re-submit a Thesis, will not be required to pay further fees, unless laboratory work is involved, in which case the appropriate course and supervision fee will be payable on a term basis.

FEES FOR MASTER’S DEGREE

<table>
<thead>
<tr>
<th>Fee</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Fee</td>
<td>$4</td>
</tr>
<tr>
<td>Course &amp; Supervision Fee (Full-time)</td>
<td>$114 p.a.</td>
</tr>
<tr>
<td>Final Examination and Graduation Fee</td>
<td>$30</td>
</tr>
</tbody>
</table>

FEES FOR DOCTOR OF PHILOSOPHY DEGREE

<table>
<thead>
<tr>
<th>Fee</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualifying Examination Fee (if applicable*)</td>
<td>$12</td>
</tr>
<tr>
<td>Registration Fee</td>
<td>$4</td>
</tr>
<tr>
<td>Course &amp; Supervision Fee (Part-time)</td>
<td>$114 p.a.</td>
</tr>
<tr>
<td>Final Examination and Graduation Fee</td>
<td>$42</td>
</tr>
</tbody>
</table>

* This fee is payable where an examination is prescribed for the assessment of a student prior to his registration as a Higher Degree candidate.

GENERAL REQUIREMENTS

The University tries to function with a minimum of formal regulations; it has, for instance, drawn up no code of conduct for students, beyond forbidding gambling in the precincts and smoking in lectures, examinations and the Library.

It is obvious, however, that there must be standard practice throughout the University in such diverse matters as examination procedures, and an acceptance of certain requirements which are described in the following pages.

ACADEMIC REQUIREMENTS

The student is responsible for informing himself as to, and for complying with, University requirements, especially the requirements relating to admission and to the award of the degree for which he is reading.

NOTICES

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

NOTICE BOARDS

Examinations

A notice board has been placed on the wall opposite the entrance to the Main Lecture Theatre (B01) Shortland Site for the specific purpose of displaying examination timetables and notices concerning all matters pertaining to examinations. Students are specifically requested to be acquainted with the notices periodically displayed thereon.

Student Matters Generally

A notice board in the Student Records area is the display point for notices concerning enrolment matters, scholarships, University rules and travel concessions, etc.

ATTENDANCE AT CLASSES

Students are expected to be regular and punctual in attendance at all classes in the course or subject in which they are enrolled. All applications for exemption from attendance at lectures or practical classes must be made in writing to the Head of the appropriate Department. If term examinations have been missed this fact should be noted in the application. In the case of illness or of absence for some other unavoidable cause a student may be excused by the Head of the appropriate Department for non-attendance at classes for a period of not more than one month, or on the recommendation of the Head of the appropriate Department for any longer period. Applications for exemption from re-attendance at classes, either for lectures or practical work, may only be approved on the recommendation of the Head of the appropriate Department. The granting of an exemption from attendance does not carry with it exemption from payment of fees. Where a student has attended less than 80 per cent. of the possible classes, he may be refused permission to sit for the annual examination in that subject.
OWNERSHIP OF STUDENTS' WORK

Unless other arrangements have been agreed upon the University reserves the right to retain at its own discretion the original or one copy of any drawings, models, designs, plans and specifications, essays, theses, or other work executed by students as part of their courses, or submitted for any award or competition conducted by the University.

STUDENT IDENTIFICATION

Students are expected to carry their receipt for First Term enrolment as evidence that they are entitled to the rights and privileges afforded by the University. Each student wishing to obtain a travel concession, to borrow a book from the Library or to confirm his membership of the University of Newcastle Union is required to produce on demand the identity token which will be given to him. The student should present his fee receipt to the Student Records Office on or after Monday, 10th March, 1969 and he will be given an identity token for 1969.

Loss of Identity Token

If a student loses his identity token, he should pay to the University Cashier, the sum of 50c., and present the receipt to the Student Records Office for the purpose of obtaining a replacement token. A delay of approximately ten days is involved in this procedure.

Return of Identity Token

Each student, who during the academic year withdraws completely from his course, will be required to hand his Identity Token to the Student Records Office before leaving the University.

CHANGE OF ADDRESS

Students are responsible for notifying Student Records Office in writing of any change in their address as soon as possible. Failure to do this could lead to important correspondence or course information not reaching the student. The University cannot accept responsibility if official communications fail to reach a student who has not notified the University of Newcastle Union of a change of address. The Transport Authorities may challenge a student whose address on his identity token is incorrect.

GENERAL CONDUCT

Acceptance as a member of the University implies an undertaking on the part of the student to observe the by-laws and other requirements of the University. Students are expected to conduct themselves at all times in a seemly fashion. Smoking is not permitted during lectures, in examination rooms or in the University Library. Gambling is forbidden. Members of the academic staff of the University, senior administrative officers, and other persons authorized for the purpose have authority, and it is their duty, to check and report on disorderly or improper conduct occurring in the University.

PARKING OF CARS

On the Tighe's Hill Site the authorities of the Newcastle Technical College are responsible for traffic control and parking, and their regulations, traffic signs, etc., must be obeyed. At Shortland, all vehicles must be parked in a car park.

EXAMINATIONS

Examinations and other exercises may be held in any subject and at any time. In the assessment of a student's progress in a University course, consideration will be given to laboratory work and class exercises and to any term or other tests conducted throughout the year. The results of such examinations and class work may be incorporated with those of the annual examinations.

ANNUAL EXAMINATIONS

A student desiring to sit for an annual examination must lodge an application with the Secretary on the appropriate form by the prescribed date, 20th June, 1969.

A student who, because of religious convictions, would prefer not to sit for an examination on a particular day or particular day of the week should indicate this in writing when lodging his application to sit for the examination. While the University cannot guarantee to meet such requests it will be willing to co-operate where possible.

The cashier is authorised to receive application forms during the three weeks immediately following the prescribed closing date if they are accompanied by a late fee of $4.00. Applications submitted more than three weeks after the closing date will not be accepted except with the approval of the Secretary. Where an application is not accepted, the student concerned is not eligible to sit for the examination.

No student is eligible to attend the annual examination in any subject if any portion of fees or other charges due by him is outstanding by the end of the third week of third term.

The annual examinations take place in November-December. Timetables showing the time and place at which individual examinations will be held will be posted on the Examinations notice board near the Main Lecture Theatre. Misreading of the timetable will not under any circumstances be an acceptable excuse for failure to attend an examination.

Examinations are conducted in accordance with the following rules and procedure:

(a) Candidates are required to obey any instruction given by a Supervisor for the proper conduct of the examination.

(b) Candidates are expected to be in their places in the examination room not less than ten minutes before the time for commencement of the examination.

(c) No bag, writing paper, blotting paper, manuscript or book, other than a specified aid, is to be brought into the examination room.

(d) No candidate shall be admitted to an examination after thirty minutes from the time for commencement of the examination.

(e) No candidate shall be permitted to leave the examination room before the expiry of thirty minutes from the commencement of the examination.
(f) No candidate shall be re-admitted to the examination room after he has left it unless during the full period of his absence he has been under approved supervision.

(g) A candidate shall not by any improper means obtain or endeavour to obtain assistance in his work, give or endeavour to give assistance to any other candidate, or commit any breach of good order.

(h) Smoking is not permitted during the course of an examination.

(i) A candidate who commits any infringement of the rules governing examinations is liable to disqualification at the particular examination, and if detected at the time, to immediate expulsion from the examination room, and is liable to such further penalty as may be determined.

FURTHER EXAMINATIONS

After completion of the written annual examination papers, a student may be called upon by an examiner to complete further written, practical or oral tests as part of the annual examination. It is therefore important that the Examinations Branch be advised of any change in address from that given on the Application for Admission to Examinations.

EXAMINATION RESULTS

The official examination results will be posted on the notice board in the Student Records Office area. It is planned to advise each student by mail of his examination results. A set of examination results will be offered to the newspapers for publication. No results will be given by telephone.

Examination results may be reviewed for a fee of $6.00 per subject, which is refundable in the event of an error being discovered. Applications for review must be submitted on the appropriate form together with the prescribed fee by the date notified in the publication of results.

SPECIAL EXAMINATIONS

Special examinations may be granted according to the conditions contained in By-law 5.9.3 which states:

5. When a candidate is prevented by illness or by any other serious cause from presenting himself for the annual examination the appropriate Faculty Board may order a special examination for that candidate in the subject or subjects in which he was unable to present himself. The result of a special examination may be graded.

6. When a candidate's studies during the academic year have been gravely hampered by illness or other serious cause, the appropriate Faculty Board upon application being made to the Secretary to the University before the commencing date of the examination supported by medical or other proper evidence may direct the examiners to take the circumstances into account in determining whether or not a special examination should be provided for the candidate in any subject in which he does not pass at the annual examination.

7. When a candidate at the annual examination is to a substantial degree affected by illness during the course of an examination in any subject the appropriate Faculty Board, upon application being made to the Secretary to the University within three days after such examination or within such further period as the Vice-Chancellor may consider reasonable in the circumstances supported by medical or other proper evidence, may direct the examiners in that subject to take the circumstances into account if the candidate does not pass therein in determining whether or not a special examination or test should be provided for him: provided that no such application shall be considered unless the candidate either during or immediately after such examination reports to the supervisor in charge the circumstances relied on in the application.

DEFERRED EXAMINATIONS

Deferred examinations may be granted in the Faculties of Applied Science, Architecture and Engineering to resolve a doubt. The examinations will be held in January-February and results will be published in the same manner as for the Annual Examinations.
ACADEMIC PROGRESS REQUIREMENTS

GENERAL
To assist those students who may be unsuited to university study or whose circumstances jeopardise success at study and to deal with those students whose lack of success has a detrimental effect on the work of the course, the University has enacted certain By-laws relating to continuation in a course. The relevant By-laws are set out below.

BY-LAWS

By-law 5.4.1 — Unsatisfactory Progress

1. The Head of a Department in any Faculty may determine that a student taking a subject or course offered by the Department shall be excluded from any examination for which the Department is responsible for any or all of the following reasons:—
   (a) Unsatisfactory attendance at lectures;
   (b) Failure to complete laboratory work;
   (c) Failure to complete written work or other assignments; or
   (d) Failure to complete field work.
2. The Faculty Board may review the academic progress of any student enrolled in the Faculty concerned who fails in or is absent from, or is excluded under section 1 of this By-law from any examination and may determine:—
   (a) that the student be excluded from further study in a subject;
   (b) that the student may enrol in that Faculty only in such subject or subjects as the Faculty Board shall specify; or
   (c) that the case be referred to the Admissions Committee if, in the opinion of the Faculty Board, the student should be excluded from a degree course, from the Faculty or from the University.
3. The Admissions Committee, in considering a referral under sub-section (c) of section 2 and after giving the student an opportunity to be heard, may determine:—
   (a) that the student be excluded from a degree course or from the Faculty;
   (b) that the student shall be permitted to continue his course, subject to such conditions as the Admissions Committee may determine; or
   (c) that the case be referred to the Vice-Chancellor with the recommendation that the student be excluded from the University.
4. The Vice-Chancellor may, on the recommendation of the Admissions Committee, exclude from the University any student whose academic record in the opinion of the Vice-Chancellor and the Admissions Committee demonstrates the student's lack of fitness to pursue university studies.

