The University of New South Wales

Professional Studies

1978 Faculty Handbook

Arms of

The University of New South Wales

Granted by the College of Heralds, London
3 March 1952

Heraldic Description of Arms

Argent on a Cross Gules a Lion passant guardant between four Mullets of eight points Or a Chief Sable charged with an open Book proper thereon the word SCIENTIA in letters also Sable.

The lion and the four stars of the Southern Cross on the Cross of St George have reference to the State of New South Wales which brought the University into being; the open book with SCIENTIA across its page reminds us of its original purpose. Beneath the shield is the motto 'Manu et Mente', which is the motto of the Sydney Technical College, from which the University has developed. The motto is not an integral part of the Grant of Arms and could be changed at will; but it was the opinion of the University Council that the relationship with the parent institution should in some way be recorded.

The University of New South Wales

Professional Studies

1978 Faculty Handbook

The address of the University of New South Wales is:

PO Box 1, Kensington,
New South Wales, Australia 2033

Telephone: (02) 663 0351

Telegraph: UNITECH, SYDNEY

Telex AA26054

The University of New South Wales Library has catalogued this work as follows:

UNIVERSITY OF NEW SOUTH WALES —
Faculty of Professional Studies
Handbook.
Annual. Kensington.
1968 +

University of New South Wales — *Faculty of Professional Studies* — Periodicals

Printed by Walter Stone & Sons at the Wentworth Press, 48 Cooper Street, Surry Hills

Information in this Handbook has been brought up to date as at 12 September 1977, but may be amended without notice by the University Council

Contents

General Information

To obtain the maximum benefit from your studies you should make an effort to learn what facilities the University offers, to investigate the best methods of study and to discover as much as possible about the course for which you are enrolled.

This Handbook has been specially designed as a detailed source of reference for you in all matters related to your Faculty. The **General Information** Section is intended to help you put the Faculty into perspective with the University as a whole, to introduce you to some of the services available to students and to note some of the most important rules and procedures.

For fuller details about the University and its activities you should consult the University Calendar.

Now, see the following pages for other general information which may be of value to you.

Some people who can help you

Note: All phone numbers below are University extension numbers. If you are outside the University, dial 663 0351 and ask for the extension or dial 662—and then the extension number. This prefix should only be used when you are certain of the extension that you require. Callers using 662 cannot be transferred to any other number.

If you are experiencing difficulties in adjusting to the requirements of the University, you will probably need advice. The best people to talk to on matters relating to progress in studies are your tutors and lecturers. If your problem lies outside this area, there are many other people with specialized knowledge and skills who may be able to help you.

The Deputy Registrar (Student Services), Mr Peter O'Brien, and his Administrative Assistant, Mr Stephen Briand, are located on the first floor of the Chancellery. They will help students who need advice and who have problems and are not sure whom they should see. As well as dealing with general enquiries they are especially concerned with the problems of physically handicapped and disabled students and those in need of financial assistance. The latter students should see Mr Briand. Enquire at room 148E, phone 2482 (general enquiries) or 3164 (financial assistance).

The Assistant Registrar (Examinations and Student Records Section), Mr John Warr, is located on the ground floor of the Chancellery. Assistance can also be obtained from the Senior Administrative Officer, Mr Ross Woodham. For particular enquiries regarding the Student Records Unit, including illness and other matters affecting performance in examinations, academic statements, graduation ceremonies, prizes, release of examination results and variations to enrolment programs, contact Mr Jack Morrison, phone 3711. For information regarding examinations, including examination timetables and clash of examinations, contact Mr John Grigg, phone 2143.

The Assistant Registrar (Admissions and Higher Degrees Section), Mr Jack Hill, is located on the ground floor of the Chancellery. For particular enquiries regarding *undergraduate courses* phone Mr John Beauchamp on 3319. General enquiries should be directed to 3711.

The Adviser for Prospective Students, Mrs Fay Lindsay, is located on the ground floor of the Chancellery and is available for personal interview. For an appointment phone 3453.

The Assistant Registrar (Student Employment and Scholarships), Mr Jack Foley, is located on the ground floor of the Chancellery. Enquiries should be directed to 2086 (undergraduate scholarships), 2525 (graduate scholarships), and 3259 (employment).

The Housing Officer, Mrs Judy Hay, is located in the Student Amenities and Recreation Unit in Hut B at the foot of Basser Steps. For assistance in obtaining *suitable lodgings* phone 3260.

The Student Health Unit is located in Hut E on College Road. The Director is Dr Max Napthali. For *medical aid* phone 2679 or 3275.

The Student Counselling and Research Unit is located at the foot of Basser Steps. The Head is Mr George Gray. For assistance with educational or vocational problems ring 3681, 3685 or 2696 for an appointment.

The University Librarian is Mr Allan Horton. Library enquiries should be directed to 2048.

The Chaplaincy Centre is located in Hut F at the foot of Basser Steps. For spiritual aid phone Anglican—2684; Catholic—2379; Church of Christ—2683; The Uniting Church—2683; Seventh Day Adventist—2683; Jewish—3273; Baptist—398 4065.

The Students' Union is located on the second floor of Stage III of the University Union where the SU full-time President, Education Vice-President or Director of Overseas Students are available to discuss any problems you might have. In addition the SU offers a range of diverse services including legal advice (full-time solicitor available), clubs and societies services, second-hand bookshop (buy or sell), new records/tapes at discount, food shop (The Nuthouse), a professional nursery-kindergarten *House at Pooh Corner*, a typesetting service, electronic calculators (bulk purchasing), AUS insurance (including health), an information referral centre (the Infakt Bus), a bail fund and publications such as *Tharunka*, Orientation Magazine, Concessions Book and counter-course handbooks. For information about these phone 2929.

Calendar of Dates

1978

Session 1	6 March to 14 May
(14 weeks)	*May Recess:* 15 May to 21 May
	22 May to 18 June
Monday 19 June	Examinations begin
Friday 1 July	Examinations end
	Midyear Recess: 19 June to 23 July
Session 2	24 July to 27 August
(14 weeks)	*August Recess:* 28 August to 3 September
	4 September to 5 November
	Study Recess: 6 November to 12 November
Monday 13 November	Examinations begin
Friday 2 December	Examinations end

January

Monday 2	New Year's Day—Public Holiday
Friday 6	Last day for application for review of results of *annual* examinations
Monday 9	Publication of timetable for *deferred* examinations
Friday 13	Last day for acceptance of applications by Admissions Office for transfer to another course within the University
Monday 30	Australia Day—Public Holiday
Tuesday 31	*Deferred* examinations begin

February

Saturday 4	*Deferred* examinations end
Friday 17	*Deferred* examination results available
Monday 20	Enrolment period begins for new students and students repeating first year
Wednesday 22	Last day for application for review of *deferred* examination results
Friday 24	Last day for students who have completed requirements for Pass degrees to advise the Registrar they are proceeding to an Honours degree or do not wish to take out their degree for any reason
Monday 27	Enrolment period begins for second and later year students

March

Monday 6	**Session 1 commences**
Tuesday 7	List of graduands for April/May ceremonies published in daily press
Friday 24 to Monday 27	Easter
Friday 31	Last day for students, other than those attending the University for the first time, to discontinue without failure subjects which extend over Session 1 only

April

Tuesday 25	Anzac Day—Public Holiday
Friday 28	Last day for students attending the University for the first time to discontinue without failure subjects which extend over Session 1 only
	Confirmation of Enrolment forms despatched to all students

May

Thursday 11	Last day for acceptance of corrected *Confirmation of Enrolment* forms
	Last day for students completing requirements for degrees or diplomas at the end of Session 1 to submit *Details Associated With Graduation* form
Monday 15	**May Recess begins**
Thursday 18	Publication of provisional timetable for June/July examinations
Friday 19	Last day for students, other than those attending the University for the first time, to discontinue without failure subjects which extend over the whole academic year
Sunday 21	**May Recess ends**
Tuesday 30	Last day for students to advise of examination timetable clashes

June

Tuesday 6	Publication of timetable for June/July examinations
Monday 12	Queen's Birthday—Public Holiday
Sunday 18	**Session 1 ends**
Monday 19	**Midyear Recess begins**
	Examinations begin
Friday 30	Examinations end

July

Monday 17	Examination results mailed to students
Tuesday 18	Examination results displayed on University notice boards
Wednesday 19 to Friday 21	Students to amend enrolment programs following receipt of June examination results
Sunday 23	**Midyear Recess ends**
Monday 24	**Session 2 begins**
	Last day for students who have completed requirements for Pass degrees to advise the Registrar they are proceeding to an Honours degree or do not wish to take out their degree for any reason
Friday 28	Last day for application for review of June examination results

August

Thursday 3	Foundation Day
Friday 4	Last day for students attending the University for the first time to discontinue without failure subjects which extend over the whole academic year
Friday 18	Last day for students, other than those attending University for the first time, to discontinue without failure subjects which extend over Session 2 only
Monday 28	**August Recess begins**

September

Sunday 3	**August Recess ends**
Monday 11	Last day for applications from students completing requirements for degrees and diplomas at the end of Session 2 to submit *Details Associated with Graduation* form
Wednesday 13	List of graduands for October graduation ceremonies published in daily press
Friday 15	Last day for students attending the University for the first time to discontinue without failure subjects which extend over Session 2 only
	Confirmation of Enrolment form forwarded to all students
Monday 18	Last day to notify intention of attending October graduation ceremony

October

Sunday 1	Last day to apply to MUAC for transfer to another University in New South Wales
Monday 2	Eight Hour Day—Public Holiday
	Last day to return corrected *Confirmation of Enrolment* forms
Thursday 5	Publication of provisional examination timetable
Thursday 12	Graduation ceremonies
Tuesday 17	Last day for students to advise of examination timetable clashes
Tuesday 24	Publication of timetable for annual examinations

November

Sunday 5	**Session 2 ends**
Monday 6	**Study Recess begins**
Monday 13	Examinations begin

December

Friday 2	Examinations end
Tuesday 19	Examination results mailed to students
Wednesday 20	Examination results displayed on University notice boards
Monday 25	Christmas Day—Public Holiday
Tuesday 26	Boxing Day—Public Holiday

1979

Session 1	5 March to 13 May
	May Recess: 14 May to 20 May
	21 May to 17 June
Monday 18 June	Examinations begin
Saturday 30 June	Examinations end
	Midyear Recess: 18 June to 22 July
Session 2	23 July to 26 August
	August Recess: 27 August to 2 September
	3 September to 4 November
	Study Recess: 5 November to 11 November
Monday 12 November	Examinations begin
Saturday 1 December	Examinations end

January

Monday 1	Public Holiday
Friday 5	Last date for application for review of results of *annual* examinations
Friday 12	Last day for acceptance of applications by Admissions Office for transfer to another course within the University
Monday 29	Australia Day—Public Holiday

February

Monday 19	Enrolment period begins

The Academic Year

The academic year is divided into two sessions, each containing 14 weeks for teaching. There is a recess of five weeks between the two sessions and there are short recesses of one week within each of the sessions.

Session 1 commences on the first Monday of March.

Organization of the University

Rapid development has been characteristic of the University of New South Wales since it was first incorporated by an Act of Parliament in 1949, under the name of the New South Wales University of Technology.

In 1977 the University had 18,520 students and over 4,000 staff who worked in more than eighty buildings. These figures include staff and students at Broken Hill (W. S. and L. B. Robinson University College), Duntroon (the Faculty of Military Studies) and Jervis Bay.

The Council

The chief governing body of the University is the Council which has the responsibility of making all major decisions regarding its policy, conduct and welfare.

The Council consists of 43 members from the State Parliament, industry and commerce, agriculture, the trade unions, professional bodies, the staff, the students and the graduates of the University.

The Council meets six times per year and its members also serve on special committees dealing with, for example, academic matters, finance, buildings and equipment, personnel matters, student affairs and public relations.

The Chairman of the Council is the Chancellor, the Hon. Mr. Justice Samuels, and the Deputy Chancellor is Dr F. M. Mathews.

The Professorial Board

The Professorial Board is one of the two chief academic units within the University and includes all the professors from the various faculties. It deliberates on all questions such as matriculation requirements, the content of courses, the arrangement of syllabuses, the appointment of examiners and the conditions for graduate degrees. Its recommendations on these and similar matters are presented to Council for its consideration and adoption.

The Faculties/Boards of Study

The Dean, who is also a professor, is the executive head of the Faculty or Board of Study. Members of each Faculty or Board meet regularly to consider matters pertaining to their own areas of study and research, the result of their deliberations being then submitted to the Professorial Board.

The term 'faculty' is used in two distinct senses in the University. Sometimes it is used to refer to the group of Schools comprising the Faculty, and at others to the deliberative body of academic members of the Schools within the Faculty.

The eleven Faculties are Applied Science, Architecture, Arts, Biological Sciences, Commerce, Engineering, Law, Medicine,

Military Studies, Professional Studies and Science together with the Australian Graduate School of Management. In addition, the Board of Studies in General Education fulfils a function similar to that of the faculties. The Board of Studies in Science and Mathematics, which was established to facilitate the joint academic administration of the Science and Mathematics degree course by the Faculties of Biological Sciences and Science, considers and reports to the Professorial Board on all matters relating to studies, lectures and examinations in the science course.

The Schools

Once courses of study have been approved they come under the control of the individual Schools (eg the School of Chemistry, the School of Mathematics). The Head of the School in which you are studying is the person in this academic structure with whom you will be most directly concerned.

Executive Officers

As chief executive officer of the University the Vice-Chancellor and Principal, Professor Rupert Myers, is charged with managing and supervising the administrative, financial and other activities of the University.

He is assisted in this task by three Pro-Vice-Chancellors, Professor John Thornton, Professor Rex Vowels and Professor Albert Willis; the Deans and the three heads of the administrative divisions.

General Administration

The administration of general matters within the University comes mainly within the province of the Registrar, Mr Keith Jennings, the Bursar, Mr Tom Daly, and the Business Manager (Property), Mr R. K. Fletcher.

The Registrar's Division is concerned chiefly with academic matters such as the admission of students, and the administration of examinations as well as the various student services (health, employment, amenities, and counselling).

The Bursar's Division is concerned with the financial details of the day-to-day administration and matters to do with staff appointments, promotions, etc.

Student Representation on Council and Faculties/Boards

Three members of the University Council may be students elected by students. All students who are not full-time members of staff are eligible to stand for a two-year term of office. The students who are elected to the Council are eligible for election to the Committees of Council.

Students proceeding to a degree or a graduate diploma may elect members for appointment by the Council to their Faculty/Board. Elections are for a one-year term of office.

Open Faculty/Board Meetings

If you wish you may attend a Faculty/Board meeting. You should seek advice at the office of the Faculty whose meeting you wish to attend, as different faculties have their own rules for the conduct of open meetings.

Award of the University Medal

The University may award a bronze medal to undergraduate students who have achieved highly distinguished merit on completion of their final year.

Identification of Subjects by Numbers

For information concerning the identifying number of each subject taught in this faculty as well as the full list of identifying numbers and subjects taught in the University, turn to the first page of the section **Subject Descriptions**. This list is also published in the Calendar.

Textbook Lists

Textbook lists are no longer published in the Faculty handbooks. Separate lists are issued early in the year and are available at key points on the campus.

General Studies Program

Almost all undergraduates in Faculties other than Arts and Law are required to complete a General Studies program. The Department of General Studies within the Board of Studies in General Education publishes its own Handbook which is available free of charge. All enquiries about General Studies should be made to the General Studies Office, Room G56, Morven Brown Building, phone 3476.

Student Services and Activities

The University Library

The University Libraries are mostly situated on the upper campus. The library buildings house the Undergraduate Library on Level 3, the Social Sciences and Humanities Library on Level 4, the Physical Sciences Library on Level 7 and the Law Library on Level 8. The Biomedical Library is in the western end of the Mathews Building and is closely associated with libraries in the teaching hospitals of the University.

There are also library services at other centres:

The Water Reference Library situated at Manly Vale (phone 948 0261) which is closely associated with the Physical Sciences Library.

The library at the Broken Hill Division in the W. S. and L. B. Robinson University College building. Phone Broken Hill 6022.

The library at the Royal Military College, Duntroon, ACT, serving the Faculty of Military Studies. Phone (062) 73 0427.

Each library provides reference and lending services to staff and students and each of the libraries on the Kensington campus is open throughout the year during day and evening periods. The exact hours of opening vary during the course of the academic year.

Staff and students normally use a machine-readable identification card to borrow from the University libraries. For students, a current union card is acceptable. Staff must apply to the library for a library card.

Accommodation

Residential Colleges

There are seven residential colleges on campus. Each college offers accommodation in a distinctive environment which varies from college to college, as do facilities and fees. A brief description of each college is given below, and further information may be obtained directly from the individual colleges. In addition to basic residence fees, most colleges make minor additional charges for such items as registration fees, caution money or power charges. Intending students should lodge applications before the end of October in the year prior to the one in which they seek admission. Most colleges require a personal interview as part of the application procedure.

The Kensington Colleges

The Kensington Colleges comprise Basser College, Goldstein College, and Philip Baxter College. They house 450 men and women students, as well as staff members. Fees are payable on a session basis. Apply in writing to the Master, PO Box 24, Kensington, NSW 2033.

International House

International House accommodates 154 students from Australia and up to twenty other countries. Preference is given to more senior undergraduates and graduate students. Apply in writing to the Warden, International House, PO Box 88, Kensington, NSW 2033.

New College

This Church of England College is open to all students without regard to race or religion. It has accommodation for approximately 220 students and is co-educational. Enquiries should be addressed to the Master, New College, Anzac Parade, Kensington, NSW 2033.

Shalom College

Shalom College provides accommodation for 86 men and women students. Non-resident membership is available to students who wish to avail themselves of the Kosher dining room and tutorial facilities. Apply in writing to the Master, Shalom College, The University of New South Wales, PO Box 1, Kensington, NSW 2033.

Warrane College

Warrane College provides accommodation for 200 men and is open to students of all ages, backgrounds and beliefs. A comprehensive tutorial program is offered along with a wide variety of activities and opportunities to meet informally with members of the University staff. Non-resident membership is available to male students who wish to participate in College activities and make use of its facilities. Warrane is directed by the International Catholic lay association Opus Dei. Apply in writing to the Master, Warrane College, PO Box 123, Kensington, NSW 2033.

Creston Residence

Creston, associated with Warrane College, offers residence for 25 full-time undergraduate and graduate women students of all nationalities and denominations. It is directed by the Women's Section of Opus Dei, a Catholic lay association. Further information: The Principal, 36 High Street, Randwick, NSW 2031.

Other Accommodation

Off-campus Accommodation

Students requiring other than College accommodation may contact the Housing Officer in the Student Amenities and Recreation Unit for assistance in obtaining suitable lodging in the way of full board, room with cooking facilities, flats, houses, share flats, etc. Extensive listings of all varieties of housing are kept up-to-date throughout the year and during vacations.

No appointment is necessary but there may be some delay in February and March. The Housing staff are always happy to discuss any aspect of accommodation.

Special pamphlets on accommodation, lists of estate agents and hints on house-hunting are available on request.

Location: The Student Accommodation Service is located in Hut B, near the foot of Basser Steps. Phone 663 0351, extension 3260.

Student Employment and Scholarships

The Student Employment and Scholarships Unit offers assistance with career employment for final year students and graduates of the University. This service includes the mailing of regular job vacancy notices to registered students, and a Careers Library containing information on various careers and employers.

Careers advice and assistance are also available to undergraduates. Students undertaking courses in Applied Science or Engineering which require course-related industrial or professional training experience are assisted to find such employment over the long vacation. Information and advice regarding cadetships, undergraduate and graduate scholarships is also available.

The service is located in Room G19 of the Chancellery.

Phone extension 3259 for employment and careers advice, extension 2525 for details of graduate awards and grants, and extension 2086 for undergraduate scholarship, cadetship and industrial training information.

Student Health

A student health clinic and first aid centre is situated within the University. It is staffed by three qualified medical practitioners, assisted by two nursing sisters. The medical service, although therapeutic, is not intended to entirely replace private or community health services. Thus, where chronic or continuing conditions are revealed or suspected, the student may be referred to a private practitioner or to an appropriate hospital for specialist opinion and/or treatment. The health service is not responsible for fees incurred in these instances. The service is confidential and students are encouraged to attend for advice on matters pertaining to health.

The service is available to all enrolled students by appointment, free of charge, between 9 am and 5 pm Mondays to Fridays. For staff members, immunizations as well as first aid service in the case of injury or illness on the campus are available.

The centre is located in Hut E on the northern side of the campus in College Road at the foot of Basser Steps.

Appointments may be made by calling at the centre or by telephoning extension 2679 or 3275 during the above hours.

The Family Planning Association of NSW conducts clinics at the Student Health Unit and at the adjacent Prince of Wales Hospital. These clinics are open to staff and students and appointments may be made for the Student Health Unit clinic by telephoning 698 9499, or for The Prince of Wales Hospital clinics by telephoning 399 0111.

Student Counselling and Research

The Student Counselling and Research Unit provides individual and group counselling for all students—prospective, established and graduate. Self-help programs are also available. Opportunities are provided for parents and others concerned with student progress to see members of the counselling staff.

The service which is free, informal and personal is designed to help students with planning and decision making, and a wide variety of concerns and worries which may be affecting personal, educational and vocational aspects of their lives.

The Unit pursues research into factors affecting student performance, and the published results of its research and experience are helpful in improving University and other counselling services, and the quality of student life.

Counselling appointments may be arranged during sessions and recesses between 9 am and 7 pm. Phone 663 0351, extension 3681, 3685 and 2696, or call at the Unit which is located at the foot of Basser Steps. Urgent interviews are possible on a walk-in basis between 9 am and 5 pm. Group counselling programs are offered both day and evening between 9 am and 9 pm by special arrangement. Self-help programs are arrangeed to suit the student's time and convenience.

Student Amenities and Recreation

In general the Student Amenities and Recreation Unit seeks ways to promote the physical, social and educational development of students through their leisure time activities and to provide some services essential to their day-to-day University life.

The Unit provides, for example, a recreational program for students and staff at the Physical Education and Recreation Centre; negotiates with the Public Transport Commission of NSW on student travel concessions and supplies concession forms for bus, rail, ferries and planes; assists students with off-campus housing; makes bookings for use of sports facilities; and, in consultation with the Sports Association, assists various recognized clubs.

The Unit is located in Hut B at the foot of Basser Steps. The various services may be contacted by phone on the following extensions: Recreation Program 3271; Travel 2617; Accommodation 3260; Ground Bookings 2235; Sports Association 2673.

Physical Education and Recreation Centre

The Student Amenities and Recreation Unit provides a recreational program for students and staff at the Physical Education and Recreation Centre. The Centre consists of eight squash courts and a main building, the latter containing a large gymnasium and practice rooms for fencing, table tennis, judo, weight-lifting, karate and jazz ballet, also a physical fitness testing room. The recreational program includes intramurals, teaching/coaching, camping, and fitness testing. The Centre is located on the lower campus adjacent to High Street. The Supervisor at PERC may be contacted on extension 3271.

The Sports Association

The Sports Association caters for a variety of competitive sports for both men and women. Membership is compulsory at $6 per year for all registered students and is open to all members of staff and graduates of the University.

The Sports Association office is situated in Hut G, near the bottom of Basser Steps, and the control of the Sports Association is vested in the General Committee. The Executive Officer of the Sports Association may be contacted on extension 2673.

Student Travel Concessions

The Student Amenities and Recreation Unit arranges distribution of bus, rail and ferry concessions. For the peak period during the week preceding and the first week of Session 1 distribution is at a location to be decided. Students should watch for notices around the campus announcing the distribution centre.

For the rest of the year students seeking authorization for travel concessions, including planes, should enquire at SARU, Hut B, (extension 2617) or the Enquiry Desk, Chancellery, (extension 2251).

The University Union

The University Union provides the facilities students, staff and graduates require in their daily University life and thus an opportunity for them to know and understand one another through associations outside the lecture room, the library and other places of work.

The Union is housed in three buildings near the entrance to the Kensington Campus from Anzac Parade. These are the Roundhouse, The Blockhouse (Stage 2) and the Squarehouse (Stage 3). Membership of the Union is compulsory at $45 per year for all registered students and is open to all members of staff and graduates of the University.

The full range of facilities provided by the Union includes a cafeteria service and other dining facilities, a large shopping centre, cloak room, banking and hairdressing facilities, showers, a women's lounge, common, games, reading, meeting, music, practice, craft and dark rooms. Photocopying, sign printing, and stencil cutting services are also available. The Union also sponsors special concerts (including lunchtime concerts) and conducts courses in many facets of the arts including weaving, photography, creative dance and yoga. Exhibitions are held in the John Clark Gallery.

Full information concerning courses is contained in a booklet obtainable from the Union's Program Department.

The University Union should not be confused with the Students' Union or Students' Representative Council (as it is known in some other universities). This latter body has a representative function and is the instrument whereby student attitudes and opinions are crystallized and presented to the University and the community.

The Students' Union

The Students' Union is run by students and represents them on and off campus. Presidential elections are by popular vote and all students who have completed two years at the University are eligible for election.

A full-time President, elected each year by popular ballot, directs the entire administration of the Students' Union and its activities, through the permanent Administrative Officer.

Other full-time officers include the **Education Vice-President** who works towards the implementation of Student Union education policy and in assisting students with problems they may encounter in the University; **Director of Overseas Students** who deals with specific problems these students may encounter while in Australia.

Both are elected by students with the latter elected by overseas students.

Membership is compulsory at $14 per annum for full-time students and $11 for part-time students.

The activities of the Students' Union include:

1. Infakt: a student-run information referral service. If you want someone to talk to or need help of any kind see the people at Infakt located in the bus at the foot of Basser Steps.

2. A casual employment service.

3. Organization of Orientation Week.

4. Organization of Foundation Day.

5. A nursery/kindergarten, *The House at Pooh Corner*.

6. Publication of the student paper *Tharunka*.

7. A free legal service run by a qualified lawyer employed by the Students' Union Council.

8. Students' Union Record Shop which sells discount records and tapes.

9. The Nuthouse which deals in bulk and health foods.

10. Secondhand Bookshop for cheap texts.

11. Clubs and societies which receive money from the Students' Union through CASOC (Clubs and Societies on Campus).

12. The sale of electronic calculators and accessories at discount rates.

13. Provision of a bail fund.

The Students' Union is affiliated with the Australian Union of Students (AUS) which represents students on the national level.

The Students' Union is located on the second floor, Stage 3, the Union.

Chaplaincy Centre

This service is provided for the benefit of students and staff of various religious and spiritual beliefs. Chaplains are in attendance at the University at regular times. A Chapel is also available for use by all denominations. For further details, turn to page 2.

Other Services and Activities

CASOC All clubs and societies on campus (except sporting clubs) are loosely organized under the umbrella of CASOC, which is a committee of the Students' Union. Some of these clubs are: the Motor Cycle Club; Chess Club; Dramsoc; Opunka; Kite Club and the Jazz Society.

School and Faculty Associations Many schools and faculties have special clubs with interests in particular subject fields. Enquire at your Faculty Office for information.

University Co-operative Bookshop Limited Membership is open to all students, on initial payment of a fee of $10, refundable when membership is terminated. Members receive an annual rebate on purchases of books.

Cashier's Hours The University cashier's office is open from 9.30 am to 1.00 pm and from 2.00 pm to 4.30 pm, Monday to Friday. It is open for additional periods at the beginning of Session 1. Consult notice boards for details.

Australian Armed Forces Enquiries should be directed to:

Royal Australian Navy: Royal Australian Navy Liaison Officer, Professor J. S. Ratcliffe, Commander, RANR, at the School of Chemical Engineering. Phone extension 2406.

University of New South Wales Regiment: The Adjutant, Regimental Depot, Day Avenue (just west of Anzac Parade). Phone 663 1212.

Royal Australian Air Force: Undergraduates interested in the RAAF Undergraduate Scheme should contact The Recruiting Officer, Defence Forces Recruiting Centre, 323 Castlereagh Street, Sydney. Phone 212 1011.

Financial Assistance to Students

Tertiary Education Assistance Scheme

Under this scheme, which is financed by the Commonwealth Government, assistance is available for full-time study in approved courses, to students who are not bonded and who are permanent residents of Australia, subject to a means test on a non-competitive basis.

Students in the following types of university courses are eligible for assistance:

- Undergraduate and graduate degree courses
- Graduate diplomas
- Approved combined Bachelor degree courses
- Master's qualifying courses

Benefits (as at 30 June 1977)

Means-tested Living Allowance The maximum rates of living allowances are $1,250 per annum for students living at home and $1,976 per annum for students living away from home. The maximum rate for independent students is $2,236 per annum. The maximum rates of living allowance will be paid where the adjusted family income is equal to *or* less than $8,200 per annum. The adjusted family income is assessed by subtracting from the gross income of both parents their business expenses and an amount of $450 for each dependent child other than the student.

When the adjusted family income exceeds $8,200 pa the amount of living allowance will be reduced by $2.50 for every $10 of income.

A concession may be made where there are other children in the family undertaking tertiary education with scholarship assistance from schemes other than the Tertiary Education Assistance Scheme of less than $150 pa.

Students qualifying for living allowance will also receive the following allowances where appropriate:

Incidentals Allowance The Incidentals Allowance of $100 is designed to help the student meet the cost of those fees which have not been abolished: the Students' Union, University Union and Sports Association fees, and other expenses associated with their studies.

Travel Allowance Students whose home is in the country may be reimbursed the cost of three return trips per year, during vacation time.

Dependants' Allowance This is made up of allowances of $29 per week for a dependent spouse and $7.50 per week for each child.

How to Apply 1977 Higher School Certificate candidates and tertiary students receiving an allowance were sent forms last October. Other students may obtain forms from the Admissions Section or the Student Employment and Scholarships Unit, or from the Regional Director, Department of Education, 323 Castlereagh Street, Sydney, NSW 2000 (phone 218 8800). The administrative closing date for 1978 applications is 31 October 1977.

Scholarships, Cadetships, Prizes

1. *Undergraduate Scholarships* In addition to finance provided under the Commonwealth Government's Tertiary Education Assistance Scheme there are a number of scholarships, cadetships, prizes and other forms of assistance available to undergraduate students. Details of procedures for application for these awards are contained in the Calendar.

There are also special scholarships not administered by the University, information about which may be obtained from the School office.

Further information and advice regarding scholarships is available from the Student Employment and Scholarships Unit in the Chancellery Building.

2. *Graduate Awards* An honours degree is generally an essential requirement for gaining one of the many graduate scholarships which are available at the University. Therefore gifted students should not neglect the opportunity to qualify for honours and thus become eligible for an award.

Details of graduate awards are contained in the University Calendar.

Other Financial Assistance

In addition to the Tertiary Education Assistance Scheme financed by the Commonwealth Government the following forms of assistance are available.

1. *Deferment of Payment of Fees* Deferments may be granted for a short period, usually one month, without the imposition of a late fee penalty, provided the deferment is requested prior to the due date for fee payments.

2. *Short Term Cash Loans* Donations from the Students' Union, the University Union and other sources have made funds available for urgent cash loans not exceeding $100. These loans are normally repayable within one month.

3. Early in 1973 the Commonwealth Government made funds available to the University to provide loans to students in financial difficulty. The loans are to provide for living allowances and other approved expenses associated with attendance at University. Repayment usually commences after graduation or upon withdrawal from the course. Students are required to enter into a formal agreement with the University to repay the loan.

From the same source students who are in extremely difficult financial circumstances may apply for assistance by way of a non-repayable grant. In order to qualify for a grant a student must generally show that the financial difficulty has arisen from exceptional misfortune.

In all cases assistance is limited to students with reasonable academic records and whose financial circumstances warrant assistance.

Enquiries about all forms of financial assistance should be made at the office of the Deputy Registrar (Student Services), Room 148E, in the Chancellery.

Financial Assistance to Aboriginal Students

Financial assistance is available from a number of sources to help Aboriginal students. Apart from the Commonwealth Government's Tertiary Education Assistance Scheme there is a Commonwealth Aboriginal Study Grant Scheme. Furthermore, the University may assist Aboriginal students with some essential living expenses in exceptional circumstances.

All enquiries relating to this scheme should be made at the office of the Deputy Registrar (Student Services), Room 148E, in the Chancellery.

Fund for Physically Handicapped and Disabled Students

The University has a small fund (started by a generous gift from a member of the staff who wishes to remain anonymous) available for projects of benefit to handicapped and disabled students. Enquiries should be made at the office of the Deputy Registrar (Student Services), Room 148E, in the Chancellery.

Rules and Procedures

The University, in common with other large organizations, has some agreed ways of doing things in order to operate for the benefit of all members. The rules and procedures listed below will affect you at some time or another. In some cases there are penalties (eg fines or exclusion from examinations) for failure to observe these procedures and therefore they should be read with care.

Admission

Where can I get information about admission?

The Admissions Office, located in the Chancellery on the upper campus, provides information for students on admission requirements, undergraduate and graduate courses and enrolment procedures. The Admissions Office is open from 9 am to 5 pm Monday to Friday (excluding the lunch hour 1 pm to 2 pm). During enrolment the office is also open for some part of the evening.

The Office provides information about special admission (including mature age entry), admission with advanced standing and admission on overseas qualifications. The Office also receives applications from students who wish to transfer from one course to another, resume their studies after an absence of twelve months or more, or seek any concession in relation to a course in which they are enrolled. It is essential that the closing dates for lodgment of applications are adhered to. For further details see the sections below on Enrolment and Fees.

Applications for admission to undergraduate courses from students who do not satisfy the requirements for admission (see section on Requirements for Admission), from students seeking admission with advanced standing, and from students who have a record of failure at another university, are referred by the Admissions Office to the Admissions Committee of the Professorial Board.

Students seeking to register as higher degree candidates should first consult the Head of the School in which they wish to register. An application is then lodged on a standard form and the Admissions Office, after obtaining a recommendation from the Head of School, refers the application to the appropriate Faculty or Board of Studies Higher Degree Committee.

Details of the procedure to be followed by students seeking entry to first year undergraduate degree courses at the University may be obtained from the Admissions Office or the Metropolitan Universities Admissions Centre.

How do I qualify for admission?

In order to enter an undergraduate course you must qualify for matriculation to the University, and be selected for admission to the faculty or course you wish to enter. Full details of matriculation and admission requirements are contained in a pamphlet obtainable at the Admissions Office and in the Calendar.

Enrolment

How do I enrol?

All students, except those enrolling in graduate research degrees (see below), must lodge an authorized enrolment form with the Cashier on the day the enrolling officer signs the form or on the day their General Studies electives are approved if their course requires this.

All students, except those enrolling in graduate research degrees and those exempted (see below), should on that day also either pay the required fees or lodge an enrolment voucher or other appropriate authority.

What happens if I am unable to pay fees at the time of enrolment?

If you are unable to pay fees by the due date you may apply in writing to the Deputy Registrar (Student Services) for an extension of time which may be granted in extenuating circumstances.

If a student is unable to pay the fees the enrolment form must still be lodged with the Cashier and the student will be issued with a 'nil' receipt. The student is then indebted to the University and must pay the fees by the end of the second week of the session for which enrolment is being effected. Penalties apply if fees are paid after that time (see Fees below). Payment may be made through the mail in which case it is important that the student registration number be given accurately.

New Undergraduate Enrolments

Persons who are applying for entry in 1978 must lodge an application for selection with the Metropolitan Universities Admissions Centre, PO Box 7049, GPO, Sydney 2001, by 1 October 1977.

Those who are selected will be required to complete enrolment at a specified appointment time before the start of Session 1. Compulsory fees must be paid on the day of the appointment. In special circumstances, however, and provided class places are still available, students may be allowed to complete enrolment after the prescribed week, subject to the payment of a penalty (see page 15).

Application forms and details of the application procedures may be obtained from the Admissions Office.

Re-enrolment

Students who are continuing courses (or returning after approved leave of absence) should enrol through the appropriate School in accordance with the procedures set out in the current *Enrolment Procedures* booklet, available from the Admissions Office and from School offices. Those who have completed part of a course and have been absent without leave need to apply for entry through the Metropolitan Universities Admissions Centre, PO Box 7049, GPO, Sydney 2001, by 1 October 1977.

Restrictions Upon Re-enrolling

Students enrolled for the first time in any undergraduate course in the University who failed more than half their program in

1977; students who have failed more than once a subject prescribed as part of their course; and students required by the Re-enrolment Committee to show cause should not attempt to re-enrol but should follow the written instructions they will receive from the Registrar.

For the purpose of calculating a student's program, all subjects taken during the year, including repeat subjects, are counted.

New Research Students

Students enrolling for the first time in graduate research degrees will receive an enrolment form by post. They have two weeks from the date of offer of registration in which to lodge the enrolment form with the Cashier and pay the appropriate fees. Completion of enrolment after this time will incur a penalty (see page 15).

Re-enrolling Research Students

Students re-enrolling in research degrees should lodge the enrolment form with the Cashier as soon as possible but no later than the end of the second week of Session 1. Completion of enrolment after that date will incur a penalty (see below).

Submission of Graduate Thesis or Project Report at Commencement of Session 1

A candidate who has completed all the work for a graduate degree except for the submission of a thesis or project report is required to re-enrol and pay fees as outlined above *unless* the thesis or project report is submitted by the end of the second week of Session 1 in which case the candidate is not required to re-enrol. Those required to re-enrol may claim a refund of fees if able to withdraw (see below).

Miscellaneous Subject Enrolments

Students may be permitted to enrol for miscellaneous subjects (ie as students not proceeding to a degree or diploma) provided the Head of the School offering the subject considers it will be of benefit and there is accommodation available. Only in exceptional cases will subjects taken in this way count towards a degree or diploma. Students who are under exclusion may not be enrolled in miscellaneous subjects which may be counted towards courses from which they have been excluded.

Students seeking to enrol in miscellaneous subjects should obtain a letter of approval from the Head of the appropriate School or his representative permitting them to enrol in the subject concerned. The letter should be given to the enrolling officer at the time of enrolment.

For details of the locations and hours for enrolment see *Enrolment Procedures 1978*, a free booklet obtainable from your School or Faculty Office or from the Admissions Office.

Final Dates for Completion of Enrolments

No enrolments for courses extending over the whole year or for Session 1 only will be accepted from new students after the end of the second week of Session 1 (17 March 1978) except with the express approval of the Deputy Registrar (Student Services) and the Heads of the Schools concerned; no later year enrolments for courses extending over the whole year or for Session 1 only will be accepted after the end of the fourth week of Session 1 (31 March 1978) except with the express approval of the Deputy Registrar (Student Services) and the Heads of Schools concerned. No enrolments for courses in Session 2 only will be accepted after the end of the second week of Session 2 (4 August 1978) except with the express approval of the Deputy Registrar (Student Services) and the Heads of Schools concerned.

How do assisted students (eg scholarship holders) enrol?

Scholarship holders or sponsored students who have an enrolment voucher or letter of authority from their sponsor should present it at the time of enrolment. Such vouchers and authorities are generally issued by the NSW Department of Education and the NSW Public Service. They are not always issued in time and students who expect to receive an enrolment voucher or other appropriate authority but have not done so must pay the fees (and arrange a refund later). Such vouchers and authorities are not the responsibility of the University and their late receipt is not to be assumed as automatically exempting a student from the requirements of enrolling and paying fees.

What special rules apply if I wish to be considered for admission with advanced standing?

If you make application to register as a candidate for any degree or other award granted by the University you may be admitted to the course of study with such standing on the basis of previous attainments as may be determined by the Professorial Board. For complete details regarding 'Admission with Advanced Standing' consult the University Calendar.

Can I transfer from one course to another?

To transfer from one course to another you must apply on an application form obtainable from the Admissions Office by 13 January. If your application is successful you are required to comply with the enrolment procedures for the year/stage of the new course and, unless otherwise instructed, you should present the letter granting transfer to the enrolling officer. If you intend to transfer, you should also inform the enrolling officer of the school in which you were enrolled in 1977.

Can I change my course program?

If you wish to seek approval to substitute one subject for another, or add one or more subjects to your program or discontinue part or all of your program, you must make application to the Registrar through the Head of the School responsible for the course on forms available from School offices or at the Enquiry Desk in the main entrance of the Chancellery. The Registrar will inform you of the decision. Application to enrol in additional subjects must be submitted by the end of the fourth week of Session 1.

It is emphasized that failure to sit for examinations in any subject in which you are enrolled will be regarded as failure to satisfy the examiners in that subject unless written approval to withdraw without failure has been obtained from the Registrar.

Withdrawal from subjects

Courses

1. Students withdrawing from courses (see also Subjects, below) are required to notify the Registrar in writing.

For details see the Calendar.

Subjects

2. Students are permitted to withdraw from subjects without being regarded as having failed, provided they apply by the dates indicated.

First Year Students (ie enrolled for the first time in any undergraduate course at the University)

1. one-session subjects: the end of the eighth week of that session (28 April or 15 September).

2. double-session subjects: the end of the second week of Session 2 (4 August).

Other Students

1. one-session subjects: the end of the fourth week of that session (31 March or 8 August);

2. double-session subjects: the end of the eleventh week from the start of Session 1 (19 May).

How do I enrol after an absence of twelve months or more?

If you have had a leave of absence for twelve months and wish to resume your course you should follow the instructions about re-enrolling given in the letter granting your leave of absence. If you do not fully understand or have lost these instructions, then you should contact the Admissions Office before October in the year preceding the one in which you wish to resume your course.

If you have not obtained leave of absence from your course and have not been enrolled in the course over the past twelve months or more, then you should apply for admission to the course through the Metropolitan Universities Admission Centre before 1 October in the year preceding that in which you wish to resume studies.

Are there any restrictions upon students re-enrolling?

The University Council has adopted the following rules governing re-enrolment with the object of requiring students with a record of failure to *show cause* why they should be allowed to re-enrol and retain valuable class places.

First-year Rule

1. A student enrolled for the first time in any undergraduate course in the University shall be required to show cause why he/she should be allowed to continue the course if that student fails more than half the program in which he/she is enrolled. In order that students may calculate half their program, the weighting of subjects in each course is defined in *Schedule A*,* which may be varied from time to time by the Professorial Board.

Repeated-failure Rule

2. A student shall be required to show cause why he/she should be allowed to repeat a subject which that student has failed more than once. *Where the subject is prescribed as part of the student's course he/she shall also be required to show cause why he/she should be allowed to continue that course.* Failure in a deferred examination as well as in the initial examination counts for the purposes of this rule as one failure.

General Rule

3. The Re-enrolment Committee may, on the recommendation of the relevant faculty or board of studies, review the academic progress of any student. If that student's academic record seems to demonstrate, in the opinion of the Committee, the student's lack of fitness to pursue a subject or subjects and/or a course or courses, the Committee may require that student to show cause why he/she should be allowed to re-enrol in such subject(s) and/or course(s).

The Session-unit System

4. (1) A student who infringes the provisions of Rules **1.** or **2.** at the end of Session 1 of any year will not be required to *show cause* at that time but will be allowed to repeat the subject(s) (if offered) and/or continue the course in Session 2 of that year, subject to the rules of progression in that course.

(2) Such a student will be required to *show cause* at the end of the year, except that a student who has infringed Rule **2.** at the end of Session 1, repeats the subject(s) in question in Session 2, and passes it/them, will not be required to *show cause* on account of any such subject.

*For details of Schedule A see Restrictions upon Students Re-enrolling in the University Calendar.

Exemption from Rules by Faculties

5. (1) A faculty or board of studies examination committee may, in special circumstances, exempt a student from some or all of the provisions of Rules **1.** and **2.**

(2) Such a student will not be required to *show cause* under such provisions and will be notified accordingly by the Registrar.

'Showing Cause'

6. (1) A student wishing to *show cause* must apply for special permission to re-enrol. Application should be made on the form available from the Examinations and Student Records Section and must be lodged with the Registrar by the dates published annually by the Registrar. A late application may be accepted at the discretion of the University.

(2) Each application shall be considered by the Re-enrolment Committee which shall determine whether the cause shown is adequate to justify the granting of permission to re-enrol.

Appeal

7. (1) Any student who is excluded by the Re-enrolment Committee from a course and/or subject(s) under the provisions of the Rules may appeal to an Appeal Committee consituted by Council for this purpose with the following membership:

A Pro-Vice-Chancellor nominated by the Vice-Chancellor who shall be Chairman.

The Chairman of the Professorial Board, or if he is unable to serve, a member of the Professorial Board, nominated by the Chairman of the Professorial Board, or when the Chairman of the Professorial Board is unable to make a nomination, nominated by the Vice-Chairman.

One of the category of members of the Council elected by the graduates of the University, nominated by the Vice-Chancellor.

The decision of the Committee shall be final.

(2) The notification to any student of a decision by the Re-enrolment Committee to exclude him/her from re-enrolling in a course and/or subject(s) shall indicate that the student may appeal against that decision to the Appeal Committee. In lodging such an appeal with the Registrar the student should provide a complete statement of all grounds on which the appeal is based.

(3) The Appeal Committee shall determine the appeal after consideration of the student's academic record, his/her application for special permission to re-enrol, and the stated grounds of appeal. In exceptional circumstances, the Appeal Committee may require the student to appear in person.

Exclusion

8. (1) A student who is required to *show cause* under the provisions of Rules **1.** or **3.** and either does not attempt to *show cause* or does not receive special permission to re-enrol from the Re-enrolment Committee (or the Appeal Committee on appeal) shall be excluded from re-enrolling in the subject(s) and course(s) on account of which he was required to *show cause*. Where the subjects failed are prescribed as part of any other course (or courses) he/she shall not be allowed to enrol in any such course.

(2) A student who is required to *show cause* under the provisions of Rule **2.** and either does not attempt to *show cause* or does not receive special permission to re-enrol from the Re-enrolment Committee (or the Appeal Committee on appeal) shall be excluded from re-enrolling in any subject he/she has failed twice. *Where the subject failed is prescribed as part of the student's course he/she shall also be excluded from that course.* Where the subject failed is prescribed as part of any other course (or courses) he/she shall not be allowed to enrol in any such course(s).

(3) A student excluded from a course or courses under the provisions of (1) or (2) may not enrol as a miscellaneous student in subjects which may be counted towards any such course.

Re-admission after Exclusion

9. (1) An excluded student may apply for re-admission after the period of exclusion has expired.

(2) (a) Applications for re-admission to a course should be made to the Metropolitan Universities Admission Centre before the closing date for normal applications in the year prior to which re-admission is sought. Such applications will be considered by the Admissions Committee of the relevant Faculty or Board.

(b) An application for re-admission to a subject should be made to the Registrar before 30 November in the year prior to which re-admission is sought. Such applications will be considered by the relevant Head of School.

An application should include evidence that the circumstances which were deemed to operate against satisfactory performance at the time of exclusion are no longer operative or are reduced in intensity and/or evidence of action taken (including enrolment in course/s) to improve an applicant's capacity to resume studies at the University.

Applications for re-admission to a course or subject that are unsuccessful (see **9.** (2) (a), (b) respectively) will be reconsidered automatically by the Re-enrolment Committee of the Professorial Board. The decision of the Committee will be final.

10. If students fail a subject at the examinations in any year or session and re-enrol in the same course in the following year or session they must include in their program of studies for that year or session the subject which they failed. This requirement will not be applicable if the subject is not offered the following year or session, is not a compulsory component of a particular

course; or if there is some other cause which is acceptable to the Professorial Board, for not immediately repeating the failed subject.

Restrictions and Definitions

11. (1) These rules do not apply to students enrolled in programs leading to a higher degree or graduate diploma.

(2) A subject is defined as a unit of instruction identified by a distinctive subject number.

How do I apply for admission to degree or diploma?

If your current program will enable you to complete all requirements for a degree or diploma, including industrial training where necessary, you should complete the form **Submission of Details Associated with Graduation** by the dates shown in the *Calendar of Dates* and on the *Notification of Examination Results*. The forms are available from the Enquiry Counter at the Chancellery and will be mailed to all potential graduates.

The completion and submission of the form ensures that:

1. the correct spelling and sequence of names is recorded on the degree certificate. **2.** any previous academic qualifications are shown in the graduation ceremony program. **3.** all correspondence relating to the ceremony is forwarded to the correct address. *Note:* If notifying change of address after the form has been submitted an additional form *Final Year Students' Graduation: Change of Address Advice* should be submitted.

If you meet all the requirements, the degree or diploma will be conferred without the necessity for further action by you. Students should advise the Registrar, in writing, if they do not wish to have the degree or diploma conferred for any reason, including the decision to proceed to an honours degree. This advice should reach the Registrar no later than 24 July for students completing at the end of Session 1, and 24 February for those completing at the end of Session 2 to ensure that the degree is not conferred.

Fees*

Fees and penalties quoted are current at the time of publication but may be amended by the University Council without notice.

Do I have to pay fees for tuition?

No tuition fees are charged.

What other fees and charges are payable?

Apart from the tuition fees (above) there are other fees and charges which include those charges raised to finance the expenses incurred in operating student activities such as the University Union, the Students' Union, the Sports Association and the Physical Education and Recreation Centre. Penalties are also incurred if a student fails to complete procedures as required. Charges may also be payable, sometimes in the form of a deposit, for the hiring of kits of equipment which are lent to students for their personal use during attendance in certain subjects. Accommodation charges, costs of subsistence on excursions, field work etc, and for hospital residence (medical students) are payable in appropriate circumstances.

How much is my contribution to student activities and services on campus?

All students (with the exceptions noted below) will be required to pay the following fees if enrolling for a program involving two sessions. Those enrolling for only one session will pay one-half of the Student Activities Fees, and the full University union entrance fee, if applicable.

University Union, $25 entrance fee, payable on first enrolment

Student Activities Fees

University Union, $45 annual subscription

Sport Association, $6 annual subscription

Students' Union:

Students enrolling in full-time courses, $14 annual subscription

Students enrolling in part-time courses and miscellaneous subjects, $11 annual subscription

Miscellaneous, $25 annual fee.

The fee is used to finance expenses generally of a capital nature relating to student activities. Funds are allocated to the various student bodies for projects recommended by the Student Affairs Committee and approved by the University Council.

Are fees charged for examinations?

Generally there are no charges associated with examinations; however, two special examination fees are applied:

Examinations conducted under special circumstances—for each subject	$11
Review of examination result—for each subject	$11

What penalties exist for late payment of fees?

The following additional charges will be made in 1977 when fees are paid late:

1. Failure to lodge enrolment form according to enrolment procedure	$20
2. Payment of fees after end of second week of session	$20
3. Payment of fees after end of fourth week of session	$40

Penalties **1.** and **2.** or **1.** and **3.** may accumulate.

*Fees quoted are current at the time of publication and may be amended by the Council without notice.

Locations and Hours of Cashier

Cashier's Offices are open during the enrolment periods. Details of locations and hours are listed in *Enrolment Procedures 1978*, a free booklet obtainable from your School or Faculty Office or from the Admissions Office.

Who is exempt from payment of fees?

1. Life members of University Union, Sports Association, and Students' Union are exempt from the relevant fee or fees.

2. Students enrolled in courses classified as *External* are exempt from all Students Activities Fees and the University Union entrance fee.

3. University Union fees and subscriptions may be waived by the Deputy Registrar (Student Services) for students enrolled in graduate courses in which the academic requirements require no attendance on the Kensington campus.

4. Students who while enrolled at and attending another university (or other tertiary institution as approved by the Vice-Chancellor) in a degree or diploma course are given approval to enrol at the University of New South Wales but only in a miscellaneous subject or subjects to be credited towards the degrees or diplomas for which they are enrolled elsewhere are exempt from all Student Activities Fees and the University Union entrance fee.

5. Undergraduate students of a recognized university outside Australia who attend the University of New South Wales with the permission of the Dean of the appropriate faculty and of the Head of the appropriate school or department to take part as miscellaneous students in an academic program relevant to their regular studies and approved by the authorities of their own institution are exempt from all Student Activities Fees and the University Union entrance fee.

6. Graduate students not in attendance at the University and who are enrolling in a project only, other than for the first time, are exempt from all Student Activities Fees.

7. Graduate students resubmitting a thesis or project only are exempt from all Student Activities Fees.

8. All Student Activities Fees, for one or more sessions may be waived by the Deputy Registrar (Student Services) for graduate students who are given formal permission to pursue their studies away from the Kensington campus for one or more sessions.

Is exemption from membership possible?

The Registrar is empowered to grant exemption from membership of the Students' Union and the Sports Association to students who have a genuine religious objection to such membership, subject to payment of the prescribed fees to the University.

How much will textbooks and special equipment (if any) cost?

You must allow quite a substantial sum for textbooks. This can vary from $250 to $600 per year depending on the course taken. These figures are based on the cost of new books. The Students' Union operates a second-hand bookshop. Information about special equipment costs, accommodation charges and cost of subsistence on excursions, field work, etc, and for hospital residence (medical students) are available from individual schools.

Will I receive any refund if I withdraw from a course?

Yes. The following rules apply:

1. If you withdraw from courses you are required to notify the Registrar in writing.

2. Where notice of withdrawal from a course is received by the Registrar before the first day of Session 1 a refund of all fees paid will be made. After that time only a partial refund will be made. See the Calendar for details.

What happens if I fail to pay the prescribed fees or charges?

If you fail to pay prescribed fees or charges or become otherwise indebted to the University and you fail to make a satisfactory settlement of your indebtedness upon receipt of due notice then you cease to be entitled to the use of University facilities. You will not be permitted to register for a further session, to attend classes or examinations, or be granted any official credentials. In the case of a student enrolled for Session 1 only or for Sessions 1 and 2 this disbarment applies if any portion of fees is outstanding after the end of the eighth week of Session 1 (28 April 1978). In the case of a student enrolled for Session 2 only, this disbarment applies if any portion of fees is outstanding after the end of the sixth week of Session 2 (1 September 1978).

In special cases the Registrar may grant exemption from disqualifications referred to in the preceding paragraph upon receipt of a written statement setting out all relevant circumstances.

Can I get an extension of time to pay?

If you apply before the due date and extenuating circumstances exist, an extension of time may be granted. Apply to the Deputy Registrar (Student Services).

Examinations

When are examinations held?

Examinations for Session 2 and for Full Year subjects are held in November/December. Examinations for Session 1 subjects

are held during the Midyear Recess. Provisional timetables indicating the dates and times of examinations and notices of the location of examinations are posted on the University notice boards on the campus, including the Western Grounds Area. Final timetables indicating the dates, times, locations and authorized aids are available for students two weeks before the end of each session. You must advise the Examinations Unit (the Chancellery) of any clash in examinations. Details of dates are published in the **Calendar of Dates** (see pages 2-4 for May/June and October/November).

Misreading of the timetable is not an acceptable excuse for failure to attend an examination.

In the assessment of your progress in University courses, consideration may be given to work in laboratory and class exercises and to any term or other tests given throughout the year as well as to the results of written examinations.

How are examination passes graded?

Passes are graded: High Distinction, Distinction, Credit and Pass. Satisfactory indicates the satisfactory completion of a subject for which graded passes are not available. A Pass Conceded may be granted to a student whose mark in a subject is slightly below the standard required for a pass but whose overall satisfactory performance warrants this concession.

A Terminating Pass may be granted where the mark for the subject is below the required standard. A terminating pass will not permit a student to progress further in the subject or to enrol in any other subject for which a pass in the subject is a co-requisite or prerequisite. A student given a terminating pass may attempt a deferred examination, if available, to improve his performance but should he fail in such attempt, the terminating pass shall stand.

When are examination results available?

Final examination results will be posted to your term address (which can be altered up to 30 November) or to your vacation address (fill in a form obtainable at the Information Desk, Chancellery, also by 30 November). Results are also posted on School notice boards and in the foyer of the Sir John Clancy Auditorium. **No examination results are given by telephone.**

Can examinations results be reviewed?

Examination results may be reviewed for a fee of $11 a subject, which is refundable in the event of an error being discovered. This review consists mainly of ensuring that all questions attempted have been marked and of checking the total of the marks awarded. Applications for review must be submitted on the appropriate form to the Examinations and Student Records Section together with the necessary fee by the dates printed on the reverse side of *Notification of Results*.

Are allowances made if students are sick before or during an examination?

A student who through serious illness or other cause outside his control *is unable to attend an examination* is required to bring the circumstances (supported by a medical certificate or other evidence) to the notice of the Registrar *not later than seven days after the date of the examination.*

A student who believes that his performance in a subject has been affected by serious illness *during the year* or by other cause outside his control, and who desires these circumstances to be taken into consideration in determining his standing, is required to bring the circumstances (supported by a medical certificate or other evidence) to the notice of the Registrar as soon as the circumstances are known but *not later than seven days after the date of the examination.*

A student who attempts an examination, yet claims that his performance is prejudiced by sickness *on the day of the examination* must notify the Registrar or Examination Supervisor *before, during, or immediately after the examination,* and may be required to submit to medical examination.

When submitting a request for consideration candidates are required to give details of their registration number, address, course, specialization, year or stage, full or part-time and subject number, title and date of the examination affected.

A student suffering from a physical disability which puts him at a disadvantage in written examinations should apply to the Assistant Registrar, Examinations and Student Records Section (Ground Floor, the Chancellery) immediately the disability is known. If necessary, special arrangements will be made to meet the student's requirements.

Use of electronic calculators

Where the use of electronic calculators has been approved by a faculty or school, examiners may permit their use in examinations. Authorized electronic calculators are battery operated with the minimum operations of addition, subtraction, multiplication and division and are of a type in common use by university students. They are not provided by the University, although some schools may make them available in special circumstances.

Compulsory Industrial Training

Examinations including deferred examinations will not be permitted away from the campus unless the candidate is engaged on *compulsory* industrial training. Candidates must advise the Officer-in-Charge, Examinations Unit, immediately the location of the industrial training is known. Special forms for this purpose are available at the Enquiry Desk, the Chancellery.

Arrival at Examinations

Examination Rooms will be open to students 25 minutes before the commencement of the examination. Candidates are requested to be in their places at least 15 minutes before the

commencement to hear announcements. The examination paper will be available for reading 10 minutes before commencement.

Use of Translation Dictionaries

All answers must be in English unless otherwise directed. Foreign students who have the written approval of the Assistant Registrar, Examinations and Student Records Section, may use standard translation dictionaries. Dictionaries should be presented for approval, not later than 14 days before the commencement of the examination period.

How are examinations conducted?

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

1. Candidates are required to obey any instruction given by an examination supervisor for the proper conduct of the examination.
2. Candidates are required to be in their places in the examination room not less than 10 minutes before the time for commencement.
3. No bag, writing paper, blotting paper, manuscript or book, other than a specified aid, is to be brought into the examination room.
4. No candidate shall be admitted to an examination after 30 minutes from the time of commencement of the examination.
5. No candidate shall be permitted to leave the examination room before the expiry of 30 minutes from the time the examination commences.
6. 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.
7. 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.
8. Smoking is not permitted during the course of examinations.
9. A candidate who commits any infringement of the rules governing examinations is liable to disqualification at the particular examination, to immediate expulsion from the examination room, and to such further penalty as may be determined in accordance with the By-laws.

Under what circumstances are deferred examinations granted?

Deferred examinations may be granted in the following cases:

1. When a student through illness or some other acceptable circumstance has been prevented from taking the annual examination or has been placed at a serious disadvantage during the annual examinations.
2. To help resolve a doubt as to whether a student has reached the required standard in a subject.
3. To allow a student by further study to reach the required standard in a subject.
4. Where a student's progression or graduation is inhibited by his failure in one subject only, a deferred examination may be granted notwithstanding his failure otherwise to qualify for this concession.

In the Faculties of Arts, Commerce and Law special circumstances apply in the granting of deferred examinations. Details in each circumstance are given in the section *Faculty Information* in the respective handbooks for these faculties, or in the Calendar.

Deferred examinations must be taken at the centre at which the student is enrolled, unless he has been sent on compulsory industrial training to a remote country centre or interstate. In this case the student must advise the Registrar, on a form available from his school or the Information Desk, the Chancellery, of relevant particulars, before leaving for his destination, in anticipation that deferred examination papers may have to be forwarded to him. Normally, the student will be directed to the nearest university for the conduct of the deferred examination.

What is a Conceded Deferred Examination?

A conceded deferred examination may be granted to a student where the mark in the subject is below the standard at which deferred examinations have been granted in the subject but whose overall performance warrants such a concession.

Change in the deferred examination system from March 1978

The system of formal deferred examinations administered by the Registrar's Division will be abolished from 1 March 1978. Schools and Faculties may carry out whatever additional assessment may be considered appropriate, including assessment or additional assessment on medical or compassionate grounds.

Can I buy copies of previous examination papers?

Yes—for 5c each from the University Union's Upper Campus Shop in the Commerce Building.

Essays

Should I list my sources?

Students are expected to acknowledge the sources of ideas and expressions that they use in essays. To provide adequate documentation is not only an indication of academic honesty but also a courtesy enabling the marker to consult your sources with ease. Failure to do so may constitute plagiarism which is subject to a charge of academic misconduct.

Student Conduct on Campus

Is there a detailed code of rules related to the general conduct of students?

No. The University has not considered it necessary to formulate a detailed code of rules relating to the general conduct of students.

However, now that you have become a member of the University you should understand that this involves an undertaking on your part to observe its rules, by-laws and other requirements, and to pay due regard to any instructions conveyed by any officer of the University.

What are the rules related to attendance at classes?

You are expected to be regular and punctual in attendance at all classes in the course or subject in which you are enrolled. All applications for exemption from attendance at lectures or practical classes must be made in writing to the Registrar.

In the case of illness or of absence for some other unavoidable cause you may be excused by the Registrar for non-attendance at classes for a period not more than one month or, on the recommendation of the Dean of the appropriate Faculty, for a longer period.

Leave of Absence

Applications for leave of absence from lectures should be addressed to the Registrar and, where applicable, should be accompanied by a medical certificate. If examinations have been missed, this should be stated in the application.

If you attend less than 80 per cent of their possible classes, you may be refused permission to sit for the examination in that subject.

Why is my University Union card important?

All students enrolled for courses leading to degrees and/or diplomas, except those exempt from fees, are issued with a University Union membership card. Your card must be carried during attendance at the University and shown on request.

The number appearing on the front of the card above your name is your student registration number used in the University's records. This number should be quoted in all correspondence.

The card must be presented when borrowing from the University libraries, when applying for travel concessions and when notifying a change of address. It must also be presented when paying fees on re-enrolment each year when it will be made valid for the year and returned. Failure to present the card could result in some inconvenience in completing re-enrolment.

If you lose your Union card it is important to notify the University Union as soon as possible.

New students will be issued with University Union cards on enrolment.

Why should I inform the University if I change my address?

If you change your address you should notify the Student Records Section of the Registrar's Division as soon as possible. Failure to do this could lead to important correspondence (including examination results) not reaching you. The University cannot accept responsibility if official communications fail to reach students who have not notified their change of address. *Change of Address Advice Forms* are available at Faculty and School offices and at the Enquiry Desk on the Ground Floor of the Chancellery Building.

All communications from the University, including examination results, will be sent to the session address. Change of address advice will be accepted up to 30 November, except for final-year students wishing to change their *Submission of Details Associated with Graduation* form. Changes to this form will be accepted up to a date four weeks before the student's graduation ceremony.

Will the University release information to third parties without my permission?

In general, no. The University treats examination results and information it receives from a student as confidential and will not reveal such information to third parties without the permission of the student except at the discretion of senior officers in circumstances considered of benefit to the student and when it is either impossible or impracticable to gain the student's prior permission. This happens rarely. This policy is considered so important that it often involves officers of the University in very difficult situations, for example, when they must refuse to reveal the address of a student to parents or other relatives.

In spite of the policy, there are sometimes accusations made that the University has revealed information, including addresses (especially to insurance companies).

All students should be aware that students' addresses are eagerly sought by various commercial agents and that sometimes tricks are used to obtain them. For example, from time to time people claiming to be from the University telephone students or their families and ask for information (usually another student's address) which is often given, unsuspectingly. There is evidence that this is a technique used by commercial agents.

It would be generally helpful if students (and their families and friends) are cautious in revealing information, making it a practice to ask the name, position, and telephone extension of any caller claiming to be from the University and, if suspicious, returning the call to the extension given.

How are student records kept up to date?

Enrolment details forms will be sent to all students on 28 April and 15 September. It is not necessary to return these forms unless any information recorded thereon is incorrect. Amended forms must be returned to the Examinations and Student Records Section within fourteen days. Amendments notified after the closing date will not be accepted unless exceptional circumstances exist and approval is obtained from the Registrar. Amended forms returned to the Registrar will be acknowledged in writing within 14 days.

Is there any rule related to the ownership of students' work?

Yes. 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 you as part of your courses, or submitted for any award or competition conducted by the University.

Can I get a permit to park on campus?

Only a limited amount of parking is available on campus. Copies of the University's parking rules may be obtained on application to Room 240, Chancellery Building.

Lost Property?

All enquiries concerning lost property should be made to the Superintendent on extension 3580 or to the Lost Property Office at the Union.

Further Information

Where can I get further information concerning courses, admission requirements, scholarships and enrolment procedure?

General

Any student who requires information on the application of these rules or any service which the University offers, may make enquiries from the Admissions Office, the Student Counselling Unit or the Registrar.

Notices

Official University notices are displayed on the notice boards and students are expected to be acquainted with the notices which concern them. These boards are in the Biological Sciences Building, the Mathews Building, the Chancellery (lower ground floor), Central Lecture Block, Dalton Building (Chemistry), Electrical Engineering Building, Main Building (Physics and Mining Engineering) and in the Western Grounds Area.

Notices are placed on the University notice boards each month detailing forthcoming important dates. Any change to the *Calendar of Dates* is included in these notices.

Appeals

Section 5(c) of Chapter III of the By-laws provides: 'Any person affected by a decision of any member of the Professorial Board (other than the Vice-Chancellor) in respect of breach of discipline or misconduct may appeal to the Vice-Chancellor, and in the case of disciplinary action by the Vice-Chancellor, whether on appeal or otherwise, to the Council'.

The Calendar

Please consult the Calendar if you want a more detailed account of the information contained in this section.

Vice-Chancellor's Official Welcome to New Students

All students initially enrolling in the University are officially welcomed by the Vice-Chancellor and Principal at the following times:

Full-time Students

In the Faculties of Architecture, Arts, Biological Sciences, Commerce, Law:
Monday 27 February 1978
11 am in the Clancy Auditorium

In the Faculties of Applied Science, Engineering, Medicine, Professional Studies, Science, and the Board of Studies in Science and Mathematics:
Tuesday 28 February 1978
11 am in the Clancy Auditorium

Part-time Students
Tuesday 28 February 1978
6.30 pm in the Clancy Auditorium

Meeting for Parents of New Students

Friday 3 March 1978
7.30 pm in the Clancy Auditorium

Introduction

The Faculty of Professional Studies is concerned with the teaching and examination of subjects concerned with certain forms of professional training. It consists of the Schools of Education, Health Administration, Librarianship, Social Work, and the Department of Industrial Arts.

This handbook provides general information concerning conditions for the award of degrees, course structures and subject descriptions. It is important that students become well acquainted with the information presented here, and if there is any difficulty they should consult the University's Admissions Office (Ground Floor, Chancellery) or their School Office.

A. H. Willis
Acting Dean
Faculty of Professional Studies

Staff

Comprises Schools of Health Administration, Librarianship, Social Work, and Education; Department of Industrial Arts.

Acting Dean
Professor A. H. Willis

Chairman
Professor L. M. Brown

School of Education

Professor of Education and Head of School
Leslie Melville Brown, MA MEd *Syd.*, PhD *Lond.*

Professor of Education
Desmond John Drinkwater, MA *Syd.*, MA PhD *Lond.*, ABPS, MAPS, MACE

Professor of Science Education and Director of Science Teachers' Courses
Austin Adolphus Hukins, MSc DipEd *Syd.*, PhD *Alta.*, MACE

Senior Lecturers
Colin Fraser Gauld, BSc DipEd PhD *Syd.*
James Henry Gribble, BA PhD *Melb.*, MPhil *Lond.*
Colman Kevin Harris, BA MEd *Syd.*
Phillip Hugh Meade, BSc BEd *Qld.*, MA *LaT.*, PhD *N.S.W.*
Barry Charles Newman, BA MSc PhD *Syd.*

Lecturers
Robert John Barry, BSc *N.S.W.*, BA DipEd PhD *Syd.*, MSc *Macq.*
Richard Martin Bibby, MA BD *Otago*
Rachel MacDonald Boyd, MA PhD *Otago*
Patricia Davies, BA *City, N.Y.*, MSc *Lond.*
James Arthur Fitzgerald, BA DipEd *Syd.*, LittB *N.E.*, MA *Macq.*
Michael Robert Matthews, BA BSc DipEd *Syd.*
Michael Francis Petty, BA *Durh.*, DipEd MEd *Calg.*, PhD *Wis.*
Shelley Phillips, BA *Melb.*, PhD *Syd.*
Shirley Louise Smith, BA PhD *Syd.*
Robert Thomas Solman, BSc *N.S.W.*, BSc *Tas.*
John Sweller, BA PhD *Adel.*
Frederick Edward Trainer, BA PhD *Syd.*

Senior Administrative Officer
Jane Wholohan, BA DipEd *Syd.*

Administrative Assistant
Barbara Jane Molnar, BA *Calif.*

Research Assistant
Peter Robert Harrington, BSc *N.S.W.*

Staff Detached from the New South Wales Department of Education

Lecturers
Kevin Carter, BSc *N.S.W.*, MIIA, MAIM
Edward John Owen Edwards, BA *N.E.*
John Bradley Henderson, BSc *N.S.W.*
Ronald George Johnson, MA *Syd.*, DipEd *R'dg.*
Peter James Hourigan, BEc *Syd.*
Ronald Charles Hurley, BA *N.E.*, MEd *N.S.W.*
Trevor St. Clair McMinn, MA *Syd.*, MSc *Lond.*
Margaret Cecilia Peppercorn, BA DipEd *N.E.*
Timothy David Radford, BA *N.E.*
Susan Madge Sweller, BSc DipEd *Syd.*
Frank Howard Stuart Tebbutt, BSc DipEd *Syd.*

School of Health Administration

Professor and Head of School
George Rupert Palmer, BSc *Melb.*, MEc *Syd.*, PhD *Lond.*, FSS, FHA, Hon. FACMA

Associate Professor
John Colin Harris Dewdney, BA MD BS *Melb.*, SM *Harv.*, DPH *Lond.*, DipTertEd *N.E.*, FACMA, MFCM, MACE

Senior Lecturers
Erica Margaret Bates, BA DipSocStud *Syd.*, PhD *N.S.W.*
Colin Grant, MA *Oxf.*, AHA
John Roger Bancks Green, ARIBA, ARAIA, AADipl

Lecturers
Sydney Samuel Wilton Davis, LLM *Syd.*
Stephen John Duckett, BEc *A.N.U.*, MHA *N.S.W.*
Timothy John Phillips, BCom *N.S.W.*, DipEd *Syd.*
Graeme Kendle Rawson, BA *N.E.*, MA *Macq.*

Tutor
Helen Madeleine Murphy, BA *Auck.*

Administrative Assistant
Adrian L. Landa, BA *N.S.W.*

Honorary Associates
R. L. Thomas, BCom *Melb.*, FHA, FCIS, AASA
T. J. Wood, MB BS *Melb.*, MHA *N.S.W.*, FRACP, FACMA, AHA

Department of Industrial Arts

Associate Professor and Head of Department
Leslie Martin Haynes, BA MEd *Syd.*, FRSA, FBPsS, FAIM, MACE

Lecturers
Donald McArthur Godden, MSc *N.S.W.*
William Richard Lawson, BSc PhD *N.S.W.*
Keith Alexander Lodge, BE *Syd.*, SAEA
John Kyle Redmond, MA *R.C.A.*, DipAd *C.S.A.D.*, FRSA, AIDIA

Professional Officer
Janice Mary Haynes, BA *Melb.*

School of Librarianship

Professor of Librarianship and Head of School
Melvin Weinstock, BSc *Rutgers*, MSc *Drexel*

Associate Professor
Carmel Jane Maguire, BA *Qld.*, MA *A.N.U.*, ALAA

Lecturers
Jennifer Linsley Affleck, BA *Syd.*, DipLib *N.S.W.*, ALAA
Michael Robert Middleton, BSc *W.Aust.*, DipLib GradDip *N.S.W.*, ALAA
Jack Richard Nelson, MA *Syd.*, ALAA
Peter Orlovich, MA DipEd *Syd.*, MLib *N.S.W.*, ALAA
Patricia Willard, BA *N.E.*, MLib *N.S.W.*, ALAA

Senior Tutor
Merilyn Jean Bryce, BA *Syd.*, DipLib *N.S.W.*, ALAA

Tutor
John Barclay, BA DipEd DipLib *N.S.W.*, ALAA
Susan Fay Burgess, BA *Cant.*, Dip *N.Z.L.S.*

Administrative Assistant
Raymond John Locke

Research Assistant
Judith Ann Burgess, BA DipEd *Syd.*, ALAA

Honorary Associate
Wilma Radford, BA MEd *Syd.*, BSc *Col.*, FLAA

School of Social Work

Professor of Social Work and Head of School
Robert John Lawrence, BA DipSocSc *Adel.*, MA *Oxf.*, PhD *A.N.U.*

Professor of Social Work
Ron Baker, MA *Brad.*, DipSocStud *Leic.*

Senior Lecturers
Robert U. Doyle, BA *St Francis Xavier U.*, MSW *Dal.*, PhD *Tor.*
Gwendoline Audrey Rennison, MA *Camb.*, CertSocSci&Admin *L.S.E.*

Lecturers
Shirley Jessie Barnes, BA DipSocWk *Syd.*
Maisry Elspeth Browne, BA DipSocStud *Syd.*
Winsome Claire Bundey, BA *N.S.W.*, DipSocStud *Syd.*
Charles Maxwell Ross Cornwell, BA BSocStud *Qld.*
Brian Anthony English, BSW *N.S.W.*
June Huntington, BA *Lond.*
Margaret Teresa Lewis, BSocStud *Qld.*, MSW *N.S.W.*
Colin John Marshall, BA DipSocWk DipCrim *Syd.*
Erkan Ongel, BS *Ankara*, MSW PhD *Pitt.*
Pamela Marjorie Thomas, BA DipSocStud *Syd.*, MS *Col.*
Christopher John Williams, BA *Camb.*, DipSA *Manc.*
Jennifer Warner Wilson, BA BSocStud *Syd.*

Tutors
Jan Mason, MA *Syd.*
Mark Daniel Schlosser, BSW *N.S.W.*
Betty Simon, BSSW *Ohio*

Administrative Assistant
Audrey Nancy Ferguson, BA DipSocStud *Syd.*

Research Assistant
Judie Sutton, BA *N.S.W.*

Faculty Information

Faculty of Professional Studies Enrolment Procedures

All students re-enrolling in 1978 or enrolling in graduate courses should obtain a copy of the free booklet *Enrolment Procedures 1978* available from School Offices and the Admissions Office. This booklet provides detailed information on enrolment procedures and fees, enrolment timetables by Faculty and course, enrolment in miscellaneous subjects, locations and hours of Cashiers and late enrolments.

Faculty Enrolment Restriction

No person shall be permitted to enrol as a full-time student in any course in the Faculty of Professional Studies at the same time as he is enrolled for any other diploma or degree in this University or elsewhere, except with the approval of the Head of School concerned.

Professional Studies Library Facilities

Although any of the university libraries may meet specific needs, the staff and students of the Schools of Education, Librarianship and Social Work are served mainly by the Social Sciences and Humanities Library and the Undergraduate Library while those of the School of Health Administration are served mainly by the Biomedical and Undergraduate Libraries. Students studying in the Department of Industrial Arts mainly use the Physical Sciences Library.

Social Sciences and Humanities Librarian	Alan Walker
Biomedical Librarian	George Franki
Physical Sciences Librarian	Marian Bate
Undergraduate Librarian	Pat Howard

Student Clubs and Societies

Students have the opportunity of joining a wide range of clubs and societies. Many of these are affiliated with the Students' Union. There are numerous religious, social and cultural clubs and also many sporting clubs which are affiliated with the Sports Association.

Clubs and societies seeking to use the name of the University in their title, or seeking University recognition, must submit their constitutions either to the Students' Union or the Sports Association if they wish to be affiliated with either of these bodies, or to the Registrar for approval by the University Council.

Education Society

The Education Society aims to give unity to the large number of students studying Education, whose contact with the School and each other is, for the majority, limited to one year. The Education Society organizes a number of social functions and endeavours, mainly through guest speakers, to acquaint students with educational issues and information relating to the teaching profession.

All students undertaking the DipEd, BScEd or BScDipEd automatically become members and the Society is affiliated with CASOC. Annual general meetings are normally held in March.

Social Work Students' Association

The Association's primary function is that of a communication channel operating not only among the students themselves but also between students and staff of the School. Through functions and informal gatherings professional aspects of social work, specific grievances and the course itself may be discussed. Students become members of the Association automatically on admission to the School of Social Work, and elect an executive committee which maintains a formal liaison with the School's staff. A regular newsletter, 'Catalyst', is produced.

Representatives of the Association attend meetings of the Australian Association of Social Workers (NSW Branch) and the Council of Social Services of NSW, while contact with student bodies in other universities is maintained through the Federation of Australian Social Work Students Association. Further details may be obtained from the Social Work students notice board and the Enquiries Office of the School of Social Work.

Industrial Arts Society

The Industrial Arts Society aims at providing opportunities for students to meet staff and fellow students through both social functions and educational activities such as films, lectures, seminars and visits to promote awareness of the opportunities available in the field of Industrial Arts.

Membership is open to all students of the Department of Industrial Arts including graduate students. The Annual General Meeting is held in March. Further details regarding membership and activities may be obtained by contacting the Secretary of the Society, C/- Department of Industrial Arts, Western Grounds Area.

Financial Assistance to Students

The scholarships and prizes listed below are available to students whose courses appear in this handbook. Each faculty handbook contains in its **Faculty Information** section the scholarships and prizes available within that faculty. The General Information section of the Calendar contains a comprehensive list of scholarships and prizes offered throughout the University.

Scholarships

Undergraduate Scholarships

As well as the assistance mentioned earlier in this handbook see **General Information: Financial Assistance to Students**, there are a number of scholarships available to students. What follows is an outline only. Full information may be obtained from the Student Employment and Scholarships Unit, located on the Ground Floor of the Chancellery.

Unless otherwise indicated in footnotes, applications for the following scholarships should be made to the Registrar by 14 January each year.

Undergraduate Scholarships (continued)

Donor	Value	Year/s of Tenure	Conditions
General			
Bursary Endowment Board*	$300 pa if living at home; $400 pa if living away from home	Minimum period of approved degree/ combined degree course	Merit in HSC and total family income not exceeding $4000.
Sam Cracknell Memorial	Up to $1500 pa payable in fortnightly instalments	1 year	Prior completion of at least 2 years of a degree or diploma course and enrolment in a full-time course during the year of application; academic merit; participation in sport both directly and administratively; and financial need.
Air Force Association Memorial Scholarship	$250 pa	1 year renewable for the duration of the course subject to satisfactory progress	Child of member or former member of Royal Australian Air Force undertaking a full-time degree course.
Girls' Realm Guild Scholarship	Up to $1500 pa	1 year renewable for the duration of the course subject to satisfactory progress and continued demonstration of need	Available only to female students under 35 years of age enrolling in any year of a full-time undergraduate course on the basis of academic merit and financial need.

Graduate Scholarships

Applications for scholarships should be made in triplicate on the required form, and sent to the Registrar by 31 October. Eligibility depends on such factors as the applicant holding an honours degree *or* equivalent qualification, *or* having relevant experience. Students completing the final year of a course may apply. Those under bond should disclose this fact. Awards are tenable for one year, and may be renewed for a maximum of two years for a Masters and 3 to 4 years for a PhD degree. Renewal each year is subject to satisfactory progress. Any exceptions from these requirements are indicated.

Application forms and further information are available from the Student Employment and Scholarships Unit, which is located on the ground floor of the Chancellery. This Unit produces the booklet *Graduate Awards*, and also provides information on additional scholarships which may become available from time to time, mainly from funds provided by organizations sponsoring research projects.

*Apply to the Secretary, Bursary Endowment Board, Box 460, PO, North Sydney 2060 immediately after sitting for HSC.

Graduate Scholarships (continued)

Donor	Value	Year/s of Tenure	Conditions
General			
University of New South Wales Research Awards	Living allowance of $4200 pa. Other allowances may also be paid	1-2 years for a Masters and 3-4 years for a PhD degree	Applicants must be honours graduates (or equivalent).
Commonwealth Government (Research Awards)		As above	Applicants must be honours graduates (or equivalent) who will graduate with honours in current academic year, and who are permanent residents of Australia.
Commonwealth Government (Course Awards)		1-2 years; minimum duration of course	Applicants must be graduates or scholars who will graduate in current academic year and who are permanent residents of Australia, and who have not previously held Commonwealth Postgraduate Award. Applications to Registrar by 30 September.
Australian American Educational Foundation Travel Grant*			Applicants must be graduates, senior scholars or post-doctoral Fellows. Graduate applications close 31 December. Other applications by mid-November.
Australian Federation of University Women	A total of $500/$3200	Up to 1 year	Applicants must be female graduates from any accredited Australian or overseas university.
The British Council Commonwealth University Interchange Scheme	Cost of travel to UK or other Commonwealth country university		Applicants must be: **1.** University staff on study leave. Applications close with Registrar by 30 November. For visits to commence during ensuing financial year 1 April to 31 March. **2.** Graduate research workers holding research grants. Applications close with Registrar by 28 February for visits to commence during ensuing 1 April to 31 March.
The Caltex Woman Graduate of the Year Scholarship	$5000 pa for further studies in USA, UK, Northern Europe or in special cases Australia. There are no special allowances for travel or accommodation for married graduates	2 years	Applicants must be female graduates who will have completed a University degree or diploma this year and who are Australian citizens or have resided in Australia for at least seven years. Selection is based on scholastic and literary achievements, demonstrable qualities of character and accomplishments in cultural and/or sporting recreational activities.

*Application forms are available from: The Secretary, Department of Education, AAEF Travel Grants, PO Box 826, Woden, ACT 2606.

Graduate Scholarship (continued)

Donor	Value	Year/s of Tenure	Conditions
General (continued)			
Canadian Pacific Airlines Award for Travel to Canada for University Graduates	One free economy class return flight a year to Canada		Graduates of an Australian university who are Australian citizens or permanent residents. Candidates must have been accepted by a Canadian university, be able to support themselves on a full-time basis, and intend to return to Australia. Applications close with Registrar by 31 May.
Commonwealth Scholarship and Fellowship Plan	Varies for each country. Generally covers travel, living, tuition fees, books and equipment, approved medical expenses. Marriage allowance may be payable	Usually 2 years, sometimes 3	Graduates who are Commonwealth citizens or British Protected Persons, and who are not older than 35 years of age. Applications close with Registrar by 1 October.
General Motors-Holdens Research Fellowship	Living allowance and other allowances	Maximum of 3 years	Graduates qualified to undertake research program for Masters or PhD degree.
Gowrie Graduate Research Travelling Scholarship	Maximum $2000 pa	2 years	Applicants must be members of the Forces or children of members of the Forces who were on active service during the 1939-45 War.
Harkness Fellowships of the Commonwealth Fund of New York*	Living and travel allowances, tuition and research expenses, book and equipment and other allowances	Between 12 to 21 months	Candidates must be either: **1.** Members of the Commonwealth or a State Public Service or semi-government Authority. **2.** Staff or graduate students at an Australian university. **3.** Individuals recommended for nomination by the Local Correspondents. The candidate will usually have an honours degree and be between 21-30 years of age. Applications close 23 July.
IBM Graduate Scholarship Plan	A maximum of $1200 pa	A maximum of 2 years for a degree of Master and 4 years for a PhD	Graduates must already hold a scholarship, such as an Australian Government Postgraduate Research Award and be studying computer science or its applications. Applications close with Registrar by 30 November.
Frank Knox Memorial Fellowships at Harvard University	Stipend of $3400 plus tuition fees pa	2 years	Applicants must be British subjects and Australian citizens, who are graduates or near graduates of an Australian university.

*Application forms must be obtained from the Australian representative of the Fund, Mr L. T. Hinde, Reserve Bank of Australia, Box 3947, GPO, Sydney, NSW 2001. These must be submitted to the Registrar by 24 July.

Graduate Scholarships (continued)

Donor	Value	Year/s of Tenure	Conditions
General (continued)			
Nuffield Foundation Commonwealth Travelling Fellowships†	Living and travel allowances	1 year	Australian citizens usually between 25 and 35 who are graduates preferably with higher degrees and who have at least a year's teaching or research experience at a university. Applications close by February.
The Rhodes Scholarship**	£3000 stg pa	2 years, may be extended for a third year	Unmarried male and female British subjects, between the ages 19 and 25 who have been domiciled in Australia at least 5 years and have completed at least 2 years of an approved university course. Applications close in July each year.
Rothmans Fellowships Award‡	$12,000 pa	Up to 3 years	The field of study is unrestricted. Applications close early September each year.
Professional Studies			
Hospitals and Charities Commission of Victoria*	$3500 pa plus dependents' allowances and certain university expenses	2 years	A cadetship to enable graduates to qualify for the degree of Master of Health Administration. The holder is required to remain in hospital employment for 2 years after graduation. Applications by 31 July.

†Applications to the Secretary, The Nuffield Foundation Australian Advisory Committee, Chemistry Laboratory, Barry Building, University of Melbourne, Parkville, Victoria 3052.

**Applications to Mr H. McCredie, Secretary of the NSW Committee, University of Sydney, NSW 2006.

‡Applications to The Secretary, Rothmans University Endowment Fund, University of Sydney, NSW 2006.

*Further details may be obtained from the Commissions in Sydney and Melbourne, or from the School of Health Administration.

Prizes

Undergraduate University Prizes

The following table summarizes the undergraduate prizes awarded by the University. Prizes which are not specific to any School are listed under 'General'. All other prizes are listed under the Faculty or Schools in which they are awarded.

Donor/Name of Prize	Value $	Awarded for
General		
Sydney Technical College Union Award	50.00	Leadership in the development of student affairs, and academic proficiency throughout the course.
University of New South Wales Alumni Association	Statuette	Achievement for community benefit — students in their final or graduating year.
School of Health Administration		
Rupert Fanning Memorial	25.00	Bachelor of Health Administration.
Grace and Anthony Suleau	25.00 25.00	16.601 Behavioural Science I 14.023 Accounting for Health Administration

Graduate University Prizes

The following table summarizes the graduate prizes awarded by the University.

General		
The Thistlethwayte Memorial Prize	100.00	Best essay in the field of water — waste water treatment or water quality management, by MEngSc, MAppSc, ME, MSc student.
School of Education		
New South Wales Institute for Educational Research	25.00	General proficiency in educational research.
New South Wales Department of Education	32.00	Outstanding ability in both academic studies and practice teaching.

Course Outlines

The Faculty of Professional Studies comprises the Schools of Education, Health Administration, Librarianship and Social Work, as well as the Department of Industrial Arts. Undergraduate courses within the Faculty's responsibility include courses in mathematics education, science education, health administration, industrial arts and social work.

School of Education

The School of Education offers:

- two four-year courses in Mathematics Education and Science Education which both lead to the Degree of Bachelor of Science Diploma in Education (BScDipEd)
- a four-year degree course leading to the Degree of Bachelor of Science (Education) (BSc(Ed))*
- a one-year full-time course for graduates leading to the Diploma in Education (DipEd), see **Graduate Study** in this handbook
- graduate courses leading to the degrees of Master of Education (MEd) and Master of Counselling (Education) (MCouns(Ed)), see **Graduate Study** in this handbook.

The Science Education Degree Course (408) and the Mathematics Education Course (407) superseded the Bachelor of Science (Education) Degree Course (406) in 1977. Students enrolled in the Bachelor of Science (Education) Degree Course were able to transfer to the new course with little difficulty. Those students not able to transfer to the new course continue with the Bachelor of Science (Education) Degree Course until they have graduated.

406
The Bachelor of Science (Education) Degree Course BSc(Ed)

As this course is being replaced by the Science Education Course (408) no new students are enrolled in this course in 1978. Students already enrolled may continue in the existing course (406) until the completion of their degree.

One feature of the course is the breadth of study over a range of science subjects. The course also provides depth by requiring that at least one of the science subjects be taken to a minimum of seven units. The science subjects studied are mostly subjects available in the Science Course. Another feature is the study of education subjects along with science subjects in the second, third and fourth years. Two History and Philosophy of Science subjects are included in the course structure to give an understanding of the nature of science and of its relationship to society.

*Not available to new students in 1978.

Honours

The BSc(Ed) may be awarded with honours. The grade of honours is determined by the quality of work performed throughout the course which includes the fourth year honours research seminar and thesis. The classes and divisions of honours are: Class 1; Class 2, Division 1; Class 2, Division 2.

Applications for admission to the honours program should be made in writing to the Head of School on the completion of third year.

Progression

Progression in the Bachelor of Science (Education) course is permitted by subject. However:

1. Course programs will continue to be stated and timetabled by year and it cannot be guaranteed that non-standard programs can be completed in the minimum number of years. A non-standard program is one which involves enrolment in subjects or units from more than one year or comprises subjects which do not normally constitute a particular year's course work.

2. Students must satisfy the rules governing re-enrolment; in particular, these require a student enrolled for the first time in the course to complete successfully in that year half of the program in which he/she is enrolled.

3. Before enrolling in any subject a student must have satisfied the relevant prerequisite and co-requisite requirements unless permission to vary this has been granted by the Head of the appropriate School.

4. Only in exceptional circumstances will a student be permitted to enrol for more than twenty-four hours of course work per week.

5. Notwithstanding the above, before a student can enrol in any non-standard program, such program must meet with the approval of the Head of School of Education.

The Science Component

The study of science subjects constitutes a principal part of the course. In the choice of these subjects the following requirements apply:

1. there shall be a total of at least 19 science units.

2. there shall be a major science strand consisting of at least seven units from one of the areas Physics, Chemistry, Biology, Geology.

3. the subjects 1.001 or 1.011, 2.001, 10.001 or 10.011 or 10.021, 17.011 or 17.031, 17.021 and 25.011 shall be included.

4. at least two units in the *List of Science Subjects* shall be selected from areas other than the area of the major strand.

5. under special circumstances a student may select a science unit other than those in *List of Science Subjects* with approval of the Head of School.

406
Bachelor of Science (Education) —Full-time Course

Bachelor of Science (Education) BSc(Ed)

Note: In 1978 students may be enrolled in Years 3 and 4 of the course, but not in Years 1 and 2.

		Hours per week
Year 3		
Three Science units		9
58.513	Education IA	4
58.523	Education IB	5
58.593	School Experience I	2
62.001	History and Philosophy of Science I	3
		23
Year 4		
Two Science units		6
58.514	Education IIA	4
58.524	Education IIB	5
58.554	Research seminar and thesis†	2
58.594	School Experience II	5
62.002	History and Philosophy of Science II	3
		25

† Honours students only.

List of Science Subjects

Physics Area

1.012 Thermal Physics and Mechanics
1.022 Electromagnetism and Modern Physics
1.032 Laboratory
1.922 Electronics (½)
1.932 Introduction to Solids (½)
1.942 Introduction to Physics of Measurement (½)
1.013 Quantum Mechanics and Nuclear Physics
1.023 Statistical Mechanics and Solid State Physics
1.033 Electromagnetism and Optical Physics
1.043 Experimental Physics
1.133 Electronics
1.143 Biophysics (½)
1.153 Biophysical Techniques (½)
1.163 Astrophysics (½)
1.173 Conceptual Framework of Physics (½)

Note:
Higher Physics units may also be selected.

Chemistry Area

Level II Units**

2.002A Physical Chemistry
2.002B Organic Chemistry
2.002D Analytical Chemistry
2.042C Inorganic Chemistry

Level II/III Units††

2.003E Nuclear & Radiation Chemistry
2.003H Molecular Spectroscopy & Structure
2.003J Fundamentals of Biological Chemistry
2.003K Solid State Chemistry
2.013A Introductory Quantum Chemistry

Level III Units

2.003A Physical Chemistry
2.003B Organic Chemistry
2.003C Inorganic Chemistry
2.003D Instrumental Analysis
2.003L Applied Organic Chemistry
2.003M Organometallic Chemistry
2.013B Synthesis of Complex Organic Molecules
2.013C Advanced Inorganic Chemistry
2.013D Advanced Analytical Chemistry
2.013L Chemistry and Enzymology of Foods
2.013M Thermochemistry
2.023A Quantum Theory of Atoms and Molecules
2.023B Natural Product Chemistry
2.023L Biological and Agricultural Chemistry
2.033A Physical Chemistry of Macromolecules
2.033L Applied Organic Chemistry (double unit)
2.043A Environmental Chemistry
2.043L Chemistry and Enzymology of Foods (double unit)
2.053A Chemical Kinetics and Reaction Mechanisms
2.053L Biological and Agricultural Chemistry (double unit)
2.063A Advanced Molecular Spectroscopy

** The levels referred to are levels in the Science Course.
†† Level II/III units are counted as Level III units for degree purposes but may be done in second or third year.

Note:

1. Not more than two Level II/III units may be studied unless at least one Level II unit is also studied.

2. Not more than one of the double units 2.033L, 2.043L, 2.053L may be credited for degree purposes in the BSc(Ed) Course.

Biology Area

17.012 General Ecology
41.101 Principles of Biochemistry
41.102A Biochemistry of Macromolecules
41.102B Physiological Chemistry
41.102C Plant Biochemistry
41.111 Biochemical Control
43.101 Genetics
43.111 Flowering Plants
43.121 Plant Physiology
43.102 Advanced Genetics
43.112 Plant Taxonomy
43.122 Advanced Plant Physiology
43.132 Mycology Plant Pathology
43.142 Environmental Botany
43.152 Palaeoecology
44.101 Introductory Microbiology
44.102 General Microbiology
44.122 Immunology
45.101 Biometry
45.201 Invertebrate Zoology
45.301 Vertebrate Zoology
45.112 Marine Ecology
45.121 Evolutionary Theory
45.122 Animal Behaviour
45.132 Comparative and Environmental Physiology
45.142 Developmental and Reproductive Biology
45.302 Vertebrate Zoogeography
45.202 Advanced Invertebrate Zoology
45.402 Insect Structure and Classification
45.412 Insect Physiology
45.422 Applied Entomology
73.011A Principles of Physiology*

* Double unit, 6 hours per week for both sessions.