By-law 5.4.2 — Show Cause

1. A student shall show cause why he should be allowed to repeat a subject in which he has failed more than once. Failure in a deferred examination as well as the annual examination counts for the purposes of this By-law as one examination.
2. (1) A full-time student shall show cause why he should be allowed to continue a course if all subjects of the first year of his course are not completed by the end of his second year of attendance.
   (2) A part-time student shall show cause why he should be allowed to continue a course if all subjects of the first two stages of his course are not completed by the end of his fourth year of attendance.
3. (1) A student who has a record of failure at another University shall show cause why he should be admitted to the University.
   (2) A student admitted to a course at the University following a record of failure at another University shall show cause, notwithstanding any other provision in this By-law, why he should be allowed to continue in that course if he is unsuccessful in the annual examinations in his first year of attendance at the University.
4. A student required to show cause shall have his application considered by the Admissions Committee which shall determine whether the cause shown is adequate to justify the student's being permitted to continue his course or to re-enrol as the case may be.

By-law 5.4.3 — Re-enrolment

1. Any student who has been excluded from a Faculty shall not be allowed to enrol in another Faculty without the permission of the Faculty Board concerned.
2. Any student excluded from a degree course or from a Faculty or from the University may apply after two academic years to the Admissions Committee for re-admission to any such Faculty or to the University. If the Admissions Committee is satisfied that the condition or circumstances of any such student have so changed that there is reasonable probability that he will make satisfactory progress in his studies it may authorise the re-admission of that student under such conditions as it may determine.

By-law 5.4.4 — Appeal Against Exclusion

1. A student who is refused permission to enrol under the provisions of section 1 of By-law 5.4.3 may appeal to the Senate.
2. A student who has been excluded from any degree course or from a Faculty or from the University may appeal to the Council.

PROCEDURES

The onus is on a student required to "show cause" to initiate action should he wish to re-enrol. He must interview the Dean of his Faculty in accordance with the time-table announced towards the end of the academic year.
THE LIBRARY

The Library, totalling approximately 130,000 volumes and made up of monographs, pamphlets, serials and microform sets, exists to acquire, preserve and make available for use all research materials needed by the staff and students of the University. By 1970, all departments now at Tighe's Hill will have been transferred to Shortland and all library service for the University will be given from the Shortland library. Library service for the Faculties of Architecture and Engineering, including Chemical Engineering, will, until these departments are transferred, be given through the Joint Technical College-University library at Tighe's Hill.

In both libraries, there is an almost complete freedom of access to the collections, and students are encouraged and aided to learn how to use, as soon as possible, the library and its contents. On registering, as a reader, the student is provided with a brochure outlining the library's resources, its services, such as the copying service, its special facilities, such as the microprint reading room, and procedure for borrowing.

The Shortland Library, fittingly, occupies a central position on the site, next to the Union. Hours of opening are:

Monday — Friday 8.30 a.m. to 10.00 p.m.  (long vacation excepted)
Saturday 9.00 a.m. to 5.00 p.m.  (all vacations excepted)
Sunday 1.00 p.m. to 5.00 p.m.  (all vacations excepted)

Long vacation:
Monday, Wednesday, Friday 9.00 a.m. to 5.00 p.m.
Tuesday and Thursday 9.00 a.m. to 7.00 p.m.

The Library will be closed on public holidays.

The Tighe's Hill library is located on the first floor of the Clegg Building. Hours of opening are:

Monday — Friday 9.00 a.m. to 9.15 p.m.  (all vacations excepted)

The Library is closed on public holidays.

UNIVERSITY SERVICES

STUDENT COUNSELLING UNIT

The Student Counsellors assist students — past, present and future — in a wide variety of matters. Most students, whatever their academic level, at one time or another need help in dealing with difficulties which arise during the course of their University lives.

Student Counselling is by now a thoroughly established and widely accepted part of University life throughout Australia, and at this University, approximately one-third of all students utilise it.

Students who have problems about their choice of course, or uncertainty about career plans; students who are worried about inadequate study methods or personal difficulties are invited to arrange an appointment with a Student Counsellor.

The S.C.U. is divided into three major divisions, although there is inevitably, overlap between the sections. These are Personal Counselling, Study Skills Training and Research. Apart from individual counselling, courses in an increasing number of areas are run for groups of students.

A student should not feel that he or she must have a major problem before consulting a Counsellor. Many worries take only a few minutes to clear up, and frequently the Counsellor's function is simply to direct a bewildered student to the right source of information.

In 1968, an Appointments Service was established within the S.C.U. and students are invited to register. Students in their final year may expect to receive all available advance information about career opportunities, and all students may register for part-time, casual or vacation employment. Students in the first group will be interviewed and may seek Vocational Guidance if they so desire.

“Study at the University Level” — The S.C.U. produced a brief but comprehensive book on this subject in 1967, and this can be obtained at the Bookshop for 40 cents. Although it was produced specifically for the students of Newcastle University, and reflects the attitudes of several Heads of Departments here, it is already widely used in other Universities and tertiary institutions throughout Australia. A Revised Edition was published in November, 1967 as the first printing had sold out.

S.C.U. Staff —

Senior Student Counsellor: P. M. Whyte, B.A.(Melb.), M.A.Ps.S.
Student Counsellor: A. P. Loftus, B.A.(Melb.), M.A.Ps.S.
Student Counsellor: Miss J. A. Hollingdale, B.A., Dip.Psych.(Syd.), M.A.Ps.S.
Graduate Research Assistant: A. V. Turnbull, B.A.
Secretary: Mrs. J. Hoesli.
Stenographer: Miss V. Petersen.

Location —

The Secretary to the S.C.U. and two Counsellors are located in the Administration Building at Shortland (Room G75) (entrance at N.W. end of building). Study rooms are available here for students. The Unit also has a room in the Union Building Basement, and in the Main Building (1st Floor, Room 108) at Tighe's Hill.

It is generally most satisfactory for students to make appointments through the Secretary. As a Counsellor is on duty five nights each week, part-time students are in no way excluded from the available service.
CHAPLAINCY SERVICE

A Chaplaincy Service within the University of Newcastle for the benefit of students and members of staff is provided by the Christian Churches of Newcastle.

The service offers personal counselling and guidance, and also assistance in biblical and doctrinal studies. Opportunities for liturgical worship are also provided.

The Chaplains' office is situated on the Ground Floor of the Main Administration Building at Shortland.

The Chaplains are in regular attendance at the University but they may also be contacted at their private addresses.

NAMES AND ADDRESSES OF CHAPLAINS

Anglican
The Reverend Canon E. H. V. Pitcher, M.A.(Syd.), Th.Schol., 83 Queen's Road, NEW LAMBTON. Tel. 57 1875.

Baptist
The Reverend H. K. Watson, 133 Kemp Street, HAMILTON. Tel. 61 4048.

Methodist
The Reverend K. G. Bond, B.D.(Lond.), L.Th., 40 Tighe Street, WARATAH. Tel. 68 2358.

Presbyterian
The Reverend H. Barratt, B.A.(Syd.), St. Phillip's Manse, NEWCASTLE. Tel. 2 2379.

Roman Catholic
The Reverend Father T. Warren, B.A.(Qld.), Redemptorist Monastery, MAYFIELD. Tel. 68 2347.

STUDENT LOAN FUND

The Council of the University has recently established a Student Loan Fund which is managed by a committee under the chairmanship of the Vice-Principal.

Loans may be made to an undergraduate where the committee is of the opinion that his academic performance is of sufficient merit and his financial circumstances warrant a loan.

The total outstanding accommodation to any one undergraduate shall not normally exceed $200 at any one time and an undergraduate granted a loan is required to enter into an agreement.

Repayment must commence not later than twelve months after graduation or when the borrower fails or withdraws from his course or on demand as required by the University. No interest is charged while the borrower is an undergraduate but interest at a rate of not less than 5% per annum on the balance owing from time to time is charged from the date of graduation or the date on which an undergraduate fails or withdraws from a course.

In special circumstances the Committee may grant a loan to a student other than an undergraduate.

Any student wishing to seek assistance from the Fund may apply in person to the Vice-Principal or through the President of the Students’ Representative Council or his nominee.
UNIVERSITY ORGANISATIONS

THE UNIVERSITY OF NEWCASTLE STUDENTS' ASSOCIATION

Included in the General Services Fee of the University is an amount payable to the Students' Association, a body to which all students of the University belong. The Students' Association is governed by the Students' Representative Council (SRC), which is elected each year in September to take office in the following April. The functions of the Students' Association are many and varied.

The SRC acts as the main liaison body between the student body and the University authorities. Complaints and requests from students may be handled by the Education and Welfare Committee, or by the SRC as a whole when brought to its attention by one of the Faculty or General Representatives. The Education and Welfare Committee is the part of the SRC most students come in contact with. The education side attempts to study the local and national needs of education and to bring these to the attention of the public and the government.

One of the major ways in which the income of the SRC is spent is in grants to affiliated clubs and societies (which include cultural, social, political and religious societies). To this end the Vice-President is the Clubs' and Societies Liaison Officer, and, with his assistant and the Clubs' and Societies' Committee, gives such help to these societies as they may seek from time to time.

The SRC is also responsible for publishing the student newspaper "Opus," the literary magazine "Nimrod" and the Orientation Handbook, which may be seen around the campus at the time of their publication. A weekly "Bulletin" is published to publicise activities of the SRC, the Union and affiliated clubs and societies.

Each year the SRC organises, with assistance from the University and the Union, Orientation Week and other activities designed to help new students adjust to university life. Early in July Autonomy Day is also organised by the SRC — of this nothing more be said than that it is the equivalent of Commem, Foundation Day, or similar activities at other universities.

As the Students' Association is a constituent member of the National Union of Australian University Students, students of the University may take part in the activities of this body. Some of these activities which affect students more directly are the several inter-varsity cultural festivals, travel to New Zealand and many countries in Asia, volunteer aid projects in Papua/New Guinea, raising money for aboriginal scholarships and World University Service, national campaigns on education, and the national student newspaper "U."

President: Giles Martin
Secretary: Michael Nelson

NEWCASTLE UNIVERSITY UNION

The objects of the Union are to provide a common meeting ground and social centre for men and women who are members of the University; to promote the education and the intellectual culture of its members by debates and otherwise and, generally, to secure the co-operation of University men and women in furthering the interests of the University.

The Union maintains a fine building at Shortland which provides common room facilities for its members; a cafeteria; a coffee room; a meeting room; a reading room; a stationery shop catering for all members' academic needs and the University Co-operative Bookshop. The offices of the Students' Representative Council and the Students' Counsellor are contained in the basement of the building. A common room is provided in the Main University building at Tighe's Hill and members are eligible to use the catering facilities of the Technical College Union.

Membership of the Union, obligatory for all registered students, is open to graduates, members of the University Council and the permanent staff of the University.

The conduct of the affairs of the Union is vested in the Board of Management composed of two members appointed by the University Council, two members elected by the graduates, six members elected by the Union members, two members appointed by the Students' Representative Council, two members elected by the Senior Common Room, and the Secretary/Manager. Elections for the Board of Management are held in April.

President: Mr. B. C. Humphries
Secretary/Manager: Mr. I. H. S. Irwin
THE UNIVERSITY OF NEWCASTLE SPORTS UNION

The Sports Union is a student organisation responsible for promotion and control of sporting activities within the University. As a student you are automatically a member of the Sports Union. There are nineteen affiliated clubs: Athletics, Badminton, Men's Basketball, Women's Basketball, Cricket, Fencing, Golf, Men's and Women's Hockey, Men's and Women's Rowing, Rugby, Sailing, Ski-ing, Soccer, Squash, Surfing, Swimming, Table Tennis, Tennis, Weightlifting, most of which participate in local competitions and send teams to Inter-Varsity contests each year. Inter-Faculty Contests conducted throughout the year aim to stimulate friendly rivalry among the various Faculties, and to encourage a higher student participation in sport. Each club has a student representative on the Sports Union Committee, which meets monthly. The Executive Committee consists of the President, Vice-President, Secretary, Treasurer, a representative of the University Council, and the Amenities Officer. The Sports Union's annual income is derived from portion of the General Services Fee and is used to meet the cost of equipment, affiliation fees, Inter-Varsity trips, etc.