Mathematics Area

10.111A Pure Mathematics II—Linear Algebra
or
10.111B Pure Mathematics II—Analysis
or
10.211A Applied Mathematics II—Mathematical Methods
or
10.331 Statistics SS

Geology Area

25.5021 Stratigraphy and Palaeontology*
25.5022 Mineralogy and Igneous Petrology*
25.5031 Metamorphic Petrology, Structural Geology and Photogeology†
25.5032 Economic Geology and Igneous Petrology
25.5033 Sedimentary Petrology and Mineralogy
25.5034 Global Geophysics, Exploration Geophysics and Field Mapping
25.5035 Stratigraphy and Palaeontology
25.5036 Environmental Geology and Estuarine Geology

*These are prerequisite subjects for 25.5032, 25.5033, 25.5034, 25.5035, and 25.5036.
†This is a co-requisite subject for 25.5032, 25.5033, 25.5034, 25.5035, and 25.5036.

407
The Mathematics Education Degree Course

Bachelor of Science Diploma in Education BSc DipEd

The Mathematics Education Course, leading to the combined qualification BSc DipEd, is designed primarily to prepare students for entry into the teaching profession as teachers of mathematics in secondary schools.

An important feature of the course is that students take education subjects along with mathematics subjects in second, third and fourth years. The Mathematics component is based on programs offered in the Science and Mathematics Course. Students may proceed to honours level in either mathematics or in education.

Objectives of the Course

The objectives of the Mathematics components broadly aim: to develop a comprehensive knowledge and interest in mathematical techniques and problem solving, to develop an ability to reason mathematically and to present mathematical reasoning clearly and persuasively, and to ensure the student's understanding of the applications of mathematics.

Objectives related to the education component seek: to develop skills in teaching mathematics, to provide an understanding of the major disciplines which contribute to educational theory, to develop a knowledge of the latest innovations in educational practice and theory and to clarify the methodologies and curriculum materials relevant to secondary mathematics teaching.

Honours and Pass Degree Requirements

The course is offered at both pass and honours levels.

1. The pass course requires successful completion of a four-year program.

2. The honours course requires successful completion of a five-year program in which the fifth year is devoted to an approved honours program in one of the following options:

Pure Mathematics, Applied Mathematics, Mathematical Statistics, Theoretical Mechanics, or Education.

The grades in this program shall be Honours Class I, II/1, II/2 and III.

Components of the Course

The Mathematics Education Course consists of Mathematics, Education and General Studies components.

1. Mathematics Component

Two alternative programs are available. The programs consist of units ranked as Level I, Level II, Level II/III, Level III and Level IV. These units vary from 56 to 84 hours in duration. The terms Levels I, II and III do not necessarily refer to the years in which the unit must be studied. Units at the various levels may be taken in other years provided the prerequisites are met. Level II/III units have only Level I prerequisites.

Students must select one of the two following programs:

10.1 The Mathematics and Science Program

The pass course requires at least 23 units in addition to Education and General Studies subjects

or

10.2 The Mathematics and Liberal Studies Program

The pass course requires at least 24 units in addition to Education subjects.

For both programs the selection of units is subject to the requirements listed below:

(1) Not less than 8 units, nor more than 10 units selected from Level I. Not more than 2 Level I units may be taken in any one discipline other than Mathematics, except with the approval of the Director of Science Teacher Courses and the School of Mathematics.

(2) The following subjects or their higher equivalents shall be included:
10.001, 10.111A, 10.1113, 10.1114, 10.2111, 10.2112.

(3) Courses amounting to at least 2 full units chosen from:

10.1111, 10.1112, 10.1121, 10.112B, 10.1123, 10.1127, provided that a student may substitute for any of the above units such higher units as are deemed equivalent (for the purposes of satisfying this rule) by a professor of Pure Mathematics.

(4) Not less than 2 units from the following:

10.211D, 10.212L, 10.212M, 10.331, 10.311A, 10.311B, 10.312A, 10.312B, 10.312C, 10.312D, 10.312E, 10.411A, 10.411B, 10.412A, 10.1127, provided that a student may substitute for any of the above units such higher units as are deemed equivalent (for the purposes of satisfying this rule) by the Head of the School of Mathematics.

(5) Not less than 8 Level II or Level III Mathematics units from Table 2 (see below) and of these not less than four shall be Level III units of which only one may be Level II/III.

(6) For the award of honours the student must complete 10 units as specified in an individual program and must meet prerequisite requirements set out in Table 5 (see below).

(7) In order to graduate a student must pass all the units specified in the program of his/her choice.

2. Education Component

The Education component is one of the major sequences in the Course. It consists of subjects grouped as follows:

Theory of Education	58.512, 58.513, 58.584
Mathematics Curriculum and Instruction	58.533, 58.534
School Experience	58.593, 58.594
Honours	58.505

3. General Studies Component

(1) The Mathematics and Science Program for the pass course requires 63 hours of General Studies. In the honours course an additional General Studies elective is required. The 63 hours in the pass course is made up of three half electives or their equivalent. The three half electives are normally spread over the second, third and fourth years but this distribution may be varied to suit the program of individual students.

(2) In the Mathematics and Liberal Studies Program the Liberal Studies subjects provide the General Studies component.

Enrolment Requirements

1. A student in first year must be enrolled in a Mathematics program in either the Science and Mathematics Course (397) or the Mathematics Education Course (407). In the second, third and fourth years a student must be enrolled in one of the Mathematics programs for the Course 407, the Education program and, in the case of Mathematics and Science program, General Studies.

2. A student may with the approval of the Director of Science Teachers' Courses, and in consultation with the Head of the School of Mathematics, change from one selected Mathematics program to another. A written application to make the change must be lodged, including details of optional units selected in the new program, at the Science Education Office, Room 41, Building M, Western Campus.

3. A student must take care to satisfy the requirements of sequences of units such as prerequisites and co-requisites. A prerequisite subject is one which must be completed prior to enrolment in the subject for which it is prescribed. A co-requisite subject is one which must either be completed successfully before or be studied concurrently with the subject for which it is prescribed. In exceptional circumstances, on the recommendation of the Head of the School of Mathematics, the particular prerequisite or co-requisite may be waived by the Director of Science Teachers' Courses.

Programs

The course taken by each student has three component programs:

1. Education Program

This program is the same for each student though there are electives built in to some of the subjects. The program is as follows:

Year	Subject	Hours per week
2	58.512*	2½
3	58.513	4
	58.533	3
	58.593	2
4	58.584	3
	58.534	3
	58.594	5
5	58.505†	

*58.512 includes 14 hours of field work as school experience within the 2½ hour per week allocation.
†58.505 is the honours year in education. It is a possible alternative to an honours year in mathematics.

2. General Studies Program

(1) For students electing the Mathematics and Science Program:

Three half electives (or equivalent) taken during second, third and/or fourth years for the pass degree.

An additional elective in Year 5 is required in the honours program.

(2) For students electing the Mathematics and Liberal Studies Program:

No specific General Studies subjects are required.

3. Mathematics Programs

	Year 1	Year 2	Year 3	Year 4	Year 5
1001 Mathematics and Science	10.001 or 10.011 Choose 6 units from: Tables 1 and/or 2 *and/or* The BA course*† *and/or* Table 3† for program 10.1	10.111A or 10.121A 10.1113 or 10.1213 10.1114 or 10.1214 10.2111 or 10.2211 10.2112 or 10.2212 Choose 4 or 5 units from: Tables 1 and/or 2 *and/or* The BA course*† *and/or* Table 3† for program 10.1	Choose 2 Level III Mathematics units from Table 2 Choose 2 or 3 units from: Table 1 and/or 2 *and/or* The BA course*† *and/or* Table 3† for program 10.1	Choose 2 Level III Mathematics units from Table 2 Choose a further Level II or III Mathematics unit if needed to make up the required 8 Choose 1 or 2 units from: Table 1 and/or 2 *and/or* The BA Course*† *and/or* Table 3† for program 10.1	10.123 *or* 10.223 *or* 10.323 *or* 10.423

*The four-year program may include up to 5 units from the BA course offered by the following Schools: Drama, Economics, English, French, German, History, Philosophy, Political Science, Russian, Sociology, Spanish and Latin American Studies. Each Upper Level unit offered by these Schools shall count as 1½ units. Upper Level units from the School of Economics are restricted to all those in Economic History plus 15.062, 15.072, 15.263 and 15.273.

†Not more than 8 units that are not in Table 1 may be taken without the approval of the Director of Science Teachers' Course.

	Year 1	Year 2	Year 3	Year 4	Year 5
1012 Mathematics and Liberal Studies	10.001 or 10.011 Choose 4-6 units from: Tables 1† and/or 2 *and/or* The BA course*	10.111A or 10.121A 10.1113 or 10.1213 10.1114 or 10.1214 10.2111 or 10.2211 10.2112 or 10.2212 Choose 4 or 5 units from: Tables 1† and/or 2 *and/or* The BA course*	Choose 2 Level III Mathematics units from Table 2 Choose 2 or 3 units from: Table 1† and/or 2 *and/or* The BA course*	Choose 2 Level III Mathematics units from Table 2 Choose 2 or 3 units from: Table 1† and/or 2 *and/or* The BA course*	10.123 *or* 10.223 *or* 10.323 *or* 10.423

†Units in History and Philosophy of Science shall be those from the BA course.

*The four-year program shall include at least 6 units from the BA course offered by the following Schools: Drama, Economics, English, French, Geography, German, History, History and Philosophy of Science, Philosophy, Political Science, Russian, Sociology, Spanish and Latin American Studies. Each Upper Level unit so offered by these Schools shall count as 1½ units. Upper Level units from the School of Economics are restricted to all those in Economic History plus 15.062, 15.072, 15.263 and 15.273.

408
The Science Education Degree Course

Bachelor of Science Diploma in Education
BSc DipEd

The Science Education Course, leading to the combined qualification, BSc DipEd is designed primarily to prepare students for entry into the teaching profession as teachers of science in secondary schools.

An important feature of the course is that students take education subjects along with science subjects in second, third and fourth years. The science component is based on programs offered in the Science and Mathematics Course. Students may proceed to honours in a science or in education. One of the science units is a history and philosophy of science subject. This is included to give students an understanding of the nature of science and of its relationship to society, which is especially important to prospective teachers of science.

Objectives of the Course

The objectives of the course are those of the Science and Mathematics Course (397) together with others which are essential for a course which is designed to prepare science teachers.

In summary, the objectives of the Science and Mathematics course broadly aim to develop a working knowledge of scientific methods of investigation and to promote an understanding of the significance of science, technology, economics and sociological factors in modern society. The objectives seek to develop in the student the ability and disposition to think logically, to communicate clearly by written and oral means and to read critically. Students are encouraged to develop the habit of seeking and recognizing relationships between phenomena, principles, theories, conceptual frameworks and problems.

The education component of the course seeks to provide a knowledge of theories of education and the latest innovations in educational practice and theory, and the development of skills in teaching science.

Honours and Pass Degree Requirements

There are both pass and honours programs available in the Course leading to the double qualification Bachelor of Science Diploma in Education (BSc DipEd).

1. The pass course requires successful completion of a four-year program.

2. The honours course requires successful completion of a five-year program in which the fifth year is devoted to an approved honours program in one of the following disciplines:

Physics, Chemistry, Geology, Biochemistry, Biological Technology, Botany, Microbiology, Zoology, Education, Physiology.

The grades in this program shall be Honours Class I, II/1, II/2 and III.

Components of the Course

The Science Education Course consists of Science, Education and General Studies components.

1. Science Component

The science component is based on the prescribed programs from the Science and Mathematics Course (397) rearranged to spread over one additional year. These programs are composed of units ranked as Level I, Level II, Level II/III, Level III, and Level IV, such units varying from 56 to 84 hours. The terms Levels I, II and III do not necessarily refer to the years in which the unit must be studied. Units at the various levels may be taken in other years provided the prerequisites are met. Level II/III units have only Level I prerequisites. For the pass course the science component requires at least 23 units with the following requirements:

(1) There shall be ten units from Level I and these must come from the following subjects: 1.001 or 1.011, 2.121, 2.131, 10.001 or 10.011 or 10.021B and 10.021C, 17.011 or 17.031, 17.021, 25.011.

(2) Not less than four units from Level III.

(3) Not less than two units beyond Level I in science disciplines in any of the teaching areas physics, chemistry, biology and geology other than that of the student's major. In special circumstances this requirement may be waived with the permission of the Director of Science Teachers' Courses or as specified in individual programs.

(4) One unit shall be a History and Philosophy of Science subject. In special circumstances this requirement may be waived with the permission of the Director of Science Teachers' Courses or as specified in individual programs.

(5) For the honours program with honours in a science discipline there shall be at least six Level III units and students must meet prerequisite requirements set out in Table 4.

(6) For the award of honours in a science discipline the student must complete at least ten Level IV units as specified in an individual program.

(7) In order to graduate a student must pass all the units specified in the program of his/her choice.

2. Education Component

The Education Component is one of the major sequences in the Course. It consists of subjects grouped as follows:

Theory of Education	58.512, 58.513, 58.584
Science Curriculum and Instruction	58.523, 58.524
School Experience	58.593, 58.594
Honours	58.505

3. General Studies Component

The General Studies component involves 63 hours in the pass course. In the honours course an additional General Studies elective is required. The 63 hours in the pass course is made up of three half electives or their equivalent. The three half electives are normally spread over the second, third and fourth years but this distribution may be varied to suit the programs of individual students.

Enrolment Requirements

1. In all years of the Course a student must be enrolled in one of the prescribed Science programs.

In years two, three and four a student must be also enrolled in the Education program and the General Studies program.

2. A student may, with approval of the Director of Science Teachers' Courses, change from one selected Science program to another. A written application to make the change must be lodged, including details of any optional units selected in the new program, at the Science Education Office, Room 41, Building M, Western Campus.

3. The allowed specific programs, listed in Programs below, are made up of sequences of units. Where a choice is indicated care must be taken to satisfy the requirements such as prerequisites and co-requisites.

4. A prerequisite subject is one which must be completed prior to enrolment in the subject for which it is prescribed. A co-requisite subject is one which must either be completed successfully before or be studied concurrently with the subject for which it is prescribed. An excluded subject is one which cannot be counted together with the subject which excludes it towards the degree of qualification. In exceptional circumstances, on the recommendation of the head of the appropriate school, the particular prerequisite or co-requisite may be waived by the Director of Science Teachers' Courses.

Programs

The Course followed by a particular student has three component programs.

1. Education Program

This program is the same for each student though there are electives built in to some of the subjects. The program is as follows:

Year	Subject	Hours per week
2	58.512*	2½
3	58.513	4
	58.523	5
	58.593	2
4	58.584	3
	58.524	5
	58.594	5
5	58.505†	

*58.512 includes 14 hours of field work as school experience within the 2½ hour per week allocation.
†58.505 is the honours year in education. It is a possible alternative to an honours year in one of the sciences.

2. General Studies Program

Three half electives (or equivalent) taken during second, third and/or fourth years for the pass degree.

An additional elective in year 5 is required in the honours course.

3. Science Program

Each Science program is based on a program in the Science and Mathematics Course. Each one has an identifying number. The numbers before the decimal point identify the school offering the major Science sequence involved. The number after the decimal point distinguishes different programs of that school. Where a double number is given two identified schools are equally concerned in the major Science sequences.

1 Physics
2 Chemistry
25 Geology
41 Biochemistry
42 Biological Technology
43 Botany
44 Microbiology
45 Zoology
73 Physiology

3. Science Program (continued)

	Year 1	Year 2	Year 3	Year 4	Year 5
0101 Physics	1.001 *or* 1.011 10.001 *or* 10.011 2.121⎫ 2.131⎭ 17.031⎫ 17.021⎭ *or* 25.011	1.012 1.022 1.032 10.2111 and 10.2112 10.1113 and 10.1114 17.031⎫ 17.021⎭ *or* 25.011	62.042 Choose 2 units from: 1.013 1.023 1.033 1.043 Choose 1 unit from: 10.111A *or* Table 1	Choose 2 units from: 1.013 1.023 1.033 1.043 Choose 2 units from: 10.412D *or* Table 1	1.104

	Year 1	Year 2	Year 3	Year 4
0102 Physics —Single Major*	1.001 *or* 1.011 10.001 *or* 10.011 2.121⎫ 2.131⎭ 17.031⎫ 17.021⎭ *or* 25.011	1.012 1.022 1.032 10.2111⎫ 10.2112⎭ 17.031⎫ 17.021⎭ *or* 25.011 Choose 1 unit from: Table 1	62.042 Choose 2 units from: 1.013 1.023 1.033 1.043 from: Choose 1 unit from: Table 1	Choose 2 units from: 1.013 1.023 1.033 1.043 Choose 2 units from: Table 1

*Under exceptional circumstances students taking this program may be eligible for transfer into Year 5 of Program 1.1 or 1.3 or 1.5, the latter if the student reaches a satisfactory level in a number of Mathematics units at Levels II and III.

	Year 1	Year 2	Year 3	Year 4	Year 5
0103 Applied Physics	1.001 *or* 1.011 2.121⎫ 2.131⎭ 10.001 *or* 10.011 17.031⎫ 17.021⎭ *or* 25.011	1.012 1.022 1.032 10.2111 and 10.2112 10.1113 and 10.1114 17.031⎫ 17.021⎭ *or* 25.011	1.013 1.023 62.042 Choose 1 unit from: 1.133 1.313 1.323 1.333	1.033 1.043 Choose 2 units from: 1.133 1.313 1.323 1.333	1.304

	Year 1	Year 2	Year 3	Year 4	Year 5
0105 Theoretical Physics	1.001 *or* 1.011 2.121⎫ 2.131⎭ 10.001 *or* 10.011 17.031⎫ 17.021⎭ *or* 25.011	10.111A 10.2111 10.2112 17.031⎫ 17.021⎭ *or* 25.011 Choose 3 units from: 1.012 1.022 1.032 1.042	62.042 Choose 1 unit from: 1.012 1.022 1.032 1.042 Choose 2 units from: 1.013 1.023 1.033 10.412D	Choose 2 units from: 1.013 1.023 1.033 10.412D Choose 2 units from: 1.043 1.513 1.523 10.212A 10.422A 10.122B	1.504

3. Science Program (continued)

	Year 1	Year 2	Year 3	Year 4	Year 5
0201 Chemistry Major	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021 *or* 25.011	2.002A 2.002B 2.042C 2.002D 17.031 17.021 *or* 25.011 Choose 1 unit from: Table 1	62.042 Choose 2 Level III Chemistry units Choose 1 unit from: Table 1	Choose 2 Level III Chemistry units Choose 2 units from: Table 1	2.014
	Year 1	Year 2	Year 3	Year 4	Year 5
2501 Geology —Double Major	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 25.011	25.012 25.022 17.031 17.021 62.042 Choose 2 units from: Table 1	25.013 25.023	25.033	25.404
	Year 1	Year 2	Year 3	Year 4	Year 5
2502 Geology —Single Major	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 25.011	25.012 25.022 17.031 17.021 Choose 2 units from: Table 1	25.013 62.042 Choose 1 unit from: Table 1	25.023 Choose 2 units from: Table 1	25.404
	Year 1	Year 2	Year 3	Year 4	Year 5
4101 Biochemistry	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	41.101 41.111 2.002B 25.011 Choose 1 unit from: Table 1	41.102A 62.042 Choose 1 unit from: Table 1	Choose *either* 41.102B *or* 41.102C 41.102D Choose 2 units from: Table 1	41.103
	Year 1	Year 2	Year 3	Year 4	Year 5
4144 Microbiology and Biochemistry	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	2.002B 41.101 41.111 44.101 25.011	41.102A 41.102B *or* 41.102C 41.102D	44.102 44.112	41.103 *or* Choose 10 units including either: 44.563 *or* 44.573 *or* 44.583 *and from* 44.513 44.523 44.533 44.543 44.553

3. Science Program (continued)

4301 Systematic Botany

Year 1	Year 2	Year 3	Year 4	Year 5
1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	43.101 43.111 25.011 Choose 2 Level II units of Biochemistry or Chemistry or Physics Choose 1 unit from: Table 1	62.042 Choose *either* 43.112 *or* 43.162 Choose 1 unit from: 43.102 43.132 43.152 43.172 *or* other Level III Botany units Choose 1 unit from: Table 1	Choose 2 Level III Botany units Choose 2 units from: Table 1	43.103

4302 Mycology —Plant Pathology

Year 1	Year 2	Year 3	Year 4	Year 5
1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	41.101 43.111 43.131 44.101 25.011	43.132 62.042 Choose 2 units from: 43.101 43.121 43.172	Choose 2 Level III Botany units Choose 2 units from: Table 1	43.103

4345 Botany and Zoology

Year 1	Year 2	Year 3	Year 4	Year 5
1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	41.101 43.131 45.101 45.201 25.011	43.132 Choose 1 Level III Botany unit Choose 2 units from: 45.202 45.402 45.412 45.422	Choose 2 Level III Botany units Choose 2 units from: 45.202 45.402 45.412 45.422	43.103 *or* 45.103

4401 Microbiology

Year 1	Year 2	Year 3	Year 4	Year 5
1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	2.002B 41.101 44.101 25.011 Choose 1 unit from: Table 1	41.102A 44.102	44.112 44.132 62.042	Choose 10 units including either 44.563 *or* 44.573 *or* 44.583 *and* from 44.513 44.523 44.533 44.543 44.553

3. Science Program (continued)

	Year 1	Year 2	Year 3	Year 4	Year 5
4404 Microbiology (General)	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	41.101 44.101 25.011 Choose 2 units from: Table 1	44.102 44.112	62.042 Choose 3 units from: Table 1	Choose 10 units including either 44.563 *or* 44.573 *or* 44.583 *and* from 44.513 44.523 44.533 44.543 44.553
	Year 1	Year 2	Year 3	Year 4	Year 5
4501 Zoology (General)	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	25.011 45.101 45.201 45.301 Choose 2 Level II units of Biochemistry *or* Chemistry *or* Mathematics	43.101 62.042 Choose 2 Level III Zoology units from: Table 1	Choose 2 Level III Zoology units from: Table 1 Choose 2 units from: Table 1	45.103
	Year 1	Year 2	Year 3	Year 4	Year 5
4503 Zoology with Botany	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	25.011 45.201 45.301 43.101 43.111 17.012	45.101 62.042 Choose 2 Level III Zoology units	Choose 2 Level III Zoology units Choose 2 Level III Botany units	45.103
	Year 1	Year 2	Year 3	Year 4	Year 5
7301 Physiology —Single Major	1.001 *or* 1.011 2.121 2.131 10.001 *or* 10.011 *or* 10.021B 10.021C 17.031 17.021	41.101 41.111 73.011A 25.011	73.012	62.042 Choose 3 units from: Table 1	73 013

Table 1

Units available in the Mathematics Education Course (407) and Science Education Course (408)

Tabular Key

The following is the key to the information supplied about each subject in the table below: F (Full year, ie both sessions); S1 (Session 1); S2 (Session 2); SS (single session, ie *one* only); I, II, III (Levels, I, II, III); Hpw (Hours per week).

School of Physics

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
1.001	Physics I	I	2	F	6	2 unit Mathematics (at HSC Exam Grade 1 *or* 2) *or* 3 unit Mathematics (at HSC Exam Grade 1, 2 *or* 3) *or* 4 unit Mathematics (at HSC Exam Grade 1, 2, 3, 4 *or* 5 (Grade 5 at a standard acceptable to the Professorial Board)) *and* 2 unit Science (incl. Physics *and/or* Chem.) (at HSC Exam Grade 1, 2 *or* 3) *or* 4 unit Science (incl. Physics *and/or* Chem.) (at HSC Exam Grade 1, 2 *or* 3)	10.021B *and* 10.021C, *or* 10.021 *or* 10.001 *or* 10.011 (for 1.001) 10.001 *or* 10.011 (for 1.011)	
1.011	Higher Physics I	I	2	F	6			
1.021	Introductory Physics I*	I	2	F	6		10.021A *and* 10.021B *or* 10.021B *and* 10.021C, *or* 10.021 *or* 10.001 *or* 10.011	
Physics Level II								
1.012	Mechanics and Thermal Physics	II	1	S1	5	1.001 *or* 1.011 10.001	10.2111 *and* 2.112	
1.022	Electromagnetism and Modern Physics	II	1	S2	5	1.001 *or* 1.011 10.001		1.932,
1.032	Laboratory	II	1	F	3	1.001 *or* 1.011 10.001		1.922
1.922	Electronics	II	½	S1	3	1.001 *or* 1.011 *or* 1.021		1.032
1.932	Introduction to Solids	II	½	S2	3	1.001 *or* 1.011 *or* 1.021 10.001 *or* 10.011 *or* 10.021		1.022,
1.942	Introduction to Physics of Measurement	II	½	S1	3	1.001 *or* 1.011		1.323

*For students who enrol in and successfully complete the subjects 1.021 Introductory Physics (2 units) and 1.001 Physics I (2 units) the total value of the combined subjects will be counted as 3 units.

Table 1 (continued)

School of Physics (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
Physics Level III								
1.013	Quantum Mechanics and Nuclear Physics	III	1	F	2	1.012, 1.022, 10.2111 *and* 10.2112		2.023A, 10.222F
1.023	Statistical Mechanics and Solid State Physics	III	1	S1	4	1.012, 1.022, 10.2111 *and* 10.2112	1.013	
1.033	Electromagnetism and Optical Physics	III	1	S2	4	1.012, 1.022, 10.2111 *and* 10.2112		10.222C
1.043	Experimental Physics	III	1	F	6	1.012, 1.022, 1.032		
1.133	Electronics	III	1	S1	6	1.032 *or* 1.922		
1.143	Biophysics	III	½	S1	3	1.012, 1.022		
1.153	Biophysical Techniques	III	½	S2	3	1.012, 1.022, 1.032		
1.163	Astrophysics	III	½	S1	2	1.022		
1.173	Conceptual Framework of Physics	III	½	S2	3	1.012, 1.022	1.013, 1.023	
1.313	Physics of Materials	III	1	S2 *or* F	6 3		1.023	4.043
1.323	Physics of Measurement	III	1	S2	6	1.032		
1.333	Applications of Radiation	III	1	S1	6		1.033	
1.513	Plasma and Laser Physics	III	1	S2	4	1.012, 1.022		
1.523	Relativity and Electromagnetism	III	1	S1	4	1.012, 1.022, 10.2111 *and* 10.2112 10.111A, 10.1113 *and* 10.1114		
Physics Level III Supplementary Units								
1.913	Marine Acoustics and Seismic Methods (Oceanography Unit)	III	1	F	3			25.634

School of Chemistry

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
2.111	Introductory Chemistry‡	I	1	S1	6	None		
2.121	Chemistry IA	I	1	S1 *or* S2	6	2.111 *or* 4 unit Science (any strands) (at HSC Exam Grade 1, 2, *or* 3) *or* 2 unit Science (any strands)		

For footnotes, see over two pages

Table 1 (continued)

School of Chemistry (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
2.131	Chemistry IB	I	1	S1 *or* S2	6	2.111 *or* 2.121		
2.002A	Physical Chemistry	II	1	S1 *or* S2	6	2.121, 10.001 *or* 10.011 *or* 10.021B *and* 10.021C		
2.002B	Organic Chemistry	II	1	*	6	2.131		
2.002D	Analytical Chemistry	II	1	*	6	2.121, 2.131, 10.001 *or* 10.011 *or* 10.021B *and* 10.021C		
2.042C	Inorganic Chemistry	II	1	*	6	2.121 *and* 2.131		
2.003E	Nuclear and Radiation Chemistry	II/III	1	*	6	2.121, 2.131, 10.001 *or* 10.011 *or* 10.021B *and* 10.021C		
2.003H	Molecular Spectroscopy and Structure	II/III	1	S2	6	2.121, 2.131		
2.003J	Fundamentals of Biological Chemistry	II/III	1	*	6	2.121, 2.131		41.101
2.003K	Solid State Chemistry	II/III	1	*	6	2.121, 2.131 *and* 10.001 *or* 10.011		
2.013A	Introductory Quantum Chemistry	II/III	1	S1	6	1.001 *or* 1.011, 2.121, 2.131, 10.001 *or* 10.011 *or* 10.021B *and* 10.021C		
2.003A	Physical Chemistry	III	1	SS	6	2.002A		
2.003B	Organic Chemistry	III	1	*	6	2.002B		
2.003C	Inorganic Chemistry	III	1	*	6	2.042C		
2.003D	Instrumental Analysis	III	1	*	6	2.002D, 2.002A		
2.003L	Applied Organic Chemistry	III	1	*	6	2.002B		2.033L
2.003M	Organometallic Chemistry	III	1	*	6	2.002B		
2.013B	Synthetic Organic Chemistry	III	1	*	6	2.003B		
2.013C	Advanced Inorganic Chemistry	III	1	*	6	2.042C	2.003C	
2.013D	Advanced Analytical Chemistry	III	1	*	6	2.002D	2.003D	
2.013L	Chemistry and Enzymology of Foods	III	1	*	6	2.002B		2.023L, 2.043L, 2.053L
2.013M	Thermochemistry	III	1	*	6	2.002A		
2.023A	Quantum Theory of Atoms and Molecules	III	1	F	3	2.002A, 10.2111 *and* 10.2112		
2.023B	Natural Product Chemistry	III	1	*	6	2.003B		

For footnotes, see overleaf

Table 1 (continued)

School of Chemistry (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
2.023L	Biological and Agricultural Chemistry	III	1	*	6	2.002B		2.013L, 2.043L, 2.053L
2.033A	Physical Chemistry of Macromolecules	III	1	S2	6	2.003 *or* 2.002B, 1.012 *or* 2.002A		
2.033L	Applied Organic Chemistry†	III	2	F	6	2.002B		2.003L
2.043A	Environmental Chemistry	III	1	F *or* S2	6	2.002A, 2.002D		
2.043L	Chemistry and Enzymology of Foods†	III	2	F	6	2.002B		2.013L, 2.023L, 2.053L
2.053A	Chemical Kinetics and Reaction Mechanisms	III	1	F *or* SS	6	2.002A		
2.053L	Biological and Agricultural Chemistry†	III	2	F	6	2.002B		2.013L, 2.023L, 2.043L
2.063A	Advanced Molecular Spectroscopy	III	1	S2	6	2.013A		

*These courses may be offered either Full year, one session, or both.
†Only one of these double units may be chosen.
‡A student who has passed 2.121 may not subsequently enrol in 2.111.

School of Electrical Engineering

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
6.010	Electrical Engineering I	I	1	SS	6			
6.600	Introduction to Computers	II	1	S2	5		6.620, 6.601A	
6.620	Introduction to Computer Science	II	1	S1	5	10.001	6.600, 6.601A, 6.6021D	
6.631	Digital Logic and Systems	II	1	S2	5	6.620*	6.602A, 6.021E, 6.031D	
6.641	Programming I	II	1	S2		6.620*		

*Students completing 6.600 at a grade of credit or better may, with permission, be able to undertake this course.

Table 1 (continued)

School of Electrical Engineering (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
6.602A	Computer Systems I	III	1	S1	5	6.601B		
6.602B	Computer Systems II	III	1	S2	5	6.601B		
6.602C	Computer Applications	III	1	S1	5	6.601A		
6.602D	Programming Languages and Compiling Techniques	III	1	S2	5	6.601A		

General Biology

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
17.031	Cell Biology	I	1	S1	6	Science 2 or 4 units (at HSC Exam Grade 1, 2 or 3)		
17.021	Biology of Higher Organisms*	I	1	S2	6	17.031		
17.012	General Ecology	II	1	S2	6	17.011 *and* 17.021* *or* 17.031 *and* 17.021*		

*Students with Grade 1 or 2 in HSC 4 unit Science with Biology, or 2 unit Biology may apply to enrol in 43.101, 45.101, 45.201 or 45.301 in lieu of 17.021 after completion of 17.031.

School of Applied Geology

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
25.011*	Geology I	I	2	F	6	2 unit Science (any strands) (at HSC Exam Grade 1, 2 or 3) *or*		25.151
25.151*	Geoscience IA	I	2	F	6	4 unit Science (any strands) (at HSC Exam Grade 1, 2 or 3)		25.011
25.012**	Geology IIA	II	2	F	6	25.011		
25.022**	Geology IIB	II	1	F	3	25.011		
25.013**	Geology IIIA	III	2	F	6	25.012, 25.022, 2.121, 2.131		
25.023***	Geology IIIB	III	2	F	6	25.012, 25.022, 2.121, 2.131		
25.033****	Geology IIIC	III	4	F	12	25.012, 25.022	25.013, 25.023	
25.613†	Geological Oceanography	III	1	S1	6	25.011, 25.022		

* Three field tutorials, up to five days in all, are an essential part of the course. Attendance is compulsory.
** Field work of up to ten days in each case is a compulsory part of this course.
*** A geological survey camp of ten days duration is a compulsory part of this course.
**** Field tutorials constitute an essential part of this course.
† Compulsory field work to be arranged.

Table 1 (continued)

School of Biochemistry‡

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites	Excluded
41.101	Introductory Biochemistry	II	2	S1	12	For any Level II unit: 17.021†, 2.121†, 2.131†		2.003J
41.111	Biochemical Control	II	1	S2	6	41.101		
41.102A	Biochemistry of Macromolecules	III	2	S1	12	41.101, 2.002B		
41.102B	Physiological Biochemistry	III	2	S2	12	41.101, 2.002B		
41.102C	Plant Biochemistry	III	1	S2	6	41.101, 2.002B		
41.102D	Biosynthesis of Plant Metabolites	III	1	S2	6	41.101, 2.002B	41.102C	

‡ Level III Units available only during the daytime.
* In exceptional circumstances a student may apply to the Head of School for variation of the prerequisite.
† Terminating pass not acceptable.

School of Biological Technology

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites	Excluded
42.101	Introduction to Biotechnology	II	1	S2	6	2.121, 2.131, 17.021, 10.001 *or* 10.011 *or* 10.021B *and* 10.021C		
42.102A	Biotechnology A	III	1	S1	6	41.101 *and* 42.101 *or* 44.101		
42.102B	Biotechnology B	III	1	S2	6	42.101		

* In exceptional circumstances a student may apply to the Head of School for variation of the prerequisite.

School of Botany†

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
17.012	General Ecology					See under General Biology		
43.101	Introductory Genetics	II	1	S2	6	17.001 *or* 17.011 *and* 17.021 *or* 17.031 *and* 17.021*		
43.111	Flowering Plants	II	1	S1	6	17.001 *or* 17.011 *and* 17.021 *or* 17.031 *and* 17.021		
43.121	Plant Physiology	II	1	S2	6	17.001 *or* 17.011 *and* 17.021 *or* 17.031 *and* 17.021, 2.001 *or* any 2 units of: 2.111, 2.121, 2.131***		

For footnotes, see next page

Table 1 (continued)

School of Botany† (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
43.131	Fungi and Man	II	1	S1	6	17.001 *or* 17.011 *and* 17.021 *or* 17.031 *and* 17.021		
43.102	Microbial Genetics	III	1	S1	6	43.101		
43.112	Plant Taxonomy	III	1	S2§	6	43.111	43.101	
43.122	Biochemical Approaches to Plant Physiology	III	1	S1	6	41.101 *or* 41.101A *and* 41.101B		
43.132	Mycology-Plant Pathology	III	1	S2	6	43.131***		
43.142	Ecology and Environmental Botany	III	1	S1	6	17.001 *or* 17.011 *and* 17.021 *or* 17.031 *and* 17.021		
43.152	Palaeoecology	III	1	S2	6	43.111		
43.162	The Plant Kingdom	III	1	S2§	6	43.111		
43.172	Phycology and Marine Botany	III	1	S1	6	43.111		
43.182	Cellular and Developmental Botany	III	1	S2	6	43.121**		

Note: A student shall not be admitted to Level III Botany units, without special permission of the Head of School, unless Chemistry 2.001 or 2.121 and 2.131 has been completed. Students taking four or more units in the School of Botany must take at least two Level II units in Biochemistry, or Chemistry, or Physics, or Mathematics.

† Level III courses conducted by the School of Botany are available only during the daytime to part-time students enrolling for the first time in 1973 or later.

** This unit may be taken as a co-requisite in some circumstances.

*** A student may apply to the School for variation of the prerequisite.

§ These units will alternate each year 43.112 The Plant Kingdom is offered in 1978. If both units 43.112 and 43.162 are to be included in a three-year pass degree program, one should be completed in Year 2.

* Students with Grade 1 or 2 in HSC 4 unit Science with Biology, or 2 unit Biology may apply to enrol in 43.101, 45.101, 45.201 or 45.301 in lieu of 17.021 after completion of 17.031.

School of Microbiology†

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites	Excluded
44.101	Introductory Microbiology	II	1	S2	6	17.011 *or* 17.031 *and* 17.021		
44.111	Microbiology**	II	1	F	3			
44.102	General Microbiology	III	2	S1	12	44.101, 41.101 *or* 41.101A *and* 41.101B		
44.112	Applied Microbiology	III	2	S2	12	44.102		
44.122	Immunology	III	1	S2	6	17.011 *or* 17.031 *and* 17.021; 41.101 *or* 41.101A *and* 41.101B		
44.132	Virology	III	1	S2	6	44.102		

† All units available only during the daytime.

* In exceptional circumstances a student may apply to the Head of School for variation of the prerequisite.

** For students not intending to major in Microbiology and lacking Level I Biology. This unit is not acceptable as a prerequisite for Level III Microbiology, except on the recommendation of the Head of School.

Table 1 (continued)

School of Zoology†

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
45.101	Biometry	II	1	S1	6	17.011 *or* 17.031, 17.021*		10.311A, 10.321A, 10.331
45.201	Invertebrate Zoology	II	1	S2	6	17.011 *or* 17.031, 17.021*		
45.301	Vertebrate Zoology	II	1	S2	6	17.011 *or* 17.031, 17.021*		
45.112	Marine Ecology§	III	1	S1	6	17.011 *or* 17.031, 17.021, 45.201 *or* 25.022 *or* 2.002D		
45.121	Evolutionary Theory	III	1	S1	6	17.011 *or* 17.031, 17.021		
45.122	Animal Behaviour	III	1	S1	6	45.101, 45.201, 45.301		
45.132	Comparative and Environmental Physiology	III	1	S2	6	41.101, 45.201, 45.301		
45.142	Developmental and Reproductive Biology	III	1	S2	6	45.201, 45.301		
45.202	Advanced Invertebrate Zoology	III	1	S1	6	45.201		
45.302	Vertebrate Zoogeography	III	1	S2	6	45.301	45.122 *or* 45.132 *or* 45.142	
45.402	Insect Structure and Classification	II/III	1	S1	6	17.011 *or* 17.031, 17.021		
45.412	Insect Physiology	III	1	S1	6	45.101‡	45.402	
45.422	Applied Entomology	III	1	S2	6	45.412		
45.432	Project	III	1	S2	6	45.412		

Note: A student will not be admitted to Level III Zoology units without special permission of the Head of School, unless Chemistry 2.001 or 2.121 and 2.131 has been completed.

Students who wish to complete a major in the School of Zoology must take Biometry 45.101, and at least two Level II units of Biochemistry, or Chemistry, or Physics, or Mathematics, or Geology.

† Level III courses conducted by the School of Zoology are available only during the daytime to part-time students enrolling for the first time in 1973 or later.

§ Students intending to enrol in this unit should register with the School of Zoology for the February field trip by 8 January.

‡ One of: 10.311A; 10.321A; 10.331 may be substituted for 45.101 with special permission of the Head of School.

* Students with Grade 1 or 2 in HSC 4 unit Science with Biology, or 2 unit Biology may apply to enrol in 43.101, 45.101, 45.201 or 45.301 in lieu of 17.021 after completion of 17.031.

School of History and Philosophy of Science

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
62.012	The Origins of Modern Science	II	1	S1	6	A pass in *two* of: 1.001, 17.031, 17.021, 2.121, 2.131, 10.001, 25.011 *or* 25.151, 1.011, 10.011, 10.021B, 10.021C, 27.801, 27.802; 12.001		

Table 1 (continued)

School of History and Philosophy of Science (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
62.022	The Social History of Science — From the French Revolution to the Second World War	II	1	S2	6	A pass in *two* of: 1.001, 17.031, 17.021, 2.121, 2.131, 10.001, 25.011 *or* 25.151, 1.011, 10.011, 10.021B, 10.021C, 27.801 *and* 27.802, 12.001		
62.032	The Scientific Theory	II	1	S2	6			
62.042	Science Education and the Dynamics of Scientific Analysis	II	1	S1 *or* S2	4	58.512 *or* special permission of Head of School of H.P.S.		
62.013	History of the Philosophy of Science	III	1	F	3	62.012 *or* 62.022 *or* 62.032		
62.023	The Rise of Environmentalism	III	1	S1	6	62.012 *or* 62.022 *or* 62.032		
62.033	The Development of Theories of Matter	III	1	S1	6	62.012 *or* 62.022 *or* 62.032		
62.043	The Historical Foundations of Experimental Biology	III	1	S1	6	62.012 *or* 62.022 *or* 62.032		
62.053	The History of Theories of Generation and Heredity	III	1	S2	6	62.012 *or* 62.022 *or* 62.032		
62.063	History and Philosophy of Cosmology	III	1	S2	6	62.012 *or* 62.022 *or* 62.032		
62.073	Predicate Logic and the Foundations of Mathematics	III	1	F	3			
62.083	Marxism and Science	III	1	F	3	62.012 *or* 62.022 *or* 62.032		
62.093	Science and the Strategy of War and Peace	III	1	F	3	62.012 *or* 62.022 *or* 62.032		

School of Anatomy

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
70.011A	Histology I	II	1	S1	6	17.021		
70.011C	Introductory Anatomy	II	1	S1	6	17.011 *and* 17.021		
70.011B	Mammalian Embryology	III	1	S2	6	70.011A		
70.012A	Musculoskeletal Anatomy	III	1	S1	6	70.011A, 70.011C		
70.012B	Visceral Anatomy	III	1	S2	6	70.011A, 70.011C		
70.012C	Neuroanatomy	III	1	S1	6	70.011A, 70.011C		
70.303	Kinesiology	III/IV	1	S2	6	70.012A, 70.012C		
70.304	Histology II	III	1	S2	6	70.011A		

Table 1 (continued)

School of Physiology and Pharmacology

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
73.011A	Principles of Physiology	II	2	F	6	2.121, 10.001 *or* 10.011 *or* 10.021B *and* 10.021C, 17.021	2.131	
73.012	Physiology II	III	4	F	12	73.011A; 41.101, 41.111		
73.012A	Membrane Biology	III	1	S1	6	Normally as for 73.012, but may be studied only with permission of Head of School		
73.012B	Neurophysiology	III	1	S1	6			
73.012CD	Organ Physiology	III	2	S2	12			

Note: The above represent the normal prerequisites for the courses in Physiology, but the Head of School may recommend that students with a good academic record be granted exemption from them.

School of Community Medicine

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
79.201	Population Genetics Theory	III	1	S1	5	45.101 *or* 10.331 *or* 10.311A *and* 10.311B *or* 10.321A *and* 10.321B		
79.202	Quantitative Methods in Human Genetics	III	1	S2	5	9.801 *or* 43.101; 9.811 *or* 10.311A *and* 10.311B *or* 10.321A *and* 10.321B *or* 10.331 *or* 12.152 *or* 45.101		
79.302	Biochemical Genetics of Man	III	1	S2	6	43.101, 41.101		
79.401	Genetics of Behaviour	III	1	S2	5	17.031 *or* 17.011		

Table 2

Units available in the Mathematics Education Course (407)

School of Mathematics

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Mathematics								
10.001	Mathematics I	I	2	F	6	2 unit Mathematics (at HSC Exam Grade 1 *or* 2) *or* 3 unit Mathematics [at HSC Exam Grade 1, 2, 3 *or* 4 (Grade 4 at a standard acceptable to the Professorial Board)] 4 unit Mathematics [at HSC Exam Grade 1, 2, 3, 4 *or* 5 (Grade 5 at a standard acceptable to the Professorial Board)] *or* 10.021B		
10.011	Higher Mathematics I	I	2	F	6	3 unit Mathematics (at HSC Exam Grade 1 *or* 2) *or* 4 unit Mathematics [at HSC Exam Grade 1, 2, 3, 4 *or* 5 (Grade 5 at a standard acceptable to the Professorial Board)]		
10.021B	General Mathematics IB	I	1	S1 *or* S2	6	2 unit Mathematics (at HSC Exam Grade 1, 2 *or* 3 (Grade 3 at a standard acceptable to the Professorial Board)) *or* 3 unit Mathematics (at HSC Exam Grade 1, 2, 3, 4 *or* 5 (Grade 5 at a standard acceptable to the Professorial Board)) *or* 4 unit Mathematics [at HSC Exam Grade 1, 2, 3, 4 *or* 5 (Grade 5 at a standard acceptable to the Professorial Board)] *or* 10.021A¶		
10.021C	General Mathematics IC	I	1	S2	6	10.021B		
10.041	Introduction to Applied Mathematics	I	1	Not offered 1978	6		10.001	
10.031‡		II	1	F	2	10.001 *or* 10.021C Cr.		‡
10.032§	Mathematics	III	1	F	2	10.031		§

* For any listed unit an appropriate higher unit may be substituted.

† If a unit in this column is counted the corresponding unit in the first column may not be counted.

‡ Mathematics 10.031 is included for students desiring to attempt only one Level III Mathematics unit. If other Level III units in Pure Mathematics, Applied Mathematics are taken, 10.031 Mathematics will not be counted.

§ Mathematics 10.032 is included for students desiring to attempt only one Level II Mathematics unit. If other Level II units in Pure Mathematics, Applied Mathematics or Theoretical Mechanics are taken, 10.032 Mathematics will not be counted.

¶ Entry to General Mathematics IA is allowed only with permission of the Head of the School of Mathematics, and that permission will be given only to students who do not qualify to enter unit 10.021B.

Table 2 (continued)

School of Mathematics (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Pure Mathematics								
Pure Mathematics Level II								
10.111A	Linear Algebra	II	1	F	2	10.001		10.121A
10.1111	Group Theory	II/III	½	S1	2	10.001	10.111A, 10.1113, 10.1114, 10.2111, 10.2112**	10.121A
10.1112	Geometry	II/III	½	S2	2	10.001	10.1111	10.121C
10.1113**	Multivariable Calculus	II	½	S1	2½	10.001		10.1213**
10.1114**	Complex Analysis	II	½	S2	2½	10.001		10.1214**
Higher Pure Mathematics Level II‡								
10.121A	Algebra	II	1	F	2½	10.011		10.111A 10.1111
10.121C	Number Theory and Geometry	II/III	1	F	2½	10.011	10.121A, 10.1213, 10.1214, 10.2211 *or* 10.2111, 10.2212 *or* 10.2112**	10.1112 10.1121
10.1213**	Multivariable Calculus	II	½	S1	2½	10.011		10.1113**
10.1214**	Complex Analysis	II	½	S2	2½	10.1213**		10.1114**
Pure Mathematics Level III¶								
10.112C	Differential Geometry	III	1	F	2	10.111A, 10.1113**	¶	10.122C
10.1121	Number Theory	III	½	S1 *or* S2	2	¶		10.121C
10.1122	Algebra	III	½	S2	2	10.111A	10.1111	10.122A
10.1123	Set Theory	III	½	S1	2	¶		
10.1124	Combinatorial Topology	III	½	S1 *or* S2	2	¶		10.122C
10.1125	Ordinary Differential Equations	III	½	S1	2	¶		10.122E
10.1126	Partial Differential Equations	III	½	S2	2	10.1113, 10.1114**	10.1125	
10.1127	History of Mathematics	III	½	S2	2	10.111A, 10.1113, 10.1114, 10.2111, 10.2112**		
10.1128	Foundations of Calculus	III	½	S1	2	¶		10.122B
10.1129	Real Analysis	III	½	S2	2	10.2112**, 10.1128		10.122B

For footnotes, see next page

Table 2 (continued)

School of Mathematics (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Higher Pure Mathematics Level III§								
10.122A	Algebra	III	1	F	2½	10.121A		10.1122
10.122B	Integration and Functional Analysis	III	1	F	2½	10.1213**		10.1128 10.1129
10.122C	Topology and Differential Geometry	III	1	F	2½	10.121A, 10.1213**		10.1124 10.112C
10.122E	Complex Analysis and Differential Equations	III	1	F	2½	10.1213, 10.1214**		10.1125

* For any listed unit an appropriate higher unit may be substituted.

† If a unit in this column is counted the corresponding unit in the first column may not be counted.

‡1. Admission to Higher Pure Mathematics II normally requires completion of 10.011 Higher Mathematics I; students who gain a superior pass in 10.001 Mathematics I may, subject to the approval of the Head of the School of Mathematics, be permitted to proceed to Higher Pure Mathematics II units.

2. Students majoring in Physics who wish to take Higher Pure Mathematics II should attempt 10.121A, 10.1213, 10.1214, either 10.2211 or 10.2111 and either 10.2212 or 10.2112.

3. Students aiming at Honours in Pure Mathematics must take 10.121A, 10.121C, 10.1213, 10.1214, either 10.2211 or 10.2111 and either 10.2212 or 10.2112.

§ Students wishing to attempt Higher Level III units should consult with the School of Mathematics prior to enrolment. Pre- and co-requisites may be varied in special circumstances with the permission of the Head of the School of Mathematics.

¶ Students will not normally be permitted to attempt a Level III Pure Mathematics unit unless they have completed at least two Level II units from 10.111A, 10.1113, 10.1114, 10.2111 and 10.2112 and are concurrently attempting the remaining unit.

** The half units 10.1113 (10.1213) and 10.1114 (10.1214) together replace the unit 10.111B (10.121B). The half units 10.2111 (10.2211) and 10.2112 (10.2212) together replace the unit 10.211A (10.221A).

Applied Mathematics

Applied Mathematics Level II								
10.2111§	Vector Calculus	II	½	S1	2½	10.001		10.2211§-4.813
10.2112§	Mathematical Methods for Differential Equations	II	½	S2	2½	10.001		10.2212§ 4.813
10.211D	Introduction to Optimization Theory and its Applications	II	1	F	2	10.001		10.221D
Higher Applied Mathematics Level II								
10.2211§	Vector Analysis	II	½	S1	2½	10.011 *or* 10.001 Dist.‡		10.2111§
10.2212§	Mathematical Methods for Differential Equations	II	½	S2	2½	10.2211§		10.2112§
10.221D	Introduction to Optimization Theory and its Applications	II	1	F	2	10.011 *or* 10.001 Dist.‡		10.211D

For footnotes, see next page

Table 2 (continued)

School of Mathematics (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Applied Mathematics Level III								
10.212A	Numerical Analysis	III	1	F	2	10.2111, 10.2112§, 10.111A		10.222A
10.212L	Optimization Methods	III	1	F	2	10.2111, 10.2112, 10.111A, 10.1113§		10.222L
10.212M	Optimal Control Theory	III	1	F	2	10.2111, 10.2112, 10.1113, 10.1114§, 10.111A		10.222M
Higher Applied Mathematics Level III								
10.222A	Numerical Analysis	III	1	F	2	10.2211 *or* 10.2111 Dist.‡, 10.2212 *or* 10.2112 Dist.‡§, 10.121A *or* 10.111A Dist.‡		10.212A
10.222C	Maxwell's Equations and Special Relativity	III	1	F	2	10.2211 *or* 10.2111 Dist.‡, 10.2212 *or* 10.2112 Dist.‡, 10.1213 *or* 10.1113 Dist.‡, 10.1214 *or* 10.1114 Dist.‡§, 1.001		1.033
10.222F	Quantum Mechanics	III	1	F	2	10.2211 *or* 10.2111 Dist.‡, 10.2212 *or* 10.2112 Dist.‡, 10.121A *or* 10.111A Dist.‡, 10.1213 *or* 10.1113 Dist.‡, 10.1214 *or* 10.1114 Dist.‡§		1.013
10.222L	Optimization Methods	III	1	F	2	10.2211 *or* 10.2111 Dist.‡, 10.2212 *or* 10.2112 Dist.‡, 10.121A *or* 10.111A Dist.‡, 10.1213 *or* 10.1113 Dist.‡§		10.212L
10.222M	Optimal Control Theory	III	1	F	2	10.2211 *or* 10.2111 Dist.‡, 10.2212 *or* 10.2112 Dist.‡, 10.121A *or* 10.111A Dist.‡, 10.1213 *or* 10.1113 Dist.‡, 10.1214 *or* 10.1114 Dist.‡§		10.212M

* For any listed unit an appropriate higher unit may be substituted.

† If a unit in this column is counted the corresponding unit in the first column may not be counted.

‡ With the permission of the Head of the Department a sufficiently good grading may be substituted.

§ The half units 10.1113 (10.1213) and 10.1114 (10.1214) together replace the unit 10.111B (10.121B). The half units 10.2111 (10.2211) and 10.2112 (10.2212) together replace the unit 10.211A (10.221A).

Table 2 (continued)

School of Mathematics (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Statistics								
Theory of Statistics Level II								
10.311A**	Probability and Random Variables	II	1½	S1**	7	10.001 *or* 10.021C Cr.		10.321A 10.331 10.301 45.101
10.311B	Basic Inference	II/III	1½	S2	7	10.311A		10.321B 10.331 10.301 45.101
10.331	Statistics SS	II	1	F	2	10.001 *or* 10.021C Cr.		10.311A 10.311B 10.321A 10.321B 10.301 45.101
Higher Theory of Statistics Level II								
10.321A	Probability and Random Variables	II	1½	S1	8	10.001		10.311A 10.331 10.301 45.101
10.321B	Basic Inference	II/III	1½	S2	8	10.321A		10.311B 10.331 10.301 45.101
Theory of Statistics Level III§								
10.312A	Probability and Stochastic Processes	II	1	S1	4	10.311A, 10.111A, 10.1113, 10.1114, 10.2112¶		10.322A
10.312B	Experimental Design (Applications) and Sampling	III	1	S2	4	10.311B *or* 10.331 (Nor. Cr.)		10.322B
10.312C	Experimental Design (Theory)	III	1	S1	4	10.311B, 10.111A, 10.1113, 10.1114, 10.2112¶	10.312B‡	10.322C
10.312D	Probability Theory	III	1	S2	4	10.311A, 10.111A, 10.1113, 10.1114, 10.2112¶		10.322D
10.312E	Statistical Inference	III	1	S2	4	10.311B, 10.111A, 10.1113, 10.1114, 10.2112¶	‡	10.322E

For footnotes, see overleaf

Table 2 (continued)

School of Mathematics (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Higher Theory of Statistics Level III								
10.322A	Probability and Stochastic Processes	III	1	S1	4½	10.321A, 10.111A, 10.1113, 10.1114, 10.2112¶		10.312A
10.322B	Experimental Design (Applications) and Sampling	III	1	S2	4½	10.321B, 10.111A, 10.1113, 10.1114, 10.2112¶		10.312B
10.322C	Experimental Design (Theory)	III	1	S1	4½	10.321B, 10.111A, 10.1113, 10.1114, 10.2112¶	10.322B‡	10.312C
10.322D	Probability Theory	III	1	S2	4½	10.321A, 10.111A, 10.1113, 10.1114, 10.2112¶		10.312D
10.322E	Statistical Inference	III	1	S2	4½	10.321B, 10.111A, 10.1113, 10.1114, 10.2112¶	‡	10.312E

* For any listed unit an appropriate higher unit may be substituted.

† If a unit in this column is counted, the corresponding unit in the first column may not be counted.

‡ Plus any two Level III Pure Mathematics, Applied Mathematics or Theoretical Mechanics units. It is sufficient to take 10.312B (10.322B) in the same year.

§ For a student taking four of the units 10.312A, 10.312B, 10.312C, 10.312D, 10.312E (or the corresponding Higher units) a project is required as part of either 10.312C (10.332C) or 10.312E (10.322E).

¶ The half units 10.1113 (10.1213) and 10.1114 (10.1214) together replace the unit 10.111B (10.121B). The half units 10.2111 (10.2211) and 10.2112 (10.2212) together replace the unit 10.211A (10.221A).

** The evening course for 10.311A will, subject to a sufficient enrolment, run at 3½ hours per week throughout the year.

Theoretical and Applied Mechanics

Theoretical Mechanics Level II								
10.411A	Hydrodynamics	II/III	1	S2	4	10.001	10.411B *or* 1.012, 10.1114¶	10.421A
10.411B	Principles of Theoretical Mechanics	II	1	S1	4	10.001, 1.001 *or* 10.041 *or* 5.101	10.2111, 10.2112, 10.1113¶	10.421B
Higher Theoretical Mechanics Level II								
10.421A	Hydrodynamics	II/III	1	S2	4	10.011 *or* 10.001 Dist.‡	10.421B, 10.1114¶	10.411A
10.421B	Principles of Theoretical Mechanics	II	1	S1	4	10.011 *or* 10.001 Dist.‡, 1.001 *or* 10.041 *or* 5.010	10.2211, 10.2212, 10.1113¶	10.411B

For footnotes, see next page

Table 2 (continued)

School of Mathematics (continued)

No.	Name	Level	Value Unit	When Offered	Hpw	Prerequisites*	Co-requisites*	Excluded†
Theoretical Mechanics Level III								
10.412A	Dynamical and Physical Oceanography	III	1	F	2	1.001, 10.2111 *and* 10.2112¶ *or* 10.031	§	
10.412B	Continuum Mechanics	III	1	F	2	10.2111, 10.2112, 10.1113, 10.1114¶, 10.111A	10.411A *or* 1.012 *or* 1.913	10.422B
10.412D	Mathematical Methods	III	1	F	2	10.2111, 10.2112, 10.1113, 10.1114¶, 10.111A		10.422D
Higher Theoretical Mechanics Level III								
10.422A	Fluid Dynamics	III	1	S2		10.421A *or* 10.411A Dist.‡	10.422B	
10.422B	Mechanics of Solids	III	1	S1	4	10.2111, 10.2112, 10.1113, 10.1114¶, 10.111A, 10.421B *or* 10.411B Dist.‡ *or* 1.012		10.412B
10.422D	Mathematical Methods	III	1	F	2	10.2211 *or* 10.2111 Dist.‡, 10.2212 *or* 10.2112 Dist.‡, 10.1213 *or* 10.1113 Dist.‡, 10.1214 *or* 10.1114 Dist.‡¶, 10.121A *or* 10.111A Dist.‡		10.412D

* For any listed unit an appropriate higher unit may be submitted.

\+ If a unit in this column is counted the corresponding unit in the first column may not be counted.

‡ With the permission of the Head of the Department a sufficiently good grading may be substituted.

§ It is recommended that one of the following be taken concurrently: 10.411A or 1.012 or 1.913.

¶ The half units 10.1113 (10.1213) and 10.1114 (10.1214) together replace the unit 10.111B (10.121B). The half units 10.2111 (10.2211) and 10.2112 (10.2212) together replace the unit 10.211A (10.221A).

School of Mechanical and Industrial Engineering

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
5.010	Engineering A	I	1	SS	6	*Either* 2 unit Science (incl. Physics) (at HSC Exam Grade 1, 2 *or* 3) *or* 4 unit Science (incl. Physics) (at HSC Exam Grade 1, 2, 3 *or* 4) *or* 2 unit Industrial Arts (at HSC Exam Grade 1, 2 *or* 3) *or* 3 unit Industrial Arts (at HSC Exam Grade 1, 2, 3 *or* 4)	5.010	
5.020	Engineering B	I	1	S2	6			
5.030	Engineering C	I	1	SS	6			

Students who wish to enrol in this subject can make up for the lack of the prerequisite by work taken in Physics in the first half of first year.

Table 2 (continued)

School of Psychology

No.	Name	Level	Unit Offered	When Value	Hpw	Prerequisites	Co-requisites	Excluded
12.001	Psychology I	I	2	F	5			
12.052	Basic Psychological Processes II	II	1	S1	4	12.001		
12.062	Complex Psychological Processes II	II	1	S2	4	12.001		
12.152	Research Methods II	II	1	F	3	12.001		
12.153	Research Methods IIIA	III	1	S1	4			
12.163	Research Methods IIIB	III	1	S2	4	+ 12.153		
12.173	Psychological Issues III	III	1	S1	4			
12.253	Learning IIIA	III	1	S1	4			
12.263	Learning IIIB	III	1	S2	4	+ 12.253		
12.303	Personality IIIA	III	1	S1	4			
12.313	Personality IIIB	III	1	S2	4	+ 12.303		
12.323	Motivation IIIA	III	1	S1	4			
12.373	Psychological Assessment IIIA (Testing)	III	1	S1	4			12.042 (Psych BSc)
12.383	Psychological Assessment IIIB (Psychometric Theory)	III	1	Not offered 1978	4			
12.413	Physiological Psychology IIIA	III	1	S1	4			12.402 (Psych BSc)
12.423	Physiological Psychology IIIB	III	1	S2	4	+ 12.413		12.402 (Psych BSc)
12.453	Human Information Processing IIIA	III	1	S2	4			
12.463	Human Information Processing IIIB	III	1	Not offered 1978	4	+ 12.453		
12.473	Perception IIIA	III	1	Not offered 1978	4			
12.483	Perception IIIB	III	1	S1	4			
12.503	Social Psychology IIIA	III	1	S1	4			
12.513	Social Psychology IIIB	III	1	S2	4	+ 12.503		12.523
12.523	Environmental Psychology III	III	1	S2	4			12.513
12.553	Developmental Psychology IIIA	III	1	S1	4			
12.563	Developmental Psychology IIIB	III	1	S2	4			
12.603	Abnormal Psychology IIIA	III	1	S1	4			
12.613	Abnormal Psychology IIIB	III	1	S2	4	+ 12.603		

Level III unit for any prerequisites are 12.152 and 12.062, 12.052

For footnotes, see next page

Table 2 (continued)

School of Psychology (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
12.623	Guidance and Counselling III	III	1	S2	4			
12.653	Industrial Psychology III	III	1	S2	4	12.052, 12.062 and 12.152 are prerequisites for any Level III unit		
12.663	Ergonomics III	III	1	S1	4			
12.703	Psychological Techniques III*	III	1	Not offered 1978	4		+ 12.373	
12.713	Behaviour Control and Modification III	III	1	S2	4			
12.733	Laboratory Instrumentation III*	III	1	Not offered 1978	4			

* Reserved for approved potential Psychology IV candidates. Applicants must have completed 12.001, 12.052, 12.062 and 12.152 at an average level of Credit or better.

Notes:

1. A major in Psychology in the Science and Mathematics Course is minimally satisfied by the completion of 9 units value of Psychology units which have included 12.001, 12.052, 12.062, 12.152 and four Level III units.

2. A double major in Psychology in the Science and Mathematics Course adds an additional four Level III units to the four required for a single major. The double major is available to students in the three year program and the four year program.

3. Not all Level III units will necessarily be offered in each year.

School of Geography

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
27.801	Introduction to Physical Geography*	I	1	S1	4½			
27.802	Introduction to Human Geography*	I	1	S2	4½			
27.811	Physical Geography*	II	1	S2	4½	27.801, 27.813¶		
27.812	Human Geography*	II	1	S2	4½	27.802, 27.813¶		
27.813	Geographic Methods	II	1	S1	4	27.801¶, 27.802		
27.103	Climatology†	II/III	1	S1	5	1.001, 27.811 *or* 25.011 *or* 17.031 *and* 17.021		
27.203	Biogeography†	II/III	1	S2	5	27.811 *or* 17.031 *and* 17.021		
27.413	Geomorphology†	II/III	1	S2	5	25.011 *or* 27.811		
27.423	Pedology†	II/III	1	S1	5	Any two (2) of: 2.111, 2.121, 2.131 *and* 27.811 *or* 25.012 *or* 25.022		27.863
27.860	Landform Studies†	II/III	1	S1	4½	27.811		

For Footnote see following page

Table 2 (continued)

School of Geography (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
27.862	Australian Environment and Land Resources†	II/III	1	S2	4½	27.811 *or* 25.011		
27.863	Soil, the Ecosystem and Man†	II/III	1	S1	4½	27.811		27.423
27.823	Urban Geography‡†	II/III	1	S1	5	27.812		
27.840	Agricultural Geography‡†	II/III	1	S2	5	27.812 *or* 15.603 *or* 53.204 *or* 51.542		
27.841	Population Geography‡†	II/III	1	S1	5	27.812 *or* 53.204		
27.824	Spatial Population Analysis§†	II/III	1	S1	4	27.812		
27.825	Urban Activity Systems§†	II/III	1	S1	4	27.812		
27.826	Urban and Regional Development§†	II/III	1	S2	4	27.812		
27.833	Urban Geography (Advanced)‡†	III	1	S2	6	27.812 (Cr.), 27.813 (Cr.)		
27.850	Agricultural Geography (Advanced)‡†	III	1	S2	6	27.812 (Cr.), 27.813 (Cr.)		
27.851	Population Geography (Advanced)‡†	III	1	S1	6	27.812 (Cr.), 27.813 (Cr.)		
27.834	Spatial Population Analysis (Advanced)§†	III	1	S1	6	27.812 (Cr.), 27.813 (Cr.)		
27.835	Urban Activity Systems (Advanced)§†	III	1	S1	6	27.812 (Cr.), 27.813 (Cr.)		
27.836	Urban and Regional Development (Advanced)§†	III	1	S2	6	27.812 (Cr.), 27.813 (Cr.)		
27.870	Landform Studies (Advanced)†	III	1	S1	6	27.811 (Cr.), 27.813 (Cr.)		
27.872	Australian Environment and Land Resources (Advanced)†	III	1	S2	6	27.811 (Cr.), 27.813 (Cr.)		
27.880	Advanced Geographic Methods	III	1	F	3	27.813 (Cr.) *and* 27.811 (Cr.) *or* 27.812 (Cr.)		
27.412	Coastal Geomorphology**	II	½	S2	5	27.811 *or* 25.011		

†† This prerequisite unit may be waived for students not proceeding to a Geography major.
* Field work of up to 2 days is a compulsory part of this course.
† Field work of up to 5 days is a compulsory part of this course.
‡ Offered for the *last* time in 1978.
§ Offered for the *first* time in 1979.
¶ In special circumstances a student may apply to the Head of School for permission to take 27.801 as a co-requisite.
** Only for students in the Marine Science program.

Table 2 (continued)

School of Philosophy

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
52.101	Introductory Philosophy A	I	1	S1	4			
52.102	Introductory Philosophy B	I	1	S2	4			
52.153	Predicate Logic	II	½	S1	2	52.162		
52.163	Descartes	II	½	S1	2	Level II status in Philosophy**		
52.173	British Empiricism	II	½	S2	2	Level II status in Philosophy**		
52.183	Greek Philosophy Thales to Plato	II	½	S1	2	Level II status in Philosophy**		
52.193	Scientific Method	II	½	S1	2	Level II status in Philosophy**		
52.203	Classical Political Philosophy	II	½	S1	2	Level II status in Philosophy**		52 182
52.213	Sartre	II	½	S1	2	52.163 *or* 52.493		
52.223	Foundations of Mathematics	II	½	S2	2	52.153		
52.263	Philosophy of Psychology	II	½	S2	2	52.193		
52.273	Aesthetics	II	½	S2	2	Level II status in Philosophy**		
52.283	Philosophical Study of Woman	II	½	S2	2	Level II status in Philosophy**		
52.293	Plato's Later Dialogues	II	½	S2	2	52.483*		
52.303	Spinoza and Leibniz	II	½	S2	2	52.163		
52.323	Set Theory	II	½	S1	2	52.153 *or* 26.812 *or* 10.001 *or* 10.011 *or* 10.021B *and* 10.021C		
52.333	Philosophy of Perception	II	½	S2	2	52.163 *or* 52.173		
52.343	Privacy and Other Minds	II	½	S1	2	52.163, 52.173 *or* 52.243		
52.373	Philosophical Foundations of Marx's Thought	II	½	S1	2	52.182 *or* 52.203*		
52.403	Model Theory	II	½	S2	2	52.323 *or* 10.1123		
52.413	Reading Option A	II	½	S1 *or* 2		Satisfactory performance in Level II units		
52.423	Seminar A	II	½	S2	2	Level II units (Cr)		
52.433	Seminar B	II	½	S1	2	Level II units (Cr)		
52.443	Seminar C	II	½	S2	2	Level II units (Cr.)		
52.453	Reading Option B	II	½	S1 *or* 2		Satisfactory performance in Level II units		

For footnotes, see next page

Table 2 (continued)

School of Philosophy (continued)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Excluded
52.463	Introduction to Transformational Grammar	II	½	S1	2	Any Level I unit		
52.473	Semantics of Natural Language	II	½	S2	2	52.463 *or* 52.153		
52.483	Plato's Theory of Forms	II	½	S1	2	Level II status in Philosophy**		
52.503	Utopias	II	½	S1	2	Level II status in Philosophy** *and* 52.182 *or* 52.203		
52.513	Social and Political Philosophy	II	½	S2	2	Level II status in Philosophy** *and* 52.182 *or* 52.203		
52.523	Classical Ethical Theories	II	½	S1	2	Level II status in Philosophy**		
52.533	Contemporary Ethics	II	½	S2	2	52.523*		
52.543	The Philosophy of Love	II	½	S1	2	52.163 *or* 52.173 *or* 52.263		
52.553	Contemporary Moral Issues	II	½	S2	2	Level II status in Philosophy**		
52.563	Hume	II	½	S1	2	Level II status in Philosophy**		52.152
52.573	Psychoanalysis —Freud and Lacan	II	½	S2	2	Level II status in Philosophy**		
52.583	Theories, Value and Education	II	½	S1	2	Level II status in Philosophy**		

* In exceptional circumstances a student may apply to the School for variation of the prerequisite or co-requisite.

** Level II status in Philosophy consists in (1) being in second or later year of university study, and (2) having taken and passed at least one Level I Philosophy half-unit. If the unit is composed of two half-units, these must have been passed in the same session. This prerequisite may be waived in certain cases by the School.

Table 3

Special subjects available in Program 10.1 and 10.2 in the Mathematics Education Course (407)

No.	Name	Level	Unit Value	When Offered	Hpw	Prerequisites	Co-requisites	Specific Programs
3.111	Chemical Engineering Principles 1	II	1	F	2S1 3S2			1001
3.121	Chemical Engineering Principles 2	III	2	F	11S1 3S2	3.111		1001
14.501	Accounting and Financial Management IA	I	1	S1	4			1001
14.511	Accounting and Financial Management IB	I	1	S2	4	14.501		1001
14.522	Accounting and Financial Management IIA	II	1	S1	4	14.511		1001
14.542	Accounting and Financial Management IIB	II	1	S2	4	14.511		1001
14.602	Information Systems IIA	II	1	S1	3			1001
14.603	Information Systems IIB	II	1	S2	3	14.602		1001
14.613	Business Finance II	II	1	S2	3			1001
15.002	Economics IIA	II	1	S1	4	15.011		1001
15.022	Economics IIB	II	1	S2	4	15.002		1001
15.042	Economics IIC	II	1	S2	4	15.011		1001

For Table 4, see next page

Table 4

Level IV Science units offered in the Science Education Course (408)

A student planning to complete a program involving any unit/units from this table must seek the approval of the Head of the School in which the unit is taught.

No.	Name	Level	Unit Value	When Offered	Prerequisites§ years 1, 2, 3 and 4 in	Number of Level III Units Required
1.104	Physics IV (Honours)	IV	8	F	Program 0105 *or* 0101 *and* 10.412D	6
1.304	Applied Physics IV (Honours)	IV	8	F	Program 0105 *or* 0101 *and* 10.412D	6
1.594	Theoretical Physics Projects	IV		F	Program 0105	
2.004	Chemistry IV	IV	10	F	Program 0201	7
25.404	Geology IV	IV	10	F	Program 2501 2502	8 7
41.103	Biochemistry IV	IV	10	F	Program 4101 4144	7 8
43.103	Botany	IV	10	F	Program 4301 *or* 4302 4345	7 8
44.513	General Microbiology	IV	2	S1		
44.523	Applied Microbiology	IV	2	S1		
44.533	Immunology	IV	2	S1		
44.543	Virology	IV	2	S1	Program 4401, 4404 *or* 4144	7
44.553	Electron Microscopy	IV	2	F		
44.563	Microbiology Project I	IV	2	F		
44.573	Microbiology Project II	IV	4	F		
44.583	Microbiology Project III	IV	6	F		
45.103	Zoology IV	IV	10	F	Program 4501 4345	7 8
73.013	Physiology IV	IV	10	F	Program 7301	7

§ Students are required to complete the prerequisite program with better than passing grades in the relevant subjects studied. In all cases a student considering proceeding to Level IV studies should seek the guidance of the Head of the appropriate School at an early stage of study to ensure that the program being followed is best suited to lead into the Level IV units and that special prerequisites are complied with.

For Table 5, see overleaf

Table 5

Level IV Mathematics subjects offered in the Mathematics Education Course (407)

A student planning to complete a program involving any subject from this table must seek the approval of the Head of the School of Mathematics.

No.	Name	Level	Unit Value	When Offered	Prerequisites§ Years 1, 2, 3 and 4 in	Number of Level III Units Required
10.123	Pure Mathematics Honours	IV	10	F	*Program 1001 *or* 1012	
10.223	Applied Mathematics Honours	IV	10	F	*Program 1001 *or* 1012	7*
10.323	Theory of Statistics Honours	IV	10	F	*Program 1001 *or* 1012	
10.423	Theoretical Mechanics Honours	IV	10	F	*Program 1001 *or* 1012	

* Higher level units of Mathematics must be included in Years 1, 2, 3 and 4, in order to comply with the prerequisites for admission to Level IV. Mathematics. Since entry to fourth year is only with approval of the Head of School, students should discuss their third year program with a Professor of the Department concerned. In special circumstances additional prerequisites may be required, or some of those listed may be waived.

§ Students are required to complete the prerequisite program with better than passing grades in the relevant units studied. In all cases a student considering proceeding to Level IV studies should seek the guidance of the Head of the appropriate School at an early stage of study to ensure that the program being followed is best suited to lead into the Level IV units and that special prerequisites are complied with.

School of Health Administration

The School of Health Administration, which was founded in 1956 with a grant from the W. K. Kellogg Foundation, offers both undergraduate and graduate programs. The undergraduate course may be taken on a full-time, part-time, or part-time (external) basis and leads to the award of Bachelor of Health Administration. The School also offers one formal course in Health Administration leading to the award of Master of Health Planning and another to the degree of Master of Health Administration. In addition, the Master's degree and the degree of Doctor of Philosophy may be taken following periods of full-time or part-time research in hospital and health service administration for which the School offers excellent facilities.

Because the Bachelor's course has been revised extensively, a student enrolled prior to 1978, who has passed in four or more subjects, shall satisfy the requirements for the degree by completing a total of 18 subjects including all subjects listed under **Compulsory Subjects**, see later.

Bachelor of Health Administration

Conditions for the Award of the Degree of Bachelor of Health Administration

1. A candidate for the degree of Bachelor of Health Administration shall:

(1) comply with the requirements for admission;

(2) follow the prescribed course of study in the School of Health Administration and satisfy the examiners in the necessary subjects.

2. A student who is following the prescribed course of study as a part-time (external) student shall in each year attend the residential school conducted by the School of Health Administration.

3. (1) A student enrolled in the part-time (external) course shall not normally be permitted to enrol in more than three subjects in any one year.

(2) A student enrolled in the full-time course shall not normally be permitted to enrol in more than six subjects in any one year.

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Bachelor of Health Administration Course

Bachelor of Health Administration
BHA

Full-time Course

Year 1

		Hours per week S1	S2
16.111	Health Care Systems	4	0
16.711	Quantitative Methods I	4	0
14.013	Accounting for Health Administration I	4	0
16.112	Health & Health Care	0	4
16.501	Economics (Health Administration)	0	4
16.011	Health Service Agency Management	0	4
16.400	Health Service Experience*	8	8
		20	20

Year 2

16.712	Quantitative Methods II	4	0
16.021	Management I	4	0
16.201	Law I	4	0
16.202	Law II	0	4
16.022	Management II	0	4
14.023	Accounting for Health Administration II	0	4
		12	12

Year 3

16.601	Behavioural Science I	4	0
16.411	Health Service Planning I	4	0
16.412	Health Service Planning II	0	4
16.602	Behavioural Science II	0	4
	Electives	4	4
		12	12

Part-time (External) Course

		Hours per week
Stage 1		
16.111	Health Care Systems	4
14.014	Accounting for Health Administration I	4
16.011	Health Service Agency Management	4
Stage 2		
16.112	Health & Health Care	4
16.711	Quantitative Methods I	4
16.501	Economics (Health Administration)	4
Stage 3		
16.201	Law I	4
16.712	Quantitative Methods II	4
16.021	Management I	4
Stage 4		
14.024	Accounting for Health Administration II	4
16.022	Management II	4
16.202	Law II	4
Stage 5		
16.411	Health Service Planning I	4
16.601	Behavioural Science I	4
	Elective	4
Stage 6		
16.412	Health Service Planning II	4
16.602	Behavioural Science II	4
	Elective	4

* Equivalent of 4 weeks (28 days) during the year by weekly and/or block attachments.

Compulsory Subjects

Compulsory subjects required for award of the BHA for students who had completed four or more subjects prior to 1978.

14.013 Accounting for Health Administration I *or* 14.014 AHAI
14.023 Accounting for Health Administration II *or* 14.024 AHAII
16.001 Management I *or* 16.021 Management I
16.002 Management 2 *or* 16.712 Quantitative Methods II
16.003 Management 3 *or* 16.022 Management 2
16.701 Statistics *or* 16.711 Quantitative Methods I
16.801 Australian Health Care System *or* 16.111 Health Care Systems
16.201 Law I
16.202 Law II
16.501 Economics (Health Administration)
16.921 Health Care Planning I *or* 16.112 Health & Health Care
16.922 Health Care Planning II *or* 16.411 Health Service Planning I
16.923 Health Care Planning III *or* 16.412 Health Service Planning II
16.601 Behavioural Science I
16.602 Behavioural Science II

Elective Subjects

Electives are to be chosen by the student in consultation with the Head of the School of Health Administration, from the subjects offered by the School of Health Administration and such other schools as are deemed appropriate. The approval of the relevant Head of School is required to undertake a subject offered by another school.

The following subjects have been approved as electives in the School of Health Administration:

16.101 Comparative Health Care Systems
16.301 Political Science
16.302 Social Administration
16.303 Research & Evaluation Methods
16.304 Management Skills
16.305 Health Economics
16.306 Administration of Nursing Services
16.307 Special Topic in Health Administration
16.308 Epidemiology for Health Administrators

Not all these electives will necessarily be offered every year.

Note: Permission from the Head of School must be obtained for any departure from the sequence of courses set out under the Full-time and Part-time (external) course patterns above.

Department of Industrial Arts

The Department of Industrial Arts offers a BSc(IndArts) DipEd course **(401)** available through full-time study in the general field of Industrial Arts. The BSc degree course **(400)** is being phased out and is not available to newly enrolling students. The subjects required to qualify for the degree are set out below. At the graduate level, the Department offers a Master of Science degree by research as well as a course in Industrial Design leading to the award of a Graduate Diploma.

The Subject Matter of Industrial Arts

Through the ages, man has used his intellect, imagination and skill to create useful things. The term 'industrial arts' has come to be used to describe these activities.

Man-made objects form a large part of the human environment: shelter, furniture, fabrics, vessels, tools, machines, vehicles and labour-saving devices of many kinds. Although these objects are designed and made primarily for some practical purpose, each individually makes some contribution to the total quality of the environment. Well-designed, well-made things of the practical kind may be considered 'works of art', thus the best products, whether handmade or factory-produced are evidence of the industrial arts.

Before the growth of modern industrial society, it was possible to identify the industrial arts with certain skilled occupations, for example, gold and silversmithing, weaving, metalworking, woodworking and pottery. Industrial methods and mass production have changed the forms of intellect, imagination and skill required for the creation of useful objects. Products are now seldom the result of the activity of single individuals, rather they reflect the skills of many people applied through the industrial organization. The study basic to Industrial Arts is the relationship between man and his material environment. The important elements in this study are man himself, the materials of his environment, the objects he produces and the processes he uses for production.

Such studies can be concerned as much with the useful objects of antiquity as with those of contemporary industrial civilization. Thus the research activities of the Department of Industrial Arts range from an investigation into the traditional technologies of the ancient cultures to an analysis of the problems of industrial design in contemporary technological society.

The Industrial Arts Course

The course offered by the Department of Industrial Arts is intended to provide a broad understanding of the man-product relationship, with studies in depth of the most relevant areas of knowledge drawn from natural science, technology, social science and other fields. Of central importance is the subject Industrial Arts. The core study in this subject is Design. Design is the process whereby materials, functional requirements, appearance, mechanical factors, cost etc are related and integrated into products which satisfy human needs. The design strand is supported by parallel studies in graphics, materials, education. Graphics—the 'visual language' of design—includes a variety of methods of drawing as well as other methods of visual representation, communication and analysis. The other subjects provide specialized information which is needed for the study and teaching of design, in particular, and of industrial arts generally.

Also included are First Year Engineering Units and elective studies in the sciences and general studies.

The Industrial Arts course covers the major subject areas included in both the secondary and senior secondary school curricula. After completion of the degree, graduates will be eligible to become certificated by the Department of Education as four-year trained teachers.

The undergraduate degree also provides a sound basic education for people intending to seek employment in the design field. A Graduate Diploma course in Industrial Design is available for those wishing to become professional Industrial Designers in the product design field.

In general, the Industrial Arts course provides a broad education which embraces the sciences, technological studies, the humanities, social sciences, and the arts. Education of this type is becoming increasingly important for employment in semi-technical fields such as technical sales, engineering administration, work study, technical writing and information services.

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Industrial Arts—Full-time Course

Bachelor of Science
BSc

This course is being discontinued from 1977 and no new students may be enrolled. Students already enrolled in the course may continue with their studies until completion of the degree.

Year 2

		Hours per week
4.911	Materials Science	1½
	Psychology II†	7
21.011	Industrial Arts I	3
21.201	Freehand Drawing	3
58.512	Introduction to Education	3
An elected science subject		
10.001	Mathematics I	6
	or	
27.801	Introduction to Physical Geography*	4½
27.802	Introduction to Human Geography*	

Year 3

4.951	Materials Technology	4
21.012	Industrial Arts II	4
21.211	Drawing and Design	2
21.902	Seminar	1
58.071	Methods of Teaching IA	3
58.513	Education IA	4½
	General Studies	1½
An elected science subject		
10.111A	Pure Mathematics II—Algebra	
10.111B	Pure Mathematics II—Analysis	
10.211A	Applied Mathematics II—Mathematical Methods	6
	or	
27.811	Physical Geography**	2¾
27.812	Human Geography**	

* One session only.

† Psychology II comprises three units, 12.052 Basic Psychological Processes, 12.062 Complex Psychological Processes and 12.152 Research Methods.

** *Two* upper level units selected in consultation with the School of Geography.

Year 4

21.013	Industrial Arts III	5
21.903	Project	3
58.072	Methods of Teaching IIA	3
58.514	Education IIA	4
An elected science subject		
10.111C	Pure Mathematics II—Abstract Algebra	
10.112D	Pure Mathematics III—Set Theory	
10.212A	Applied Mathematics III—Numerical Analysis *plus* one of 10.112C, 10.112E or 10.212D	8
	or	
	Geography†	2¾
	or	
	Psychology III*	8

* Psychology III comprises four units selected in consultation with the School of Psychology.

† Two upper level units selected in consultation with the School of Geography.

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Industrial Arts—Full-time Course

Bachelor of Science (Industrial Arts)/ Diploma in Education BSc(IndArts) DipEd

Students commencing studies in 1978 enrol in the first year of this revised degree course. This course is of four years' duration.

Year 1

		Hours per week
1.001 1.011 1.021	Physics I *or* Higher Physics I *or* Introductory Physics	6
2.001	Chemistry I	6
5.010 5.030	Engineering A Engineering C	6
21.311	Industrial Arts I	5
		23

Year 2

4.911	Materials Science	1½
12.001	Psychology I	5
21.312	Industrial Arts II	10
58.512	Introduction to Education	2½
58.542	Education ID	3
	General Studies Elective	1½
		23½

Year 3

4.951	Materials Technology	4
12.002	Psychology II	7
21.313	Industrial Arts III	8
58.513	Education IA	4
58.543	Education IID	3
58.593	School Experience I	2
		28

Year 4

12.003	Psychology III	8
21.314	Industrial Arts IV	10
58.514	Education IIA	3
58.544	Education IIID	3
58.594	School Experience II	5
		29

Subject Units in Industrial Arts

21.311 Industrial Arts I

All units are compulsory

		Session hours*
21.3111	Workshop Practice	2½
21.3112	Introduction to design methods	1
21.3113	Basic design	2
21.3114	Introduction to Graphics	2½
21.3115	History of Industrial Arts	1
21.3116	Research Methods	1

21.312 Industrial Arts II

All units are compulsory

21.3121	Ethnotechnology I	4
21.3122	Craft IA	4
21.3123	Industrial Design I	4
21.3124	Graphics I	4
21.3125	Industrial and Social Organization I	2
21.3127	History of Art and Design	2
21.3126	Project	4

21.313 Industrial Arts III

Two units to be chosen from 21.3131, 21.3132, 21.3133, 21.3134, while 21.3135 is compulsory.

21.3131	Ethnotechnology II	7
21.3132	Craft IIA	7
21.3133	Industrial Design II	7
21.3134	Graphics II	7
21.3135	Industrial and Social Organization II	2

21.314 Industrial Arts IV

One unit only to be chosen from 21.3141, 21.3142, 21.3143 and 21.3144.
Units 21.3145, 21.3146 and 21.3147 are compulsory.

21.3141	Ethnotechnology III	10
21.3142	Craft IIIA	10
21.3143	Industrial Arts III	10
21.3144	Graphics III	10
21.3145	Industrial and Social Organization III	2
21.3146	Advanced Project	6
21.3147	Appropriate Technology	2

Industrial Arts—Part-time Course

Bachelor of Science (Technology) BSc

This course is being progressively discontinued. Students should consult pages B319-B320 in the 1972 Calendar for the course outline.

*One session hour consists of 1 hour per week for one session.

School of Librarianship

The School of Librarianship offers graduate courses only leading to the degree of Master of Librarianship (MLib), the Diploma in Librarianship (DipLib) and the Diploma in Archives Administration (DipArchivAdmin). For full information see Graduate Study later in this handbook.

School of Social Work

The School of Social Work offers a course leading to the degree of Bachelor of Social Work. The degree of Master of Social Work (MSW) is also available, and may be undertaken by course work or by research.

Bachelor of Social Work (BSW) Degree Course

This undergraduate course is designed to prepare students for the professional practice of social work. It is normally undertaken as a four-year full-time program. However, at the discretion of the Head of School, a student unable to study full-time may, under special circumstances, take the course over a period of time not exceeding seven (7) years.

The social work profession is primarily focused on problems in man's social relationships — in his interaction with other human beings and with man-made structures. The profession is concerned with the patterns, directions, quality, and outcomes of man's social relationships. It seeks to enhance social functioning by directing its attention both to the capacity of individuals, groups, organizations and communities for effective interaction, and to the contribution of socially-provided resources to social functioning.

Through their professional education, social work practitioners share common knowledge, values and skills.

To become a professional person, the social work student needs to be as well informed about broad social welfare problems, policies and provision, and individual, group and sociocultural determinants of behaviour, as he is skilful in the use of social work methods. Members of the profession are particularly concerned that all people are treated with understanding and respect, especially those who are experiencing difficulties in their social living.

The objective of the course is to lay the ground-work for a variety of professional social work tasks. It is concerned with general approaches to problem-solving on a basis of scientific knowledge, professionally accepted values, and skills in interpersonal relations. While each student learns about all the main social work methods —social casework, social group work, community work, administration, and research—special care is taken to ensure that he acquires initial professional competence in at least one. In the later stages of the course the student concentrates upon the professional method of his choice.

The School provides opportunities, both in its regular subjects and in occasional special courses, for experienced social workers to keep abreast of educational developments in their specialized field, or method of work, or in some other field or method in which they have new responsibilities.

Field Education

A fundamental aspect of the course is supervised learning in the field, and this is in fact a basic requirement for the professional recognition of the degree. In the field instruction subjects — Social Work Practice IB, Social Work Practice IIB, and Social Work Practice IIIB —a student is under the supervision of a field instructor of the School, usually in a social work agency, while he learns to apply the principles of professional practice in an actual practice setting. From half-way through second year, a total of 170 seven-hour days are taken up in this way. About half of these days are scheduled during academic recess periods. A student's four field work placements will be in more than one type of social work setting. Some of the settings used are: medical, psychiatric, family and child welfare, services to the aged, and corrective services. Non-government agencies and agencies at all levels of government are included in the program.

Admission to the Course

Students should note that lack of facilities has caused restriction on entry to the course.

Progression

Except with the permission of the Head of School, a student may not proceed to the next year of the course until he has fulfilled all the requirements of the previous year.

Honours

An Honours degree is awarded for superior performance throughout the course, with greater weight being given to later years. The classes and divisions of honours are: Class 1; Class 2, Division 1; Class 2, Division 2.

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Social Work—Full-time Course
Bachelor of Social Work
BSW

Year 1

		Hours per week S1	S2
12.001	Psychology I	5	5
53.103	Introduction to Contemporary Industrial Society	3	0
53.104	Introduction to Social Theory	0	3
63.123	Australian Social Organization and two first level units approved as counting towards the BA degree	3	3

Year 2

63.203	Human Behaviour I	3	3
63.211	Social & Behavioural Science	3	0
63.231	Research Methods I	3	0
63.242	Social Philosophy I	3	0
63.251	Social Welfare I	0	3
63.263	Social Work Practice IA	5	4
63.272	Social Work Practice IB	—	—*
	General Studies elective	1½	1½

* 2-week block in Midyear Recess + 2 days a week (no recess) for second half of the academic year up to and including week 14—40 days.

Year 3

63.303	Human Behaviour II	4	4
63.342	Social Philosophy II	0	3
63.353	Socal Welfare II	3	5
63.363	Social Work Practice IIA	5	5
63.371	Social Work Practice IIB	—*	—
	General Studies elective	1½	1½

* 3-week block in February + 2 days a week (no recess) for Session 1—45 days.

Year 4

63.431	Research Methods II	2	0
63.453	Social Welfare III	4	4
63.463	Social Work Practice IIIA	5	3
63.472	Social Work Practice IIIB	—*	—
63.483	The Social Work Profession	2	2
	General Studies Elective	1½	1½

*Part 1: 8-week block in January and February—40 days.
Part 2: 3-week block in Midyear Recess + 2 days a week during Session 2 to end of week 14—45 days.

Graduate Study

Graduate Enrolment Procedures

All students enrolling in graduate courses should obtain a copy of the free booklet *Enrolment Procedures 1978* available from School Offices and the Admissions Office. This booklet provides detailed information on enrolment procedures and fees, enrolment timetables by Faculty and course, enrolment in miscellaneous subjects, locations and hours of Cashiers, and late enrolments.

Graduate Courses

The Faculty of Professional Studies consists of the Schools of Education, Health Administration, Librarianship and Social Work and the Department of Industrial Arts. Facilities are available in each of these Schools for research degrees leading to Master's or Doctor's degrees. In addition the following formal course Master's degrees are offered: Master of Counselling (Education); Master of Education; Master of Health Administration; Master of Health Planning; Master of Librarianship; and Master of Social Work. Courses for the award of a graduate diploma are available in archives administration, education, industrial design and librarianship.

School of Education

The School of Education offers a one-year full-time course for graduates leading to the Diploma in Education (DipEd) and also courses leading to the degrees of Master of Education (MEd) and Master of Counselling (Education) (MCouns(Ed)).

556
Diploma in Education Course

Diploma in Education
DipEd

Since 1966 a course leading to the award of the Diploma in Education (DipEd) has been available to graduates from the University or other approved universities. The one-year full-time Graduate Diploma course is designed to give professional training in education to graduate students, but it is also possible for this course to be taken over two years, and in some circumstances over three years, on a part-time basis. The course includes lecture-seminars and associate group activities, individual assignments, observations of teaching methods and practice teaching.

Re-enrolment in Diploma in Education

A candidate who fails in half or more of his subjects will not be permitted to re-enrol unless the Higher Degree Committee of the Board of Professional Studies grants permission because it considers the circumstances to be exceptional.

Session 1

Education Subjects

The first three subjects are core subjects of equal weight, and students are required to satisfy in each.

		Hours per week
58.001	Educational Psychology	2
58.002	Philosophy of Education	2
58.003	Sociology of Education	2

Method and Curriculum Studies

Students are required to satisfy in each of two method subjects, or in one double method subject. Subjects are of equal weight, except that a double method subject has twice the weight of a single subject. These subjects are listed below.

		Hours per week for 14 weeks
58.021	Commerce/Economics Method	2
58.022	English Method—Single	2
58.023	English Method—Double	4
58.024	French Method	2
58.025	Geography Method	2
58.026	German Method	2
58.027	History Method	2
58.028	Industrial Arts Method—Double	4
58.029	Library Method	2
58.030	Mathematics Method—Single	2
58.031	Mathematics Method—Double	4
58.032	Science Method—Single	2
58.033	Science Method—Double	4
58.034	Slow Learner Method	2
58.035	Social Science Method	2
58.036	Spanish Method	2

Electives

58.004	Electives	3

Electives are offered in one or more of the Education subjects, and in one or more of the Method and Curriculum studies, to meet the differing professional needs and interests of students with varying backgrounds.