For outstanding individual performance in sport, the University awards "Blues" each year at the Annual "Blues" Dinner.

The number of constituent clubs is increasing continually, and if you are interested in participating in any sport, you are urged to contact the Amenities Officer, Mr. Bradford, or one of the Sports Union Executive for further information. The Amenities/Sports Union office is located with the Post Office in the temporary building adjacent to the University Union.

President: Mr. G. McIntyre
Secretary: Mr. R. Hannah
Amenities Officer: Mr. H. Bradford

THE UNIVERSITY OF NEWCASTLE COMPANY

The University of Newcastle Company is the Citizen Military Force's Unit affiliated with your University. The Company was formed in 1957 as a Sub-Unit of the University of Technology Regiment which is now called The University of N.S.W. Regiment. The current strength of the Company is 150 and is rising.

The function of the Company is to train graduates and undergraduates for commissioned rank in the C.M.F. and the training, designed with this in view, is done on an Infantry basis and consists of:

(a) An Annual Camp for three weeks in February
(b) An optional camp of ten days in May
(c) Five weekend bivouacs a year
(d) Parades on Friday nights of two and a half hours duration.

The training programme is designed to fit in with vacations, examinations, and deferred examinations and there is practically no commitment in the third term. Leave is available from activities where a good reason exists.

Enlistment in the Company is voluntary and is open to all graduates or undergraduates who are 17 years of age or over.

Members of the University of Newcastle Company are eligible for the following benefits:

- An opportunity to reach commissioned rank in 2-3 years.
- Tax-free pay for all training undertaken.
- Refund of travelling expenses.
- An alternative to 2 years full-time National Service.
- Opportunities for attendance at Regular Army courses and short time attachments to Army units in Malaysia, New Guinea or Vietnam.
- Free meals and accommodation at camps and bivouacs.
- Free Uniforms.

Enquiries regarding conditions of service, and enlistment procedure should be made at the Training Depot which is in King Street, Newcastle West (opposite Birdwood Park). Phone No. 61 2121.

OFFICERS AND STAFF

Officer Commanding — Maj. J. G. Raymond
Full-time Staff — WO2 M. Durie
S/Sgt. K. Carmichael
CLASSIFICATIONS OF STUDENTS IN COURSES

CLASSIFICATIONS
1. (i) Full-time students are classified by year (Roman numerals).
   (ii) Part-time students are classified by stage.

2. In the Faculties of Arts and Science, classification depends on the number of subjects passed.

3. (i) In all other Faculties, classification is determined by enrolment in a classifying subject, i.e., by a major subject in a course.
   (ii) If a student enrols in more than one classifying subject, then the year or stage of the lower classifying subject applies.
   (iii) If the student enrols in no classifying subject, then he is classified in the year or stage of the highest classifying subject he has passed.

4. FACULTIES OF ARTS AND SCIENCE
   Students are classified according to the number of subjects passed, i.e.
   **Full-time**
   A student stays in Year I until he has passed 3 subjects
   A student stays in Year II until he has passed 4-6 subjects
   A student stays in Year III until he has passed 7-9 subjects
   A student is in Year IV when taking Honours.
   **Part-time**
   A student stays in Stage 1 until he has passed 2 subjects
   A student stays in Stage 2 until he has passed 3-4 subjects
   A student stays in Stage 3 until he has passed 5-6 subjects
   A student stays in Stage 4 until he has passed 7-8 subjects
   A student stays in Stage 5 until he has passed 9 subjects
   A student is in Stage 6 when doing Honours.

FACULTY OF SCIENCE

The Faculty of Science comprises the Departments of Chemistry, Geology, Mathematics and Physics, together with the Departments of Geography and Psychology from the Faculty of Arts. Prior to 1960 the science course had been offered under the regulations published in the Calendar of the University of New South Wales, 1960, p. 353, modified in various ways to suit local conditions. It comprised eight science subjects chosen in accordance with the regulations. Students who were enrolled in 1960 and had completed one Group I subject before 1st March, 1961, will be permitted to complete the course in accordance with the previously existing regulations, but without the prescribed studies in the Humanities. Any such students who have passed in one Stage I subject of the Bachelor of Arts degree, the subject not being a Group I subject of the Bachelor of Science degree, will be allowed to count that subject as a Group I unit requirement for the Bachelor of Science degree.

For all other students the following regulations apply.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

A pass degree may be awarded after three years, or an Honours degree after four years, of full-time study. The course may be taken by part-time study.

(Students in any doubt as to the choice of their subjects should discuss the matter with the Dean of the Faculty of Science).

1. A student is required to select his course from the following groups of qualifying subjects in accordance with the provisions set out in subsequent clauses. (A student who selects an unusual combination of subjects or subjects chosen from more than one group in one year may be required, owing to the exigencies of the time-table to attend for more than the minimum number of years and/or evening classes).

<table>
<thead>
<tr>
<th>Group I:</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry I</td>
<td>6</td>
</tr>
<tr>
<td>Engineering I</td>
<td>6</td>
</tr>
<tr>
<td>Geography I</td>
<td>6 (Plus 4 days field work)</td>
</tr>
<tr>
<td>Geology I</td>
<td>6 (Plus 4 days field work)</td>
</tr>
<tr>
<td>Mathematics I</td>
<td>6</td>
</tr>
<tr>
<td>Physics I</td>
<td>6</td>
</tr>
<tr>
<td>Psychology I</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group II:</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry II</td>
<td>9</td>
</tr>
<tr>
<td>Geography II</td>
<td>6 (Plus 10 days field work)</td>
</tr>
<tr>
<td>Geology II</td>
<td>9 (Plus 8 days field work)</td>
</tr>
<tr>
<td>Mathematics II</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics IIIA</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics IIIB</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics IIIC</td>
<td>6</td>
</tr>
<tr>
<td>Physics II</td>
<td>9</td>
</tr>
<tr>
<td>Psychology II</td>
<td>7</td>
</tr>
</tbody>
</table>
Group III:  

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry III</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry IIIB</td>
<td>12</td>
</tr>
<tr>
<td>Geography III</td>
<td>5 (Plus 10 days field work)</td>
</tr>
<tr>
<td>Geology III</td>
<td>12 (Plus 10 days field work)</td>
</tr>
<tr>
<td>Geology IIIN</td>
<td>12 (Plus 10 days field work)</td>
</tr>
<tr>
<td>Mathematics III-Pure</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics III-Applied</td>
<td>6</td>
</tr>
<tr>
<td>Physics III</td>
<td>12</td>
</tr>
<tr>
<td>Psychology III</td>
<td>8</td>
</tr>
</tbody>
</table>

2. In order to qualify for admission to the degree of Bachelor of Science under these regulations a candidate must attend the classes, complete laboratory and other assignments and satisfy the examiners in the following subjects:—

Nine subjects selected from the Science subjects listed under Section I to include four subjects from Group I, three subjects from Group II and two subjects from Group III, provided that

(i) a student may substitute a subject from Group I for a subject from Group II; and/or

(ii) a student may substitute a subject from Group II for a subject from Group III;

(iii) the proposed course must be approved by the Dean or his representative during enrolment;

(iv) any one subject for a Degree course in the University of Newcastle may, with the approval of the Dean, be substituted for one of the subjects set out in Groups I, II and III in Clause I of these requirements. In approving such a substitution the Dean shall define whether this subject is to be treated as a Group I or a Group II subject in order that the conditions in paragraphs 2 (i) and 2 (ii) are complied with;

(v) the requirements of Section 4, with respect to pre-requisite and co-requisite subjects are satisfied;

(vi) Notwithstanding the provisions of Sections (i) to (v) above, a candidate will not be required to repeat a subject taught at the University of Newcastle for which he has been granted advanced standing by the University of Newcastle because of studies completed elsewhere.

Advanced standing may also be granted for subjects not offered for the degree of Bachelor of Science in the University of Newcastle.

3. Progression in the course is by subject. A full-time student is required to pass four Group I subjects, and a part-time student is required to pass two Group I subjects, in his first two years of study for the Bachelor of Science degree.

In general, a full-time student should complete his course as follows:—

First Year Programme:

Four subjects from Group I.

Second Year Programme:

Three subjects from Group II OR
Two subjects from Group II and one from Group I.

Third Year Programme:

Two subjects from Group III OR
One subject from Group III and one from Group I.

4. (a) Before enrolling for any subject listed in Group II, the student shall have attended the classes, completed laboratory and other assignments and satisfied the examiners in the corresponding subject in Group I and before enrolling for any subject listed in Group III, the student shall have attended classes, completed laboratory and other assignments and satisfied the examiners in the corresponding subject listed in Group II.

(b) Before enrolling in any subject listed in the left-hand column below, the student shall have attended the classes, completed laboratory and other assignments and satisfied the examiners in the subjects indicated as pre-requisites.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry II</td>
<td>Physics I and Mathematics I</td>
</tr>
<tr>
<td>Geology III</td>
<td>Chemistry I and Physics I</td>
</tr>
<tr>
<td>Geology IIIN</td>
<td>Mathematics I</td>
</tr>
<tr>
<td>Physics II</td>
<td>Mathematics I</td>
</tr>
<tr>
<td>Physics III</td>
<td>Mathematics IIA or Mathematics IIB</td>
</tr>
</tbody>
</table>

(c) Enrolment in the subject in the left-hand column shall not be approved unless the corresponding subject listed in the right-hand column is taken concurrently or has been completed.

Subject:  

<table>
<thead>
<tr>
<th>Chemistry IIIA</th>
<th>Co-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology IIIN</td>
<td>Chemistry III</td>
</tr>
<tr>
<td>Mathematics IIC</td>
<td>Geology III</td>
</tr>
</tbody>
</table>

Before enrolling in Chemistry IIIA, the student must obtain the approval of the Head of the Department of Chemistry or his representative.
5. (a) Where any alteration in the year's programme approved at enrolment is desired, the student must obtain the approval of the Dean or his representative for the new programme.

(b) A student who wishes to attempt an Honours degree should seek the advice of the Head of the appropriate Department.

(c) A student wishing to enrol in an Honours course in a Department may be required to complete extra work concurrently with the Pass degree work.

HONOURS:

6. (a) A qualified candidate may be admitted to an Honours course in one of the following subjects requiring an extra year of full-time or two extra years of part-time work.

(i) Chemistry.
(ii) Geography.
(iii) Geology.
(iv) Mathematics.
(v) Physics.
(vi) Psychology.

(b) A student desiring admission to the Honours course must apply to the Head of the appropriate Department on completion of the Pass degree requirements.

(c) A student proceeding to Honours in any subject must attend lectures, read and engage in laboratory work as may be required.

(d) A student proceeding to Honours in Mathematics will be required to undertake additional work during his Pass degree course.

7. There shall be three classes of Honours, namely Class I, Class II and Class III. Class II shall have two divisions.

8. In each Department the candidate or candidates at the head of Honours Class I in any year may, if of sufficient distinction, be awarded a University Medal.