Practical Subjects

58.051	Practice Teaching (5½ hours per day for 12 days averaged over 14 weeks.)	4.7 equiv.
58.052	Applied Studies in Teaching Practice (a composite subject made up of activities such as micro-teaching, skill development and selected activities.)	1

Session 2

		Hours per week (for 10 weeks)*	Equivalent hours for 14 weeks
58.005†	Education Options	6	4.3
58.037††	Advanced Method and Curriculum Studies	6	4.3
58.051	Practice Teaching (5½ hours per day for 20 days averaged over 14 weeks.)	(See next column)	7.8
58.052	Applied Studies in Teaching	1	.7
58.004	Electives (Further electives similar to those described for Session 1 will operate in Session 2 and under similar conditions.)	2	1.4

Total equivalent hours per week for one year: approximately 19

*In Session 2 lectures are of 10 weeks' duration following four weeks of full-time practice teaching.

†Choices of options are restricted by excluding particular combinations to prevent content overlap. Normally, students are required to take one option from each of the three areas of Educational Psychology, Philosophy of Education and Sociology of Education. This requirement may be varied at the discretion of the Head of School with respect to students who have completed two or more years of undergraduate study in one of the above areas.

††A flexible arrangement of studies is offered, which may include method options.

299
Master of Education (Honours) Course

891
Master of Education Course

Master of Education
MEd

The conditions for the award of the Master of Education degree are set out under **Conditions for the Award of Higher Degrees** in this handbook. The course is designed for educationists who wish to study education at an advanced level and may be taken at two levels: pass and honours.

The Pass degree is generally taken by subjects to the value of eight units together with a project. Applicants for registration for the honours degree are normally expected to satisfy in subjects to the value of four units

at a suitable standard, and to submit a thesis. Alternatively students without an honours degree in Education (or other relevant subject) may apply for registration after completing subjects to the value of eight units at a suitable standard, but this condition may be varied in exceptional cases. Such students transferring from Pass to Honours registration will then complete the degree by means of a thesis.

Miscellaneous Subjects

		Units
58.201G	Comparative Education	2
58.202G	Educational Planning and Administration	2
58.204G	Educational Theory in the Twentieth Century	2
58.206G	History of Education	2
58.212G	Mathematics Education	2
58.215G	Social Sciences Education	2
58.219G	Educational Research I	1
58.220G	Educational Research II*	1
58.221G	Educational Research IIIA*	1
58.222G	Educational Research IIIB*	1
58.223G	Research Design I	1
58.224G	Research Design II*	1
58.225G	Multivariate Analysis in Educational Research A*	1
58.226G	Multivariate Analysis in Educational Research B*	1
58.280G	Project	

Philosophy of Education Subjects

58.254G	The Philosophy of Mind and Educational Theory	2
58.256G	Moral Education I	1
58.257G	Moral Education II*	1
58.258G	Philosophy of the Curriculum I*	1
58.259G	Philosophy of the Curriculum II*	1
58.264G	Philosophy of Science Education*	1
58.265G	Philosophy of Literary Education I	1
58.266G	Philosophy of Literary Education II*	1
58.267G	Philosophy of History Education I	1
58.268G	Philosophy of History Education II*	1
58.269G	Philosophy of Maths Education I	1
58.270G	Philosophy of Maths Education II*	1
58.271G	Philosophy of Language Education I	1
58.272G	Philosophy of Language Education II*	1
58.273G	Philosophy of Social Science Education I	1
58.274G	Philosophy of Social Science Education II*	1

Sociology of Education Subjects

58.303G	Sociological Theory Applied to Education	2
58.305G	The Role of Education in Society A	1
58.306G	The Role of Education in Society B	1
58.307G	Introduction to Sociology of Education	1
58.308G	Special Problem Areas in Sociology of Education*	1
58.309G	Selected Topics in Sociology of Education*	1
58.310G	Advanced Sociology of Education*	1
58.311G	Mathematical Applications in the Sociology of Education A	1
58.312G	Mathematical Applications in the Sociology of Education B*	1
58.313G	A Sociological Analysis of Australian Education	1
58.314G	Applied Sociological Research	1

Science Education Subjects

58.330G	General Issues in Science Education	2
58.331G	The Development of Scientific Concepts*	1
58.332G	Evaluation in Science Education*	1
58.333G	Primary Science Education*	1
58.334G	The Nature of Science and Science Education*	1
58.335G	Curriculum Development in Science*	1

Educational Psychology Subjects

58.360G	Introduction to Educational Psychology	1
58.361G	Introduction to Child Growth and Development	1
58.362G	Child Growth and Development*	1
58.363G	Cognitive Development and Classroom Learning*	1
58.364G	Instructional Technology*	1
58.365G	Motivation and Attitudes in School Settings*	1
58.366G	History of Educational Psychology*	1
58.367G	Contemporary Issues in Educational Psychology*	1
58.368G	Psychology, History and Literature*	1
58.371G	Advanced Developmental Psychology in Educational Behavioural Settings*	1
58.372G	Learning Theory and Classroom Instruction*	1
58.373G	Behaviour Modification in the Classroom and School Setting*	1
58.374G	Social Learning and Education*	1
58.375G	Psychophysiology in the Classroom*	1
58.377G	Personality Development and Counselling Techniques in Education*	1
58.378G	The Role of the School Psychologist*	1
58.379G	Exceptional Children in the Classrom*	1
58.380G	Exceptional Children—Language Disabilities*	1
58.381G	Advanced Exceptional Children A*	1
58.382G	Advanced Exceptional Children B*	1
58.383G	Computer-Assisted Instruction I	1
58.384G	Computer-Assisted Instruction II*	1
58.385G	Cognitive Development in Children and Adolescents	1

*Information on prerequisites and/or co-requisites is contained in the section Subject Descriptions.

Note:

1. A one-unit subject is of 2 hours per week for one session. A two-unit subject is of 2 hours per week for two sessions.

2. Candidates with appropriate Honours degrees may be registered for MEd(Hons) at initial enrolment. Their program is subjects to the value of four units and a research thesis. (Such candidates will lose Honours registration after completion of these subjects if the standard attained is considered unsatisfactory by the Higher Degree Committee.)

3. Candidates who have the Higher Degree Committee's approval to transfer from MEd(Pass) to MEd(Hons) after completion of subjects to the value of eight units are reminded of the conditions governing maximum time.

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Master of Counselling (Education) (Honours) Course*

895

Master of Counselling (Education) Course*

Master of Counselling MCouns(Ed)

The conditions for the award of Master of Counselling (Education) are set out under **Conditions for the Award of Higher Degrees** later in this handbook. The course is designed for educationists with a psychological background who wish to study counselling at an advanced level and may be taken at two levels, pass and honours. The Pass degree generally is taken by completing the eight subjects listed, together with a project. Applicants for the Honours degree are expected to satisfy in all subjects listed at a higher standard than Pass, and to submit a thesis. Honours candidates who enter the course with a prior Honours degree in Psychology or Education may be exempted from certain subjects.

		Hours per week Year 1	Year 2
58.601G	Theories of Counselling	3	1
58.602G	Psychological Analysis: Assessment and Diagnosis	3	1
58.603G	Counselling Interventions	3	1
58.604G	Personality Theories	3	1
58.605G	Human Development	3	1
58.606G	Contemporary Issues in Counselling and Counselling Psychology	3	1
58.607G	Research Methods and Evaluation in Counselling	3	1
58.608G	Professional Practice	6	20
58.680G	Project (Pass)		
58.681G	Thesis (Hons)		

Master of Education Administration

This course is presently under consideration by the University. If it is approved, an announcement will be made in due course indicating when it will be offered.

School of Health Administration

The School of Hospital Administration was founded in 1956 with a grant from the W. K. Kellogg Foundation primarily to provide graduate education and training in hospital administration. In 1969 the name was changed to School of Health Administration in accord with its broader objectives in teaching and research. It serves the needs of hospitals and health services throughout Australia but overseas candidates may also be admitted.

The School provides one formal graduate course leading to the award of the degree of Master of Health Planning, and another leading to the award of the degree of Master of Health Administration. In addition, the Master's degree and the degree of Doctor of Philosophy may be taken following periods of full-time or part-time research in hospital and health service administration.

Master of Health Administration

The conditions for the award of the degree of Master of Health Administration are set out under **Conditions for the Award of Higher Degrees** later in this handbook.

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Master of Health Administration (By Research)

Master of Health Administration MHA

Facilities are available in the School for students to undertake research studies leading to the degree of Master of Health Administration, either as full-time internal students or as part-time students external to the University. Students are required to have a suitable first degree and are normally expected to have considerable experience in their proposed field of study within health or hospital services. Enquiries should be directed to the Head of School.

*This course has been approved but a decision as to when it will commence has not yet been made. An announcement will be made in due course.

890

Master of Health Administration (By Formal Course Work)

Master of Health Administration MHA

The course has been designed to equip students with the basic knowledge required for senior administrative and planning work in hospitals and other health services. It does not emphasize training in specialized techniques but aims to introduce basic concepts and to educate students for management in the broadest sense of that term. No previous experience in the health field is required and graduates from any discipline are eligible to apply.

The degree is awarded on the successful completion of the following program, normally taken by full-time study over two years.

Full-time Course

Year 1

Session 1

		Hours per week
14.940G	Accounting & Financial Management A	3
16.901G	Health Services Statistics I	2
16.904G	Australian Health Care System	2
16.905G	Health Services Accounting	2
16.931G	Introduction to Organization Theory	2
30.935G	Organizational Behaviour A	3
		14

Year 1

Session 2

14.941G	Accounting & Financial Management B	3
16.902G	Health Services Statistics II	2
16.937G	Health Services Research & Evaluation	2
16.970G	Health Services Management I	2
30.936G	Organizational Behaviour B	3
30.958G	Organizational Communications	3
		15

Year 2

Session 1

		Hours per week
16.930G	Introduction to Health Planning	2
16.933G	Health Services Law I	2
16.935G	Health Economics I	2
16.971G	Health Services Management II	2
16.972G	Introduction to Macro Economics (Health)	1
16.990G	Research Project	2
	Electives*	4
		15

Year 2

Session 2

16.909G	Community Health Planning	2
16.934G	Health Services Law II	2
16.936G	Physical Planning & Design	2
16.942G	Medical Sociology	2
16.990G	Research Project	2
	Electives*	6
		16

*Electives are to be chosen by the student in consultation with the Head of the School of Health Administration from the graduate subjects offered within the University. The approval of the relevant Head of School is required to undertake an elective offered by another school.

Master of Health Planning

The School of Health Administration offers a Master of Health Planning degree for persons who have been employed in the health field for at least three years and who hold a degree, normally of at least four years' duration. (This course replaces the Graduate Diploma in Health Administration which is no longer offered.)

The course is designed to provide the knowledge and skills required to undertake responsibilities for the planning of health services at the federal, state and regional levels. It is primarily intended for people who expect to hold positions with broad administrative and planning roles in the health services.

The degree is awarded on the successful completion of the following program. The course is normally taken by one year of full-time study, but applications for part-time enrolment will also be considered.

Conditions for the award of the degree of Master of Health Planning are set out under **Conditions for the Award of Higher Degrees** later in this handbook.

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Master of Health Planning Course

Master of Health Planning
MHP

Full-time Course

Session 1

		Hours per week
16.930G	Introduction to Health Planning	2
16.931G	Introduction to Organization Theory	2
16.932G	Introduction to Behavioural Science	2
16.901G	Health Services Statistics I	2
16.904G	Australian Health Care System	2
16.905G	Health Services Accounting	2
16.933G	Health Services Law I	2
16.935G	Health Economics I	2
		16

Session 2

16.909G	Community Health Planning	2
16.936G	Physical Planning and Design	2
16.937G	Health Services Research and Evaluation	2
16.938G	Seminar in Health Policy	2
16.902G	Health Services Statistics II	2
16.934G	Health Services Law II	2
	Plus	
	Project and/or Electives*	6
		18

***Note:**

1. Electives are to be chosen by the student in consultation with the Head of the School of Health Administration from the graduate subjects offered within the University. The approval of the relevant Head of School is required to undertake an elective offered by another school.

2. It is expected that the following elective subjects will be offered by the School of Health Administration in 1978:

		Equivalent hours per week
16.940G	Medical Care Organization	2
16.941G	Epidemiology	2
16.942G	Medical Sociology	2
16.943G	Interpersonal Communications in Organizations	2
16.944G	Health Economics II	2
16.945G	Workforce Planning	2
16.946G	Health Information Systems	2
16.947G	Comparative Health Care Systems	2
16.948G	Operations Research for Health Planning & Administration	2
16.949G	Organizational Analysis in Health Services	2

Students may obtain credit of 2, 3 or 4 hours per week by undertaking a research project approved by the Head of School.

Department of Industrial Arts

At graduate level the Department of Industrial Arts offers a Master of Science degree by research as well as a course in Industrial Design leading to a Graduate Diploma. In addition the degree of Doctor of Philosophy may be taken following periods of full-time or part-time research in the Department.

295

Master of Science (By Research)

Master of Science
MSc

The conditions governing the award of the degree of Master of Science by research are set out earlier in this section.

557

Industrial Design Graduate Diploma Course*

Graduate Diploma
GradDip

The Graduate Diploma course provides a broad education in industrial design for those students who hold first degrees, although it is expected that students will, in general, come from the professions of engineering and architecture. The course has been so structured that graduates with the necessary talents and interests from other disciplines are provided for. According to demand, the course may be available full-time over one year or part-time over two years.

Year 1

—Part-time Course

		Hours per week
21.501/1G	Industrial Design	4
21.511/1G	Design Projects	3
21.521/1G	Seminar	1
21.531/1G	Creative Art Elective	3
		11

Year 2

21.501/2G	Industrial Design	4
21.511/2G	Design Projects	3
21.521/2G	Seminar	1
21.531/2G	Creative Art Elective	3
		11

*Not available in 1978

School of Librarianship

The School of Librarianship offers graduate courses leading to the degree of Master of Librarianship (MLib), the Diploma in Archives Administration (DipArchivAdmin) and the Diploma in Librarianship (DipLib).

Master of Librarianship

The conditions governing the award of the degree of Master of Librarianship by research and by formal course work are set out under **Conditions for the Award of Higher Degrees** later in this handbook. As the University's facilities are limited, admission may be competitive.

298
Master of Librarianship (By Research)

Master of Librarianship
MLib

In addition to the thesis requirement, each candidate will complete the following two subjects to be taken in one year:

		Hours per session S1	S2
55.805G	Issues in Librarianship	0	28
55.807G	Research Methods in Librarianship	42	0

892
Master of Librarianship (By Formal Course Work)

Master of Librarianship
MLib

Advanced training in librarianship by formal course work is designed to provide education in broad areas of specialization beyond the basic professional level. The present program of study provides a course for those who will specialize in the application of principles to the organization and management of libraries.

Each candidate will complete the program of study which may be taken on a full-time basis in one year and on a part-time basis over two years.

In addition to the formal course work, each candidate will be required to submit a report on a project (55.901G) involving individual study and investigation.

There may be occasional field excursions at times to be arranged.

Full-time Course

		Hours per session S1	S2
55.801G	Library and Information Services Management A	28	28
55.803G	Library and Information Services Management B	28	28
55.805G	Issues in Librarianship	0	28
55.807G	Research Methods in Librarianship	42	0
55.901G	Project Report		
30.935G	Organization Behaviour A	42	0
30.936G	Organization Behaviour B	0	42
30.941G	Sociology of Industry	42	0
30.958G	Organizational Communications*	0	42

*These subjects are undertaken within the Master of Commerce program.

Part-time Course

Year 1

		Hours per session S1	S2
55.801G	Library and Information Services Management A	28	28
30.935G	Organization Behaviour A	42	0
30.936G	Organization Behaviour B	0	42
30.941G	Sociology of Industry	42	0
30.958G	Organizational Communications*	0	42

*These subjects are undertaken within the Master of Commerce program.

Year 2

55.803G	Library and Information Services Management B	28	28
55.805G	Issues in Librarianship	0	28
55.807G	Research Methods in Librarianship	42	0
55.901G	Project Report		

Graduate Diploma Courses

Progression in School's Graduate Diploma Courses

A candidate who fails in half or more of his subjects will not be permitted to re-enrol unless the Higher Degree Committee of the Faculty of Professional Studies grants permission because it considers the circumstances to be exceptional.

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Graduate Diploma Course in Librarianship

Diploma in Librarianship
DipLib

The Graduate Diploma course leading to the award of the Diploma in Librarianship is designed to provide university graduates with a basic education in librarianship and the opportunity to specialize. Candidates must hold a degree, other than in Librarianship, from the University of New South Wales or other approved university, and those enrolling in the two School Libraries subjects must also hold a Diploma in Education or a qualification accepted by the Higher Degree Committee of the Faculty of Professional Studies as equivalent. The University is unable at this stage, to provide facilities for all eligible applicants, and admission is, therefore, competitive.

The course is a one-year full-time program.

The Course

The course is made up of five compulsory subjects, four optional subjects and an assignment on an approved topic. The selection of optional subjects must be approved by the Head of the School of Librarianship, and must generally include two from Group I and two from Group II (55.385 School Libraries I and 55.386 School Libraries II count as three subjects).

Full-time Course* ‡

		Hours per session S1	S2
Compulsory			
55.112	Libraries and Information	42	0
55.114	Communication and Record	42	0
55.122	Library Materials Selection and Organization	56	70
55.123	Reference Service and Materials	56	0
55.124	Library Administration	14	28
55.991	General Assignment	–	–
Optional †			
	Group I		
55.231	Subject Bibliography: The Humanities	0	28
55.232	Subject Bibliography: The Social Sciences	0	28
55.233	Subject Bibliography: Pure and Applied Sciences	0	28
55.236	Subject Bibliography: Law (Co-requisite 55.238)	0	28
55.238	Subject Bibliography: Government Publications	0	28
55.371	Literature for Young People	0	28
	Group II		
55.362	Mechanized Systems for Libraries	0	28
55.373	Public Libraries	0	28
55.378	University and College Libraries	0	28
55.381	Special Libraries	0	28
55.385	School Libraries I (Co-requisites 55.371, 55.386)	0	42
55.386	School Libraries II (Co-requisites 55.371, 55.385)	0	42

* In addition to formal course work there are occasional field excursions, and students taking 55.385 and 55.386 will be required to serve an attachment to a public library and a school library for the equivalent of 4 hours weekly for 28 weeks, or a 4-week block if totally outside of session.

† Not all the optional subjects are necessarily available each year.

‡ Number of hours of attendance required per week is approximately 15.

560

Graduate Diploma Course in Archives Administration

Diploma in Archives Administration
DipArchivAdmin

The Graduate Diploma course leading to the award of the Diploma in Archives Administration is designed to provide education in the principles and methods of the administration of archives and allied materials, including current records and collections of manuscripts.

Candidates must hold a degree from the University of New South Wales or any other approved university. It is desirable that candidates have studied history and political science.

Each candidate will complete the program of study which may be taken as a full-time course in one year or as a part-time course over two years. Both are daytime courses.

In addition to formal course work there may be excursions to relevant institutions.

Full-time Course

		Hours per session S1	S2
55.123	Reference Service and Materials	56	0
55.238	Subject Bibliography: Government Publications	0	28
55.712	Archives Theory and History	56	56
55.713	Archives Administration	56	98
55.714	Information Environment for Archivists	42	0
	and any one of		
55.231	Subject Bibliography: The Humanities	0	28
55.232	Subject Bibliography: The Social Sciences	0	28
55.233	Subject Bibliography: Pure and Applied Sciences	0	28
55.236	Subject Bibliography: Law	0	28

Part-time Course

Year 1

		Hpw S1	S2
55.123	Reference Service and Materials	56	0
55.238	Subject Bibliography: Government Publications	0	28
55.712	Archives Theory and History *and any one of*	56	56
55.231	Subject Bibliography: The Humanities	0	28
55.232	Subject Bibliography: The Social Sciences	0	28
55.233	Subject Bibliography: Pure and Applied Sciences	0	28
55.236	Subject Bibliography: Law	0	28

Year 2

55.713	Archives Administration	56	98
55.714	Information Environment for Archivists	42	0

School of Social Work

Master of Social Work

The School of Social Work offers the degree of Master of Social Work, which may be undertaken by research or by formal course work. The conditions governing the award of the degree are set out earlier in this section.

297
Master of Social Work (By Research)

Master of Social Work
MSW

The degree of Master of Social Work by research requires that in addition to the thesis, each candidate must in his first year of registration complete the subjects 63.807G Social Policy Analysis and 63.814G Social Planning.

893
Master of Social Work (By Formal Course Work)

Master of Social Work
MSW

This course is designed to extend the professional knowledge of qualified social workers. Candidates may specialize in interpersonal helping, community work or administration. In addition to the formal course work, each candidate is required to submit a report on a project involving individual study and investigation of some area of social welfare.

The course is available as a one-year full-time program or a two-year part-time program.

Full-time Course

Session 1

		Hours per week
63.801G	Advanced Social Work Practice I (Interpersonal Helping) *or*	4
63.816G	Advanced Social Work Practice I (Community Work) *or*	
63.818G	Advanced Social Work Practice I (Administration)	
63.806G	Social and Behavioural Science	3
63.808G	Professional Interpersonal Competence	2
63.815G	Social Work Research Methods	2
63.805G	Issues for the Social Work Profession	1
63.807G	Social Policy Analysis	2
63.809G	Project	4
		18

Session 2

		Hpw
63.802G	Advanced Social Work Practice II (Interpersonal Helping) *or*	6
63.817G	Advanced Social Work Practice II (Community Work) *or*	
63.819G	Advanced Social Work Practice II (Administration)	
63.811G	Practice Theory and Social Welfare Administration	2
63.814G	Social Planning	2
63.812G	Project Seminar	2
63.809G	Project	6
		18

Part-time Course

Session 1

		Hours per week
63.801G	Advanced Social Work Practice I (Interpersonal Helping) *or*	
63.816G	Advanced Social Work Practice I (Community Work) *or*	4
63.818G	Advanced Social Work Practice I (Administration)	
63.806G	Social and Behavioural Science	3
63.808G	Professional Interpersonal Competence	2
		9

Session 2

63.802G	Advanced Social Work Practice II (Interpersonal Helping) *or*	
63.817G	Advanced Social Work Practice II (Community Work) *or*	6
63.819G	Advanced Social Work Practice II (Administration)	
63.811G	Practice Theory and Social Welfare Administration	2
		8

Session 3

63.815G	Social Work Research Methods	2
63.805G	Issues for the Social Work Profession	1
63.807G	Social Policy Analysis	2
63.809G	Project	4
		9

Session 4

63.814G	Social Planning	2
63.812G	Project Seminar	2
63.809G	Project	6
		10

Conditions for the Award of Higher Degrees

First Degrees

Rules, regulations and conditions for the award of first degrees are set out in the appropriate Faculty Handbooks.

For the list of undergraduate courses and degrees offered see **Disciplines of the University: Faculty Table (Undergraduate Study)** in the Calendar.

Higher Degrees

The following is the list of higher degrees and graduate diplomas of the University, together with the publication in which the conditions for the award appear.

For the list of graduate degrees by research and course work, arranged in faculty order, see **Disciplines of the University: Faculty Table (Graduate Study)** in the Calendar.

For the statements **Preparation and Submission of Project Reports and Theses for Higher Degrees** *and* **Policy with respect to the use of Higher Degree Theses** see the Calendar.

Higher Degrees

Title	Abbreviation	Calendar/Handbook
Doctor of Science	DSc	Calendar
Doctor of Letters	DLitt	Calendar
Doctor of Laws	LLD	Calendar
Doctor of Medicine in the Faculty of Medicine	MD	Calendar Medicine
Doctor of Philosophy	PhD	Calendar and all faculties
Master of Applied Science	MAppSc	Applied Science
Master of Architecture	MArch	Architecture

Title	Abbreviation	Calendar/Handbook
Master of Arts	MA(Hons)	Arts Military Studies
	MA	Arts Military Studies
Master of Building	MBuild	Architecture
Master of Business Administration	MBA	AGSM
Master of Chemistry by Formal Course Work	MChem	Sciences*
Master of Commerce (Honours)	MCom(Hons)	Commerce
Master of Commerce by Formal Course Work	MCom	Commerce
Master of Counselling (Education)	MCouns(Ed)	Professional Studies††
Master of Education	MEd	Professional Studies
Master of Engineering Master of Engineering without Supervision	ME	Applied Science Engineering Military Studies
Master of Engineering Science	MEngSc	Engineering
Master of General Studies	MGenStud	General Studies
Master of Health Administration by Formal Course Work	MHA	Professional Studies
Master of Health Administration by Research	MHA	Professional Studies
Master of Health Personnel Education	MHPEd	Calendar†
Master of Health Planning	MHP	Professional Studies
Master of Landscape Architecture	MLArch	Architecture
Master of Laws by Research	LLM	Law
Master of Librarianship by Formal Course Work Master of Librarianship by Research	MLib	Professional Studies
Master of Mathematics	MMath	Sciences*
Master of Optometry	MOptom	Sciences*
Master of Physics	MPhysics	Sciences*
Master of Psychology	MPsychol	Sciences‡
Master of Public Administration	MPA	AGSM
Master of Science Master of Science without Supervision	MSc	Applied Science Engineering Medicine Military Studies Professional Studies Sciences*‡
Master of Science (Acoustics)	MSc(Acoustics)	Architecture
Master of Science and Society by Formal Course Work	MScSoc	Sciences*
Master of Science (Biotechnology)	MSc(Biotech)	Sciences‡
Master of Science (Building)	MSc(Building)	Architecture
Master of Science (Building Services)	MSc(Building Services)	Architecture**
Master of Social Work by Research Master of Social Work by Formal Course Work	MSW	Professional Studies

Title	Abbreviation	Calendar/Handbook
Master of Statistics	MStats	Sciences*
Master of Surgery	MS	Medicine
Master of Surveying Master of Surveying without Supervision	MSurv	Engineering
Master of Surveying Science	MSurvSc	Engineering
Master of Town Planning	MTP	Architecture
Graduate Diploma	GradDip	Applied Science Architecture Engineering Sciences*‡
Graduate Diploma in the Faculty of Professional Studies	DipArchivAdmin DipEd DipLib GradDip	Professional Studies

Graduate Diplomas

**Not available to new students.
††Course approved but date of commencement not yet made.
*Faculty of Science.
†Professorial Board.
‡Faculty of Biological Sciences.

Doctor of Philosophy (PhD)

1. The degree of Doctor of Philosophy may be granted by the Council on the recommendation of the Professorial Board to a candidate who has made an original and significant contribution to knowledge and who has satisfied the following requirements:

Qualifications

2. A candidate for registration for the degree of Doctor of Philosophy shall:

(1) hold an honours degree from the University of New South Wales; or

(2) hold an honours degree of equivalent standing from another approved university; or

(3) if he holds a degree without honours from the University of New South Wales or other approved university, have achieved by subsequent work and study a standard recognized by the appropriate Faculty or Board of Studies as equivalent to honours; or

(4) in exceptional cases, submit such other evidence of general and professional qualifications as may be approved by the Professorial Board on the recommendation of the Faculty or Board of Studies.

3. When the Faculty or Board of Studies is not satisfied with the qualifications submitted by a candidate, the Faculty or Board of Studies may require him, before he is permitted to register, to undergo such examination or carry out such work as the Faculty or Board of Studies may prescribe.

Registration

4. A candidate for registration for a course of study leading to the degree of Doctor of Philosophy shall:

(1) apply to the Registrar on the prescribed form at least one calendar month before the commencement of the session in which he desires to register; and

(2) submit with his application a certificate from the head of the University school in which he proposes to study stating that the candidate is a fit person to undertake a course of study and research leading to the degree of Doctor of Philosophy and that the school is willing to undertake the responsibility of supervising the work of the candidate and of reporting to the Faculty or Board of Studies at the end of the course on the merits of the candidate's performance in the prescribed course.

5. Subsequent to registration the candidate shall pursue a program of advanced study and research for at least six academic sessions, save that:

(1) a candidate fully engaged in advanced study and research for his degree, who before registration was engaged upon research to the satisfaction of the Faculty or Board of Studies, may be exempted from not more than two academic sessions;

(2) in special circumstances the Faculty or Board of Studies may grant permission for the candidate to spend not more than one calendar year of his program in advanced study and research at another institution provided that his work can be supervised in a manner satisfactory to the Faculty or Board of Studies:

(3) in exceptional cases, the Professorial Board on the recommendation of the Faculty or Board of Studies may grant permission for a candidate to be exempted from not more than two academic sessions.

6. A candidate who is fully engaged in research for the degree shall present himself for examination not later than ten academic sessions from the date of his registration. A candidate not fully engaged in research shall present himself for examination not later than twelve academic sessions from the date of his registration. In special cases an extension of these times may be granted by the Faculty or Board of Studies.

7. The candidate shall be required to devote his whole time to advanced study and research, save that:

(1) the Faculty or Board of Studies may permit a candidate on application to undertake a limited amount of University teaching or outside work which in its judgement will not interfere with the continuous pursuit of the proposed course of advanced study and research;

(2) a member of the full-time staff of the University may be accepted as a part-time candidate for the degree, in which case the Faculty or Board of Studies shall prescribe a minimum period for the duration of the program;

(3) in special circumstances, the Faculty or Board of Studies may, with the concurrence of the Professorial Board, accept as a part-time candidate for the degree a person who is not a member of the full-time staff of the University and is engaged in an occupation which, in its opinion, leaves the candidate substantially free to pursue his program in a school of the University. In such a case the Faculty or Board of Studies shall prescribe for the duration of his program a minimum period which, in its opinion, having regard to the proportion of his time which he is able to devote to the program in the appropriate University school is equivalent to the six sessions ordinarily required.

8. Every candidate shall pursue his program under the direction of a supervisor appointed by the Faculty or Board of Studies from the full-time members of the University staff. The work, other than field work, shall be carried out in a School of the University save that in special cases the Faculty or Board of Studies may permit candidates to conduct their work at other places where special facilities not possessed by the University may be available. Such permission will be granted only if the direction of the work remains wholly under the control of the supervisor.

9. Not later than two academic sessions after registration the candidate shall submit the topic of his research for approval by the Faculty or Board of Studies. After the topic has been approved it may not be changed except with the permission of the Faculty or Board of Studies.

10. A candidate may be required by the Faculty or Board of Studies to attend a formal course of study appropriate to his work.

Thesis

11. On completing his course of study every candidate must submit a thesis which complies with the following requirements:

(1) the greater proportion of the work described must have been completed subsequent to registration for the PhD degree;

(2) it must be an original and significant contribution to the knowledge of the subject;

(3) it must be written in English except that a candidate in the Faculty of Arts may be required by the Faculty on the recommendation of the supervisor to write the thesis in an appropriate foreign language;

(4) it must reach a satisfactory standard of expression and presentation.

12. The thesis must present the candidate's own account of his research. In special cases work done conjointly with other persons may be accepted, provided the Faculty or Board of Studies 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 600 words.

The abstract shall indicate:

(1) *the problem investigated;*

(2) *the procedures followed;*

(3) *the general results obtained;*

(4) *the major conclusions reached;*

but shall not contain any illustrative matter, such as tables, graphs or charts.

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.

Entry for Examination

15. The candidate shall give in writing two 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. The four copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.* The candidate may also submit any work he has published whether or not such work is related to the thesis.

17. It shall be understood that the University retains the four copies of the thesis submitted for examination, and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act, 1968 the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

18. There shall normally be three examiners of the thesis, appointed by the Professorial Board on the recommendation of the Faculty or Board of Studies, at least one of whom shall be an external examiner.

19. After examining the thesis the examiners may:

(1) decide that the thesis reaches a satisfactory standard; or

(2) recommend that the candidate be required to re-submit his thesis in revised form after a further period of study and/or research; or

(3) recommend without further test that the candidate be not awarded the degree of Doctor of Philosophy.

20. If the thesis reaches the required standard, the examiners shall arrange for the candidate to be examined orally, and, at their discretion, by written papers and/or practical examinations on the subject of the thesis and/or subjects relevant thereto, save that on the recommendation of the examiners the Faculty or Board of Studies may dispense with the oral examination.

*See Conditions for the Award of Degrees in the Calendar.

21. If the thesis is of satisfactory standard but the candidate fails to satisfy the examiners at the oral or other examinations, the examiners may recommend the University to permit the candidate to represent the same thesis and submit to a further oral, practical or written examination within a period specified by them but not exceeding eighteen months.

22. At the conclusion of the examination, the examiners will submit to the Faculty or Board of Studies a concise report on the merits of the thesis and on the examination results, and the Faculty or Board of Studies shall recommend whether or not the candidate may be admitted to the degree.

23. A candidate shall be required to pay such fees as may be determined from time to time by the council.

Master of Counselling (Education) (MCouns(Ed))

1. An application to register as a candidate for the degree of Master of Counselling (Education) shall be made on the prescribed form, which shall be lodged with the Registrar at least one full calendar month before the first session of the year for which the candidate requires to be registered.

2. An applicant for registration shall:

(1) Hold a degree of the University of New South Wales or other approved university with a recognized major in Psychology;

(2) Have a recognized teaching qualification and two years' experience in schools;

(3) Undertake such other tests and interviews as may be considered necessary.

3. In special circumstances a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as the Committee).

4. An approved applicant shall register in one of the following categories:

(1) Student in full-time attendance at the University;

(2) Student in part-time attendance at the University;
and shall pay such fees as shall be determined from time to time by the Council.

5. The degree shall be awarded in two grades, namely, the Pass Degree and the degree with Honours. There shall be two classes of Honours, namely Class I and Class II.

Pass Degree

6. (1) Notwithstanding any other provisions of the conditions for registration, the Committee may require an applicant to demonstrate his fitness for registration for the Pass Degree by carrying out such work and passing such examinations as the Committee itself may determine.

(2) No student shall be considered for the award of the Degree until the lapse of four sessions for a full-time student or six sessions for a part-time student from the date on which registration becomes effective. Extension beyond these periods for the completion of the Degree shall be granted only with the approval of the Committee.

Honours Degree

7. (1) An applicant for registration for the Honours Degree shall have been admitted to a Bachelor's Degree in an approved university with Honours in Psychology, or Honours in Education with a concomitant major in Psychology, or to a Degree of any other school or department considered appropriate by the Comittee, at a standard not below Second Class Honours.

(2) A student who does not satisfy the conditions for registration as provided in Paragraph **7.** (1) may apply for registration as an Honours candidate on completion of the first year of formal courses provided for the Pass Degree of Master of Counselling (Education) at a standard approved by the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may, on the recommendation of the Head of School, require an applicant to demonstrate fitness for registration as a candidate for the Honours Degree by carrying out such work and passing such examinations as the Committee may determine.

(4) A candidate for the Honours Degree will be expected to complete all appropriate subjects at a standard approved by the Committee.

(5) Every candidate for the Honours Degree shall submit a thesis embodying the results of an extended research or investigation. He shall 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.

(6) For each candidate submitting a thesis for an Honours Degree there shall be at least two examiners appointed by the Professorial Board on the recommendation of the Committee, one of whom shall, if possible, be an external examiner.

(7) No student shall be considered for the award of the Degree until the lapse of four sessions for a full-time student or eight sessions for a part-time student from the date on which registration becomes effective. A student taking the Honours Course full-time will be required to complete within six sessions, and one taking it part-time within eight sessions. Extensions beyond these periods shall be granted only with the approval of the Committee.

8. (1) Every candidate who submits a thesis for an Honours Degree shall submit three copies of the thesis in a form which complies with the requirements of the University for the preparation and submissions of Higher Degree theses.

(2) Every candidate who submits a project for a pass degree shall prepare and bind two copies of the project report in accordance with the specifications currently approved by the University for higher degree Project reports.

9. It shall be understood that the University retains the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed subject to the provisions of the Copyright Act 1968. The University may issue the thesis in whole or in part, in photostat or micro-film, or any other copying medium.

Master of Education (MEd)

1. An application to register as a candidate for the Degree of Master of Education shall be made on the prescribed form which shall be lodged with the Registrar at least one full calendar month before the commencement of the session in which registration is required.

2. An applicant for registration shall:

(1) hold a degree of the University of New South Wales or other approved university;

(2) hold the Diploma in Education of the University of New South Wales or other approved university or possess qualifications accepted by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as 'the Committee') as equivalent; and

(3) have had at least one year's practical experience in some branch of education acceptable to the Committee.

3. In special circumstances a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

4. An approved applicant shall register in one of the following categories:

(1) student in full-time attendance at the University;

(2) student in part-time attendance at the University;

(3) student working externally* to the University;

and shall pay such fees as may be determined from time to time by the Council.

5. The degree shall be awarded in two grades, namely the Pass degree and the degree with Honours. There shall be two classes of Honours, namely Class I and Class II.

6. Subjects offered for the degree of MEd shall be allotted one or two units: one unit for a subject of two hours per week for one session, and two units for a subject of two hours per week for two sessions.

Pass Degree

7. (1) Notwithstanding any other provisions of the conditions for registration, the Committee may require an applicant to demonstrate his fitness for registration for the pass degree by carrying out such work and passing such examinations as the Committee itself may determine.

(2) The program for the pass degree shall include subjects in Education to the value of eight units, but in exceptional cases, and at the discretion of the Committee, the number of units required may be reduced by up to four.

Under the supervision of a member of the academic staff, a candidate shall be required to write a report, the satisfactory completion of which shall be regarded as part of the assessment for the degree. The report shall be prepared and bound in accordance with the specifications currently approved by the University for higher degree project reports.

(3) No student shall be considered for the award of the degree until the lapse of two sessions for a full-time student, or four sessions for a part-time or external student, from the date on which registration becomes effective. A student taking the pass degree course on a full-time basis shall be required to complete it within four sessions, and one taking it part-time or working externally within eight sessions. Extension beyond these periods shall be granted only with the approval of the Committee.

Honours Degree

8. (1) An applicant for registration for the Honours degree of Master of Education shall have been admitted to a Bachelor's degree in an approved university by a School or Department of Education, or to a degree of any other School or Department considered appropriate by the Committee, at a standard not below second class Honours.

(2) A student who does not satisfy the conditions for registration as provided in paragraph **8.** (1) may apply for registration as an Honours candidate on completion of subjects to the value of eight units provided for the pass degree of Master of Education, at a standard approved by the Committee. This condition may be varied in exceptional cases at the discretion of the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may, on the recommendation of the Head of the School, require an applicant to demonstrate fitness for registration as a candidate for the Honours degree by carrying out such work and passing such examination as the Committee may determine.

(4) A student satisfying conditions for registration provided in paragraph **8.** (1) shall be required to pass, at a standard approved by the Committee, subjects to the value of four units provided for the pass degree of Master of Education except that in special circumstances he may be granted exemption from this requirement.

(5) Every candidate for the Honours degree shall submit a thesis embodying the results of an original investigation. He shall 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.

*External registration is possible only after completion of course work requirements and subject to provision of suitable supervision arrangements.

(6) For each candidate submitting a thesis for the Honours degree there shall be at least two examiners appointed by the Professorial Board on the recommendation of the Committee, at least one of whom shall, if possible, be an external examiner.

(7) No student shall be considered for the award of the degree until the lapse of four sessions for a full-time student, or six sessions for a part-time or external student, from the date on which registration becomes effective. A student taking the honours degree course on a full-time basis shall be required to complete it within four sessions, and one taking it part-time or working externally within eight sessions from the date on which registration becomes effective. A student transferring to Honours registration by satisfying conditions in paragraph **8.** (2) shall be required to complete within eight sessions from the date of original registration. Extension beyond these periods shall be granted only with the approval of the Committee.

9. Every candidate shall submit three copies of the thesis in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.

10. It shall be understood that the University retains three copies of the thesis submitted for examination and is free to allow the thesis or report to be consulted or borrowed. Subject to the provisions of the Copyright Act 1968, the University may issue the thesis in whole or in part in photostat or microfilm or other copying medium.

Master of Health Administration (MHA) (by Formal Course Work)

1. The degree of Master of Health Administration (by formal course work) may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has satisfactorily completed a program of advanced study.

Qualifications

2. (1) An applicant for registration for the degree shall normally have been admitted to an appropriate degree in the University of New South Wales or other approved university or tertiary institution at a level acceptable to the Higher Degree Committee of the Faculty of Professional Studies, hereinafter referred to as the Committee.

(2) In exceptional cases an applicant may be registered as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by completing a qualifying program or such other tests as determined by the Committee.

Registration

3. (1) An application to register as a candidate for the degree shall be made on the prescribed form which shall be lodged with the Registrar six weeks before commencement of the course. The Committee shall determine the date of registration.

(2) A candidate for the degree shall be required to undertake such formal courses of study and pass such examinations as may be prescribed by the Committee.

(3) The progress of a candidate shall be reviewed at least once annually by the Committee and as a result of its review the Committee may terminate candidature or take such other action as it considers appropriate.

(4) Normally a candidate shall not be considered for the award of the degree until the lapse of four sessions in the case of a full-time candidate or eight sessions in the case of a part-time candidate from the date of registration. The maximum period of candidature shall be six academic sessions from the date of registration for a full-time student and ten academic sessions for a part-time student. In special cases an extension of time may be granted by the Committee.

Recommendation for Admission to Degree

The Committee, after considering the examiners' reports, where appropriate, and the candidate's other work in the prescribed course of study, shall recommend to the Professorial Board whether or not the candidate should be admitted to the degree.

Fees

An approved candidate shall pay such fees as may be determined from time to time by the Council.

Master of Health Administration (MHA) (by Research)

1. The degree of Master of Health Administration (by research) may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has demonstrated ability to undertake research by the submission of a thesis embodying the results of an original investigation or design.

Qualifications

2. (1) An applicant for registration for the degree shall hold a degree, normally of four years' full-time duration, from the University of New South Wales or other approved university or tertiary institution at a level acceptable to the Higher Degree Committee of the Faculty of Professional Studies, hereinafter referred to as the Committee.

(2) The Committee may consider applications from graduates of three-year full-time courses in the University of New South Wales or other approved university or tertiary institution, at a standard acceptable to the Committee, who have had at least three years' experience in the health services of a kind which is acceptable to the Committee.

(3) In exceptional cases an applicant may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

(4) Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by completing a qualifying program as determined by the Committee.

Registration

3. (1) An application to register as a candidate for the degree shall be made on the prescribed form which shall be lodged with the Registrar six weeks before the commencement of the session in which the candidate desires to commence registration. Where possible the applicant before submitting his application should obtain the approval of the Head of the School of Health Administration for his proposed program of study.

(2) The Committee shall determine the date of registration and shall admit an approved applicant to one of the following categories of registration:

(a) a student in full-time attendance at the University;

(b) a student in part-time attendance at the University;

(c) a student working externally to the University.

(3) In every case before permitting an applicant to register as a candidate the Committee shall be satisfied that adequate supervision and facilities are available.

(4) A candidate shall be required to undertake an original investigation or design under the direction of a supervisor appointed by the Committee. A candidate may also be required to perform other work as may be prescribed by the Committee.

(5) At least once a year and at any other time that the Committee sees fit, the candidate's supervisor shall present to the Head of School in which the candidate is registered a report on the progress of the candidate. The Committee shall review the report and as a result of its review may cancel registration or take such other action as it considers appropriate.

(6) Unless otherwise recommended by the Committee, no candidate shall be awarded the degree until the lapse of four complete sessions from the date of registration, save that in the case of a candidate who obtained the degree of Bachelor with Honours or who has had previous research experience, this period may be reduced by up to two sessions with the approval of the Committee. A candidate who is fully engaged in research for the degree shall present himself for examination not later than four academic sessions from the date of registration. A candidate not fully engaged in research shall present himself for examination not later than eight academic sessions from the date of his registration. In special cases an extension of these time may be granted by the Committee.

Thesis

4. (1) A candidate for the degree shall be required to submit three copies of the thesis embodying the results of the original investigation or design referred to in **3.** (4) above. The candidate may also submit with the thesis any work he has published. The thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.

(2) The thesis must present the candidate's own account of the research. In special cases work done conjointly with other persons may be accepted, provided the Committee is satisfied on the candidate's part in the joint research.

(3) It shall be understood that the University retains the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act, 1968, the University may issue the thesis in whole or in part, in photostat, microfilm or other copying medium.

5. (1) A candidate shall give in writing to the Registrar two months' notice of his intention to submit his thesis. **Examination**

(2) For each candidate there shall be at least two examiners appointed by the Committee one of whom, if possible, shall be external to the University.

(3) After examining the thesis an examiner may:

(a) recommend that the candidate be awarded the degree without further examination;

or

(b) recommend that the candidate be awarded the degree subject to minor corrections as listed being made to the satisfaction of the Head of School; or

(c) recommend that the candidate be not awarded the degree but be permitted to re-submit his thesis in a revised form after a further period of study and/or research; or

(d) recommend that the candidate be not awarded the degree and be not permitted to re-submit his thesis.

(4) In considering a recommendation made in terms of clause (c) of sub-section (3) of this condition, the Committee may specify the period within which the thesis is to be re-submitted.

(5) Having considered the examiners' reports the Committee shall recommend to the Professorial Board whether or not the candidate should be admitted to the degree.

6. An approved candidate shall pay such fees as may be determined from time to time by the Council. **Fees**

1. The degree of Master of Health Planning may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has satisfactorily completed a program of advanced study approved by the Higher Degree Committee of the Faculty of Professional Studies, hereinafter referred to as 'the Committee'. **Master of Health Planning (MHP)**

2. An applicant for registration for the degree shall: **Qualifications**

(1) normally be a graduate from an appropriate four-year, full-time undergraduate course in the University of New South Wales or other university or tertiary institution, at a standard acceptable to the Committee.

(2) have had at least three years' experience in the health services of a kind which is acceptable to the Committee.

3. The Committee may consider applications from graduates of three-year, full-time courses in the University of New South Wales or other university or tertiary institution, at a standard acceptable to the Committee, who have satisfactorily completed appropriate graduate or professional studies and have had at least three years' experience in the health services of a kind which is acceptable to the Committee.

4. In exceptional cases an applicant may be registered as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

5. Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by completing a qualifying program as determined by the Committee.

Registration

6. (1) An application to register as a candidate for the degree shall be made on the prescribed form which shall be lodged with the Registrar six weeks before commencement of the session in which the candidate desires to commence.

(2) a candidate for the degree shall be required to undertake such formal courses of study and pass such examinations as may be prescribed by the Committee and, where specified, submit a report on such a project or projects as may be required.

(3) the progress of a candidate shall be reviewed at least once annually by the Committee and as a result of its review the Committee may terminate candidature or take such other action as it considers appropriate.

(4) normally a candidate shall not be considered for the award of the degree until the lapse of two sessions in the case of a full-time candidate or four sessions in the case of a part-time candidate from the date of registration. The maximum period of candidature shall be four academic sessions from the date of registration for a full-time student and eight academic sessions for a part-time student. In special cases an extension of time may be granted by the Committee.

Recommendation for Admission to Degree

7. The Committee, after considering the examiners' reports, where appropriate, and the candidate's other work in the prescribed course of study, shall recommend to the Professorial Board whether or not the candidate should be admitted to the degree.

Fees

8. An approved candidate shall pay such fees as may be determined from time to time by the Council.

Master of Librarianship (MLib) (by Formal Course Work)

1. The degree of Master of Librarianship (by formal course work) may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has satisfactorily completed a program of advanced study comprising formal course work and including the submission of a report on a project approved by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as 'the Committee').

Qualifications

2. (1) An applicant for registration for the degree shall:

(a) have been admitted to an appropriate degree in the University of New South Wales or other approved university at a level approved by the Committee, and

(b) hold the Diploma in Librarianship of the University of New South Wales or possess a qualification accepted by the Committee as equivalent.

(2) In exceptional cases an applicant may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by carrying out such work and sitting for such examinations as the Committee may determine.

Registration

3. (1) An application to register as a candidate shall be made on the prescribed form which shall be lodged with the Registrar at least six (6) weeks before the commencement of the session in which the candidate desires to commence registration.

(2) A candidate for the degree shall be required to undertake such course of formal study, pass such examinations and submit a report on a project, as prescribed by the Committee.

(3) No candidate shall be considered for the award of the degree until the lapse of two sessions in the case of a full-time candidate or four sessions in the case of a part-time candidate from the date from which registration becomes effective.

(4) The progress of a candidate shall be reviewed annually by the Committee on the recommendation of the Head of the School of Librarianship and as a result of such review the Committee may terminate the candidature.

Project

4. (1) A report on a project approved by the Committee may be submitted at the completion of the formal section of the course, but in any case shall be submitted not later than one year after the completion of such course.

(2) The format of the report shall accord with the instructions of the Head of School and shall comply with the requirements of the Committee for the submission of project reports.

(3) (a) The report shall be examined by two examiners appointed by the Committee.

(b) A candidate may be required to attend for an oral or written examination.

5. Consequent upon consideration of the examiners' reports and the candidate's other results in the prescribed course of study, the Committee shall recommend to the Professorial Board whether the candidate may be admitted to the degree.

Fees

6. An approved candidate shall pay such fees as may be determined from time to time by the Council.

Master of Librarianship (MLib) (by Research)

1. The degree of Master of Librarianship (by research) may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has demonstrated ability to undertake research by the submission of a thesis embodying the results of an original investigation.

Qualifications

2. (1) An applicant for registration for the degree shall:

(a) have been admitted to an appropriate degree in the University of New South Wales or other approved university at a level approved by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as 'the Committee') and

(b) hold the Diploma in Librarianship of the University of New South Wales or possess a qualification accepted by the Committee as equivalent.

(2) In exceptional cases an applicant may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by carrying out such work and sitting for such examinations as the Committee may determine.

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

Registration

3. (1) An application to register as a candidate shall be made on the prescribed form which shall be lodged with the Registrar at least six (6) weeks before the commencement of the session in which the candidate desires to commence registration.

(2) An applicant shall enrol in one of the following categories:

(a) student in full-time attendance at the University,

(b) student in part-time attendance at the University,

(c) student working externally to the University.

In all cases the proposed course of study shall be submitted to the Head of the School of Librarianship for approval.

(3) A candidate shall be required to undertake an original investigation on a topic approved by the Committee. A candidate may also be required to perform other work as may be prescribed by the Committee. The Committee shall determine the maximum period of registration.

(4) The progress of a candidate shall be reviewed annually by the Committee on the recommendation of the Head of the School of Librarianship and as a result of such review the Committee may terminate the candidature.

(5) No candidate shall be considered for the award of the degree until the lapse of three complete sessions in the case of a full-time candidate or four complete sessions in the case of a part-time or external candidate from the date from which registration becomes effective.

(6) Notwithstanding clause **3.** (5) above, the Committee may approve remission of up to one session for a full-time candidate or two sessions for a part-time or external candidate.

Thesis

4. (1) A candidate for the degree shall be required to submit three copies of a thesis embodying the results of the original investigation referred to in **3.** (3) above. The thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.

(2) It shall be understood that the University retains the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act, 1968 the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

Examination

5. (1) A candidate shall give in writing two months' notice of his intention to submit his thesis and such notice shall be accompanied by the appropriate fee.

(2) For each candidate there shall be at least two examiners appointed by the Committee, one of whom shall be an external examiner.

(3) A candidate may be required to attend for an oral or written examination.

(4) Consequent upon consideration of the examiners' reports the Committee shall recommend to the Professorial Board whether the candidate may be admitted to the degree.

Fees

6. An approved candidate shall pay such fees as may be determined from time to time by the Council.

Master of Science (MSc)

1. The degree of Master of Science may be granted by the Council on the recommendation of the Professorial Board to a candidate who has demonstrated ability to undertake research by the submission of a thesis embodying the results of an original investigation.

2. 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 Registrar at least one full calendar month before the commencement of the session in which the candidate desires to register.

3. (1) An applicant for registration for the degree shall have been admitted to the degree of Bachelor of Science in the University of New South Wales, or other approved university, in an appropriate School or Department.

(2) In exceptional cases a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Professorial Board on the recommendation of the appropriate Faculty or Board of Studies.

4. Notwithstanding any other provisions of these conditions the Faculty or Board of Studies may require an applicant to demonstrate fitness for registration by carrying out such work and sitting for such examinations as the Faculty or Board of Studies may determine.

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

6. An approved applicant shall register in one of the following categories:

(1) student in full-time attendance at the University;

(2) student in part-time attendance at the University;

(3) student working externally to the University;

and shall pay such fees as may be determined from time to time by the Council.

7. Every candidate for the degree shall be required to submit three copies of a thesis embodying the results of an original investigation or design, to take such examinations and to perform such other work as may be prescribed by the Faculty or Board of Studies. The thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.* The candidate may submit also for examination any work he has published whether or not such work is related to the thesis.

8. It shall be understood that the University retains the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act, 1968 the University may issue the thesis in whole or in part in photostat or microfilm or other copying medium.

9. The investigation, design and other work as provided in paragraph **7.** shall be carried out under the direction of a supervisor appointed by the Faculty or Board of Studies or under such conditions as the Faculty or Board of Studies may determine.

At least once a year and at any other time that the Higher Degree Committee sees fit, the candidate's supervisor shall present to the Head of School in which the candidate is registered a report on the progress of the candidate. The Committee shall review the report and as a result of its review may cancel registration or take such other action as it considers appropriate.

10. Unless otherwise recommended by the Committee, no candidate shall be awarded the degree until the lapse of four complete sessions from the date of registration, save that in the case of a candidate who obtained the degree of Bachelor with Honours or who has had previous research experience, this period may be reduced by up to two sessions with the approval of the Committee. A candidate who is fully engaged in research for the degree shall present himself for examination not later than six academic sessions from the date of registration. A candidate not fully engaged in research shall present himself for examination not later than twelve academic sessions from the date of his registration. In special cases an extension of these times may be granted by the Committee.

11. (1) A candidate shall give in writing to the Registrar two months' notice of his intention to submit his thesis.

*See Conditions for the Award of Degrees in the Calendar.

(2) For each candidate there shall be at least two examiners, appointed by the Professorial Board on the recommendation of the Committee, one of whom, if possible, shall be external to the University.

(3) After examining the thesis an examiner may:

(a) recommend that the candidate be awarded the degree without further examination

or

(b) recommend that the candidate be awarded the degree subject to minor corrections as listed being made to the satisfaction of the Head of School

or

(c) recommend that the candidate be not awarded the degree but be permitted to resubmit his thesis in a revised form after a further period of study and/or research

or

(d) recommend that the candidate be not awarded the degree and be not permitted to resubmit his thesis.

(4) In considering a recommendation made in terms of clause **3.** of sub-condition (3) of this condition the Committee may specify the period within which the thesis is to be resubmitted.

(5) Having considered the examiners' reports the Committee shall recommend to the Professorial Board whether or not the candidate should be admitted to the degree.

Master of Social Work (MSW) (by Research)

1. The degree of Master of Social Work (by research) may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has demonstrated ability to undertake research by the submission of a thesis embodying the results of an original investigation, and who has completed a prescribed program of advanced study extending over one academic year.

Qualifications

2. (1) An applicant for registration for the degree shall:

(a) have been admitted to the degree of Bachelor of Social Work at honours standard in the University of New South Wales, or hold equivalent qualifications, or

(b) have been admitted to the degree of Bachelor of Social Work in the University of New South Wales or hold equivalent qualifications accepted by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as 'the Committee') at a level approved by the Committee; and shall have had at least one year's professional experience acceptable to the Committee.

(2) In exceptional cases an applicant may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by carrying out such work and sitting for such examinations as the Committee may determine.

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

Registration

3. (1) An application to register as a candidate shall be made on the prescribed form which shall be lodged with the Registrar at least six (6) weeks before the commencement of the session in which the candidate desires to commence registration.

(2) An applicant shall enrol in one of the following categories:

(a) student in full-time attendance at the University,

(b) student in part-time attendance at the University,

(c) student working externally to the University.

(3) In all cases the proposed course of study shall be submitted to the Head of the School of Social Work for approval.

(4) Every candidate for the degree shall be required:

(a) to prepare and submit a thesis on a topic approved by the Committee, embodying the results of an original investigation; and

(b) to carry out a prescribed program of advanced study extending over one year, as approved by the Committee.

(5) The progress of a candidate shall be reviewed annually by the Committee on the recommendation of the head of the School of Social Work and as a result of such review the Committee may terminate the candidature.

(6) Unless permission to the contrary has been granted, a full-time candidate shall be required to submit his thesis not earlier than three sessions, and not later than four sessions, from the date of registration; a part-time candidate, not earlier than four sessions, and not later than six sessions, from the date of registration.

Thesis

4. (1) A candidate for the degree shall be required to submit three copies of a thesis embodying the results of the original investigation referred to in **3.** (4) above. The thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.

(2) It shall be understood that the University retains the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act, 1968 the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

Examination

5. (1) A candidate shall give in writing two months' notice of his intention to submit his thesis and such notice shall be accompanied by the appropriate fee.

(2) For each candidate there shall be at least two examiners appointed by the Committee, one of whom shall be an external examiner.

(3) A candidate may be required to attend for an oral or written examination.

(4) Consequent upon consideration of the examiners' reports the Committee shall recommend to the Professorial Board whether the candidate may be admitted to the degree.

Fees

6. An approved candidate shall pay such fees as may be determined from time to time by the Council.

Master of Social Work (MSW) (by Formal Course Work)

1. The degree of Master of Social Work (by formal course work) may be awarded by the Council on the recommendation of the Professorial Board to a candidate who has satisfactorily completed a program of advanced study.

Qualifications

2. (1) An applicant for registration for the degree shall:

(a) at a level approved by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as 'the Committee') have been admitted to the degree of Bachelor of Social Work in the University of New South Wales or hold equivalent qualifications accepted by the Committee; and

(b) have had at least one year's professional experience acceptable to the Committee.

(2) In exceptional cases an applicant may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Committee.

(3) Notwithstanding any other provisions of these conditions the Committee may require an applicant to demonstrate fitness for registration by carrying out such work and sitting for such examinations as the Committee may determine.

Registration

3. (1) An application to register as a candidate shall be made on the prescribed form which shall be lodged with the Registrar at least six weeks before the commencement of the session in which the candidate desires to commence.

(2) A candidate for the degree shall be required to undertake such course of formal study and pass such examinations as prescribed by the Committee.

(3) The progress of a candidate shall be reviewed annually by the Committee on the recommendation of the Head of the School of Social Work and as a result of such review the Committee may terminate the candidature.

Recommendation for Admission to Degree

4. Consequent upon consideration of the candidate's results and the candidate's other results in the prescribed course of study, the Committee shall recommend to the Professorial Board whether the candidate may be admitted to the degree.

Fees

5. An approved candidate shall pay such fees as may be determined from time to time by Council.

Graduate Diplomas in the Faculty of Professional Studies

1. An application for admission to a graduate diploma course in the Faculty of Professional Studies shall be made on the prescribed form which should be lodged with the Registrar at least two full calendar months before the commencement of the course.

2. An applicant for admission to a graduate diploma course shall be:

(1) a graduate of the University of New South Wales or other approved university,

(2) a person with other qualifications as may be approved by the Higher Degree Committee of the Faculty of Professional Studies (hereinafter referred to as 'the Committee').

3. Notwithstanding clause **2.** above, the Committee may require an applicant to take such other prerequisite or concurrent studies and/or examinations as it may prescribe.

4. Every candidate for a graduate diploma shall be required to undertake the appropriate course of study, to pass any prescribed examinations, and if so laid down in the course, to complete a project or assignment specified by the Head of the School. The format of the report on such project or assignment shall accord with the instructions laid down by the Head of the School.

5. To qualify for the award of the graduate diploma a candidate shall:

(1) complete a one-year full-time course within four consecutive sessions, *or*

(2) complete a two-year part-time course within six consecutive sessions.

6. In exceptional cases the appropriate Higher Degree Committee may extend the period in which a candidate must complete his graduate diploma course.

7. An approved applicant shall be required to pay the fee for the course in which he desires to register. Fees shall be paid in advance.

Subject Descriptions

Identification of Subjects by Numbers

Each of the subjects taught in the University is identifiable both by number and by name. This is a fail-safe measure at the points of enrolment and examination against a student nominating a subject other than the one intended. Subject numbers are allocated by the Assistant Registrar, Examinations and Student Records, and the system of allocation is:

1. The School offering a subject is indicated by the number before the decimal point;

2. If a subject is offered by a Department within a School, the first number after the decimal point identifies that Department;

3. The position of a subject in a sequence is indicated by the third number after the decimal point. For example, 2 would indicate that the subject is the second in a sequence of subjects;

4. Graduate subjects are indicated by the suffix G.

As indicated above, a subject number is required to identify each subject in which a student is to be enrolled and for which a result is to be returned. Where students may take electives within a subject, they should desirably be enrolled initially in the particular elective, and the subject numbers allotted should clearly indicate the elective. Where it is not possible for a student to decide on an elective when enrolling or re-enrolling, and separate examinations are to be held in the electives, Schools should provide to the Examinations and Student Record Section in April (Session 1) and August (Session 2) the names of students taking each elective. Details of the actual dates in April and August are set out in the Calendar of Dates earlier in this volume.

Those subjects taught in each Faculty are listed in full in the handbook of that Faculty, in the section entitled Subject Descriptions.

Textbook lists are no longer published in the Faculty handbooks. Separate lists are issued early in the year and are available at key points on the campus.

The identifying numbers for each School are set out below.

For General Studies subjects see the Board of Studies in General Education Handbook, which is available free of charge.

Information Key

The following is the key to the information supplied about each subject listed below:

S1 (Session 1); S2 (Session 2); F (Session 1 *plus* Session 2, ie full year); S1 or S2 (Session 1 *or* Session 2, ie choice of either session); SS (Single Session, ie which session taught not known at time of publication); L (Lecture, followed by hours per week); T (Laboratory/Tutorials, followed by hours per week).

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School of Physics

Undergraduate Study

Physics Level I Units

1.001 Physics I **F L3T3**

Prerequisites and Co-requisites: See Table 1, Mathematics/ Science Education Courses (407) and (408) under School of Physics in Course Outlines section of this handbook.

Aims and nature of physics and the study of motion of particles under the influence of mechanical, electrical, magnetic and gravitational forces. Concepts of force, inertial mass, energy, momentum, charge, potential, fields. Application of the conservation principles to solution of problems involving charge, energy and momentum. Electrical circuit theory application of Kirchoff's Laws to AC and DC circuits. Uniform circular motion. Kepler's Laws and Rotational mechanics.

A molecular approach to energy transfer, kinetic theory, gas laws and calorimetry. The wave theories of physics, transfer of energy by waves, properties of waves. Application of wave theories to optical and acoustical phenomena such as interference, diffraction and polarization. Interaction of radiation with matter, photoelectric effect, Compton effect, spectroscopy. Resolution of the wave: particle paradox by means of wave mechanics and the uncertainty principle.

1.011 Higher Physics I **F L3T3**

Co-requisites: 10.001 or 10.011.

For students of all Faculties except Medicine and Architecture who have a good secondary school record and who wish to do a more challenging course.

As for 1.001 with additional topics: space physics, mechanical properties of real materials, rotational dynamics, physics of biological systems, AC and charged particle dynamics, physics of energy resources and conversion.

1.021 Introductory Physics I **F L3T3**

Co-requisites: 10.021A and 10.021B, or 10.021B and 10.021C, or 10.021 or 10.001 or 10.011.

An introductory course in physics designed principally for students majoring in the life and health science disciplines. The course covers the following topics at an introductory level:

The methods of physics, describing motion, the dynamics of a particle, conservation of energy, kinetic theory of gases, properties of liquids, vibrations and waves, electricity and conduction in solids, ions and ionic conduction, magnetism and electromagnetic induction, alternating current, atomic nature of matter, x-rays, the nucleus and radioactivity, electronics, and

Either geometrical optics, optical instruments, wave optics, microscopes and their uses,

Or advanced electronics (Optometry students).

Physics Level II Units

1.012 Mechanics and Thermal Physics **S1 L3T2**

Prerequisites: 1.001 or 1.011, 10.001. Co-requisites: 10.2111, 10.2112.

Properties of solids and liquids, elasticity, hydrostatics, hydrodynamics, damped and forced vibrations, resonance, coupled systems, normal modes, Fourier analysis, waves, group velocity, reflection and transmission at a boundary.

Kinetic theory, Maxwell velocity distribution, transport coefficients, first and second laws of thermodynamics, thermodynamic functions, simple applications, microscopic approach to thermodynamics, Boltzmann probability.

Additional material is studied for the award of Distinction/High Distinction.

1.022 Electromagnetism and Modern Physics **S2 L3T2**

Prerequisites: 1.001 or 1.011, 10.001. Co-requisites: 10.2111, 10.2112.

Electrostatics in vacuum and in dielectrics, Gauss' law, current density, magnetostatics in vacuum and in magnetic materials, electromagnetic induction, displacement current, Maxwell's equations, simple solutions, applications.

Special theory of relativity, Lorentz transformation, simultaneity relativistic mass, momentum and energy, formalism of wave mechanic, Schrodinger's equation, simple solutions, hydrogen atom, spectra, electron spin, selection rules, exclusion principle, Zeeman effect molecules.

Additional material is studied for the award of Distinction/High Distinction.

1.032 Laboratory **F T3**

Prerequisites: 1.001 or 1.011, 10.001. Excluded: 1.922.

Alternating current circuits, complex impedance, resonance, mutual inductance, introductory electronics, diode characteristics and circuits, power supplies, transistor characteristics, single stage and coupled amplifiers, experiments using AC circuits. Experimental investigations in a choice of areas including radioactivity, spectroscopy, properties of materials, Hall effect, nuclear magnetic resonance, photography, vacuum systems.

1.922 Electronics **SS L1T2**

Prerequisites: 1.001 or 1.011, 1.021, 10.001 or 10.011 or 10.021. Excluded: 1.032.

The application of electronics to other disciplines. Includes: principles of circuit theory and analogue; computing; amplifiers, their specification and application; transducers; electronic instrumentation; industrial data acquisition.

1.932 Introduction to Solids **S2 L2T1**

Prerequisites: 1.001 or 1.011 or 1.021. Excluded: 1.022.

Introductory quantum mechanics and atomic physics; crystal structure; point and line defects; introductory band theory; conductors, semiconductor and insulators; energy level diagrams.

1.942 Introduction to Physics of Measurement **S1 L1½T1½**

Prerequisites: 1.001 or 1.011. Excluded: 1.323.

Resolution; accuracy and sensitivity of instruments; errors of observation; experimental design; transducers; thermometry; electrical noise; servo systems; mechanical design of apparatus; optical instruments; optical fibres; photometry; colorimetry; analogue to digital conversion and digital instruments; measurement of very large and very small quantities.

Physics Level III Units

1.013 Quantum Mechanics and Nuclear Physics **F L1½T1½**

Prerequisites: 1.012, 1.022, 10.2111, 10.2112. Excluded: 2.023A, 10.222F.

Concepts and formulation, expectation values and measurement, steps, wells and barriers, tunnelling, harmonic oscillator, perturbation theory, hydrogen atom, angular momentum operators, spin and spin orbit coupling, vector model, fine structure, identical particles, helium atom, spectroscopy, electron states in molecules and solids.

Detecting instruments for nuclear particles, counting statistics, Rutherford scattering, radioactivity, radiative processes, reactions, optical model, parity, introduction to particle physics, mesons, baryons, quarks.

Additional material is studied for the award of Distinction/High Distinction.

1.023 Statistical Mechanics and Solid State Physics **S1 L3T1**

Prerequisites: 1.012, 1.022, 10.2111, 10.2112. Co-requisite: 1.013.

Canonical distribution, paramagnetism, Einstein solid, ideal gas, equipartition, grand canonical ensemble, chemical potential, phase equilibria, Fermi and Bose statistics, Bose condensation, blackbody radiation. Crystal structure, bonding, lattice dynamics, phonons, free-electron model of metals, band theory, point defects, dislocations.

Additional material is studied for the award of Distinction/High Distinction.

1.033 Electromagnetism and Optical Physics **S2 L3T1**

Prerequisites: 1.012, 1.022, 10.2111, 10.2112. Excluded: 10.222C.

Wave equation, reflection and transmission at dielectric, metallic and plasma interfaces, Fresnel equations, skin depth, waveguides and cavities, radiation fields, dipole and long antenna. Fourier theory, diffraction from rectangular and circular apertures, interference and interferometry, coherence, image formation, resolution, holography, Fourier transform spectroscopy.

Additional material is studied for the award of Distinction/High Distinction.

1.043 Experimental Physics **F T6**

Prerequisites: 1.012, 1.022, 1.032.

A course of instruction in modern experimental techniques, methods of experimental design and analysis of results. Experiments, which in the main consist of small open-ended projects, are available in many areas of physics including electromagnetic waves, solid state physics, nuclear physics, atomic physics and spectroscopy, optical and laser physics, vacuum systems.

1.133 Electronics **S1 L2T4**

Prerequisites: 1.922 or 1.032.

Extension of AC circuit theory. Revision of transistors, parameters.

Multistage discrete amplifiers, bias, coupling, stability. Positive feedback, oscillators.

Integrated amplifiers, properties.

Negative feedback. Regulated power supplies. Narrow band amplifiers, power and pulse amplifiers. Modulation, AM FM chopper amplifiers. Pulse circuits, gates, flip-flops, scalers, Schmitt trigger, integrated circuits. Thyristors.

1.143 Biophysics **S1 L2T1**

Prerequisites: 1.012, 1.022.

Thermodynamics in Biology, Electrochemical potentials, Donnan equilibrium, irreversible processes, diffusion and applications to biological systems.

Membrane potentials, Nernst potential, Goldman and Nernst-Planck equation, generalized approach.

Active transport. Membrane structure. The nerve impulse, activation and inactivation, Hogkin and Huxley equations.

Muscle, contractive process, thermodynamics. Ecological ensemble theory, global thermodynamics interaction of species, ecological associations.

1.153 Biophysical Techniques **S2 L2T1**

Prerequisites: 1.012, 1.022, 1.032.

The theory and application of physical techniques of relevance to the study of biological systems.

Techniques considered may include optical and electron microscopy, X-ray and neutron diffraction, magnetic resonance, lasers, light scattering, calorimetry, fluorescence, electrochemical techniques and electrophysiological methods and dielectric measurements.

1.163 Astrophysics **S1 L1½T½**

Prerequisite: 1.022.

Stellar radiation, spectra classification. Hertzsprung-Russell diagrams, determination of stellar masses and radii. Equations of stellar structure, energy sources in stars, nuclear reaction cycles, energy transport, equations of state, degeneracy, opacity. Properties of main sequence stars, stellar evolution, structure of red giants and white dwarfs. The solar atmosphere.

1.173 Conceptual Framework of Physics **S2 L2T1**

Prerequisites: 1.012, 1.022. Co-requisites: 1.013, 1.023.

Physics and metaphysics, the place of speculation in theory formation.

Space and time, coordinate systems, nature of time. Fundamental physical phenomena, electrical, gravitational, inertial, nuclear phenomena, entropy and probability.

Field theory, formulation, action at a distance, propagation, energy. Relativity, postulates, simultaneity, limiting speeds, mass energy. Relationship between micro and macrocosmos, statistics, entropy and information, arrow of time.

Matter and anti-matter and energy, conservation laws, inertial mass, field energy.

Quantum processes, granularity, measurements and uncertainty principle, determinism versus indeterminism, nuclear phenomena.

1.313 Physics of Materials **S2 L2T4 or F L1T2**

Co-requisite: 1.023.

Properties of technically important materials related to their structure. Review of atomic and electronic structures of crystalline materials. Electrons and holes in semiconductors. Structure of alloys, polymers, ceramics, glasses and liquids.

The properties and significance of structural defects—point, line and surface. Solid-state devices. Photoconductivity. Optical absorption. Luminescence. Dielectric and magnetic phenomena. Phase changes and crystal growth. Elastic and anelastic behaviour. Diffusion. Strength and fracture. Adhesion. Friction and lubrication.

1.323 Physics of Measurement **S2 L2T4**

Prerequisite: 1.032.

Basic considerations of resolution, accuracy and sensitivity of measuring instruments. Errors of observation and their treatment. Data handling and use of computers. Electrical transducers for mechanical, optical, thermal and fluid measurements, etc. Electrical measurements. Dynamics of measurement, servomechanisms, control systems. Digital electronic instruments. Photometry and optical measurements. Noise limitations. Measurements under adverse and extreme conditions.

1.333 Applications of Radiation **S1 L2T4**

Co-requisite: 1.033.

The present and potential uses of electro-magnetic radiation over the whole spectrum. Applications of acoustic radiation. Microscopy, interferometry and optical spectroscopy. Applications of thermal radiation, microwaves, radio waves, polarized light and lasers. Holography. X-ray spectroscopy, diffractometry and radiography. Special radiation sources and detectors.

1.513 Plasma and Laser Physics **S2 L3T1**

Prerequisites: 1.012, 1.022.

Experimental and theoretical problems in plasma physics. Plasma waves, magnetohydrodynamics, magnetic confinement of plasmas for nuclear fusion, laboratory, extraterrestrial and chemical plasmas. Theory of lasers; lasers of various types and properties. Interaction of high intensity lasers with plasmas; experiments and theory of plasma properties and nonlinear effects, absorption, self-focussing. Laser compressed nuclear reaction plasmas, relativistic effects, pair production.

1.523 Relativity and Electromagnetism **S2 L3T1**

Prerequisites: 1.012, 1.022, 10.2111, 10.2112, 10.111A, 10.1113, 10.1114.

Scalars and vectors in non-Cartesian frames. Principle of relativity and signal propagation. Space-time. Four vectors. Mass-energy. Four-momentum. Electromagnetic field equations. Gauges. Wave equation. Solutions. Introduction to tensors. Field tensor. Stress tensor. Four-momentum of free field. Moving charges. Electromagnetic mass.

Physics Level IV Units

1.104 Physics IV (Honours)

Students doing the normal honours course should enrol in the single subject 1.104 only. This normally comprises the units 1.114, 1.124, 1.134, 1.144, 1.154, 1.194. Special consideration will be given to students who wish to substitute another level IV unit for one of the above. Students taking only a part of the honours course should enrol in the desired individual units.

1.304 Applied Physics IV (Honours)

Normally comprises the units 1.314, 1.324, 1.334, 1.344, 1.354. Students doing the normal honours course should enrol in the single subject 1.304 only. Students taking only part of the honours course should enrol in the desired individual units.

1.504 Theoretical Physics IV (Honours)

Students doing the normal honours course should enrol in the single subject 1.504 only. This comprises the units 1.114, 1.124, 1.594 and any three of 1.134, 1.144, 1.154, 1.524, 1.534, 1.544, 1.554, 1.584. Not all of these units are offered every year. Students taking only part of the honours course should enrol in the desired individual units.

1.114 Quantum Mechanics S1 L2T0

Time dependent perturbation theory, semi-classical radiation theory, selection rules. Relativistic wave equations, Dirac equation, spin, the hydrogen atom, negative energy solutions. Scattering theory, Born approximation, partial waves, phase shifts, optical theorem, resonances, scattering matrix, inelastic scattering, distorted wave and close coupling approximations.

Additional reading will be recommended for Theoretical Physics students.

1.124 Statistical Mechanics S1 L2T0

Basic theory, fluctuations, quantum gases, equations of state for bosons and fermions. Bose condensation, quantum mechanical ensemble theory, density matrix, classical cluster expansion, virial expansion Debye-Huckel theory, theory of phase transitions, criterial exponents Ising model, liquid helium, Boltzmann equation, H theorem, Brownian motion, fluctuation —dissipation theorem, Onsager relations.

1.134 Solid State Physics F L1T0

Band theory of solids, NFE and tight binding approximations, electron and hole dynamics, Fermi surface studies, theory of semiconductors, impurity statistics, transport properties.

Magnetism, ionic moments, crystal field effects, Stevens operations, quenching, molecular field theory, Curie-Weiss law, exchange in metals and insulators, domains, magnetic bubbles, applications.

1.144 Atomic Physics S2 L2T0

Atomic spectroscopy: simple spectra, fine structure, Zeeman effect, complex spectra, electrostatic and magnetic interactions, multiplets, coupling schemes, selection rules and line strengths, structure of x-ray levels, x-ray line spectra, configuration interaction. Experimental determination of cross-sections for atomic collisions, molecular spectroscopy, Einstein coefficients, lasers, light scattering, line broadening.

1.154 Nuclear Physics S2 L2T0

Review of nuclear properties, composition, binding, size, Coulomb barrier.

Knowledge of nuclear force from 2-nucleon system, deuteron ground state, (np) and (pp) scattering. Field theory of nuclear forces, types of fields, experimental properties of mesons, theoretical predictions, structure of nucleons, hyperons, etc and interpretation in terms of quark theory. Complex nuclei, scattering theory, nuclear reactions, Breit-Wigner dispersion relations, continuum theories, optical model, direct reactions, stripping and pick-up reactions, surface reactions. Radioactivity, theory of α, β, γ decay.

1.194 Physics Projects F

1.314 Advanced Physics of Materials S1 L2T4

An advanced subject on the relation of structure of materials to their physical properties. Solid surfaces, adhesion, static, dynamic and rolling friction. Revision of ideal liquids. Dispersed systems, sols, colloids, emulsions, gels. Viscosity, elasticity and network formation. Foams, stability and structure. Electrical properties of plastics. Dielectric properties, conductivity and breakdown. Polymers, viscoelasticity dynamic properties, rubber/textile composites. Rheological properties in manufacturing. Dislocation structures, properties and interactions. Thermal and radiation hardening and damage. Oxidation and corrosion mechanisms and kinetics. Electroplating, polishing and machining. Surface strengthening and protection. Fibre and particle composites, structure, strengthening mechanisms, properties and manufacture.

1.324 Advanced Physical Instruments S1 L1T5

The basic principles, the techniques employed, and the modes of operation of advanced physical instruments in the following fields: electron beam examination, spectroscopic analysis, chromatography, thermal analysis and mechanical testing.

1.334 Introduction to Industrial Practice F L1T2

Lectures, each followed by a tutorial discussion covering: patents and the scientist; applied physics in electric power engineering; the emergence of electronic technology in Australia; reliability engineering in industry; sources of information for Australian industry; industrial technical reporting; operations research, systems research and budgeting of resources; the work of a physicist in the electronics industry; quality assurance; functions of an applications laboratory; economics of industrial R&D; critical-path analysis and network planning; the physicist in the mining industry.

1.344 Special Studies

Consult the Department of Applied Physics for details.

1.354 Applied Physics Projects F

1.524 Waves in Continuous Media S1 L2T0

Reflection of waves; radiation pressure and transfer of momentum; Goos-Haenchen effect. Unsolved problems. Propogation in inhomogeneous media and generation of nonlinear forces. Application to plasmas, absorption, dynamics, parametric instabilities. Momentum in dielectrics.

1.534 Quantum Theory of Solids S2 L2T0

Energy band theory, pseudopotentials, Wannier functions, plasmons, lattice dynamics, phonons, anharmonic effects, quantum solids, light scattering, polaritons, electron-phonon interaction, polarons, exchange interaction, Heisenberg model magnons, local moments, Kondo effect, magnon-phonon interaction, superconductivity, BSC theory, Josephson effect.

1.544 Plasma Theory **S2 L2T0**

Magnetohydrodynamics, Euler equations, Schluter equations, Liouville equations, kinetic theory, macroscopic equations, plasma frequency, Alfven waves, collisions, diffusion, MHD equilibria, waves in plasma.

1.554 Quantum Electrodynamics **S2 L2T0**

Quantization of free electromagnetic field, concept of photon, occupation number representation, coherent representation. Quantization of free electron fields, fermion number conservation, electron transitions. Interacting fields, Feynman diagrams, real and virtual processes. Applications to scattering, Compton effect, bremsstrahlung, pair creation and annihilation, radiative corrections, transitions, Hanbury-Brown-Twiss effect. Introduction to general quantum field theory.

1.584 Practice in Theoretical Physics **S1 L1T2**

This unit is to teach students how to analyse a research project within a short time, to give comments or minor contributions on theoretical questions in the way expected from a theoretical physicist working as a consultant in industrial or government research.

1.594 Theoretical Physics Projects **F**

School of Chemistry

Undergraduate Study

Level I Units

2.111 Introductory Chemistry **S1 L2T4**

Classification of matter and the language of chemistry. The gas laws and the Ideal Gas Equation, gas mixtures and partial pressure. The structure of atoms, cations and anions, chemical bonding, properties of ionic and covalent compounds. The periodic classification of elements, oxides, hydrides, halides of selected elements. Acids, bases, salts, neutralization. Stoichiometry, the mole concept. Electron transfer reactions. Qualitative treatment of reversibility and chemical equilibrium, the pH scale. Introduction to the diversity of carbon compounds.

2.121 Chemistry IA **S1 or S2 L2T4**

Prerequisites: 2 Unit Science (any strands) at Grade 1, 2 or 3 (HSC Examination) or 4 Unit Science (any strands) at Grade 1, 2 or 3 (HSC Examination) or Chemistry 2.111.

Stoichiometry and solution stoichiometry. Structure of matter, solids, liquids, gases. Thermochemistry. Equilibria and equilibrium constants, entropy changes, free energy changes, the relationship between equilibrium and standard free energy changes. Ideal solutions, colligative properties. Equilibrium in electrolyte solutions, acid-base equilibria, solubility equilibria and redox equilibria. The rate of a chemical change and chemical kinetics.

2.131 Chemistry IB **S1 or S2 L2T4**

Prerequisites: Chemistry 2.111 or Chemistry 2.121.

Relative stability of oxidation states. Electronic structure of atoms in terms of the quantum mechanical model. Structure of the Periodic Table and its relationship to electronic configuration. Chemical bonding, hybridization. Properties of compounds of selected elements, acid-base character of oxides and hydroxy compounds. Chemistry of carbon compounds, stereoisomerism, reactions of aliphatic and aromatic hydrocarbons, alcohols, phenols, ethers, alkyl halides, aldehydes, ketones, carboxylic acids and their derivatives, esters, acyl halides, anhydrides, amides, amines.

Level II Units

2.002A Physical Chemistry **S1 or S2 L3T3**

Prerequisites: 2.121 and 10.001, 10.011 or 10.021B and 10.021C.

Thermodynamics: first, second and third laws of thermodynamics; statistical mechanical treatment of thermodynamic properties; applications of thermodynamics: chemical equilibria, phase equilibria, solutions of non-electrolytes and electrolytes, electrochemical cells.

Kinetics: order and molecularity; effect of temperature on reaction rates; elementary reaction rate theory.

Surface chemistry and colloids: adsorption, properties of dispersions; macromolecules and association colloids.

2.002B Organic Chemistry **F or S1 or S2 L3T3**

Prerequisite: 2.131.

Chemistry of the more important functional groups; aliphatic hydrocarbons, monocyclic aromatic hydrocarbons, halides, alcohols, phenols, aldehydes, ketones, ethers, carboxylic acids and their derivatives, nitro compounds, amines and sulphonic acids.

2.002D Analytical Chemistry **S1 or S2 L2T4**

Prerequisites: 2.121, 2.131 and 10.001, 10.011 or 10.021B and 10.021C.

Chemical equilibria in analytical chemistry. Acid-base, complex formation, redox systems, solid/solution, and liquid/liquid equilibria with applications to volumetric, gravimetric and complexometric analysis, and to liquid/liquid extractions. Spectrophotometry, basic principles. Chromophores. Fundamentals of precision. Electrochemistry, theory and applications to electrodeposition and potentiometry; ion selective electrodes. Radioactive tracer techniques. Data evaluation in analytical chemistry. Qualitative analysis.

2.042C Inorganic Chemistry **S1 or S2 L2T4**

Prerequisites: 2.121 and 2.131.

Chemistry of the non-metals, including B, C, Si, N, P, S, Se, Te, halogens, and noble gases. Chemistry of the metals of groups IA, IIA, and Al. Typical ionic, giant-molecule and close-packed structures. Transition metal chemistry, including variable oxidation states, paramagnetism, Werner's theory, isomerism of six- and four-coordinate complexes, chelation, stabilization of valency states. Physical methods of molecular structure determination. Chemistry of Fe, Co, Ni, Cu, Ag, Au.

Level II/III Units

2.003A Physical Chemistry **S2 L3T3**

Prerequisite: 2.002A.

Thermodynamics, including non-ideal systems; advanced electrochemistry; statistical thermodynamics; applications to gases, liquids and chemical equilibria; states of matter.

2.003B Organic Chemistry **S1 or S2 L2T4**

Prerequisite: 2.002B.

Alicyclic Chemistry. Stereochemistry of acyclic systems; classical and non-classical strain in cyclic systems; stereochemistry and conformation of monocyclic and polycyclic compounds; synthesis, reactions and rearrangement of monocyclic compounds, including stereochemical selectivity; transannular reactions in medium rings. Synthesis and reactions of fused and bridged polycyclic systems.

Heterocyclic Chemistry. Synthesis and reactions of the following hetero-aromatic systems pyridine, quinoline, isoquinoline. Flavones and isoflavones pyrimidine; pyrrole, furan, thiophen. Indole, imidazole.

2.003C Inorganic Chemistry **F or S1 L2T4**

Prerequisite: 2.042C.

Coordination chemistry: valence bond and crystal field theory and their application to magnetic and spectral properties of complexes. Factors affecting the stability of complexes; unusual oxidation states of transition metals. Chemistry of the groups IIIA (the lanthanides and actinides), IVA, VA, VIA and VIIA. More advanced chemistry of groups IIIB, IVB, VB, VIB and VIIB and the noble gases.

2.003D Instrumental Analysis **S1 or S2 L2T4**

Prerequisites: 2.002A and 2.002D.

Selected spectrophotometric methods of analysis: infrared, emission, flame, precision spectroscopy, spectrofluorimetry, X-ray fluorescence, mass spectroscopy. Instrumental chromatography, thermal analysis. Electrochemical and kinetic methods. Introduction to automation and data processing.

2.003E Nuclear and Radiation Chemistry **S1 or S2 L2T4**

Prerequisites: 2.121 and 2.131 and 10.001, 10.011 or 10.021B and 10.021C.

Fundamental particles, nuclear structure and properties. Nuclear transformations. Properties of nuclear radiations. Interaction of radiation with matter. Detection and measurement of nuclear radiations. Nuclear pulse spectrometry. Nuclear instrumentation. Radiation chemistry: primary and secondary processes in the absorption of ionizing radiation in gases, liquids and solids. Free radical detection and reactions. Technological applications and techniques. Preparation of radionuclides in high energy machines and nuclear reactors. Radiochemical techniques. Handling precautions. Chemistry of nuclear transformations. Chemistry of reactor fuel cycles. Applications of radionuclides in chemistry, biology and industry.

2.003H Molecular Spectroscopy and Structure **S2 L3T3**

Prerequisites: 2.121 and 2.131.

Absorption and emission of radiation. Atomic spectra. Molecular spectroscopy: vibrational, including infrared and Raman; UV-visible; instrumentation and sample handling. Magnetic resonance. Mass spectrometry with particular reference to structure determination. Laboratory and tutorial work to illustrate the above, including inspection of major instruments.

2.003J Fundamentals of Biological Chemistry **F L2T4**

Prerequisites: 2.121 and 2.131. Excluded: 41.101A.

Aspects of the chemical and physical properties of materials important in biological systems. Methods of separation, of purification and estimation, and correlations of structure with reactivity.

Methods of separation and identification, such as gel permeation, discussed as appropriate to each topic.

Significance of isomerism in biological systems, optical and geometrical, absolute configuration. Amino acids, peptides and introduction to protein structure. Relevant properties, acid/base properties, pK values, zwitterion isoelectric points. Simple peptide synthesis.

Treatment of carbohydrates, establishment of structures reactivity. Chemistry of monosaccharides, disaccharides and polysaccharides. Methods of analysis chemical and physicochemical.

Fats, correlation of properties with saturated and unsaturated fatty acid composition. Structural chemistry of fatty acids. Reaction of unsaturated fatty acids, urea complexes. Detergents. Trace elements in biological systems. Chemistry of common heterocyclic systems with emphasis on molecules of biological importance.

2.003K Solid State Chemistry **S2 L2T4**

Prerequisites: 2.121, 2.131 and 10.001 or 10.011.

The determination of crystal structures by single crystal diffraction: X-ray and neutron diffraction methods. Practical and automated aspects of the solution of crystal structures: applications to inorganic, molecular and macromolecular crystals.

Patterns of solid state structure: the structures of crystals with unusual and valuable chemical and physical properties. Solid state reactions, surface properties and catalysis. Applications of EPR, NMR and mass spectrometry.

2.003L Applied Organic Chemistry **F L1T2**

Prerequisite: 2.002B. Excluded: 2.033L.

Discussion at advanced level of the chemistry of selected commercially important groups of organic materials. Mechanisms of reaction and physical properties, together with methods of examination, in overall unit approach, correlating structure with behaviour. Emphasis on breakdown to model systems.

Theory of physical techniques, refractometry, polarimetry etc. from basis of additivity. Fatty acids with emphasis on unsaturation, thermal and oxidative polymerizations, alkyl resins, analysis of mixtures. Waxes and sterols; selected natural and synthetic

macromolecules; polymerization processes, including treatment of initiators, chain transfer agents, retarders. Vulcanization and sulphur-olefin reactions. Photochemical processes; electro-organic chemistry. Fine chemicals, soaps and detergents. Aspects of metal catalysis in industry.

2.003M Organometallic Chemistry **S1 or S2 L2T4**

Prerequisite: 2.002B.

Synthesis, structure and reactions of metal alkyls and aryls; metal carbonyls, isonitriles and acetylides; compounds of metals with unsaturated hydrocarbons; organic chemistry of boron, silicon, phosphorus and arsenic; application of organometallic compounds in organic synthesis and homogeneous catalysis.

2.013A Introductory Quantum Chemistry **S1 L2T4**

Prerequisites: 1.001 or 1.011 and 2.121, 2.131 and 10.001, 10.011 or 10.021B and 10.021C.

Quantum mechanical concepts. Particle in a box. Rotational and vibrational motions—spectra. The hydrogen atom. Angular momentum. Many electron atoms; effects of electron spin; atomic spectra. Molecular spectroscopy and valence: electronic structure and spectra of molecules. The Franck-Condon principle. Delocalization; Hückel M.O. theory. Ligand field theory. Photoelectron spectroscopy. Magnetic resonance: basic principles and experimental techniques; spin density effects in ESR spectra; theory of nuclear shielding and spin-spin coupling; relaxation processes.

2.013B Synthetic Organic Chemistry **S2 L2T4**

Prerequisite: 2.003B.

Introduction, aims, stereochemical and positional problems, recognition of sub-units. Modern functional group transformations with particular reference to positional and stereochemical control. Spectroscopic markers. Electrocyclic reactions, formation, contraction and expansion of rings, Diels-Alder and related cycloadditions, photochemistry, Woodward-Hoffmann rules, protecting groups. Representative syntheses of compounds of theoretical and biological interest, e.g. cubane, Dewar benzene, caryophyllene, reserpine, corrins.

2.013C Advanced Inorganic Chemistry **F or S2 L2T4**

Prerequisite: 2.042C. Co-requisite: 2.003C.

Reaction mechanisms involving metal complexes. Spectroscopic methods for investigating metal complexes, including infrared, electronic, and Mössbauer spectroscopy. Inorganic crystal chemistry: structures and properties of simple compounds. Cluster compounds, metal-metal bonding, extended electronic interactions. π-Complexes, carbonyls, nitrosyls, ethylene complexes, and sandwich-type compounds; methods of preparation, reactions, evidence for structures and type of bonding involved.

2.013D Advanced Analytical Chemistry **S1 or S2 L2T4**

Prerequisite: 2.002D. Co-requisite: 2.003D.

Sampling of biological, environmental and industrial materials. Preparation for analysis. Approaches to analysis of gases, waters, soils and geological materials, plants and biological materials, ceramics, ferrous and non-ferrous metals and alloys. Chemical microscopy.

2.013L Chemistry and Enzymology of Foods **F L1T2**

Prerequisite: 2.002B. Excluded: 2.043L, 2.023L, 2.053L.

The chemistry of food constituents at an advanced level, the relationship between the chemistry and enzymology associated with the origin and handling of foodstuffs. Treatment of the stability of constituents, changes in colour and texture occurring during processing and storage. Methods of assessment, chemical and physical.

General classification of constituents, role of free and combined water. Fixed oils and fats, rancidity of enzymic and autoxidative origin anti-oxidants—natural and synthetic—theories on mechanisms of action, carbohydrates reactivity, role in brewing processes, carbohydrate polymers, starch structure, enzymic susceptibility and mode of action, estimations, enzymic degradation and enzymic browning, reactions and stability of natural pigments, vitamins, preservatives.

2.013M Thermochemistry **S1 or S2 L2T4**

Prerequisite: 2.002A.

Thermochemistry of metal complex and organometallic reactions: Dissociation of molecules and bond energies; solvation of ions and molecules; reactions in non-aqueous solution; substitution reactions; Lewis acid-base reactions; formation of inorganic polymers. Energy induced reactions. Mechanism of inorganic substitution, electron-transfer and free-radical reactions; reactions of co-ordinated ligands; template synthesis; porphyrin complexes.

2.023A Quantum Theory of Atoms and Molecules **F L2T1**

Prerequisites: 2.002A and 10.2111 and 10.2112.

Wave mechanics—linear operators; Schrödinger wave equation, applications, methods of solution; variation principle, linear combinations, perturbation theory. Many-electron problems—central field method; electron spin; Fermi-Dirac statistics; angular momentum operators; Coulomb repulsion two-electron operator; spin-orbit coupling Russell-Saunders and jj coupling; Zeeman effect; vector coupling and Wigner coefficients; allowed transitions. Group theory—symmetry operations; matrix representation; irreducible representation; characters of a group; non-rigid molecules; antisymmetry operators.

2.023B Natural Product Chemistry **S1 or S2 L2T4**

Prerequisite: 2.003B.