SCIENCE/ENGINEERING:

9. Notwithstanding the other provisions of these Requirements a candidate may:

(i) after completing the first year of a course in the Faculty of Engineering and with the permission of the Dean of the Faculty of Science, enrol in the combined Science/Engineering course approved by the Faculty Boards of the Faculties of Science and Engineering;

(ii) qualify for admission to the degree of Bachelor of Science by passing the subjects prescribed for the first three years of the combined Science/Engineering course approved by the Faculty Boards of the Faculties of Science and Engineering;

(iii) qualify for admission to the degree of Bachelor of Science with Honours at graduation by passing the subjects prescribed for the first three years of the combined Science/Engineering course approved by the Faculty Boards of the Faculties of Science and Engineering and fulfilling the conditions of Clause 6 of these Requirements.

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**DESCRIPTION OF SUBJECTS**

**DEPARTMENT OF CHEMISTRY**

**CHEMISTRY I**
A subject comprising about 90 lectures and 90 hours of tutorial and laboratory classes covering the following topics:

- **Inorganic Chemistry (30 lectures)**
  - Atomic structure; chemical bonds; shapes of molecules; simple crystal structures; radiochemistry and geochemistry; chemistry of the elements, H to Ne, and some other related elements.

- **Physical Chemistry (30 lectures)**
  - Chemical equilibria and energetics; ionic equilibria; chemical kinetics.

- **Organic Chemistry (30 lectures)**
  - The place of organic chemistry; isolation, purification; characterization of organic compounds; structural principles; nomenclature; reactions of mono-functional compounds.

The annual examination will consist of two papers, each of three hours duration.

**CHEMISTRY IS** (for Civil, Electrical and Mechanical Engineering Students).
A subject comprising about 60 lectures and 30 hours of tutorials, computational classes and student participation demonstrations on selected principles of chemistry developed against an engineering background. The central theme is the contribution of chemistry to the control and exploitation of man's environment with special reference to energy and material resources. Among the topics included are the following:

- The chemical nature of natural resources; chemical energetics in relation to combustion; ionic and phase equilibria against a background of water usage, treatment and beneficiation; electrochemistry in relation to corrosion and related phenomena; structural chemistry of engineering materials; organic chemistry with special reference to petrochemistry, polymers, fuels and lubricants.

The annual examination will consist of one paper of three hours duration.
CHEMISTRY II

A subject comprising about 90 lectures and 180 hours of tutorial and laboratory classes covering the following topics.

Inorganic Chemistry (30 lectures)
Principles of physical methods; maximum symmetry of electron pair theory; co-ordination chemistry; chemistry of the elements of the first transition series; crystal chemistry.

Physical Chemistry (30 lectures)
Thermodynamics; solutions; phase equilibria; kinetics and photo-chemistry.

Organic Chemistry (30 lectures)
Polyfunctional compounds including amino acids, proteins and carbohydrates; condensation reactions; aromatic compounds; reaction mechanisms; elementary aspects of spectroscopic determination of molecular structure.

The annual examination will consist of two papers, each of three hours duration.

CHEMISTRY III (for Metallurgy Students).

A subject of experimental inorganic and physical chemistry comprising about 45 hours of laboratory work.

The annual examination will consist of an assessment of the student's performance in the subject.

CHEMISTRY III

A subject comprising about 90 lectures and 270 hours of tutorial and laboratory classes covering the following topics:

Analytical Chemistry (15 lectures)
Principles of chemical analysis.

Inorganic Chemistry (25 lectures)
Introductory quantum chemistry; Chemistry of elements not dealt with in Chemistry I and II; recent chemistry of non-metals; recent chemistry of metals.

Physical Chemistry (25 lectures)
Surface chemistry and catalysis; electrochemistry; statistical thermodynamics.

Organic Chemistry (25 lectures)
Stereo electronic methods of predicting chemical behaviour; free radicals and photochemistry; chemistry of simple heterocyclic systems; approach to chemical synthesis.

The annual examination will consist of not less than two papers, each of three hours duration.

CHEMISTRY IIIA

A subject of about 90 lectures and 270 hours of tutorials and laboratory classes comprising two parts:

(i) A core of 45 lectures to be taken by all students covering the following topics:
Principles of molecular structure; radio and radiation chemistry; principles of separation procedures, together with either of the following options:

(ii) (a) Inorganic and physical chemistry (45 lectures)
Thermodynamics; polymer chemistry; advanced inorganic chemistry.

(b) Organic chemistry (45 lectures)
Aromaticity; reaction mechanisms; chemistry of natural products and biosynthesis.

The annual examination for each student will consist of two papers, each of three hours duration.

CHEMISTRY IV

A subject extending over one full-time academic year or its equivalent comprising three parts:

(i) A minimum of 40 hours of lectures and tutorials together with directed reading;

(ii) A supervised research project, the results of which are to be embodied in a thesis;

(iii) Two seminars, one on the subject of the research project and the other on a topic distinct from it.

The annual examination will consist of two papers each of three hours duration. The assessment of the class of honours will be based primarily on the performance in Chemistry IV as a whole, but reference may also be made to the results obtained in earlier years.
RESEARCH IN THE DEPARTMENT OF CHEMISTRY

The research programme in the Department is pursued in a number of loosely knit groups each concentrating on some branch of the subject, but with sufficient overlap to promote effective internal discussion and criticism.

Research in organic chemistry is concerned with the components of Xanthorrhoea resins and other natural products, the synthesis of related substances and of other new compounds including herbicides and fungicides and with the study of the kinetics and mechanism of organic reactions with particular reference to oxidation processes.

In physical and analytical chemistry interest is centered on adsorption and reaction of gases on solid surfaces, the properties of electrolytic solutions and on the kinetics and mechanism of solid-liquid reactions involving solid oxidants.

Research work in inorganic chemistry is related primarily to the synthesis of metal complexes, the elucidation of structures and the determination of stability constants and with the use of these compounds in solvent extraction and their possible role in biological systems.

The theoretical chemistry group is pursuing experimental and computational studies on metal-porphyrin complexes with special reference to the thermodynamics of their formation and the nature of their chemical bonding.

TEXT BOOKS FOR 1969
DEPARTMENT OF CHEMISTRY

CHEMISTRY I

Chemical Data Book ... ... ... ... ... Aylward, Findlay.
Modern Approach to Inorganic Chemistry ... ... ... Bell and Lott.
Energy Changes in Chemistry ... ... ... ... ... Allen.
Organic Chemistry ... ... ... Hart and Schuetz.
The Names and Structures of Organic Compounds ... Benfey.
Solubility and pH Calculations ... ... ... ... ... Butler
(Students continuing may prefer to purchase
Ionic Equilibrium ... ... ... ... ... Butler)
A Chemistry Manual for First Year
University ... ... ... ... ... Daly, Scott and Selinger.

CHEMISTRY II

Energy Changes in Chemistry ... ... ... ... ... Allen.
Chemical Data Book ... ... ... Aylward and Findlay.
Chemistry for Engineers ... ... ... ... ... Cartmell.

Modern Approach to Inorganic Chemistry ... ... ... Bell and Lott.
OR, Advanced Inorganic Chemistry ... ... ... Cotton and Wilkinson.
Physical Chemistry ... ... ... Daniels and Alberty.
OR, Physical Chemistry ... ... ... ... ... ... Barrow.
Chemical Thermodynamics, ... ... ... ... ... ... Waser.
Experimental Physical Chemistry ... ... ... Daniels et al.
OR, Practical Physical Chemistry ... Shoemaker and Garland.
Basic Principles of Organic Chemistry ... Roberts and Caserio.
OR, Organic Chemistry ... ... ... ... ... Morrison and Boyd.
OR, Modern Principles of Organic Chemistry
(for terminating students only) ... ... ... Kice and Marvell.
Unitised Experiments in Organic Chemistry
... ... ... Brewster, van der Werf and McEwen.
Modern Methods of Chemical Analysis ... Pecsok and Shields.
OR, Fundamental Principles of Chemical Analysis ... Pickering.
Outline of Organic Chemistry, Problems
and Answers ... ... ... Hansch and Helmkamp.
CHEMISTRY IIS
No books prescribed.

CHEMISTRY III
Advanced Inorganic Chemistry        Cotton and Wilkinson.
Physical Chemistry                    Barrow.
Experimental Physical Chemistry       Daniels et al.
OR, Practical Physical Chemistry     Shoemaker and Garland.
OR, Organic Chemistry                 Morrison and Boyd.
Heterocyclic Chemistry                Katritzky and Logowski.
OR, An Introduction to the Chemistry of Heterocyclic Compounds Acheson.
Physical Organic Chemistry            Hine.
Modern Methods of Chemical Analysis  Pecsok and Shields.
OR, Fundamental Principles of Chemical Analysis Pickering.
Introduction to Colloid and Surface Chemistry Shaw.
Practical Organic Chemistry           Pass & Sutcliffe.

CHEMISTRY IIIA
As for Chemistry III with the addition of:
The Determination of Molecular Structure Wheatley.
Chemical Thermodynamics               Klotz.
An Outline of Polymer Chemistry       Allen.
A Practical Course of Polymer Chemistry Pinier.
Stereochemistry of Carbon Compounds   Efiel.
The Principles of Chemical Equilibrium Denbigh.

CHEMISTRY IV
Consult lecturers concerned.

DEPARTMENT OF GEOGRAPHY

GEOGRAPHY I
6 hours per week (2 hours lectures, 1 hour tutorial, 3 hours of practical work). Four days of field work are an integral part of the course. A final examination of two papers each of three hours.

The three strands to this course are designed to introduce students to the earth as the home of man and to basic techniques required for this study.

(a) Practical Geography
The practical class of 3 hours per week is designed to enable students to gain proficiency in, and an understanding of, the tools of geographical analysis. It contains three sections:
(i) An introduction to the mechanics of reading and interpreting topographic maps. An integral part of this section is a one-day excursion designed to develop a basic frame of geographic reference and elementary field work skills.
(ii) The cartographic representation of quantitative data in distribution maps and diagrams.
(iii) An introduction to the statistical organisation and interpretation of quantitative data.

(b) A study of the processes resulting in and the integration of landforms, climate, soil and vegetation. Two days of field investigation are associated with this aspect of the course.

(c) A study of the evolution and patterns of world population and settlement. One day of field investigation is included in this part of the course.

GEOGRAPHY II
6 hours per week. (4 hours of lectures, two hours practical/tutorial). The course involves ten days field work. A final examination of four papers each of two hours.

One strand of this course is concerned with human impact on the landscape, the other stresses aspects of physical geography.

(a) Human Geography
A course of about 60 lectures with associated seminars, practical exercises and field work. This involves a study of Historical Geography designed to develop an appreciation of the time-element, and the concept of change in geographic study, and of Economic Geography which studies the impact of economic activity and especially of agricultural production on the face of the earth.
(b) Physiography
A course of about 60 lectures with associated seminars, practical exercises and field work. One section of this course examines the water balance as an expression of the exchange of matter between the earth and its atmosphere. Another investigates the development of landforms in such topics as:—fluvial processes, slope processes, Cenozoic diastrophism, climatic changes and sea level changes. It studies structurally controlled landform and coastal landforms as "intrazonal" features and investigates the landforms, and related soil and vegetation of the different climate zones.

GEOGRAPHY III

4 hours per week. The course involves ten days' field work. A final examination of three papers each of three hours. The course is comprised of two studies.

(a) South-east Asia
A course of about 40 lectures and associated seminars designed to study the regional variety which exists in the monsoon Asian region. Because this is largely an underdeveloped area, the course work will concentrate on the study of the characteristics of underdevelopment and the areal manifestations of these characteristics.

(b) Political Geography
A course of about 40 lectures and associated seminars. This course involves the study of politics as a geographical influence, the geographical characteristics of political areas, the internal problems of organisation in political areas and the external relationships between political areas. The state is taken as the primary unit of study, but attention may also be given to smaller unit areas.

GEOGRAPHY IV (Honours)

This course is designed in part as an introduction to research work in Geography. During the course each student is required to submit a thesis embodying the result of an original investigation on a subject approved by the Head of the Department of Geography.

A final examination of three papers each of three hours. Seminars and field work will be offered in the following:—
(a) The history and methodology of geographic study.
(b) The impact of man and society on nature.
(c) A systematic topic relating to the thesis work.

RESEARCH IN THE DEPARTMENT OF GEOGRAPHY

Research in the Department is divisible into the two broad fields of physical and human geography, with emphasis at present being more on the human field.

The major physical programme is concerned with the investigation of the problem of past and present tidal geomorphology. [W. F. Geyl]. A further project, linking the human and physical fields, is concerned with the general problem of water allocation and water use. [A. D. Tweedie]

Human geography interests reveal a number of specialisms as follows:—

A study of New Guinea rubber production, which was commenced in 1968, is being continued. [P. G. Irwin].

A special aspect of historical geography is being investigated in South-eastern Queensland, where the progress of land settlement in the late nineteenth and early twentieth centuries is the subject of study. [J. C. R. Camm].

A detailed study is being made, within the Newcastle Urban Area of the urban neighbourhood as an area of socio-morphic coherence. [D. N. Parkes].

A comparative study of factors influencing the locations and attitudes to expansion of industries in Greater Newcastle and in a sample of Sydney's western suburbs is being undertaken. [M. R. Hall].

An investigation is being made into some aspects of the political geography of local government areas with reference to boundaries, community of interest and attitudes towards decentralisation. [K. W. Robinson].
TEXT BOOKS FOR 1969
DEPARTMENT OF GEOGRAPHY

GEOGRAPHY I
A set of four topographic maps and a basic set of cartographic instruments. (Advice on these items will be given at the beginning of the practical course).

The Practical Geographer .... Coggins and Hefford.
A Programmed Introduction to Statistics .... Elvey.
Introduction to Physical Geography .... Strahler.
Vegetation and Soils .... Eyre.
Human Geography .... Jones.
Population Geography .... Clarke.

GEOGRAPHY II
Historical Geography .... Mitchell.
Economic Geography .... Alexander.
Geography and Economics .... Chisholm.
Socio-Economic Models in Geography .... Chorley and Haggett.
Physical Climatology (2nd Edition) .... Landsberg.
Introduction to the Atmosphere .... Reihl.
Principles of Geomorphology .... Thornbury.

GEOGRAPHY III
South East Asia .... Fisher.
The Nature of Politics .... Miller.
Systematic Political Geography .... de Blij.
Coasts .... Bird.
OR
Streams, their Dynamics and Morphology .... Morisawa.

DEPARTMENT OF GEOLOGY

GEOLOGY I
A course of three lectures and three laboratory hours per week for three terms, together with four days field work, to be examined by two papers, each of three hours duration. The course covers Material, Physical and Historical Geology. Brief outlines are as follows:

Material Geology
Introductory crystallography, mineralogy and petrology; classification of rocks; economic mineral deposits.

Physical Geology
Erosion cycle; agents of erosion; diastrophism; structural geology; geomorphology.

Historical Geology
Introductory palaeontology and stratigraphy; brief geological history of New South Wales.

ENGINEERING GEOLOGY (for students in Engineering)
A course of one lecture and two laboratory hours per week for fourteen weeks together with two days field work. The course introduces the principles of geology and their application to engineering problems.

GEOLOGY II
A course of three lectures and six laboratory hours per week for three terms, together with eight days field work, to be examined by two papers, each of three hours duration. The course covers Mineralogy, Petrology, Stratigraphy and Palaeontology and Structural Geology and Geotectonics. Brief outlines are as follows:

Mineralogy
Crystallography; chemistry and physics of minerals; genesis of minerals.

Petrology
Rock forming minerals; intrusive and extrusive igneous bodies; crystallization from a magma; petrography and classification of igneous and metamorphic rocks.

Stratigraphy and Palaeontology
Stratigraphy of Australia; invertebrate palaeontology.

Structural Geology and Geotectonics
Nomenclature and origin of diastrophic and non-diastrophic structures.

GEOLOGY III
A course of five lectures and seven laboratory hours per week for three terms, together with ten days field work, to be examined by four papers each of three hours duration. The course covers Petrology, Stratigraphy and Palaeontology, Structural Geology and Economic Geology. Brief outlines are as follows:

Petrology
Petrographic techniques and petrogenesis of igneous, metamorphic and sedimentary rocks.
Stratigraphy and Palaeontology
Principles of stratigraphy; world stratigraphy; micro-palaeontology; theoretical and evolutionary palaeontology.

Structural Geology
Advanced structural geology and geotectonics.

Economic Geology
Ore mineralogy; principles of formation and classification of mineral deposits; problems of ore genesis; ore microscopy.

GEOLOGY III
A course in applied geology of five lectures and seven laboratory hours per week for three terms, together with ten days field work, to be examined by four papers each of three hours duration. The course covers Geology of Fuels, Geophysics, Exploration and Mining Geology, Photogeology, Advanced Mineralogical Techniques and Engineering Geology. Brief outlines are as follows:

Geology of Fuels
Properties and classification, origin and genesis, world and geological distribution of coal and petroleum.

Geophysics
Geophysical characteristics of the earth and its components; principles and application of geophysical techniques.

Exploration and Mining Geology
Geology applied to exploration and development of mineral resources.

Photogeology
Basic principles of photogrammetry and photogeological interpretation; aerial photographs and their use in cartography and in stratigraphic and structural studies in the geological office and in field work.

Advanced Mineralogical Techniques
X-ray diffraction and fluorescence, differential thermal and thermogravimetric analysis, atomic absorption, infra-red and optical spectroscopy, the electron microscope and microprobe, differential staining and advanced mineral separation methods and techniques.

Engineering Geology
Soil mechanics; engineering properties of rocks, subsurface water; geological problems in engineering design and construction; sedimentation engineering.

GEOLOGY IV
A course extending over one full-time academic year, to be examined by a minimum of three papers, each of three hours duration.

PART A—Lecture—tutorial courses with directed reading.

PART B—A research project, the results of which are to be embodied in a thesis.

Students may elect to specialise in one of the following major fields of geology: Mineralogy and petrology; stratigraphy and palaeontology; structural geology; economic geology.
TEXT BOOKS FOR 1969

DEPARTMENT OF GEOLOGY

GEOLOGY I

Rutley's Mineralogy Read.
EITHER
Principles of Physical Geology (2nd Ed.) Holmes.
OR
Introduction to Geology (Vol. I) Read and Watson.
Geomorphology Twidale.

GEOLOGY II

An Outline of Crystal Morphology Bishop.
Mineralogy Berry and Mason.
Microscopic Identification of Minerals Heinrich.
The Study of Rocks in Thin Section Moorhouse.
EITHER
Outlines of Structural Geology Hills.
OR
*Elements of Structural Geology Hills.
Invertebrate Fossils Moore, Lalicker and Fischer.
The Geological Evolution of Australia Brown, Campbell and Crook.
and New Zealand
*Preferable if proceeding to Geology III

GEOLOGY III

An Introduction to the
Rock Forming Minerals Deer, Howie and Zussman.
Petrography of Australian Igneous Rocks Joplin.
Petrography of Australian Metamorphic Rocks Joplin.
Textures of Ore Minerals (2nd Ed.) Edwards.
Ore Deposits Park and McDiamid.
Elements of Structural Geology Hills.
Invertebrate Fossils Moore, Lalicker and Fischer.
The Evolution of Life Rhodes.
General Palaeontology Brouwer.

ENGINEERING GEOLOGY (for students in Engineering)

Engineering Geology Miller.

GEOLOGY IIIN

Exploration Geology (Publications, Vol. II)
VIII Commonwealth Mining Congress, Melbourne
Structural Methods for the Exploration Geologist Badgley.
Manual of Field Geology Compton.
Mining Geology McKinstry.
Principles of Engineering Geology
and Geotechnics Krynine and Judd.
Soil Mechanics in Engineering Practice Terzaghi and Peck.
Photogeology Miller.
Physical Methods in Determinative Mineralogy
(Optional) Zussman.

ENGINEERING GEOLOGY (for students in Engineering)

Engineering Geology Yoder.
DEPARTMENT OF MATHEMATICS

MATHEMATICS I
A subject of four lectures and two tutorial hours per week for three terms comprising the following topics: differential and integral calculus and their applications; special functions; sequences and series; coordinate geometry; differential equations; groups, fields, linear algebra, vector spaces, matrices and determinants; introduction to computing and numerical mathematics.

GROUP II SUBJECTS
The following topics are offered by the Mathematics Department. Certain combinations of these topics specified below will comprise the group II subjects offered by the Department; each topic consists of about 27 lectures. A pass in Mathematics I is a prerequisite for entry to each group II subject given by the Department; in addition some topics will require other topics as a corequisite or prerequisite as shown.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Corequisite or Prerequisite Topic</th>
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<tbody>
<tr>
<td>A Real analysis</td>
<td>C</td>
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<tr>
<td>B Complex analysis</td>
<td>C</td>
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<tr>
<td>C Calculus and vector calculus</td>
<td>-</td>
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<tr>
<td>D Linear algebra</td>
<td>-</td>
</tr>
<tr>
<td>E Differential equations and integral transforms</td>
<td>C</td>
</tr>
<tr>
<td>F Numerical analysis and computing</td>
<td>D</td>
</tr>
<tr>
<td>G Fourier series, partial differential equations and special functions</td>
<td>C E</td>
</tr>
<tr>
<td>H Probability and statistics</td>
<td>C E</td>
</tr>
<tr>
<td>I Topic in statistics e.g. time series</td>
<td>C H</td>
</tr>
<tr>
<td>J Topic in applied mathematics, e.g. dynamics</td>
<td>C E</td>
</tr>
<tr>
<td>K Topic in pure mathematics, e.g. group theory</td>
<td>-</td>
</tr>
<tr>
<td>L Topic in pure mathematics e.g. axiomatic systems</td>
<td>-</td>
</tr>
</tbody>
</table>

MATHEMATICS IIA
A subject of four lectures and two tutorial hours per week for three terms comprising topics A, B, C and D. In exceptional circumstances and with the consent of the Head of Department one topic from E, F, G or H may be substituted for A. A student who has passed Mathematics II prior to 1969 or Mathematics IIB may with the consent of the Head of Department make further substitutions in order to comply with note 2 below.

MATHEMATICS IIB
A subject of four lectures and two tutorial hours per week for three terms comprising four topics chosen from A to H and approved by the Head of the Department. In exceptional circumstances and with the consent of the Head of Department one or more of the topics I, J, K or L may be included.

MATHEMATICS IIC
A subject of four lectures and two tutorial hours per week comprising either topics E, J, K and L or topics H, I, K and L. Subject to the consent of the Head of the Department one topic from A to H may be substituted for topics K or L. Subject to the consent of the Head of the Department the combination G, I, K, L or some similar combination may be accepted in the case of students who passed Applied Mathematics II prior to 1969.

Notes
1. Part-time students may take Mathematics IIB in two parts each of two lectures per week for three terms.
2. In order to pass both Mathematics IIA and Mathematics IIB a student must study all the topics A to H above and offer them for examination.
3. Mathematics IIA is a corequisite or prerequisite for Mathematics IIC.
4. In order to pass in all three group II subjects a student must study all twelve topics and offer them for examination.

TRANSITION ARRANGEMENTS
A student who has passed some group II subjects prior to 1969 and wishes to continue with Mathematics may proceed according to the following pattern.