The isolation, structure determination, synthesis and biosynthesis, and the reactions of selected classes of organic compounds of biological significance. The chemistry of plant and animal products—terrestrial and marine. Examples from carbohydrates, terpenoids and steroids, alkaloids and other naturally-occurring heterocyclic systems. Interdisciplinary aspects of the topic.

2.023L Biological and Agricultural Chemistry **F L1T2**

Prerequisite: 2.002B. Excluded: 2.053L, 2.013L, 2.043L.

Water supplies, bore water, methods of examination and assessment. Origin of plant constituents of importance to food industries. Oxygen and nitrogen heterocyclic chemistry as

required for natural pigments, phenolics, tannins, methods of estimation. Photochemical processes. Toxic and non-toxic constituents, alkaloids, enzyme inhibitions, preparation, assessment and active site concepts.

Animal feeds, fodders, silage formation. Soil and plant nutrients. Fractionations of carbohydrates, proteins. Structure and glyceride fractionation of fats.

Agricultural chemicals, feed additives. Insecticides, pesticides, natural and synthetic. Fungicides, herbicides and plant growth hormones. Synthesis formulation, stability and degradation processes. Extensions in vitamin chemistry. Trace metals in plant and animal metabolites.

2.033A Physical Chemistry of Macromolecules **S2 L2T4**

Prerequisites: 1.112C or 2.002A and 2.002B or 2.003J.

Macromolecules in solution; determination of molecular size: gel permeation chromatography, diffusion, sedimentation, viscometry, osmometry and light scattering. Spectroscopic properties: circular dichroism and optical rotary dispersion; conformation of macromolecules in solution; helix-random coil transitions. Macromolecules in the solid state; X-ray diffraction; basic structural features.

2.033L Applied Organic Chemistry **F L2T4**

Prerequisite: 2.002B. Excluded: 2.003L.

As for 2.003L but in greater detail and depth.

2.043A Environmental Chemistry **F or S2 L3T3**

Prerequisites: 2.002A and 2.002D.

Physico-chemical aspects of atmosphere chemistry: dispersion of colloids and solid matter, photochemical reactions. Hydrological cycle: reactions in the sea, rivers and estuaries; chemical characteristics of surface and sub-surface waters. Corrosion of metals.

and

Either: Simple digital and analog computer models of ecological systems based on chemical data and physico-chemical properties.

Or: Distribution of elements and nutrient cycles in water; organic carbon cycles, oxygen balance (redox processes in aquatic systems). Chemical models of these processes (including an introduction to simple computing). Practical project (mostly field work) dealing with nutrient cycles.

2.043L Chemistry and Enzymology of Foods **F L2T4**

Prerequisite: 2.002B. Excluded: 2.013L, 2.023L, 2.053L.

As for 2.013L but in greater detail and depth.

2.053A Chemical Kinetics and Reaction Mechanisms **F or S2 L3T3**

Prerequisite: 2.002A.

Basic kinetic concepts, mechanisms of elementary processes and fundamental theories of kinetics. Gas-phase systems, unimolecular and free-radical reactions. Reactions involving excited species, pyrolysis, photolysis, mass spectrometry; comparison of flash photolysis and pulse radiolysis. Reactions in solution. Surface kinetics and catalysis. Fast reactions. Applications of the above concepts to inorganic and organic reaction mechanisms.

2.053L Biological and Agricultural Chemistry **F L2T4**

Prerequisite: 2.002B. Excluded: 2.023L, 2.013L, 2.043L.

As for 2.023L but in more detail and depth.

2.063A Advanced Molecular Spectroscopy **S2 L2T4**

Prerequisite: 2.013A.

Theory: Born-Oppenheimer approximation; theory of transition probabilities; group theory; normal mode analysis.

Spectra: rotational, vibrational and electronic structure in molecular spectra, including microwave, infrared, Raman, UV-visible and photo-electron spectra. Kinetic spectroscopy. Lasers.

School of Chemical Engineering

3.111 Chemical Engineering IA

Unit 1 Flow of Fluids **S1 L1T1**

Prerequisite: 10.001 Mathematics I.

Introduction and units. Definitions and properties. Statics pressure distribution and measurements. Dynamics. Euler and Bernouilli equations. Momentum equations. Laminar and turbulent flow. Steady flow in pipes and equipment. Pressure losses. Flow metering. Elementary boundary layer theory. Boundary layers in pipes and on flat plates.

Unit 2 Dimensions and Dimensional Analysis **S1 L½T½**

Prerequisites: 1.001 Physics I and 10.001 Mathematics I.

Units and measures. Conversion of units and equations. Dimensions and Dimensional Analysis. Basic principles of modelling.

Unit 3 Heat Transfer I **S2 L1T1**

Introduction to steady state heat transfer including conduction, convection, radiation, boiling and condensation with an emphasis on problem solving. Resistance concept in heat transfer with series and parallel combinations.

Unit 4 Pumps and Pumping **S2 L½T½**

Prerequisite: 3.111 Unit 1 Flow of Fluids.

Types of piping and fittings. Blow cases. Air lift pumps. Reciprocating pumps, centrifugal pumps and gear pumps. Blowers and compressors.

3.121 Chemical Engineering IIA

Unit 1 Mass Transfer (Theory) **S1 L1T1**

Prerequisites: 2.002A Physical Chemistry, 3.111 Chemical Engineering IA.

Molecular diffusion in gases, liquids and solids and the measurement and calculation of diffusion coefficients. Diffusion at an interface—one-component unidirectional diffusion and equimole counterdiffusion under steady state conditions. Mass transfer coefficients. Estimation and application of chemical and phase equilibria. Stage calculations applied to liquid/liquid, vapour/liquid and other mass transfer operations. The two-film theory and the transfer unit concept in gas/liquid, vapour/liquid, and other operations.

Unit 2 Heat Transfer II (Theory) **S1 L1**

Prerequisite: 3.111 Unit 3 Heat Transfer I. Co-requisite: 10.032 Mathematics.

An extension of the work covered in 3.111, Unit 3, with an emphasis on the fundamentals of conduction, convection and unsteady state heat transfer.

Unit 3 Solids Handling **S1 L1**

Prerequisite: 3.111 Unit 1 Flow of Fluids.

Classification of granular solids and powders according to properties which affect their storage and movement. Storage in and retrieval from stacked piles, silos and hoppers: rules for their design. Feeders and their suitability to various kinds of granular solids. Mechanical conveyors and elevators; distance limitations; hoist height limitations. Rules for design of mechanical conveyors and elevators. Fluid-particle conveyors. Introduction to hydraulic and pneumatic conveyors, feeders and fluid-particle separation systems. Rules for design of simple slurry transportation and dilute phase pneumatic transportation systems. Practical and economic considerations determining choice of system.

Unit 4 Multicomponent Systems **S2 L1**

Prerequisites: 3.121 Unit 1 Mass Transfer (Theory), 3.122 Unit 1 Thermodynamics II.

The separation of multicomponent systems by stagewise operations. Brief review of conventional graphical calculation methods leading to a graphical treatment of ternary distillation. Multicomponent separations using modern computer techniques. Phase equilibrium relationships for liquid-vapour and liquid-liquid systems. Azeotropes and azeotropic distillation.

3.112 Chemical Engineering IB **3 units**

Unit 5 Mass Transfer (Design) **S2 L1T½**

Prerequisite: 3.121 Unit 1 Mass Transfer (Theory).

The design of equipment for absorption, distillation and liquid-liquid extraction. Selection of column type. Design of sieve and other types of plate for plate columns. Design of packed columns. Performance characteristics of plate and packed columns. Selection of equipment for liquid-liquid extraction. Design of mixer settlers and column-type extractors. Factors affecting the performance of liquid-liquid extraction equipment. Other mass transfer equipment.

Unit 6 Heat Transfer II (Design) **S2 L1**

Prerequisite: 3.111 Unit 3 Heat Transfer I.

Thermal design procedures for shell and tube heat exchangers and fin-fan coolers. Service fluids for heating and cooling duties.

Unit 7 Fluid-particle Systems **S2 L1T1**

Prerequisite: 3.111 Unit 1 Flow of Fluids.

Interaction between particles and fluids: drag, terminal velocity, sedimentation. Flow through porous media; pressure gradient, filtration, fluidization, dispersion; multiphase flow, irrigated packed columns.

School of Metallurgy

Undergraduate Study

4.911 Materials Science **L1T½**

The atomic structure of metals. The grain structure of metals; origin; modification. Structure of alloys: theory. Structure, properties and heat treatment of commercially important alloys based on aluminium, copper and iron in particular. Corrosion. Control of structure and properties, commercial alloys, materials selection.

4.951 Materials Technology **L2T2**

Materials selection, based on structure and properties. Equilibrium and kinetics in metallic systems. The structure of ceramics with particular reference to silicates. Structural changes. Electroplating processes considered from a theoretical and practical standpoint. Structure and testing of electrodeposits; electrochemical protection. The structure, properties and technology of wood.

School of Mechanical and Industrial Engineering

Undergraduate Study

5.010 Engineering A **SS L4T2**

Prerequisite:	*HSC Exam Grade Required*
Either	
2 unit Science (incl. Physics)	*1, 2 or 3*
or	
4 unit Science (incl. Physics)	*1, 2, 3 or 4*
or	
2 unit Industrial Arts	*1, 2 or 3*
or	
3 unit Industrial Arts	*1, 2, 3 or 4*

Students who wish to enrol in this subject can make up for the lack of the prerequisite by work taken in Physics in the first half of first year.

Statics I: Composition and resolution of forces, laws of equilibrium. Friction. Statics of rigid bars, pin jointed frames and beams. Simple states of stress. Statics of fluids.

Introduction to Engineering Design: Engineering method, problem identification, creative thinking, mathematical modelling, computer aided design, materials and processes, communication of ideas, the place of engineering in society.

Introduction to Materials Science: The structure and properties of the main types of engineering materials, with emphasis on the way in which properties may be controlled by controlling structure.

5.020 Engineering B **S2 L4T2**

Co-requisite: 5.010.

Engineering Dynamics: Kinetics of the plane motion of a particle, equations of motion, dynamic equilibrium, work and energy. Kinetics of systems of particles: impulse and momentum. Rotation of rigid bodies about a fixed axis. Belt, rope and chain drives, gear trains.

Mechanics of Solids: I Concepts of stress, strain. Stress and deformation due to axial force. Linear and non-linear problems, compound bars. Concepts of stiffness and flexibility. Bending moment and shear force In simple beams. First and second moments of area. Stress and deformation due to bending: linear and non-linear problems; use of step functions.

5.030 Engineering C **SS L4T2**

Engineering Drawing: Fundamental concepts of descriptive geometry, including reference systems, representation of point, line and plane; fundamental problems of position and measurement. Application of descriptive geometry to certain problems arising in engineering practice. Special emphasis on ability to visualize problems and processes involved in their solution. Instruction in the correct use of drawing instruments and the application of drawing standards. Measurements and dimensioning. Orthographic and isometric projections.

And one of the following options (determined by the course of study).

1. (Mechanical, Industrial and Aeronautical Engineering and Naval Architecture students must take this option) *Design for Manufacture I:* Approximately 30 hours of workshop training, including casting, fitting, machining, welding. Principles of design for manufacture.

2. *Production Technology:* Description and appraisal of the processes classified as: forming from liquid or solid, material removal, material joining. Machines. Analysis of the primary functions of the machine tools and an appraisal of their limitations. Principles of operation of common machine tools and illustrations of their use.

3. *Introduction to systems and Computers:* Introduction to computers to follow the computer work in Mathematics I. To develop: A familiarity with algorithms; B the use of procedure-oriented languages; and C an introduction to computing equipment.

Systems: To give students an appreciation of some of the concepts used in engineering, to relate the concepts to phenomena within their experience, and to illustrate them by case histories and engineering examples. Quantities. Concepts. Components. Systems.

4. (Chemical Engineering students must take this option) *Introduction to Chemical Engineering:* Routes to and end uses of industrial chemicals. Likely new industrial chemicals. A survey of several Australian chemical industries from the point of view of their historical and economic importance. Examination of the unit operations involved in the industry and the raw materials, equipment and services used. Environmental aspects of the chemical industry.

5. (Metallurgy students must take this option) *Introduction to Metallurgical Engineering:* History and significance of the exploitation of metals. Ores, mineral economics, mineral processing, and metal extraction and processing methods illustrated by reference to the Australian mineral and metal industries. Properties, uses and applications of metallic materials. The role of the metallurgist in industry and in processing and materials research, and in relation to conservation and the environment.

6. (Mining Engineering students must take this option) *Introduction to Mining Engineering:* Mineral deposits: metallic, non-metallic and fuels. Elements of prospecting and exploration. Basic mining techniques. Mining phases; development, exploitation, beneficiation and withdrawal. Mining and the environment. Mining services. Relevance of basic science and engineering subjects to mining design and operations.

7. (Electrical Engineering students must take this option) *Introduction to Computing:* Introduction to computer program design with emphasis on the design of correct, reliable programs. The subject is organized on a tutorial basis and a number of simple fundamental programming tasks are illustrated. Programs are written in a high-level language which provides facilities for the specification of algorithms and data structure.

8. (Industrial Chemistry students must take this option) *Introduction to Chemical Technology:* Introduction to computation in chemical technology: process flow diagrams, information

flow diagrams, flow charts in computer programming, developing of algorithms. Principle of operation of processors. Batch and real-time processing. Concepts of steady-state and unsteady-state simulation. Programming in Fortran IV and Real-Time Basic and of programmable calculators. Concepts of on-line data acquisition and reduction. Data processing laboratory and plant data.

9. (Ceramic Engineering students must take this option) *Introduction to Ceramic Engineering:* The nature of ceramics. Classification of materials. The materials science approach. History of ceramics. The ceramic engineer and society. The origin, classification, physical properties and uses of clay minerals and other non-clay raw materials. Principal unit operations used in the ceramic industry. Drying and firing of ceramics, melt forming, pot forming and other forming procedures.

School of Electrical Engineering

Undergraduate Study

6.010 Electrical Engineering I **SS L2T4**

An orientation subject to acquaint students with the various areas and problems of Electrical Engineering. Secondary school physics and maths applied to some aspects of energy conversion and transmission; electronics; logic, number systems, and computers; systems and circuit theory; probability, information and communication. Laboratory exercises and project work in these areas including instrumentation and device characteristics.

6.600 Introduction to Computers **S2 L3T2**

Excluded: 6.620, 6.601A.

Introduction to programming: design and correctness of algorithms and data structures; programming in a higher level algorithmic language which provides simple, high-level program control and data structuring facilities.

Using computers: introduction to computing machinery, operating systems, command languages, and use of computer terminals.

Applications: introduction to some of the application packages that are generally available on computing systems (eg inquiry, statistics, linear programming and text formatting packages).

6.620 Introduction to Computing Science **S1 L3T2**

Prerequisite: 10.001. Excluded: 6.600, 6.601A, 6.021D.

Introduction to programming: design and correctness of algorithms and data structures; programming in a high-level algorithmic language which provides simple, high-level program control and data structuring facilities. Introduction to dynamic data structures.

Introduction to computer organization: simple machine architecture.

Introduction to operating systems and computing machinery.

6.631 Digital Logic and Systems **S2 L3T2**

Prerequisites: 6.620 or 6.600 (Cr). Excluded: 6.602A, 6.021E, 6.031D.

A hardware-oriented subject concerned with the design of digital circuits for control and general computational purposes. Includes representation of digital information, combinational logic design, clocked sequential circuits, digital systems and PDP11 assembler programming.

6.641 Programming I **S2 L3T2**

Prerequisites: 6.620 or 6.600 (Cr).

Recursive programming: a direct development from 6.620; back-tracking algorithms; lists, queues, stacks; tree structures and their manipulation.

Key transformations (hashing).

Files: sequential access, random access; file updating and sorting.

Data base concepts: file design; backup; recovery; Indexing. String manipulation: use of SNOBOL 4 for the expression of pattern matching and associative algorithms.

6.602A Computer Systems I **S1 L2T3**

Prerequisite: 6.601B.

Switching algebra: simplification of switching functions, synchronous sequential networks, digital systems. Flow tables, cycles, races, hazards. Number systems, codes, computer arithmetic. Memory techniques and organization, microprogramming.

6.602B Computer Systems II **S2 L3T2**

Prerequisite: 6.601B.

Introduction to operating systems via an intensive case study of a particular system. Includes system initialization memory management, process management, handling of interrupts, basic input/output and file systems.

6.602C Computer Applications **S1 L3T2**

Prerequisite: 6.601A.

A selection of topics from: Computer simulation. Modelling of discrete event systems, with applications to queueing; Pseudo random number generation and testing; simulation languages, especially SIMULA. Optimization techniques: 'hill climbing', critical path method, dynamic programming, linear programming. The simplex and revised simplex methods. Job shop scheduling. Data processing; file and data management systems; use of COBOL; searching and sorting of files. Information retrieval: search on secondary keys, inverted files. Artificial intelligence. Social consequences of computer technology.

6.602D Programming Languages and Compiling Techniques **S2 L3T2**

Prerequisite: 6.601A.

Compiling Techniques: data structures; table look-up; language description; lexical analysis; syntax analysis; semantic analysis/code generation; interpretation/program execution.

Programming Languages: a comparative study.

School of Mathematics

Undergraduate Study†

Many units in the School of Mathematics are offered at two levels. The higher level caters for students with superior mathematical ability. Where both levels are offered grades higher than Credit are only awarded in the ordinary level in exceptional circumstances.

Students should note that all of the Mathematics honours programs require them to take most of their Mathematics units at higher level. However, students should not think that the higher level units are intended only for those in honours programs. Any student with the ability to undertake higher units benefits from so doing.

Note: The half units 10.1113 (10.1213) and 10.1114 (10.1214) together replace the unit 10.111B (10.121B). The half units 10.2111 (10.2211) and 10.2112 (10.2212) together replace the unit 10.211A (10.221A).

10.001 Mathematics I — F L4T2

Prerequisite:	*HSC Exam Grade Required*
2 unit Mathematics	*1 or 2*
or	
3 unit Mathematics	*1, 2, 3 or 4 (Grade 4 at a standard acceptable to the Professorial Board)*
or	
4 unit Mathematics	*1, 2, 3, 4 or 5 (Grade 5 at a standard acceptable to the Professorial Board)*
or	
10.021B	

Calculus, analysis, analytic geometry, linear algebra, an introduction to abstract algebra, elementary computing.

10.011 Higher Mathematics I — F L4T2

Prerequisite:	*HSC Exam Grade Required*
3 unit Mathematics	*1 or 2*
or	
4 unit Mathematics	*1, 2, 3, 4 or 5 (Grade 5 at a standard acceptable to the Professorial Board)*

Calculus, analysis, analytic geometry, linear algebra, an introduction to abstract algebra, elementary computing.

10.021A General Mathematics IA* — S1 L4T2

Number systems (including absolute value, inequalities, surds, etc); co-ordinate geometry; polynomials, quadratics; concept of the function: trigonometric functions, logarithmic and indicial functions and their laws of operation; introduction to differentiation and integration with simple applications.

10.021B General Mathematics IB — S1 or S2 L4T2

Prerequisite:	*HSC Exam Grade Required*
2 unit Mathematics	*1, 2 or 3 (Grade 3 at a standard acceptable to the Professorial Board)*
or	
3 unit Mathematics	*1, 2, 3, 4 or 5 (Grade 5 at a standard acceptable to the Professorial Board)*
or	
4 unit Mathematics	*1, 2, 3, 4 or 5 (Grade 5 at a standard acceptable to the Professorial Board)*
or	
10.021A	

Functions (and their inverses), limits, asymptotes, continuity; differentiation and applications; integration, the definite integral and applications, inverse trigonometric functions, the logarithmic and exponential functions and applications, sequences and series, mathematical induction; the Binomial Theorem and applications; introduction to probability theory; introduction to 3-dimensional geometry; introduction to linear algebra.

10.021C General Mathematics IC — S2 L4T2

Prerequisite: 10.021B.

Techniques for integration, improper integrals; Taylor's Theorem; first order differential equations and applications; introduction to multivariable calculus; conics; finite sets; probability; vectors, matrices and linear equations.

10.031 Mathematics (one Level II unit)† — F L1T1

Prerequisite: 10.001 or 10.021C (Cr).

Differential equations, use of Laplace transforms, solutions by series; partial differential equations and their solution for selected physical problems, use of Fourier series; multiple integrals, matrices and their application to theory of linear equations, eigenvalues; introduction to numerical methods.

10.032 Mathematics (one Level III unit)† — F L1T1

Prerequisite: 10.031.

Vector Calculus: special functions; convolution theorem and applications; complex variable theory; Fourier integrals; Laplace transforms with application to ordinary and partial differential equations.

10.041 Introduction to Applied Mathematics — S2 L4T2

Co-requisite: 10.001.

Not offered in 1978.

Combinatorial mathematics, finite differences, games and networks, hydrostatics, mathematical models.

†When a unit is listed as a prerequisite or co-requisite, the appropriate higher unit may be substituted.
*Entry to General Mathematics IA is allowed only with the permission of the Head of the School of Mathematics, and that permission will be given only to students who do not qualify to enter General Mathematics IB.
†These units are also available to Professional Studies students as a sequence of two units constituting a terminating service course in mathematics. As such they are mutually exclusive to any other Level II or Level III units in Pure and/or Applied Mathematics and/or Theoretical Mechanics.

Pure Mathematics

10.111A Pure Mathematics II — Linear Algebra **F L1½T½**

Prerequisite: 10.001. Excluded: 10.121A.

Vector spaces, linear transformations and matrices, change of basis. Eigenvalues and eigenvectors, generalized eigenvectors. Functions of matrices. Linear systems of differential equations including the use of Laplace transform. Inner products, orthogonalization, projections. Unitary and self-adjoint transformations. Quadratic and Hermitian forms.

10.1111 Pure Mathematics II — Group Theory **S1 L1½T½**

Prerequisite: 10.001. Co-requisites: 10.111A, 10.1113, 10.1114, 10.2111, 10.2112. Excluded: 10.121A.

Mathematical systems, groups, determination of small groups, homomorphisms and normal subgroups.

10.1112 Pure Mathematics II — Geometry **S2 L1½T½**

Prerequisite: 10.001. Co-requisite: 10.1111. Excluded: 10.121C.

Elementary concepts of Euclidean, affine and projective geometries.

10.1113 Pure Mathematics II — Multivariable Calculus **S1 L1½T1**

Prerequisite: 10.001. Excluded: 10.1213.

Multiple integrals, partial differentiation. Analysis of real valued functions of one and several variables.

10.1114 Pure Mathematics II — Complex Analysis **S2 L1½T1**

Prerequisite: 10.001. Excluded: 10.1214.

Analytic functions, Taylor and Laurent series, integrals, Cauchy's Theorem, residues, evaluation of certain real integrals.

10.121A Higher Pure Mathematics II — Algebra **F L2T½**

Prerequisite: 10.011. Excluded: 10.111A, 10.1111.

Linear Algebra: vector spaces, commutative rings, polynomials, modules, linear transformations, eigenvectors, invariant subspaces, canonical forms, linear functions, bilinear and multi-linear algebra. Group Theory: subgroups, quotient groups, isomorphisms, Lagrange's theorem, Sylow's theorem.

10.121C Higher Pure Mathematics II — Number Theory and Geometry **F L2T½**

Prerequisite: 10.011. Co-requisites: 10.121A, 10.1213, 10.1214, 10.2211 or 10.2111, 10.2212 or 10.2112. Excluded: 10.1112, 10.1121.

Galois fields, quadratic reciprocity, quadratic forms, continued fractions, number theoretic functions; axioms for a geometry, affine geometry, Desargues' theorem, projective geometry.

10.1213 Higher Pure Mathematics II — Multivariable Calculus **S1 L2T½**

Prerequisite: 10.011. Excluded: 10.1113.

As for 10.1113 but in greater depth.

10.1214 Higher Pure Mathematics II — Complex Analysis **S2 L2T½**

Prerequisite: 10.1213. Excluded: 10.1114.

As for 10.1114 but in greater depth.

10.112C Pure Mathematics III — Differential Geometry **F L1½T½**

*Prerequisites: 10.111A, 10.1113. Co-requisites: ***. Excluded: 10.122C.*

Curves and surfaces in space. Differential forms. Frame fields. Gaussian curvature, Gauss-Bonnet theorem.

10.1121 Pure Mathematics III — Number Theory **S1 or S2 L1½T½**

*Prerequisites: ***. Excluded: 10.121C.*

Euclidean algorithm, congruences, sums of squares, diophantine equations.

10.1122 Pure Mathematics III — Algebra **S2 L1½T½**

Prerequisite: 10.111A. Co-requisite: 10.1111. Excluded: 10.122A.

Rings, polynomials, fields.

10.1123 Pure Mathematics III — Set Theory **S1 L1½T½**

*Prerequisites: ***.*

Intuitive and axiomatic set theory. Cardinal and ordinal numbers. The axiom of choice.

***Students are not normally permitted to attempt a Level III Pure Mathematics unit unless they have completed at least two Level II units from 10.111A, 10.1113, 10.1114, 10.2111 and 10.2112 and are concurrently attempting the remaining unit.

10.1124 Pure Mathematics III — Combinatorial Topology **S1 or S2 L1½T½**

*Prerequisites: ***.*

Elementary combinatorial topology of surfaces.

10.1125 Pure Mathematics III — Ordinary Differential Equations **S1 L1½T½**

*Prerequisites: ***. Excluded: 10.122E.*

Systems of ordinary differential equations; variations of constants formula; stability; Poincare space; Lyapunov's direct method.

10.1126 Pure Mathematics III — Partial Differential Equations **S2 L1½T½**

Prerequisites: 10.1113, 10.1114. Co-requisite: 10.1125.

Systems of partial differential equations; characteristic surfaces; classifications; Cauchy problem; Dirichlet and Neumann problems; the maximum principle; Poisson's formula; conformal mapping.

10.1127 Pure Mathematics III — History of Mathematics **S2 L1T1**

Prerequisites: 10.111A, 10.1113, 10.1114, 10.2111, 10.2112.

Topics from the History of Mathematics, with emphasis on the development of those ideas and techniques used in undergraduate courses. Students are expected to read widely and to present written material based on their readings.

10.1128 Pure Mathematics III — Foundations of Calculus **S1 L1½T½**

*Prerequisites: ***. Excluded: 10.122B.*

Properties of the real numbers. Convergence of sequences and series. Properties of continuous and differentiable functions of a real variable.

10.1129 Pure Mathematics III — Real Analysis **S2 L1½T½**

Prerequisites: 10.2112, 10.1128. Excluded: 10.122B.

Taylor's Theorem. Sequences and series of functions and applications. Metric spaces and the contraction mapping principle. Fourier series.

10.122A Higher Pure Mathematics III — Algebra **F L2T½**

Prerequisite: 10.121A. Excluded: 10.1122.

Field theory and theory of rings and modules.

10.122B Higher Pure Mathematics III — Integration and Functional Analysis **F L2T½**

Prerequisite: 10.1213. Excluded: 10.1128, 10.1129.

Lebesgue Integration; Fourier series; normed vector spaces; Hilbert spaces; measure theory.

10.122C Higher Pure Mathematics III — Topology and Differential Geometry **F L2T½**

Prerequisites: 10.1213, 10.1214. Excluded: 10.1125.

The axiom of choice, metric and topological spaces, compactness. Compact surfaces, triangulations, geodesics, Gauss-Bonnet theorem.

10.122E Higher Pure Mathematics III — Complex Analysis and Differential Equations **F L2T½**

Prerequisites: 10.121A, 10.1213. Excluded: 10.1124, 10.112C.

Analytic continuation; entire and meromorphic functions; elliptic functions, normal families and further advanced topics in complex analysis. Existence and uniqueness theorems for ordinary differential equations; linear systems; qualitative theory of autonomous systems; equations on manifolds.

10.123 Pure Mathematics IV

An honours program consisting of the preparation of an undergraduate thesis together with advanced lecture courses on topics chosen from fields of current interest in Pure Mathematics. With the permission of the Head of Department, the subject may also include advanced lecture courses given by other Departments or Schools.

Applied Mathematics

10.2111 Applied Mathematics II — Vector Calculus **S1 L1½T1**

Prerequisite: 10.001. Excluded: 10.2211.

Vector fields; divergence, gradient, curl of a vector; line, surface, and volume integrals. Gauss' and Stokes' theorems. Curvilinear co-ordinates.

10.2112 Applied Mathematics II — Mathematical Methods for Differential Equations **S2 L1½T1**

Prerequisite: 10.001. Excluded: 10.2212.

Series solution of ordinary differential equations; numerical methods. Partial differential equations: separation of variables. Fourier series, Bessel functions.

10.211D Applied Mathematics II — Introduction to Optimization Theory and its Applications **F L1½T½**

Prerequisite: 10.001. Excluded: 10.221D.

Mathematical expression of practical optimization problems. Calculus methods for simple problems. Feasible regions and graphical methods.

***Students are not normally permitted to attempt a Level III Pure Mathematics unit unless they have completed at least two Level II units from 10.111A, 10.1113, 10.1114, 10.2111 and 10.2112 and are concurrently attempting the remaining unit.

Linear programming: The standard problem, basic solutions, fundamental theorem, simplex tableau, initial solution, unbounded and multiple solutions, degeneracy, duality, dual simplex method, post optimal analysis, integer linear programming. Applications of linear programming, including diet, allocation and transport problems. Brief introduction to non-linear programming. Simple numerical methods.

10.2211 Higher Applied Mathematics II — Vector Analysis **S1 L1½T1**

Prerequisite: 10.011 or 10.001 (Dist). Excluded: 10.2111.

As for 10.2111 but in greater depth.

10.2212 Higher Applied Mathematics II — Mathematical Methods for Differential Equations **S2 L1½T1**

Prerequisite: 10.2211. Excluded: 10.2112.

As for 10.2112 but in greater depth.

10.221D Higher Applied Mathematics II — Introduction to Optimization Theory and its Applications **F L1½T1½**

Prerequisite: 10.011 or 10.001 (Dist). Excluded: 10.211D.

Mathematical expression of practical optimization problems. Calculus methods for simple problems. Feasible regions.

Linear Programming: The standard problem, basic solutions, fundamental theorem, simplex tableau, initial solution, unbounded and multiple solutions, degeneracy, revised simplex method, duality, dual simplex method, post optimal analysis, reduction of linear inequalities, integer linear programming.

Applications of linear programming including diet, allocation, and transport problems. Linear programming in economic analysis, including the theory of the firm and general equilibrium theory.

Brief introduction to non-linear programming. Simple numerical methods.

10.212A Applied Mathematics III — Numerical Analysis **F L1T1**

Prerequisites: 10.2111, 10.2112, 10.111A. Excluded: 10.222A.

Polynomial approximation, interpolation and extrapolation, numerical quadrature, solution of ordinary differential equations, sets of linear equations, matrix eigenvalues and eigenvectors, boundary value problems, partial differential equations. Practical work using a computer.

10.212L Applied Mathematics III — Optimization Methods **F L1½T1½**

Prerequisites: 10.2111, 10.2112, 10.111A, 10.1113. Excluded: 10.222L.

Unconstrained multivariable search procedures: including steepest descent, D-F-P method, Hooke and Jeeves method. Constrained optimization: including convexity, Lagrange multipliers, Kuhn-Tucker conditions, duality, simple constrained search methods, penalty functions. Special methods: including geometric programming, separable programming, branch and bound. Applications of these methods to resource allocation, production problems, capital investment and economic models.

10.212M Applied Mathematics III — Optimal Control Theory **F L1½T1½**

Prerequisites: 10.2111, 10.2112, 10.111A, 10.1113, 10.1114. Excluded: 10.222M.

Optimal control of systems described by difference equations, continuous-time dynamic programming, calculus of variations, Pontryagin maximum principle, stochastic decision processes. Applications of control theory to resource allocation, control of production, investment, inventory, and advertising, and to models of the economy.

10.222A Higher Applied Mathematics III — Numerical Analysis **F L1T1**

Prerequisites: 10.2211 or 10.2111 (Dist), 10.2212 or 10.2112 (Dist), 10.121A or 10.111A (Dist). Excluded: 10.212A.

As for 10.212A but in greater depth.

10.222C Higher Applied Mathematics III — Maxwell's Equations and Special Relativity **F L1½T1½**

Prerequisites: 10.2211 or 10.2111 (Dist), 10.2212 or 10.2112 (Dist), 10.1213 or 10.1113 (Dist), 10.1214 or 10.1114 (Dist), 1.001. Excluded: 1.033.

Electrostatic and quasi-static magnetic fields: mathematical formulation of basic laws, field equations, methods of solution, general theorems, polarization, energy and mechanical forces. Electromagnetic fields. Maxwell's equations. Poynting theorem. Maxwell's stress tensor, electromagnetic momentum and radiation pressure, electromagnetic potentials, radiation, vector wave equation, solutions, cavity resonators, waveguides. Relativity: relativistic kinematics, dynamics and electrodynamics, radiation from moving charges, radiation damping.

10.222F Higher Applied Mathematics III — Quantum Mechanics **F L1½T1½**

Prerequisites: 10.2211 or 10.2111 (Dist), 10.2212 or 10.2112 (Dist), 10.121A or 10.111A (Dist), 10.1213 or 10.1113 (Dist), 10.1214 or 10.1114 (Dist). Excluded: 1.013.

Review of physical basis for quantum mechanics, simple harmonic oscillator, hydrogen atom. General formalism, angular momentum, perturbation theory and other approximation methods. Scattering problems.

10.222L Higher Applied Mathematics III — Optimization Methods **F L1½T1½**

Prerequisites: 10.2211 or 10.2111 (Dist), 10.2212 or 10.2112 (Dist), 10.121A or 10.111A (Dist), 10.1213 or 10.1113 (Dist). Excluded: 10.212L.

As for 10.212L but in greater depth.

10.222M Higher Applied Mathematics III — Optimal Control Theory **F L1½T1½**

Prerequisites: 10.2211 or 10.2111 (Dist), 10.2212 or 10.2112 (Dist), 10.121A or 10.111A (Dist), 10.1213 or 10.1113 (Dist), 10.1214 or 10.1114 (Dist). Excluded: 10.212M.

As for 10.212M but in greater depth.

10.223 Applied Mathematics IV

An honours program consisting of the preparation of an undergraduate thesis together with advanced lecture courses. Lecture topics include selections from advanced optimization and control theory, functional analysis and applications, numerical analysis, mathematics of economic models and of economic prediction, stability theory of differential and differential-difference equations, stochastic processes, statistical mechanics, quantum physics, astro-physics. With permission of the Head of Department, the subject may also include advanced lecture courses given by other Departments or Schools.

Statistics

10.311A* Theory of Statistics II — Probability and Random Variables **S1 L4T3**

Prerequisite: 10.001 or 10.021C (Cr). Excluded: 10.321A, 10.301, 10.331, 45.101.

An introduction to axiomatic treatment of probability. Variates (univariates, multivariates, expectations, moment generating and characteristic functions). Standard distributions. Sampling distributions.

10.311B Theory of Statistics II — Basic Inference **S2 L4T3**

Prerequisite: 10.311A. Excluded: 10.321B, 10.301, 10.331, 45.101.

Point estimation (moments, maximum likelihood, minimum χ^2, etc). Confidence interval estimation, exact and approximate. Elementary Neyman-Pearson theory of tests of significance, standard significance tests. Regression (including curvilinear) on a single fixed variable.

10.321A Higher Theory of Statistics II — Probability and Random Variables **S1 L5T3**

Prerequisite: 10.001. Excluded: 10.311A, 10.301, 10.331, 45.101.

10.311A at greater depth and covering a slightly wider field.

10.321B Higher Theory of Statistics II — Basic Inference **S2 L5T3**

Prerequisite: 10.321A. Excluded: 10.311B, 10.301, 10.331, 45.101.

10.311B at greater depth and covering a slightly wider field.

10.312A Theory of Statistics III — Probability and Stochastic Processes **S1 L2T2**

Prerequisites: 10.311A, 10.111A, 10.1113, 10.1114, 10.2112. Excluded: 10.322A.

Elementary treatment of probability and moment generating functions and characteristic functions. Convergence in distribution. Central Limit Theorem. Convergence in probability. Weak law of large numbers. Poisson processes. Elementary treatment of Markov chains. Birth-and-death processes. Queueing theory.

10.312B Theory of Statistics III — Experimental Design (Applications) and Sampling **S2 L2T2**

Prerequisite: 10.311B or 10.331 (normally Cr). Excluded: 10.322B.

Principles of good experimental design. Completely randomized experiment, randomized block experiment in detail. Latin squares. Contrasts. Analysis of factorial experiments. Multiple comparison methods. Random models. Split plot design. Sampling theory.

10.312C Theory of Statistics III — Experimental Design (Theory) **S1 L2T2**

Prerequisites: 10.311B, 10.111A, 10.1113, 10.1114, 10.2112. Co-requisites: 10.312B, plus any two Level III Pure Mathematics or Applied Mathematics or Theoretical Mechanics units. Excluded: 10.322C.

Matrix theory. Cochran-James theorem. Multivariate normal. Quadratic forms. Independence. The General Linear Hypothesis. Gauss-Markov theorem. Hypothesis testing. Analysis of variance.

10.312D Theory of Statistics III — Probability Theory **S2 L2T2**

Prerequisites: 10.311A, 10.111A, 10.1113, 10.1114, 10.2112. Excluded: 10.322D.

Rigorous treatment of probability and moment generating functions and characteristic functions. Convergence in probability. Weak law of large numbers. Almost sure convergence. Strong law of large numbers. Compound distributions. Branching processes. Advanced treatment of Markov chains. Markov chains with continuous parameter.

10.312E Theory of Statistics III — Statistical Inference **S2 L2T2**

Prerequisites: 10.311B, 10.111A, 10.1113, 10.1114, 10.2112. Co-requisites: Any two Level III Pure Mathematics or Applied Mathematics or Theoretical Mechanics units. Excluded: 10.322E.

Bayesian inference and decision theory. Classical inference. Contingency tables (large sample and exact tests). Order Statistics. Non-parametric methods.

10.322A Higher Theory of Statistics III — Probability and Stochastic Processes **S1 L2½T2**

Prerequisites: 10.321A, 10.111A, 10.1113, 10.1114, 10.2112. Excluded: 10.312A.

As for 10.312A but in greater depth.

10.322B Higher Theory of Statistics III — Experimental Design (Applications) and Sampling **S2 L2½T2**

Prerequisites: 10.321B, 10.111A, 10.1113, 10.1114, 10.2112. Excluded: 10.312B.

As for 10.312B but in greater depth.

*The evening course for 10.311A, subject to sufficient enrolment, runs at 3½ hours per week throughout the year.

10.322C Higher Theory of Statistics III — Experimental Design (Theory) S1 L2½T2

Prerequisites: 10.321B, 10.111A, 10.1113, 10.1114, 10.2112. Co-requisites: 10.322B, plus any two Level III Pure Mathematics or Applied Mathematics or Theoretical Mechanics units. Excluded: 10.312C.

As for 10.312C but in greater depth.

10.322D Higher Theory of Statistics III — Probability Theory S2 L2½T2

Prerequisites: 10.321A, 10.111A, 10.1113, 10.1114, 10.2112. Excluded: 10.312D.

As for 10.312D but in greater depth.

10.322E Higher Theory of Statistics III — Statistical Inference S2 L2½T2

Prerequisites: 10.321B, 10.111A, 10.1113, 10.1114, 10.2112. Co-requisites: Any two Level III Pure Mathematics or Applied Mathematics or Theoretical Mechanics units. Excluded: 10.312E.
As for 10.312E but in greater depth.

10.323 Theory of Statistics IV

Specialized study, from the topics set out, for students attempting honours in the Science and Mathematics or Arts courses with a major in Statistics. Mathematical basis. Experimental design, response surfaces. Stochastic processes. Theories of inference. Sequential analysis. Non-parametric methods. Multivariate analysis. Mathematical programming. Information theory. Discrete distributions. Project.

10.301 Statistics SA F L1½T½

Prerequisite: 10.001 or 10.021C. Excluded: 10.331, 10.311A, 10.311B, 10.321A, 10.321B, 45.101.

Probability, random variables, independence, binomial, Poisson and normal distributions, transformations to normality, estimation of mean and variance, confidence intervals, tests of hypotheses, contingency tables, two sample tests of location, simple and multiple linear regression, analysis of variance for simple models.

10.331 Statistics SS F L1½T½

Prerequisite: 10.001 or 10.021C (Cr). Excluded: 10.311A, 10.311B, 10.321A, 10.321B, 10.301, 45.101.

An introduction to the theory of probability, with finite, discrete and continuous sample spaces. The standard elementary univariate distributions: binomial, Poisson and normal; an introduction to multivariate distributions. Standard sampling distributions, including those of χ^2 t and F. Estimation by moments and maximum likelihood (including sampling variance formulae, and regression), confidence interval estimation. The standard tests of significance based on the above distributions, with a discussion of power where appropriate. An introduction to experimental design; fixed, random and mixed models, involving multiple comparisons and estimation of variance components.

Theoretical and Applied Mechanics

10.411A Theoretical Mechanics II — Hydrodynamics S2 L3T1

Prerequisite: 10.001. Co-requisites: 10.411B or 1.012, 10.1114. Excluded: 10.421A.

Conservation laws and Bernoulli's equation for one-dimensional flow. Equations of continuity and Euler's equation. Kelvin's Theorem. Incompressible, irrotational flow in two and three dimensions, including applications of complex variables, method of images, harmonic functions, and axially symmetric flow. Introduction to compressible and viscous fluids.

10.411B Theoretical Mechanics II — Principles of Theoretical Mechanics S1 L3T1

Prerequisites: 10.001, 1.001 or 10.041 or 5.010. Co-requisites: 10.2111, 10.2112, 10.1113. Excluded: 10.421B.

Revision of vectors, kinematics of particles and rigid bodies. Dynamics of particles including simple harmonic and projectile motion. Systems of particles: conservation principles, collisions, rocket motion, the catenary. Work and energy. Rotating frames; moments of inertia.

Elementary problems derived from continuum mechanics including conservation laws, one-dimensional fluid flow, extension and bending of beams.

10.421A Higher Theoretical Mechanics II — Hydrodynamics S2 L3T1

Prerequisite: 10.011 or 10.001 (Dist). Co-requisites: 10.421B, 10.1114. Excluded: 10.411A.

As for 10.411A but in greater depth.

10.421B Higher Theoretical Mechanics II — Principles of Theoretical Mechanics S1 L3T1

Prerequisites: 10.011 or 10.001 (Dist), 1.001 or 5.010 or 10.041. Co-requisites: 10.2211, 10.2212, 10.1113. Excluded: 10.411B.

As for 10.411B but in greater depth.

10.412A Theoretical Mechanics III — Dynamical and Physical Oceanography F L1½T½

Prerequisites: 10.2111 and 10.2112 or 10.031, 1.001. It is recommended that one of the following be taken concurrently: 10.411A or 1.012 or 1.913.

1. The physical properties of the oceans and their measurement, including: salinity, temperature, density, dynamic heights. Currents, waves and tides. 2. Theoretical models of current and waves.

Up to seven days' field/laboratory work per year.

10.412B Theoretical Mechanics III — Continuum Mechanics **F L1½T½**

Prerequisites: 10.2111, 10.2112, 10.111A, 10.1113, 10.1114. Co-requisite: 10.411A or 1.012 or 1.913. Excluded: 10.422B.

Cartesian tensors, stress and strain in continuous media. Equations of equilibrium and motion. Equations of elasticity. Bending and torsion of beams. Plane elasticity (if time available). Viscous flow of liquids (if time available).

10.412D Theoretical Mechanics III — Mathematical Methods **F L1½T½**

Prerequisites: 10.2111, 10.2112, 10.111A, 10.1113, 10.1114. Excluded: 10.422D.

Sturm-Liouville equation, eigenvalues, expansion in orthonormal functions. Fourier, Fourier-Bessel and Legendre series as special cases. Fourier and Laplace transforms, with application to ordinary and partial differential equations. Diffusion equation and transmission-line equation. Wave equation.

10.422A Higher Theoretical Mechanics III — Fluid Dynamics **S2 L3T1**

Prerequisite: 10.421A or 10.411A (Dist). Co-requisite: 10.422B.

Compressible flow, viscous flow, boundary layers, hydrodynamic stability, simple wave motions in fluids.

10.422B Higher Theoretical Mechanics III — Mechanics of Solids **S1 L3T1**

Prerequisites: 10.111A, 10.1113, 10.1114, 10.2111, 10.2112, 10.421B or 10.411B (Dist) or 1.012. Excluded: 10.412B.

As for 10.412B but in greater depth.

10.422D Higher Theoretical Mechanics III — Mathematical Methods **F L1½T½**

Prerequisites: 10.2211 or 10.2111 (Dist), 10.2212 or 10.2112 (Dist), 10.121A or 10.111A (Dist), 10.1213 or 10.1113 (Dist), 10.1214 or 10.1114 (Dist). Excluded: 10.412D.

Functions of a complex variable, contour integration. Fourier, Laplace and Mellin transforms, solutions of ordinary and partial differential equations. Asymptotic expansions.

10.423 Theoretical Mechanics IV

An honours program consisting of the preparation of an undergraduate thesis together with advanced lecture courses on topics chosen from fluid mechanics, solid mechanics, planetary science and special mathematical and numerical techniques applied to partial differential equations. With the permission of the Head of Department, the subject may also include advanced lecture courses given by other Departments or Schools on topics such as optimal control theory, optimization theory, thermodynamics, numerical analysis or statistics.

School of Psychology

Undergraduate Study

12.001 Psychology I **F L3T2**

An introduction to the content and methods of psychology as a behavioural science, with emphasis on the biological and social bases of behaviour, relationships to the environment, and individual differences. Includes training in methods of psychological enquiry, and the use of elementary statistical procedures.

12.052 Basic Psychological Processes II **S1 L2T2**

Prerequisite: 12.001.

The basic phenomena of behaviour and experience in a biological context.

12.062 Complex Psychological Processes II **S2 L2T2**

Prerequisite: 12.001.

Students select for concentrated study two areas from visual perception, social bases of behaviour, and information processing and cognitive functioning.

12.152 Research Methods II **F L2T1**

Prerequisite: 12.001.

General introduction to the design and analysis of experiments; hypothesis testing, estimation, power analysis; general treatment of simple univariate procedures; correlation and regression.

12.153 Research Methods IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Analysis of variance for single factor and multifactor designs. Fixed, random and mixed models. Test procedures for planned and post-hoc contrasts defined on parameters of fixed and mixed models. General principles of experimental design.

12.163 Research Methods IIIB **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152, 12.153.

For students who intend to undertake a research thesis in Psychology IV, and is concerned with data analysis using the SPSS and PSY systems of computer programs, and with the statistical bases of these programs.

12.173 Psychological Issues III **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Contemporary research problems in psychology.

12.253 Learning IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

The operations and processes in classical and operant conditioning.

12.263 Learning IIIB **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152, 12.253.

Enduring issues in conditioning and learning set in their contemporary and historical contexts. Issues include conditions of reinforcement, anticipatory responding, distribution of practice, and 'attentional-perceptual' phenomena.