1. If he has passed Mathematics II part 1 only he may proceed as though he had satisfied the examiners in topics C and E.
2. If he has passed Mathematics II only he may proceed as though he had satisfied the examiners in topics C, E, F and H, i.e. the new Mathematics IIB.
3. If he has passed Pure Mathematics II only he may proceed as though he had satisfied the examiners in topics A, B, C and D, i.e. the new Mathematics IIA.
4. If he has passed Applied Mathematics II only he may proceed as though he had satisfied the examiners in topics A, B, C and D. Such a student may be credited with a pass in Mathematics IIC if he satisfies the examiners in topics G, I, K and L or some similar combination approved by the Head of Department.
5. If he has passed both Pure Mathematics II and Applied Mathematics II he may proceed as though he had satisfied the examiners in topics A, B, C, D, E, F, H and J. Such a student may be credited with a pass in Mathematics IIC if he satisfies the examiners in topics G, I, K and L or some similar combination approved by the Head of Department.
GROUP III SUBJECTS

A revision of group III subjects will be made for the 1970 academic year. The syllabuses for the group III subjects to be given in 1969 follow; the prerequisites are unchanged from 1968. Students wishing to obtain one mathematics major after 1969 will be required to have passed Mathematics IIA and Mathematics IIC. Students wishing to obtain two majors in mathematics are strongly advised to take all three group II subjects.

PURE MATHEMATICS III

This subject comprises four lectures and two tutorial hours per week for three terms, including the following:
- analysis of the real number system; real variable theory; metric topology; theory of groups and rings; general topology; complex variable theory; differential equations.

PURE MATHEMATICS III HONOURS

This subject comprises six lectures and one tutorial hour per week for three terms, including topics from the following:
- analysis of the real number system; real variable theory; metric topology; theory of groups and rings; general topology; complex variable theory; differential equations; further work on topology, complex variable and differential equations; general algebra; functional analysis.
- An essay on a general topic will also be required.

APPLIED MATHEMATICS III

This subject comprises four lectures and two tutorial hours per week for three terms, including the following:
- calculus of variations; numerical analysis; mechanics of continuous media; Cartesian and general tensors; special relativity; statistics.

APPLIED MATHEMATICS III HONOURS

This subject comprises six lectures and one tutorial hour per week for three terms, including topics from the following:
- calculus of variations; numerical analysis; mechanics of continuous media; special relativity; statistics; further work on numerical analysis and mechanics of continuous media; integral transforms; quantum mechanics; probability.

MATHEMATICS IV

A student desiring admission to this course must apply in writing to the Head of the Department before 1st December of the preceding year. This course extends over one full-time academic year and will be examined by a minimum of three papers, each of three hours duration.

PART A—Lectures, reading-tutorial courses, and seminars, as required.

PART B—A thesis, i.e. a study under direction of a special topic using relevant published material and presented in written form.

10.05! MATHEMATICS

The course consists of two lectures per week for three terms, comprising the following:
- analytic geometry in two dimensions and some elementary work in three dimensions with vectors; calculus with applications including work on maxima and minima, curvature, the Mean Value Theorem, Taylor's series; the indefinite and definite integrals with applications to geometry and physics; numerical methods; some simple types of differential equations, including second order linear differential equations with constant coefficients.
RESEARCH IN THE DEPARTMENT OF MATHEMATICS

ALGEBRA—Mr. R. F. Berghout is active in ring theory particularly the theory of division rings and their related geometries. He is currently trying to develop a theory of radicals for additive categories.

Mr. W. Brisley is working on some problems occurring in the laws for certain varieties of groups, and the relations amongst these varieties.

FLUID DYNAMICS—Dr. W. T. F. Lau is concerned in particular with a type of boundary value problem which arises when a stream of fluid interacts with another of a different total pressure.

FUNCTIONAL ANALYSIS—Mr. J. R. Giles is involved in determining properties of Banach spaces which can be derived from relations between the points of the space and their support functionals. In particular he is analysing smooth Banach spaces as semi-inner-product spaces.

Dr. W. Ficker is working in measure theory, particularly in some problems on classes of null sets.

INFORMATION THEORY—Professor R. G. Keats is continuing work commenced at the University of Adelaide where a team consisting of research students at the University and research scientists from the Weapons Research Establishment have been active in the study of signal detection in the presence of noise. This work involves the study of non linear systems with stochastic inputs and has led, inter alia, to some closed form expressions for the orthant probabilities of four Gaussian variates.

NUMERICAL ANALYSIS AND COMPUTING—Mr. J. A. Lambert has continued his study of computer enumeration of cosets in finitely presented groups, seeking a relation between the form of presentation of the group relations and redundancy in the coset table. He is also engaged in conjunction with members of the Department of Metallurgy on some Monte Carlo calculations of occupancy numbers in certain metallic lattices.

Dr. I. L. Rose is investigating problems in numerical analysis and mathematical aspects of porous conduits.

TEXT BOOKS FOR 1969

DEPARTMENT OF MATHEMATICS

MATHEMATICS I

Calculus and Linear Algebra
H. S. Wilf. (Harcourt Brace & World Inc.).

Differential and Integral Calculus
Frank Ayres. (Schaum Publishing Co.).

A Course in Fortran J. A. Lambert.

GROUP II SUBJECTS

Topic A—real analysis
Real Analysis A. J. White.

Topic B—complex analysis
Advanced Calculus (Chapter 9) W. Kaplan.

Topic C—calculus and vector calculus
Advanced Calculus (Chapters 1-5) W. Kaplan.

Topic D—Linear algebra
Linear Algebra and Matrix Theory E. D. Nering.

Elementary Differential Equations and Boundary Value Problems (Chapters 3,4,5,6,7,9) W. E. Boyce & R. C. DiPrima.

Topic E—differential equations and integral transforms

Topic F—numerical analysis and computing

Topic G—Fourier series, partial differential equations and special functions
Advanced Calculus (Chapters 7,10) W. Kaplan.

Topic H—probability and statistics

Topic I—topic in statistics

Topic J—topic in applied mathematics
Theoretical Mechanics (Chapters 1-7,9) M. R. Spiegel.

Topic K—topic in pure mathematics
The Theory of Groups I. D. Macdonald.

Topic L—topic in pure mathematics
Topics in Algebra (Chapters 1,2,3,7) I. N. Herstein.
### PURE MATHEMATICS III (III A Arts)

<table>
<thead>
<tr>
<th>Course</th>
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<th>Edition</th>
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<tbody>
<tr>
<td>Complex Variables and Applications</td>
<td>R. V. Churchill</td>
<td>(International Student Edition)</td>
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<tr>
<td>Differential Equations</td>
<td>H. Hochstadt</td>
<td></td>
</tr>
<tr>
<td>Principles of Mathematical Analysis</td>
<td>W. Rudin</td>
<td>(International Student Edition)</td>
</tr>
<tr>
<td>Introduction to Topology and Modern Analysis</td>
<td>G. F. Simmons</td>
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<tr>
<td>General Topology</td>
<td>S. Lipschutz</td>
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### PURE MATHEMATICS III (Hons.) & IIIB Arts

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Consult lecturers concerned for other books.

### APPLIED MATHEMATICS III (III A Arts)

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<tr>
<td>Principles of Mechanics</td>
<td>J. L. Synge &amp; B. A. Griffith</td>
<td></td>
</tr>
<tr>
<td>Applied Hydrodynamics</td>
<td>H. R. Valentinine</td>
<td>(Butterworths)</td>
</tr>
<tr>
<td>Tensor Calculus</td>
<td>J. Abram</td>
<td>(Butterworths)</td>
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<tr>
<td>Cartesian Tensors OR</td>
<td>H. Jeffreys</td>
<td></td>
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<tr>
<td>Cartesian Tensors</td>
<td>G. Temple</td>
<td></td>
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<tr>
<td>Introduction to Numerical Analysis</td>
<td>F. B. Hildebrand</td>
<td></td>
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<tr>
<td>Introduction to Mathematical Statistics</td>
<td>R. V. Hogg &amp; A. T. Craig</td>
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<td></td>
</tr>
<tr>
<td>Introduction to Probability Theory and Its Applications, Vol I</td>
<td>W. Feller</td>
<td></td>
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<tr>
<td>Theoretical Hydrodynamics</td>
<td>L. M. Milne-Thomson</td>
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Consult lecturers concerned for other books.

### MATHEMATICS IV

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<tbody>
<tr>
<td>Mathematical Theory of Compressible Fluid Flow</td>
<td>R. V. Mises</td>
<td></td>
</tr>
<tr>
<td>Introduction to Probability Theory and Its Applications, Vols. I &amp; II</td>
<td>W. Feller</td>
<td></td>
</tr>
<tr>
<td>Functional Analysis, Vol. 2</td>
<td>A. N. Kolmogorov &amp; S. V. Fomin</td>
<td></td>
</tr>
<tr>
<td>Introduction to Topology and Modern Analysis</td>
<td>G. F. Simmons</td>
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</table>

Consult lecturers concerned for other books.
DEPARTMENT OF PHYSICS

PHYSICS IC

A general course comprising all fields of physics at an elementary level for students in the Faculty of Architecture, and others interested. A course of about 90 hours of lectures, laboratory and demonstrations, examined by one 3-hour paper.

The subject may not be taken concurrently with Physics I, and shall not count as a Science unit.

PHYSICS I

This course assumes a knowledge of Physics at least up to the 6th year High School core material. Physics taken as part of the School science course to a 2S standard or better will be of considerable help in understanding the subject.

The course will comprise some 17 lectures on mechanics; 17 lectures on wave motion; 20 lectures on electromagnetism; 17 lectures on thermal physics; 5 lectures on waves and particles; and 6 lectures on the elementary physics of astronomy. There will also be 3 hours of laboratory and tutorial work per week.

A mid-year 3-hour examination will be held on the first half of the work. A student passing will sit one further 3-hour paper at the end of the year, but a student failing at mid year will sit two 3-hour papers at the end of the year.

(A detailed syllabus for Physics I and Physics II students will be issued early in the year).

PHYSICS II

A course of three lectures and six laboratory hours per week, examined by two three-hour papers. The following topics will be covered:

- Mechanics
- Thermal Physics
- Quantum Physics
- Electromagnetism
- Electromagnetic Field Theory
- Physical Optics

PHYSICS II (for students in the Departments of Electrical Engineering and Metallurgy)

This will be identical with Physics II for the B.Sc. course except that there will be three hours of laboratory work per week.

A pass in Physics II by an Electrical Engineering or Metallurgy student will qualify as a prerequisite for Physics III.

PHYSICS III

A course which includes the following:
- Electricity and Magnetism.
- Electronics and Electricity in Gases.
- Statistical Mechanics.
- Nuclear Physics.
- Quantum Mechanics.
- Spectroscopy.
- Plasma Physics.
- Solid State.
- Relativity and Electromagnetic Theory.

A course of about 120 hours lectures and 240 hours laboratory work; examined by three three-hour papers.

PHYSICS IV

A course extending over one full-time academic year, examined by three three-hour papers.

PART A includes:
- Solid State Theory.
- Statistical Mechanics.
- Relativity.
- Advanced electromagnetic field theory.
- Quantum mechanics.
- Nuclear fields.
- Plasma spectroscopy.
- Ionospheric and space physics.
- Magnetohydrodynamics.

PART B—A research project, the results of which are to be embodied in a report.
RESEARCH IN THE DEPARTMENT OF PHYSICS

A. SPECTROSCOPY (Dr. S. C. Baker)

Development of the Ebert scanning monochrometer continues and resolution exceeding 500,000 in the visible region has been attained. Vacuum plant and a microwave oscillator are now ready for the preparation and excitation of spectra. Hyperfine structures of selected substances are being examined directly.

B. EXO-ELECTRON EMISSION (Dr. J. A. Ramsey)

Electron emission from freshly abraded aluminium under high and ultra-high vacuum is being studied. It has been found that the development of the emitting surface is due to residual gas interaction subsequent to the development of the mono layer. Further lines of work are clearly indicated. Currently, gas analyses are underway to determine the effective species in the residual gases.

C. IONOSPHERIC AND SPACE PHYSICS (Professor C. Ellyett)

(i) The major effort under this heading, involving a team of about six people, is a study of micropulsations of the earth's magnetic field. Three identical sets of equipment have been constructed to measure the velocity and direction of electromagnetic waves in an ionospheric duct. These waves are manifest as micro-pulsations at the earth's surface. One set of equipment is installed at a field station near Paterson, some 20 miles from Newcastle. The other two sets are at Hobart and Woomera. The project is supported by the Office of Naval Research, U.S.N., and the Australian Research Grants Committee.

(ii) Studies are also being conducted at Paterson on the measurement of solar radio noise and of ionospheric absorption produced at mid-latitudes by solar X-ray emission. This project is supported both by the Australian Radio Research Board and the U.S.A.F.

D. METEOR STUDIES (Professor C. Ellyett and Dr. C. S. L. Keay)

Computational work is under way on meteor incidence on the earth's upper atmosphere. This project is supported by N.A.S.A. (U.S.A.).

E. AUTOMATIC METEOR RECORDING (Dr. C. S. L. Keay)

Instrumentation is being developed using microelectronic logical circuitry so that radar echoes from meteors can be analysed in real time. This project is supported by the Australian Research Grants Committee and the Australian Radio Research Board.

F. THEORETICAL PHYSICS (Mr. G. A. Harle)

Research into relativistic transformation theory is being conducted in the fields of electromagnetism and quantum mechanics.
TEXT BOOKS FOR 1969
DEPARTMENT OF PHYSICS

PHYSICS I
Physics for Students of Science and
Engineering .................. Resnick and Halliday.
(Combined Edition 1966)
Astronomy .................. Ebbighausen. OR
The Sun and Stars ............. Brandt. OR
The Universe ................. Struve.

PHYSICS II
Physics for Students of Science and
Engineering .................. Resnick and Halliday.
The Physics of Electricity and Magnetism ........ Scott.
(2nd Edition)
Principles of Mechanics ........ Synges and Griffiths.
An Introduction to Thermodynamics, the Kinetic Theory
of Gases, and Statistical Mechanics ........ Sears.
Vibrations, Waves and Diffraction ........ Braddick.

PHYSICS III
Fundamentals of Modern Physics ........ Eiseberg.
Electricity and Magnetism ........ Bleaney and Bleaney.
Optics ....................... Jenkins and White.
Gaseous Conductors .......... Cobine.
Fundamentals of Statistical and Thermal Physics ........ Reif.
Introduction to Solid State Physics .......... Kittell.
(3rd Edition)
General Electric Transistor Manual . . . . . . . . . . . . . . (Ed.) Cleary.
(7th Edition)

Recommended for Preliminary and Parallel Reading:
Introduction to Statistical Mechanics for Physicists .......... McDonald.
Classical Thermodynamics .............. Pippard.

PHYSICS IV
Text Book Titles should be obtained from the lecturers concerned.

DEPARTMENT OF PSYCHOLOGY

PSYCHOLOGY I
A course of four lectures and one one-hour practical session per week. The final examination consists of two three-hour papers plus an assessment of the practical work carried out by the student throughout the year.

The course, which is a general introduction to psychology, includes learning theory, motivation, developmental psychology, physiological psychology, comparative psychology, theory of measurement, and descriptive statistics and statistical analysis of data.

PSYCHOLOGY II
A course of four lectures and one two-hour practical session per week. The final examination consists of two three-hour papers plus an assessment of the practical work carried out by the student throughout the year. The course includes the following topics:

The psychology of learning, physiological and comparative psychology, developmental psychology and motivation, social psychology, psychological testing and measurement, and statistics.

PSYCHOLOGY III
A course of five lectures and two hours practical classes per week. The final examination consists of three three-hour papers plus an assessment of the practical work carried out by the student throughout the year. The course includes personality and its assessment, social psychology, physiological psychology, perception, child development and motivation, cognition and factor analysis.

PSYCHOLOGY IV
The course consists of lectures and seminars for three hours per week and laboratory work to be reported in two minor theses. The final examination consists of two three-hour papers together with an assessment of the theses. The student is expected to cover the fields of personality, abnormal and clinical psychology, social psychology, perception, learning and cognition, developmental psychology and motivation, and quantitative psychology.
RESEARCH IN THE DEPARTMENT OF PSYCHOLOGY

The pattern of research in the Department covers a range of experimental and theoretical areas. Staff members pursue individual research interests, although there is considerable overlap and several joint projects are underway.

Research in psychophysiology is concerned with Nervous System reactivity and states of arousal.

Work in the developmental area is being done on state variables in small children. Research continues into the role of learning in the development of cognitive processes, and in the area of verbal behaviour into aspects of organisation in short-term memory and into methodological questions related to the presentation of stimulus material. Dimensions of judgment of aesthetic stimuli have been investigated.

Perceptions and values associated with residential prestige in Newcastle are being studied in social psychology, and in the comparative field, work is being carried out on early experience and the development of emotional behaviour and anxiety.

In mathematical psychology, models for the measurement of attitudes are being investigated and developed. A model for predicting the number of associations made by a subject to a stimulus is being investigated.

TEXT BOOKS FOR 1969

PSYCHOLOGY I

Principles of Psychology ............ Deese.
OR
A Textbook of Psychology ............ Hebb. (2nd Edition)
OR
OR
Psychology: the science of behaviour .... Isaacson, Hutt and Blum.
OR
Psychology ............ McKeachie and Doyle.
OR
Introduction to Psychology ............ Morgan and King. (3rd Edition)
OR

No specific texts are set for the other courses in Psychology but recommendations are made at the beginning of each course.
REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE

1. An application to register as a candidate for the degree of Master of Science shall be made on the prescribed form which shall be lodged with the Secretary at least one full calendar month before the commencement of the term in which the candidate desires to register.

2. A person may register for the degree of Master of Science if—
   (a) he is a graduate or graduand of the University of Newcastle or other approved University with Honours in the subject to be studied for that degree; or
   (b) he is a graduate or graduand of the University of Newcastle or other approved University; or
   (c) in exceptional cases he produces evidence of such academic and professional attainments as may be approved by the Senate, on the recommendation of the FACULTY BOARD.

3. In the case of applicants desiring to register under provision 2(b), and (c), the Faculty Board may require the candidates to carry out such work and sit for such examinations as the Board may determine before registration as a candidate for the degree of Master of Science is confirmed.

4. In every case, before permitting an applicant to register as a candidate, the Faculty Board shall be satisfied that adequate supervision and facilities are available.

5. An applicant approved by the Faculty Board shall register in one of the following categories:—
   (i) Student in full-time attendance at the University.
   (ii) Student in part-time attendance at the University.

6. (i) Every candidate for the degree shall be required to submit a thesis embodying the results of an investigation or design, to take such examinations and to perform such other work as may be prescribed by the Faculty Board. The candidate may submit also for examination any work he has published, whether or not such work is related to the thesis.
   (ii) The investigation or design and other work as provided in paragraph 6 (i) shall be conducted under the direction of a supervisor appointed by the Faculty Board or under such conditions as the Faculty Board may determine.
   (iii) A part-time candidate shall, except in special circumstances—
      I. conduct the major proportion of the research or design work in the University; and
      ii. take part in research seminars within the Department in which he is working.

7. No candidate shall be considered for the award of the degree until the lapse of six complete terms from the date from which the registration becomes effective, save that in the case of a candidate who has obtained in Newcastle the degree of Bachelor with Honours or who has had previous research experience, this period may, with the approval of the Faculty Board, be reduced by up to three terms.

8. For each candidate there shall be two examiners appointed by the Senate, one of whom shall be an external examiner.

(iv) Every candidate shall submit annually a report on his work to his supervisor for transmission to the Higher Degree Committee.

(v) Every candidate shall submit three copies of the thesis as provided under paragraph 6 (i). All copies of the thesis shall be in double-spaced typescript, shall include a summary of approximately 200 words, and a certificate signed by the candidate to the effect that the work has not been submitted for a higher degree to any other University or institution. The ORIGINAL copy of the thesis for deposit in the Library shall be prepared and bound in a form approved by the University. The other two copies of the thesis shall be bound in such manner as allows their transmission to the examiners without possibility of their disarrangement.

(vi) It shall be understood that the University retains the three copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act (1912-1950) the University may issue the thesis in whole or in part in photostat or microfilm or other copying medium.

Separate sheet on the preparation and binding of higher degree theses is available on application.
REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

1. The degree of Doctor of Philosophy may be awarded by the Council on the recommendation of the Senate to a candidate who has satisfied the following requirements.

2. A candidate for registration for the degree of Doctor of Philosophy shall:—
   (i) have satisfied all of the requirements for admission to the degree of master or the degree of bachelor with first or second class honours in the University of Newcastle or a degree from another University recognised by the Senate as having equivalent standing; or
   (ii) have satisfied all of the requirements for admission to the degree of bachelor with third class honours or without honours in the University of Newcastle or a degree from another University recognised by the Senate as having equivalent standing, and have achieved by subsequent work and study a standard recognised by the Senate as equivalent to at least second class honours; or
   (iii) in exceptional cases submit such other evidence of general and professional qualifications as may be approved by the Senate.

3. The Senate may require a candidate, before he is permitted to register, to undergo such examination or carry out such work as it may prescribe.

4. A candidate for registration for a course of study leading to the degree of Ph.D. shall:—
   (i) apply on the prescribed form at least one calendar month before the commencement of the term in which he desires to register; and
   (ii) submit with his application a certificate from the Head of the Department in which he proposes to study stating that the candidate is a fit person to undertake a course of study or research leading to the Ph.D. degree and that the Department is willing to undertake the responsibility of supervising the work of the candidate.

5. (i) A candidate shall, except in exceptional circumstances, be determined by Senate, register as a full-time student.
   (ii) Notwithstanding the provisions of section (i) of this clause, a member of the full-time academic or teaching staff of the University may be registered as a candidate for the degree.

6. Subsequent to registration, the candidate shall pursue a course of advanced study and research for at least nine academic terms, save that any candidate who before registration was engaged upon research to the satisfaction of the Senate, may be exempted from three academic terms.

7. A candidate shall present himself for examination not later than fifteen academic terms from the date of his registration, unless special permission for an extension of time be granted by the Senate.

8. The course, other than field work, must be carried out in a Department of the University, under the direction of a supervisor appointed by the Senate, or under such conditions as the Senate may determine, save that a candidate may be granted special permission by the Senate to spend a period of not more than three academic terms in research at another institution approved by the Senate.

9. Not later than three academic terms after registration the candidate shall submit the subject of his thesis for approval by the Senate. After the subject has been approved it may not be changed except with the permission of the Senate.

10. A candidate may be required to attend a formal course of study appropriate to his work.

11. On completing his course of study every candidate shall submit a thesis which complies with the following requirements:—
   (i) The greater proportion of the work described must have been completed subsequent to registration for the Ph.D. degree.
   (ii) It must be a distinct contribution to the knowledge of the subject.
   (iii) It must be written in English or in a language approved by the Senate and reach a satisfactory standard of literary presentation.

12. The thesis shall consist of the candidate's own account of his research. In special cases work done conjointly with other persons may be accepted provided the Senate is satisfied on the candidate's part in the joint research.

13. Every candidate shall be required to submit with his thesis a short abstract of the thesis comprising not more than 300 words.

14. A candidate may not submit as the main content of his thesis any work or material which he has previously submitted for a University degree or other similar award.

15. The candidate shall give in writing three months' notice of his intention to submit his thesis and such notice shall be accompanied by the appropriate fee.

16. Four copies of the thesis shall be submitted together with a certificate from the supervisor that the candidate has completed the course of study prescribed in his case and that the thesis is fit for examination.

17. The thesis shall be in double-spaced typescript. The original copy for deposit in the Library shall be prepared and bound in a form approved by the University. The other three copies shall be bound in such manner as allows their transmission to the examiners without possibility of disarrangement.
18. It shall be understood that the University retains four copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act (1912-1950) the University may issue the thesis in whole or in part in photostat or microfilm or other copying medium.

19. The candidate may also submit as separate supporting documents any work he has published, whether or not it bears on the subject of the thesis.

20. The Senate shall appoint three examiners of whom at least two shall not be members of the teaching staff of the University.

21. The examiners may require the candidate to answer, viva voce or in writing, any questions concerning the subject of his thesis or work.

22. The result of the examination shall be in accordance with the decision of a majority of the examiners.

23. A candidate permitted to re-submit his thesis for examination shall do so within a period of twelve months from the date on which he is advised of the result of the first examination.

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REQUIREMENTS FOR THE DEGREE OF DOCTOR OF SCIENCE

1. The degree of Doctor of Science may be awarded by the Council, on the recommendation of the Senate, for an original contribution or contributions of distinguished merit adding to the knowledge or understanding of any branch of learning with which the Faculty is concerned.

2. An applicant for registration for the degree of Doctor of Science shall hold a degree of the University of Newcastle or a degree from another University recognised by the Senate as being equivalent or shall have been admitted to the status of such a degree.

3. The degree shall be awarded on published* work although additional unpublished work may also be considered.

4. Every candidate in submitting his published work and such unpublished work as he deems appropriate shall submit a short discourse describing the research embodied in his submission. The discourse shall make clear the extent of originality and the candidate's part in any collaborative work.

5. An applicant for registration for the degree shall submit in writing to the Secretary a statement of his academic qualifications together with:
   (a) four copies of the work, published or unpublished, which he desires to submit; and
   (b) a Statutory Declaration indicating those sections of the work, if any, which have been previously submitted for a degree or diploma in any other University.

6. The Senate shall appoint three examiners of whom at least two shall not be members of the teaching staff of the University.

7. The examiners may require the candidate to answer, viva voce or in writing, any questions concerning his work.

8. The result of the examination shall be in accordance with the decision of a majority of the examiners.

* In these requirements, the term "published work" shall mean printed in a periodical or as a pamphlet or as a book readily available to the public. The examiners are given discretion to disregard any of the work submitted if, in their opinion, the work has not been so available for criticism.
FACULTY OF SCIENCE
TIMETABLE 1969

SHORTLAND CAMPUS
A — CLASS ROOMS IN THE ARTS/ADMINISTRATION BUILDING
B — MAIN LECTURE THEATRE
C — CLASS ROOMS IN THE GEOLOGY BUILDING
D — CLASS ROOMS IN THE PHYSICS BUILDING
H — SCIENCE LECTURE THEATRE*
G — GROUND FLOOR
LG — LOWER GROUND FLOOR

Chemistry, Geology and Physics laboratory classes at Shortland will be allocated by the Science Laboratory Allocations Committee. Laboratory classes in other subjects will be allocated by the departments concerned.

TIGHES HILL CAMPUS
The prefix M, S or E denotes a room at Tighes Hill.

CHEMISTRY I
Lectures Tues. 10 H-01 or Tues. 6 H-01
Wed. 10 H-01 or Wed. 6 H-01
Fri. 11 H-01 or Fri. 5 H-01
Laboratory (at Shortland) DG04
One of the following periods:
Mon. 2-5
Tues. 2-5
Thurs. 10-1
Fri. 2-5

CHEMISTRY II
Lectures Tues. 10 DG08 or Tues. 6 DG08
Tutorial Thurs. 2 H-01 or Wed. 6-8 CG04
Thurs. 3 H-01, CG03 & CG04

GEOLOGY I
Lectures Mon. 9 H-01 or Mon. 5 H-01
Tues. 11 H-01 or Tues. 7 DG08
Wed. 11 H-01 or Wed. 7 DG08
Laboratory (at Shortland) C101
One of the following periods:
Tues. 2-5
Thurs. 6-9

PHYSICS I
Lectures Tues. 12 H-01 or Tues. 5 H-01
Wed. 12 H-01 or Wed. 5 H-01
Thurs. 9 H-01 or Thurs. 5 H-01
Laboratory (at Shortland) DG11/13
One of the following periods:
Tues. 2-5
Thurs. 2-5
Fri. 2-5

PHYSICS I C
Thurs. 2 DG08 Mon. 3, 4 DG08

ENGINEERING I
Mon. 10, 11, 12; 2, 3, 4 E41.

GEOGRAPHY I
Lectures Tues. 12, 2 B-01 or Tues. 7, 8 AG28
Practical AG28
One three-hour period to be arranged:
Mon. 9-12
Fri. 6-9
arranged from Fri. 6-9

PSYCHOLOGY I
Tues. 3 B-01 or Tues. 6 A127
Wed. 11 4B-01 or Wed. 6, 7 AG28
Thurs. 11 B-01 or Thurs. 6 B-01

One hour laboratory to be arranged

CHEMISTRY II
Lectures Mon. 9 S35 or Mon. 5 S35
Wed. 9 S35 or Wed. 5 S35
Thurs. 9 S37 or Thurs. 5 S35
Laboratory (at Tighes Hill)
Mon. 2-5 S3
(or Mon. 6-9 S3 and
or Wed. 2-5 S3)
*—1st half-year
or (or Fri. 2-5 S42*/MG24)
1-2nd half-year

* If the Science Lecture Theatre is not ready for use at the beginning of First Term 1969, an interim timetable will be posted on the Notice Boards.
GEOLOGY II
Lectures Mon. 5 CG04
Wed. 5 CG04
Thurs. 5 CG04
Laboratory (at Shortland) C109
Tues. 2-5 and Thurs. 2-5

MATHEMATICS II
Topic A
Lecture Thurs. 9 AG25 or Thurs. 6 AG24
Tutorial Thurs. 12 AG24 or Thurs. 8 AG24
Topic B
Lecture Mon. 11 AG24 or Mon. 6 ALG26
Tutorial Mon. 9 AG24 or Mon. 8 ALG26
Topic C
Lecture Wed. 10 M218 or Wed. 6 AG24
Tutorial Wed. 12 M218 or Wed. 8 AG24
Topic D
Lecture Tues. 9 B-01 or Tues. 6 AG24
Tutorial Tues. 12 A127 or Tues. 8 ALG59
Topic E
Lecture Wed. 11 M218 or Wed. 7 AG24
Tutorial Wed. 12 M220 or Wed. 8 AG25
Topic F
Lecture Thurs. 10 AG25 or Thurs. 7 AG24
Tutorial Thurs. 12 AG09 or Thurs. 8 AG24
Topic G
Lecture Mon. 12 AG24 or Mon. 7 ALG26
Tutorial Mon. 9 AG25 or Mon. 8 AG25
Topic H
Lecture Tues. 10 B-01 or Tues. 7 AG24
Tutorial Tues. 12 AG25 or Tues. 8 AG24
Topic I
Lecture Thurs. 11 AG25 or Thurs. 5 AG24
Tutorial Thurs. 2 AG24 or Thurs. 6 AG25
Topic J
Lecture Tues. 11 AG24 or Tues. 5 AG24
Tutorial Thurs. 2 AG24 or Thurs. 6 AG25
Topic K
Lecture Mon. 2 AG25 or Mon. 6 AG17
Tutorial Mon. 4 AG25 or Mon. 8 AG17
Topic L
Lecture Mon. 3 AG25 or Mon. 7 AG17
Tutorial Mon. 4 AG25 or Mon. 8 AG17

PHYSICS II
Lectures Mon. 10 DG08 or Mon. 5 DG08
Tues. 11 DG08 or Tues. 5 DG08
Fri. 9 DG08 or Fri. 5 DG08
Laboratory (at Shortland) D105/7
Two of the following periods Fri. 10-1

GEOGRAPHY II
Lectures Mon. 12, 3 AG28 or Mon. 6, 7 ALG16
Thurs. 2, 4 AG28 or Thurs. 7, 8 ALG16
Practical ALG16
One two-hour period to be arranged from
Tues. 9-11, 7-9 Wed. 1-3, 9-11
Thurs. 5-7

PSYCHOLOGY II
Lectures Tues. 12, 2 A132 or Tues. 7, 8 A132
Fri. 12 A132 or Wed. 8 A132
Fri. 2 A132 or Fri. 6 A132
Laboratory A132
One two-hour period to be arranged from
Fri. 10-12 Fri. 3-5

CHEMISTRY III
Lectures Mon. 9, 2 S40
Wed. 12 S40 or Thurs. 5 S40
Practical Mon. 10-1, 3-6 S3/S42/MG24
Wed. 2-5 S3/MG24 or Thurs. 6-9 S3/MG24

CHEMISTRY III A
Lectures Tues. 9 S1/S40
Thurs. 9 S1/S30
Thurs. 2 S1/S37
Practical Tues. 10-1 S3/S42/MG24
Thurs. 10-1, 3-5 S3/S42/MG24

GEOLOGY III
Lectures Mon. 5 CG03
Tues. 5 CG03
Wed. 5 CG03
Thurs. 5 CG03
Fri. 5 CG03
Laboratory (at Shortland) C111
Tues. 10-1 or Tues. 6-9
Fri. 9-1 or Fri. 6-10

GEOLOGY III N
Lectures Mon. 4 CG03
Tues. 6 CG03
Thurs. 9, 11 CG03
Fri. 6 CG03
Practical Mon. 6-9 C111
Thurs. 1-5 C111
PURE MATHEMATICS III

Lectures  Mon.  2, 3 AG24 or Mon. 6, 7 AG09
         Wed. 10, 11 AG24 or Wed. 6, 7 ALG29
Tutorial Mon. 10 AG24 or Mon. 5 AG09
         Wed. 12 AG24 or Wed. 5 ALG29

APPLIED MATHEMATICS III

Lectures  Tues.  9, 10 AG24
         Thurs. 9, 10 AG24
Tutorial  Tues. 12 AG24
         Thurs. 11 AG24

PHYSICS III

Lectures  Mon. 11, 12 DG08
         Wed. 9 DG08
         Fri. 10 DG08
Laboratory (at Shortland) D101
         Tues. 1-5 and Thurs. 1-5.

GEOGRAPHY III

Lectures  Tues. 3 ALG16 or Tues. 6 ALG16
         Wed. 11,4 ALG16 or Wed. 6,7 ALG16
         Thurs. 11 ALG16 or Thurs. 6 ALG16

PSYCHOLOGY III

Lectures  Mon. 11 A132 or Mon. 7, 8 A132
         Mon. 2 A127
         Mon. 5*6* A132 or Mon. 5*6* A132
         Tues. 3 A132 or Tues. 6 A132
         Thurs. 12 A127 or Thurs. 7 A127
         Thurs. 3 AG24 or Thurs. 8 A127

* Two hours of laboratory for both day and evening students.