12.303 Personality IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Personality dynamics and structure. The practical work involves an exploration of student-chosen topics within designated areas of personality.

12.313 Personality IIIB **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152, 12.303.

The psychology of interpersonal relationships and transactions, and the development of personality with special reference to experimental and social determinants. The practical work requires students to participate in groups.

12.323 Motivation IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

The ethology, psychology, and neurophysiology of motivational states and processes, and includes thirst, hunger, attachment, and addictions.

12.373 Psychological Assessment (Testing) IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152. Excluded: 12.042.

Principles and techniques of psychological assessment. Types of tests and their application in selection and allocation procedures.

12.383 Psychological Assessment (Psychometric Theory) IIIB*

Prerequisites: 12.052, 12.062, 12.152.

12.413 Physiological Psychology IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152. Excluded: 12.402.

Elementary neurophysiology, neuropharmacology and neuroanatomy. Brain control of eating, aggression, copulation, memory, language and functional disorders.

12.423 Physiological Psychology IIIB **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152, 12.413. Excluded: 12.402.

Physiological bases of human performance. Hormones and behaviour. Psychophysiology of selected psychological states such as stress, sleep and relaxation. Psychosomatics. Psychopharmacology.

12.453 Human Information Processing IIIA **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

The stages involved in the reception of stimulus information from the environment, its analysis, storage, and translation into responses. Particular emphasis will be given to the processes which have the effect of reducing the amount of information to be subsequently stored or further processed. Special attention will be given to the comprehension, storage and utilization of semantic information.

12.463 Human Information Processing IIIB*

Prerequisites: 12.052, 12.062, 12.152, 12.453.

12.473 Perception IIIA*

Prerequisites: 12.052, 12.062, 12.152.

The characteristics and processes of visual perception. Topics include the basic requirement for visual perception and the relative contributions of the observer and the stimulus in a range of visual situations.

12.483 Perception IIIB **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Man in a spatial environment. A study of the organization and stability of the visual world with particular reference to the constancies, object movement, eye movement and locomotion.

12.503 Social Psychology IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Introduction to theoretical models involving roles, reference groups, norms, social balance and interdependence, empirical literature in the areas of attitudes, attraction, influence, helping and communication, and the main research methods in experimental social psychology in both the laboratory and the field.

12.513 Social Psychology IIIB **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152, 12.503. Excluded: 12.523.

Current concepts and developments in the analysis of social behaviour.

12.523 Environmental Psychology III **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152. Excluded: 12.513.

The effects of population, technology and urbanization on social change with special reference to individual functioning and the quality of life. The measurement of social change is treated in practical exercises.

12.553 Developmental Psychology IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

An introduction to the study of cognitive development set loosely within the framework of Piagetian theory. Topics include: the development of perception with special reference to the nativism/empiricism issue; the development of operational thought with emphasis on its origins in sensori-motor intelligence; the development of language and its relationship to the development of thought; and the development of reading.

12.563 Developmental Psychology IIIB

Prerequisites: 12.052, 12.062, 12.152.

Not offered in 1978.

12.603 Abnormal Psychology IIIA **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Conflict, anxiety and avoidance behaviour. Anti-social behaviour, psychosomatic disorders, brain pathology, mental deficiency, schizophrenia, depression, sexual anomalies, methods of diagnosis and treatment.

12.613 Abnormal Psychology IIIB **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152, 12.603.

Techniques and findings of experimental psychopathology. Measurement and assessment problems relating to description and prediction in the field of abnormal behaviour. Evaluation of treatment and intervention programs.

12.623 Guidance and Counselling III **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

A review of significant therapeutic approaches from Freud to the present day, and their implied views of man. The sources of the theories of, for example, Freud, Miller and Dollard, Ellis, Rogers, Perls and Janov, concluding with problems in evaluating the effects of psychotherapy.

12.653 Industrial Psychology III **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

The role of the psychologist in industry. Problems of power, authority and control. Theories of human nature and motivation, and their use by industrial psychologists.

12.663 Ergonomics III **S1 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Aspects of human performance relevant to work design. The principles involved in designing the environment in general, and work in particular, to suit man's capabilities.

12.703 Psychological Techniques III

Prerequisites: 12.052, 12.062, 12.152, 12.373.

Not offered in 1978.

A restricted unit for potential Psychology IV students approved by the Head of School.
Observation, and other forms of appraisal, eg ratings, interviewing, testing and reporting on assembled data about individuals.

12.713 Behaviour Control and Modification III **S2 L2T2**

Prerequisites: 12.052, 12.062, 12.152.

Definitions of problem behaviour. Use of the methods of behavioural change in individual, group and institutional settings. Non-psychological methods of behavioural influence. A comparison of attitude and behaviour change. Ethical issues.

12.733 Laboratory Instrumentation III

Prerequisites: 12.052, 12.062, 12.152.

Not offered in 1978.

A restricted unit for potential Psychology IV students approved by the Head of School.

Use of laboratory equipment, and experimental techniques in Psychology. Care of laboratory animals. Basic electricity and elementary circuit design. Audio and visual perception equipment, and techniques for manipulating auditory and visual factors in experiments.

12.741 Psychology (Optometry) **F L2T0**

Prerequisite: 12.001.

Visual Perception — The nature and characteristics of visual perception. Topics to be discussed include: psychophysics, the organization of visual perception, the influence of context, and the effects of learning and motivation on perception. Throughout the course emphasis will be placed on an examination of relevant experimental data. *Abnormal Psychology* — The concept of normality-abnormality, and an examination of the principal psychodynamic processes. Causes and symptoms of various mental disorders are introduced with some emphasis on the importance of these symptoms in optometrical practice.

School of Accountancy

Undergraduate Study

14.013
and
14.014 Accounting for Health Administration I

Introduction to accounting with particular reference to hospitals and health service institutions. Basic accounting concepts,

including questions of classification, measurement and communication of financial data. Analysis and interpretation of accounting data. Governmental budgeting and accounting systems. Federal-State financial relations and their implications in relation to the financing process of Australian hospitals. Role of state treasuries, health departments and commissions. Introduction to institutional fund accounting. Introductory treatment of management accounting in hospitals and health services institutions.

14.023
and
14.024 Accounting for Health Administration II

Introduction to the fund theory of accounting. The recording of hospital transactions in the various funds and the preparation, analysis and interpretation of historical accounting reports. Internal control, budgeting and cost analysis in the hospital context.

School of Health Administration

Undergraduate Study

16.001 Management I

Major theories and schools of management. Identification and examination of major organizational variables, including relationships between the organization and its environment, the planning process, formal and informal structures, authority relationships, technology, human resources, role performance and theory, co-ordination and communication, evaluation and control.

16.002 Management II

Operations research methodology and techniques as applied to health services. Typical competition, queuing, inventory, allocation, search and scheduling problems faced by health care administrators. Solution of problems using techniques such as game theory, simulation, linear programming and PERT. An introduction to computers and health services.

16.003 Management III

Extensions of the material of Management I and II into the specific operation of health services. Examines concepts of health and discusses ecosystematic and other approaches to the managerial functions in the health service and hospital settings with attention to organization structures and technology, formal and informal relationships, co-ordination and control.

16.011 Health Service Agency Management

The objectives, structure, function, staffing, technology of the major departments of health care institutions, with particular reference to general hospitals, psychiatric institutions and extended care facilities. Inter departmental relationships and dependencies. The development of departmental policies and departmental evaluation.

16.021 Management I

Introduction to the development of management theory; organizations and the environment; general systems theory; structure of organizations; managerial functions; individuals and groups; power, leadership and motivation; communication and conflict; work flow and information systems; objectives and control systems; selection, induction, training and appraisal of staff; organizational competence and development.

16.022 Management II

Analysis of the means and effects of environmental interaction on the hospital's objectives, structure, work-flow and climate; management structure of the hospital including traditional hierarchical and matrix patterns; technology, tasks, roles, communication and conflict; work-flow, information systems, operations research and control; selection, induction, training and appraisal of staff; organizational competence and development in hospitals.

16.101 Comparative Health Care Systems

A comparative study of American, English and other selected health services in relation to: public health services; personal health services; hospital services, comparing the roles of government and private enterprise; health manpower; financing; legislation; regionalization; organizational developments.

16.111 Health Care Systems

Concepts and principles of health service systems; organizational structures; health service legislation; finance; preventive, ambulatory care and community health services; personnel; institutional care; formulation of health policy.

16.112 Health and Health Care

Basic concepts of personal and community health; concept of normality, taxonomy and descriptive outline of physical and psychiatric disorders; epidemiology of disease; morbidity and mortality; health status change; personal health care; preventive and therapeutic trends.

16.201 Law I

Legal theory and elementary jurisprudence; the rules of statutory interpretation and the doctrine of precedent in theory and practice. An introduction to the Australian Constitution, an analysis of section 51, paragraph XXIIIA and the implications of section 96 for the relations of the Australian Government and the States. An introduction to the law of contract with emphasis on bailments. Employers' liability and the law of tort, workers' compensation and the tort of negligent advice.

16.202 Law II

The Australian tort system; the concept of foreseeability; competing theories of damages apportionment. The problems of informed consent and the tort of trespass to the person. Confidentiality and privilege in the doctor-patient relationship; examination of minors' capacity to consent to treatment. The concept of medical negligence. The law in all Australian jurisdictions relating to illegal operations and sterilization operations. The theory and practice of vicarious liability; the control test and the organizational test. The liabilities of the hospital as an occupier of premises, the various duties to persons entering thereupon. A short course on industrial law and the access of health services organizations to the various industrial tribunals. The legal status of trade unions. The law and psychiatry, the McNaghten Rules and the defence of automatism.

16.301 Political Science

The study of politics, with special reference to Australian political institutions and administrative practices. Topics include: concepts and theories of politics; Australian political institutions and the party system; The constitution and intergovernmental financial and legal relations; public administration with special reference to the Commonwealth and New South Wales public services.

16.302 Social Administration

An overview of the pattern of development affecting social welfare policy in Australia. The circumstances of settlement and its influences, including immigration; education; trade unions; development of social services; the welfare state. Contemporary issues in social welfare including universal and selective services; poverty; community development; social planning; policy; evaluation; democratic control of welfare policy; modes of service delivery.

16.303 Research and Evaluation Methods

Introduction to the need for and problems relating to health services research and evaluation; identifying appropriate research areas and planning a study; research design; historical and observational research; report preparation and presentation; the survey and its analysis; the setting of priorities; evaluation concepts and methodology.

16.304 Management Skills

Processes involved in the development and application of such basic management skills as decision-making, problem-solving, communication and conflict management. Examination of the conceptual, theoretical and empirical material relating to these skills, with practical exercises in their application.

16.305 Health Economics

Builds on the introductory course 16.501 Economics (Health Administration) to develop an appreciation of the application of economics to the health services. Topics include: the nature of health and the economic model; quantitative analysis of production in hospitals, health centres and private medical practice; macro aspects of financing health services; utilization; alternative methods of containing costs and improving efficiency and effectiveness in delivery and planning health services; health workforce planning; regional models of health services; justice and equity.

16.306 Administration of Nursing Services

The work of the nurse, tasks currently undertaken by nurses, 'non-nursing duties'. Perceptions of the role of the nurse by doctor, nurse, patient. Current systems of education and training, proposals for change. The nursing workforce — distribution, numbers. Nurse wastage, nurse practitioners and physician's assistants.

Structure of nursing departments: English experience — pre- and post-Salmon; Australia; integrated structures. Staffing patterns — staffing studies: allocation and scheduling. Staff satisfaction; team v functional allocation of nursing duties.

16.307 Special Topic in Health Administration

An occasional elective dealing with some aspect of health administration, selected according to current demand and availability of local and visiting lecturers.

16.308 Epidemiology for Health Administrators

The general purposes and content of epidemiological studies. Concepts and strategies of epidemiology. Sources, collection, collation and analysis of epidemiological data. Cross-sectional, retrospective and prospective studies. Epidemiology as an aid to the planning, operation and evaluation of health services.

16.400 Health Service Experience

In order to relate theoretical instruction to practical experience, first year full-time students, under the supervision of a member of staff of the School, are attached to a number of health service agencies in the Sydney metropolitan area. The aim is to allow students to familiarize themselves with a health agency setting; to learn in a practical way skills and responsibilities needed in the administration of health service agencies, and the importance of interpersonal relationships. The attachment program is a compulsory part of the first year BHA course, although students with general experience in health service agencies may be eligible for exemption with the approval of the Head of School.

16.411 Health Service Planning I

16.412 Health Service Planning II

An introduction to various concepts of planning and design is followed by an exploration of the relation between resources, human needs, functions, design and the physical environment, both at national and regional levels and in the context of health service facilities and buildings. Planning procedures and building project management are studied in the context of changing roles for both public authorities and the professions. Briefing, commissioning and evaluation of new facilities are covered in detail as these aspects are likely to confront many administrators. Environmental design, safety and maintenance requirements are described both in general terms, and also in relation to nursing care facilities and other clinical departments. Project work and visits form part of the assignment program for both external and internal students.

16.501 Economics (Health Administration)

An introduction to economic analysis as applied to the conditions and problems confronting Australia, with special reference to the economic aspects of health and medical care.

Topics include: the elementary model of how resources are allocated by the price system in Australia, the macro model and economic policy problems of unemployment, inflation, growth and trade, distribution; the economics of the public sector; health and welfare economics; efficient production and distribution of health services, demand and the utilization of services; finance and efficiency, cost benefit analysis and selected policy issues.

16.601 Behavioural Science I

Basic concepts of sociology and psychology. The emphasis is on an understanding of social processes and how society and the individual interact and affect one another. A section of the course deals with the development of students' skills in communication. The course is directed towards demonstrating that the various sciences dealing with human behaviour are inter-related, and therefore all topics are seen from a multi-disciplinary point of view.

16.602 Behavioural Science II

One branch of behavioural science, namely the sociology of health. Students consider the social role of medicine in our society, the nature of patient-healer relationships, the hospital as a social system, the processes of becoming a patient, illness as a social role, aspects of social class and status as they affect relationships in the health care system, social consequences of medical diagnosis and labelling, medical politics, and the place in society and in the health system of such special groups as the physically and mentally handicapped, the aged. Students also examine the implications of behavioural science for management situations.

16.701 Statistics

Sources of statistical data; errors and pitfalls in the use of statistics. Measures of central tendency, dispersion and skewness. Elementary treatment of probability. Introduction to statistical inference; estimation and hypothesis testing; elements of sampling and sample survey design. Correlation and regression. Index numbers. Time series analysis. Introduction to demography and vital statistics; measures of mortality, fertility and population replacement. Statistics of the Australian health care system including the measurement of morbidity and health service utilization, and statistics for quality assurance, planning and evaluation.

16.711 Quantitative Methods I

Refer to subject description for 16.701 Statistics.

16.712 Quantitative Methods II

Operations research methodology and techniques as applied to health services. Typical competition, queuing, inventory, allocation, search and scheduling problems encountered in health care administration. Solution of problems using techniques such as game theory, simulation, linear programming and PERT. Location theory including gravity models. Problems in implementation of operations research studies.

16.801 The Australian Health Care System

Historical introduction; the present pattern of health care delivery; environmental health services; institutional care; community health services for special groups; specialised and supporting services; health service personnel; health service finance; critique of the Australian health care system.

16.921 Health Care Planning I

The concept, determinants and assessment of community health. Application of the epidemiological approach to the identification and definition of community health problems. The processes of improving community health; problem identification, definition and analysis; determination of priorities; specifications of objectives; development of plans; plan evaluation; plan adoption; implementation of program, evaluation and revision. The planning and evaluation of personal health and environmental control programs. Political and economic considerations in planning health services. Manpower planning. Location, co-ordination and integration of health care services and facilities. Evaluation of community health service agencies and activities. Application of decision theory, systems analysis and operations research techniques to community health planning.

16.922 Health Care Planning II

The planning and design process; composition and responsibilities of planning teams; briefing, proposal and approval of design projects; history of hospital design; planning for change and growth; national, regional and local planning requirements; location and siting of health care facilities; organizational requirements of hospital layout; supply and communication requirements; environmental design and safety; ergonomics of hospital equipment; hospital building structures and engineering services; building and equipment maintenance; modernization and efficiency; building contract management; cost planning; commissioning, evaluation of buildings in use.

16.923 Health Care Planning III

Planning, design and evaluation for particular functions in health care facilities; nursing units, patient's room and equipment design; general and special nursing units; diagnostic and treatment facilities; outpatients and emergency services; health centres and GP surgeries; administrative, educational and residential accommodation; supply departments and works services.

Graduate Study

16.901G Health Services Statistics I

Statistical methods and theory: frequency distributions and their description; an introduction to probability; principles of sampling; estimation and hypothesis testing; statistical decision theory; normal, Poisson and binomial distributions; linear regression; index numbers; time series analysis. Data drawn from the health planning field are used to illustrate these methods.

16.902G Health Services Statistics II

The application of statistical methods to health planning and administration problems and other problems of direct relevance to the health care field. Vital statistics and demography (measures of fertility and mortality, construction and use of life tables); hospital and health statistics; PAS/MAP and other hospital information systems.

16.904G Australian Health Care System

The historical, demographic and epidemiological background to the provision of health care in Australia. The role of the Australian and State governments, regional organizations and other instrumentalities in the provision of health and hospital services. Health services as one sub-system of a personal services sector, linkages with other sub-systems, eg Education, Social Welfare. Financial and economic aspects of the provision of health care. Problems currently besetting the Australian health care system.

16.905G Health Services Accounting

Basic theory and concept in relation to hospital and health services accounting. The inter-relationships between statistics and accounting, the nature and use of cost data, budget preparation, co-ordination and integration of budgets, accounting for planning and control; cost finding procedures.

16.909G Community Health Planning

Factors determining the planning, provision and integration of community health care: environmental health services, provision for the aged, the physically handicapped and the mentally handicapped; occupational hygiene programs; preventive and screening services, health education. The planning of health centres and their relation to other community health services The impact of regionalization on community based services. The evaluation of community health programs.

16.930G Introduction to Health Planning

The major concepts of health planning, including policy environment; methods; implementation and evaluation of the planning process and of plans.

Topics include: planning structures and organization for planning; determination of goals and objectives; problem identification and analysis; collection, interpretation and assessment of evidence; influences of the spatial and social environment; formulation and evaluation of plans; the adoption and implementation of programs, including advocacy and public relations; program evaluation and the revision of plans.

16.931G Introduction to Organization Theory

Critical evaluation of existing organization patterns in the health care field. The major schools of management thought (eg classical, human relations, contingency theory) through an analysis of the work of representative writers. An analysis of leadership, change and conflict in organizations.

16.932G Introduction to Behavioural Science

Introduction to the behavioural sciences of psychology and sociology. Study of societies and social institutions, cultures; processes of motivation, learning, development of attitudes. Introduction to gaming and simulation.

16.933G Health Services Law I

The theories of jurisprudence, with emphasis on the sociological school. Law and morality, the Hart-Devlin debate. Statutory interpretation, the judicial approaches, constitutional interpretation. The nature of federation; the exclusive and concurrent powers of the Australian Parliament. Section 51, paragraph XXIIIA of the Constitution; Federal and State financial relations, Section 96 of the Constitution: The law of contract; employers' liability and workers' compensation: the tort of negligent advice.

16.934G Health Services Law II

The law of tort and the foreseeability test. Alternate schemes of compensation and the 'no-fault' concept. The law relating to medical negligence, consents and illegal operations. The liability of occupiers. The law relating to mental health; the medical acts. The industrial powers of the Australian Parliament and the State legislatures; the position of hospital employees in the industrial relations field.

16.935G Health Economics I

The problems and tools of micro-economic analysis as applied to resource allocation, evaluation and planning in health services. Covers: the basic concepts and methods of economic analysis, decision making, supply and demand, pricing and non-price methods of allocation, welfare analysis, economic planning of health services, and cost benefit analysis, economics of hospitals, health financing and insurance analysis.

16.936G Physical Planning and Design

The course is a combination of group project work, individual assignments and general discussion. Topics include: concepts of planning; design processes and methods; national, regional and urban planning issues; local building and space planning techniques; planning for growth and change. Planning procedures for health facilities; establishing need, content and cost; evaluating options and formulating policies; investigation, decision-making and documentation methods. Information sources, services and systems. Building project management; ergonomic aspects of equipment and engineering installations; building and plant maintenance. Evaluation of buildings in use. Design of physical environment—lighting, noise control, thermal comfort, ventilation systems, infection control, weather protection, fire safety. Planning and design for particular functions: clinical care, logistics systems, management services, education and research, 'hotel' care services.

16.937G Health Services Research and Evaluation

Mehods and techniques used in research and evaluative studies of the health services. Topics include: the design and administration of research projects; the preparation of research protocols; health survey methods, including data analysis and statistical computer programs; report preparation and presentation; the methodology of evaluation, structure, process and outcome measures of health system performance; integrated statistical systems for evaluative studies. Each student is expected to design a research project. The textbooks are supplemented by a selection of recent articles presenting the results of health services research studies.

16.938G Seminar In Health Policy

A discussion of contemporary health policy issues including the politics of health care. Seminar topics include: principles of policy formation and analysis; Federal-State health responsibilities; the regionalised administration of health services; the role of pressure groups in the health field; ideological issues in health care finance and provision; control of the use of health services; the integration of health and welfare services; the quality assurance, peer review and accreditation; the organization of personal health services — specialization, general practice and medical education.

No text books are prescribed. A reading list of recent journal articles on health policy is made available at the beginning of the session.

16.940G Medical Care Organization

Specific aspects of the organization of medical care. Topics include: the administration and review of clinical work, participation of medical staff in planning and development of facilities and services, the integration of the functions of health care personnel in both the administration and delivery of services, and accreditation of hospitals and other health service institutions.

16.941G Epidemiology

Principles and methods of epidemiologic investigation of both infectious and non-infectious diseases including descriptive, analytic and experimental epidemiology. The distribution and dynamic behaviour of disease in the population; data collection; collation and analysis; a consideration of screening surveys; longitudinal and case-control studies, etc. The uses of epidemiology in planning and evaluation.

16.942G Medical Sociology

The relationship between the health system and the social system. Impact of illness on the person, family, social group, industry and the community as a whole. The process of becoming a patient; cultural attitudes to illness and death. Stigmatization of certain illnesses; practitioner-patient relationships; professionals in the health field. The rights and obligations of consumers of health care; social implications of medical progress.

16.943G Interpersonal Communications in Organizations

A theoretical and practical course which aims to increase students' understanding of, and capacity to deal with, communication problems in organizations. The course teaches students to improve their own communications skills by a series of communications exercises, role-plays, simulations and games. Students are able to chart their progress with a check-list developed for the course.

16.944G Health Economics II

Builds on the basic analysis of Health Economics I with greater emphasis on planning. Topics include: demand and utilization analysis and prediction, cost-benefit analysis and project evaluation, costs and models of health delivery units, optimum size and location, inflation control, regional planning models and rationalization, financing systems and incentives for efficiency, alternative economics and political economy of health services.

16.945G Workforce Planning

Systems approach to workforce planning in the health services. Task analysis as a workforce planning technique, career mobility; supply of health personnel, projection of supply, wastage rates; approaches to measurement of demand for health personnel and projection of demand; changing productivity in the health sector. Workforce planning at the institutional level; demographic and mathematical models.

Analysis of recent studies of the Australian health workforce. Current issues in workforce planning such as licensure and regulation, maldistribution of health personnel, role of women in the health sector.

16.946G Health Information Systems

Introduction to computers, input/output mechanisms, processing systems. Issues of privacy and confidentiality, systems study and costs of computers. Use of computers in the health system. Positive patient identification, clinical decision-making systems, pathology and investigatory services systems. Administrative systems including payroll, personnel and maintenance systems. Computerization of medical records and use of computers in quality assurance programs. Total health and hospital information systems. Regional community health information systems.

16.947G Comparative Health Care Systems

A comparative study of personal, public and hospital health services in the US, USSR, Britain and selected Asian, European and Third World countries. The course discusses the respective roles of government and private enterprise, health manpower, organizational structures, financing, regionalization and legislation. Particular attention is given to the relationship between social-political philosophy and the provision of health services. Methods of determining health needs, forces which inhibit achievement of goals, results of pertinent empirical studies in the international literature, aspects of evaluation including outcome measures and innovative approaches in health delivery are examined.

16.948G Operations Research for Health Planning and Administration

Operations Research methodology and techniques as supplied to health services. Model building and systems approach. Typical operations research problems such as competition, queuing, inventory, allocation, search and scheduling problems as they appear in a health services environment. Techniques associated with these problems such as game theory, simulation, linear programming, PERT and CPM. Testing and sensitivity of solutions. Analysis of actual applications.

16.949G Organizational Analysis in Health Services

Intensive investigation of one or more organizations engaged in delivery of health care. Measurement of effectiveness and efficiency. Relevance of studies of business organizations in analyzing health care organizations.

Identification of organizational attributes and their measurement, data collection and analysis. Studies of satisfaction, centralization, co-ordination, complexity, flexibility, etc. Analysis of organization in terms of contextual, structural and process data, interpretation of organizational functioning and integrative patterns. Field experiment methods in organizational research. Organization development programs and implementing change in organizations.

16.970G Health Services Management I

Examination of the environment of health services in Australia. Interfaces between health and other social services. Operation, structure and management of public sector health services. Organizational analysis of national, state and regional health service agencies with attention to their functions, roles and inter-relationships. Centralization and dispersion of power. Bureaucracy and professionalism in changing patterns of services.

16.971G Health Services Management II

Examination of major classifications of hospitals and local health service agencies. Functions, objectives and influence of contextual variables. Inter-organizational relationships with other social and personal health services. Control and accountability. Authority, influence structures and co-ordination. Roles and values. Professions, professionalism and bureaucracy in interaction. Conceptions of effectiveness, efficiency and competence. Relevance of hierarchical and matrix organizations in articulating services. Uses and limitations of organizational analysis in achieving change.

16.972G Introduction to Macro Economics (Health)

The Australian Economy as a whole, for students without previous exposure to the subject. Aggregate economic activity, national accounts, income, employment and the price level, labour, the government sector, internal economic policy problems, inflation and stability and the macro economics of health and welfare services. Basis for more intensive studies in health economics, accounting and management of health services.

16.990G Research Project

Candidates for the degree of Master of Health Administration by coursework are required to complete a research project.

16.992G Project
28 hours.

16.993G Project
42 hours.

16.994G Project
56 hours.

These electives permit students to obtain credit for approved research projects.

Department of Industrial Arts

Undergraduate Study

21.011 Industrial Arts I

The nature of rigorous and structural design. The elements of creative design—design as aesthetic order—its relationship to perception theory and measurement of aesthetic judgment—the notion of value and value keys in design. The theory and nature of colour perception. A brief treatment of the historical background of industrial organization in society—the nature of work and some important psychological, sociological and economic factors in man-machine relationships. Basic industrial work situations and an analysis of the methods used to classify and describe them. Man-machine relationships as a problem in design—human qualities in opposition to and in co-operation with machines—an introduction to the problems associated with the transfer of information, energy and matter between man and machine.

Laboratory and Studio—The execution of prescribed projects in various media illustrative of the principles of design. The study and practice of the principal techniques used in work measurement.

21.012 Industrial Arts II

The principles of three-dimensional design and design analysis. Product design—visual fundamentals and visual presentation in two and three dimensions—functional and psychological aspects of product design. Work factor systems, basic motion-time study, motion-time analysis, and methods-time measurement with particular reference to their human significance.

Laboratory and Studio—The execution of three-dimensional projects in various media. Projects in product design. Experimental work and directed observation involving the various methods of work analysis.

21.013 Industrial Arts III

The creative process and the factors influencing it—detailed study of and solutions to the problems associated with product design. The philosophy of comprehensive design and its relationship to work—an integrative overview of the attitudes and viewpoints of the designer and the techniques of analysis, synthesis and evaluation currently used. Industrial organization theory—the principal theories of industrial organization from the eighteenth century to the present day. The nature of management and its various functions and methods or organization in western industrial society.

Laboratory and Studio—The execution of advanced problems in product design in various media—analysis and criticism. Field work in industry involving the analysis and evaluation of methods of industrial organization.

21.201 Freehand Drawing

Teaches the students to see and draw objects as they are, to perceive the structure of natural forms, and to appreciate the causes behind their formation. The practical work in various media, pencil, pen, brush and charcoal, is intended also to develop the ability to express ideas in a visual way. This can later form a basis for the execution of projects in industrial design.

Topics include: drawing of single objects and groups of objects, figure drawing, drawing from memory, and quick sketching; depiction by line and by light and shade; the principles of free perspective drawing.

21.211 Drawing and Design

Advanced problems in graphics and tectonic design. Assignments are carried out in the studio, but tutorials are given where necessary.

21.902 Seminar

21.903 Project

21.311 Industrial Arts I

An introduction to the subject area of industrial arts. The central theme is the inter-relationship between people and artefacts. The course comprises the six following compulsory units:

21.3111 Workshop Practice

Safe working practices using selected woodworking and metalworking machines.

21.3112 Introduction to Design Methods

The need for design methodology and its application in the industrial situation, strategy planning, the methods with examples of their application, the problems of problem solving.

21.3113 Basic Design

Studio: the development of visual literacy and expression through the study and articulation of the basic aesthetic elements—colour, light, proportion, texture, mass, space, structure—and their representation in two and three dimensions.

21.3114 Introduction to Graphic Techniques

Studio: demonstrations and practical work in elementary graphic method and technique—photography, graphic layout and design, with emphasis on freehand drawing.

21.3115 History of Industrial Arts

Definitions, content and philosophy of Industrial arts as an area of study. The development of methods of producing artefacts. Theoretical models of the relationship between social and technological factors.

21.3116 Research Methods

Research in the field of industrial arts. Data collection and reduction. The action—research model and its implications.

21.312 Industrial Arts II,
21.313 Industrial Arts III and
21.314 Industrial Arts IV

These subjects are divided into the following nineteen units.

See *Course outlines* for choice of units.

21.3127 History of Art and Design

A brief chronological survey of the major art and design movements from the earliest times to the present day.

Ethnotechnology

Ethnotechnology is the study of the way in which a particular society designs and produces its artifacts. As well as making a study of materials, tools and techniques, the historical, economic and sociological aspects of artifact production are examined.

The theoretical areas of ethnotechnology include: **1.** methodology and techniques of ethnotechnology **2.** a systematic examination of the material culture and artifact production in societies such as those of the Australian aborigine and the people of Asia, and **3.** an examination of traditional technology in Australia.

The laboratory and fieldwork areas include group and individual projects involving: **1.** experimental laboratory work on the examination and production of artifacts using established techniques, and **2.** fieldwork examining a wide range of traditional technologies using ethnographic techniques.

21.3121 Ethnotechnology I

Prerequisite: 21.3116.

The relationship between science, technology and society. The relationship between ethnotechnology, ethnography and archaeology. The methodologies of the social and physical sciences and their application to ethnotechnology, a brief analysis with reference to a traditional material culture.

Laboratory and fieldwork: Investigation of various techniques used by traditional craftsmen in the production of artifacts.

21.3131 Ethnotechnology II

Prerequisite: 21.3121.

Social and technological aspects of ethnotechnology. The philosophies encompassing the etic and emic approaches to fieldwork. Methodologies of ethnographic reporting. The development of early Australian crafts and technologies.

Laboratory and fieldwork: The investigation of the Australian traditional technologies of gold-mining and refining, timber-milling, brick-making and pottery, their background and development.

21.3141 Ethnotechnology III

Prerequisite: 21.3121.

The application of theoretical models to ethnotechnology. The study of socio-cultural systems with special reference to their material cultures. An advanced study of traditional Australian technology.

Laboratory: An investigation of the materials, techniques, tools and processes used by selected cultures in the production of artifacts. Advanced field research into the traditional Australian technologies. Advanced studies in the ethnotechnology of Asia.

Craft

The craft units are intended to develop appreciation of craft activities and integrate aesthetic experience with technological knowledge. While it is intended that students should be able to experience several crafts, such as ceramics, textiles and glass-working, at present only ceramics can be offered.

21.3122 Craft IA (Ceramics)

The characteristics of earthenware, stoneware and porcelain. Glazes, kilns and forming methods. An introduction to the geology of ceramic materials and their properties. Practical experience in hand building methods, introductory throwing and design in pottery.

21.3132 Craft IIA (Ceramics)

Prerequisite: 21.3122.

The history of pottery focusing on China and its relationship to other countries. The emergence of a ceramic industry in Europe. Body formulation, glaze chemistry and calculations. Further practical experience with emphasis on throwing and design skills.

21.3142 Craft IIIA (Ceramics)

Prerequisite: 21.3132.

Present day craft and industrial practice. Kilns and firing techniques. Setting up and running a craft pottery. Further practical experience with emphasis on throwing and design skills.

Industrial Design

The industrial design units are made up of lectures, demonstrations, group discussions and criticism, with design projects as the subject core.

The theoretical aspects are concerned with:

1. the historic, social, psychological and economic aspects of industrial design and **2.** the methodology and techniques of industrial design.

The design projects are set in many differing industrial and social frameworks, and give the student an opportunity to solve problems across the whole spectrum of Industrial Design. The understanding of the problem solving process and the individual student's own experience of it is considered to be of as much importance as the final solution. The brief for each project details the production and marketing situation, the criteria for design, the academic aims of the project, background information, a time schedule and the requirements for presentation of the student's analysis and final solution.

Visits to industrial organizations and design offices are undertaken in conjunction with other units of the Industrial Arts course.

21.3123 Industrial Design I

Prerequisites: 21.3112, 21.3113, 21.3114 or equivalents.

The emergence and development of the industrial design profession from 1850 to the present day.

Modelmaking techniques, a series of demonstrations of clay, plaster, timber, polystyrene, polyurethane, glass reinforced plastics and epoxy resin modelmaking.

Studio: Elementary design project work applying industrial design criteria and method to the solving of design problems. The solutions to be evaluated by means of prototypes, drawings and reports.

21.3133 Industrial Design II

Prerequisities: 21.3123, and 21.3144 or equivalents.

A study of industrial design case histories in Australia, Europe and USA. Local cases will be examined in conjunction with the Industrial Design Council of Australia.

Design and materials. An examination of the design potential of selected materials from an industrial design viewpoint.

Studio: Advanced design project work involving the reconciliation of multi-faceted industrial design problems, in a variety of materials. The solution to be evaluated by means of models, prototypes, graphics and reports.

21.3143 Industrial Design III

Prerequisite: 21.3133.

An international survey of design education from 1850 with particular reference to the contemporary situation.

Theories of Industrial Design with emphasis on the contemporary situation. The nature of 'good' design, the ethics of design, styling and design, design and the multi-nationals, design and the developing countries.

Studio: A major and minor design project of the student's own choice. The major project to be undertaken in conjunction with an external industrial organization or design office.

Graphics

The graphics units are concerned with two-dimensional means of analysis, abstraction, synthesis and communication, of two and three dimensional design problems and concepts. Initially the units are concerned with the application of graphic method to the industrial design, ethnotechnology and craft units, as well as to the solution of two-dimensional design problems. The course develops into the study and practice of graphic design. The units are made up of lectures, demonstrations, group discussions and criticism, with design projects as the subject core.

The theoretical aspects are concerned with:

1. the historic, social, economic, and psychological aspects of two-dimensional communication and graphic design **2.** the methodology and techniques of graphic design.

The design projects are set in many different media, and give the student an opportunity to solve problems over the whole spectrum of graphic design. Visits to the office of a consultant designer and a company design team, will be undertaken in conjunction with other units of the Industrial Arts course.

21.3124 Graphics I

Prerequisities: 21.3112, 21.3113, 21.3114, or equivalents.

The history and background of contemporary graphic design. Detailed study of graphic method and techniques—perspective, geometric projections, typography, photography, descriptive geometry, graphic design and layout, printing and photomechanical reproduction.

Studio: Project work using the above techniques to solve two-dimensional design problems, and to externalize, abstract, synthesize and communicate three-dimensional design problems and concepts.

21.3134 Graphics II

Prerequisite: 21.3124.

Advanced studies of dynamic symmetry, analysis of geometric solids, analysis of two-dimensional pattern in nature and man made objects, symbols and symbolism, visual illusion in art and nature, graphic techniques applied to industrial design.

A study of graphic design case histories.

Studio: Analytical work in the subjects covered by the lectures and design project work applying graphic design criteria and methods to the solving of design problems.

21.3144 Graphics III

Prerequisite: 21.3134.

Social and psychological aspects and effects of graphic design, with particular reference to advertising and the ethics of graphic design. Investigations of the effectiveness of visual communications in films, television, posters, books, computer systems.

Legibility of print, computer graphics, graphic visualization and representation of abstract data and ideas. Advanced photography, typography, techniques of printing and photomechanical reproduction and graphic communication.

Studio: Project work based upon lecture course and a major project to be undertaken in association with an external organization of a design office.

Industrial and Social Organization

The units in Industrial and social organization are concerned with the theory and practice of human organization in industry and society. The inter-relationship between people and technology and the associated problems and their solutions provides the general framework. Teaching in these units is by way of lectures, case studies, various experiential exercises and visits to industrial organizations.

21.3125 Industrial and Social Organization I

Prerequisite: 21.3115.

The general development of twentieth century industrial organization and society. The nature of work and some important psychological, sociological and economic factors in industrial dynamics.

21.3135 Industrial and Social Organization II

Prerequisite: 21.3125.

The nature of management and the development of management and organization theory. The role of trade unions in social and technological change. The environment of industry.

21.3145 Industrial and Social Organization III

Prerequisite: 21.3135.

The nature of organizational behaviour; decision making, problem solving and adaptability. Organizational change. Social responsibility of industry. Present and future trends in organization and management.

21.3147 Appropriate Technology

Examination of problems in the relationship between people and technology in developed and in developing countries and at various levels of analysis. The concept of appropriate technology as a solution to such problems and the development of solutions which are evaluated on criteria of suitability, feasibility and acceptability.

21.3126 Project

The project provides the opportunity for practice in research methods, teamwork, and planning, organizing and conducting study in the field of industrial arts.

21.3146 Advanced Project

The advanced project provides the opportunity to conduct in depth study in the field of industrial arts.

Graduate Study

21.501G Industrial Design

This area of the course is drawn from the existing body of knowledge concerning industrial design. In particular, it emphasizes design principles and the main functions, skills and responsibilities of the designer for industry. The subject matter is communicated through lectures, tutorials and practical assignments, the aims of which are to give the students a broad view of design in an industrial society, an aesthetic conviction and sensibility and the skills and methods required for the practice of industrial design.

Historical, social and aesthetic bases of industrial design.
Design Methodology.
Design Principles.
Signs, Symbols and Communication.
Ergonomics.
Professional, Commercial and Industrial Practice.
Design Media.

21.511G Design Projects

A continuous series of design exercises and projects, graduated in scale and difficulty and with varying emphasis on particular aspects of design technology.

These projects form the central part of the course. The subjects chosen relate to the current lecture or case study programs, so that theory and practice can be integrated. The design projects provide an experience in which technology, design method, aesthetics and social need are synthesized and in which interrelationship must be sought and inconsistencies resolved. The student faces problems involving judgment, choice and decision, some of which can be based on objective, analytical study, whilst other studies are more subjective, intuitive and emotive.

The projects are supervised by the academic staff of the Department with assistance from an appropriate practising designer and, when necessary, academic staff from other sections of the University. Tutorials as well as discussions with individual students arise from the projects, especially during the design development phase. Opportunity is given for students to act as a member of a design team.

At the commencement of each design project the students are briefed in detail as to the intention, and object of the exercise; this brief also includes basic information, controlling factors, a time schedule and requirements for presentation.

21.501G Industrial Design

21.511G Design Projects

21.521G Seminar

In general, seminars are devoted to design theory and philosophy and to the presentation by students of papers on design problems. Seminars are closely integrated with the other sections of the course work. From time to time, such matters as general design problems, current issues in design, unusual design problems and addresses by visiting designers also constitute the topics of seminars.

21.531G Creative Art (Elective)

Biological Sciences

Undergraduate Study

17.031 Cell Biology

Basic cell structure; membranes, organelles, prokaryotic and eukaryotic cells; cellular locomotion; basic biological molecules; enzymes; structure and metabolic roles, cellular compartmentalization and enzyme function; diffusion, osmosis and active transport; theories of inheritance, linkage, gene interaction, sex determination, mutation, selection and evolution; information transfer and protein synthesis.

Requirements for Practical Work

A list of equipment required for practical work will be posted on the notice board in the ground floor of the Biological Sciences Building. Students must purchase this material before the first practical class.

17.021 Biology of Higher Organisms

Maintenance of the organism: gas exchange systems in plants and animals; transport inside organisms; uptake, digestions, absorption; enzymes structure and function; photosynthesis: process and structural relationships; metabolic systems, energy yields and pathways.

Developing organisms — sexual reproduction in plants and animals, general life cycle patterns; cell development and differentiation in flowering plants and mammals.

Control and co-ordination in organisms—organisms and water, uptake and effects; control mechanisms, urinary systems and kidney structure and function; stimuli and responses—plant hormones, hormones in vertebrate animals; muscle activity and muscle structure, eye structure and vision mechanism; ear structure and hearing mechanism; nerves, central nervous system, nerve action, brain structure and functioning.

17.012 General Ecology S1 L2T4

Prerequisites: 17.011, 17.021 or 17.031 and 17.021.

Evolution and environmental selection in the Australian continent; geological, palaeoclimatological, biogeographical and historical background. Functional organization of ecosystems: energy budgets, hydrological and biogeochemical cycles. Integrated structure and function of ecosystems, including cropping and management of natural resources. Aspects of microbial ecology. Students are required to attend a field camp as an integral part of the course.

School of Applied Geology

Undergraduate Study

25.011 Geology I L3T3

Physical Geology: The origins, structure and main surface features of the earth; geological cycle—processes of erosion, transportation, sedimentation and lithification. Surface and subsurface water. Weathering, lakes, rivers, glacial phenomena. Vulcanism, earthquakes, orogenesis and epeirogenesis, integrated theory of plate tectonics and continental drift.

Crystallography and Mineralogy: Introduction of crystal symmetry, systems, forms, habit, twinning. Occurrence, form and physical properties of minerals. Mineral classification. Descriptive mineralogy. Principal rock forming minerals. Basic structures of silicate minerals.

Petrology: Field occurrence, lithological characteristics and structural relationships of igneous, sedimentary and metamorphic rocks. Introduction to coal, oil and ore deposits.

Stratigraphy and Palaeontology: Basic principles of stratigraphy; introductory palaeontology. The geological time scale. The geological history of the Australian continent and more specifically that of New South Wales in introductory outline.

Practical Work: Preparation and interpretation of geological maps and sections. Map reading and use of simple geological instruments. Study of simple crystal forms and symmetry. Applied stereoscopic projection. Identification and description of common minerals and rocks in hand specimen. Recognition and description of examples of important fossil groups. Supplemented by three field tutorials, attendance at which is compulsory.

25.012 Geology IIA L3T3

Structural Geology: Origin, classification and description of structures in sedimentary, igneous and metamorphic rocks. Introduction to the stereographic projection of structural elements and analysis of simple fracture and fold systems. Introduction to tectonics.

Mineralogy, Igneous & Metamorphic Petrology: Principles of optical crystallography and the use of the polarizing microscope. Chemical and physical properties of the main groups of minerals.

Occurrence, genesis and classification of igneous rocks. Magmatic crystallization and differentiation. Simple binary and ternary systems.

Origin and classification of metamorphic rocks. ACF and AKF diagrams and metamorphic facies.

Practical: Mesoscopic and microscopic examination of rock forming and ore minerals, igneous and metamorphic rocks.

Photogeology: The use of air photos for geological mapping and geomorphological evaluation of land. Techniques and principles of photo interpretation, multiband photography; landform genesis and photo interpretation of folds, faults, joints, bedding, limestone, intrusive igneous rocks, volcanics, alluvial fans and terraces, slopes, landslides, coastal arid and tropical landforms; relations between geology, drainage, soil and vegetation; orebody expression, gossans, colouration halos.

25.022 Geology IIB **L1T2**

Stratigraphy: Flow regime and bedding forms including flume experiments, sedimentary structures. Modern and ancient environments of deposition: fluvial, deltaic coastal, shelf, slope and deep sea environments. The facies concept. Stratigraphic principles. Fold Belts, geosynclines and their interpretation by plate tectonics models. Stratigraphic and structural development of a fold belt (Lachlan Fold Belt) and an intracratonic basin (Sydney Basin).

Palaeontology: Morphology and stratigraphic distribution of the Protozoa, Porifera, Coelenterata, Bryozoa, Brachiopoda and Mollusca. Practical examination of representative fossils from each phyla.

25.013 Geology IIIA **L3T3**

Economic Geology A: Principles and theories of ore formation. Magmatic, hydrothermal, submarine exhalative ore and vulcanicity. Ore deposits and modern global tectonics. Biogenic processes, sedimentary ore deposits. Alluvial and residual deposits. Description of specific deposits illustrating various types of mineralization.

Laboratory: Hand specimen study of ores and associated features; introductory mineragraphy.

Mineralogy & Petrology

Mineralogy: Further optical crystallography; determination of refractive indices. Laboratory methods of mineral separation. Principles of X-ray diffraction; simple application of X-ray powder cameras and diffractometers. *Igneous Petrology:* Igneous activity at convergent and divergent plate boundaries. High pressure and low pressure fractionation. Influence of H_2O, CO_2 and O_2 on melting relationships. Primary magmas. Magmatic lineages. Mantle inhomogeneity. Significance of trace element and isotope studies. *Sedimentary Petrology:* The influence of transportation, deposition and diagenesis on the composition, texture and structure of detrital sedimentary rocks including limestones. The classification of the detrital sedimentary rocks. The chemically formed sedimentary rocks including the phosphates, zeolites, evaporites, ferruginous and siliceous deposits. Introduction to coal petrology.

25.023 Geology IIIB **L3T3**

Geophysics

Global Geophysics: The physics, shape, structure and constitution of the earth: seismology, gravity, geology, geothermy, geomagnetism, palaeomagnetism, geo-electricity and geochronology. Geotectonics and geodynamics: geophysical expression and relation to geology and geochemistry. *Exploration Geophysics:* Introductory course in exploration geophysics covering the following methods: seismic, electrical, electromagnetic, gravity, magnetic and radioactive with applications, mining, petroleum, engineering, hydrology and well logging.

Stratigraphy & Palaeontology

Stratigraphy: Theoretical stratigraphy including stratigraphic classification, reference points and stratotypes, correlation by fossil zones and physical methods. Continental margins, mobile zones, with a detailed study of the New England Fold Belt. Comparison between mobile zones and intracratonic basins. Intracratonic basins of Western and Southern Australia and effects of the dispersal of Gondwanaland. Mesozoic to Recent sedimentation in Papua New Guinea. Stratigraphic and structural development of anlacogenes. *Palaeontology:* Principles of systematics. Theory of evolution. Functional morphology and biostratigraphic significance of arthropods, echinoderms and graptolites. Introduction to Palaeobotany. Practical applications of palaeontology.

Field Mapping

Geological mapping in a complicated geological terrain with emphasis on stratigraphical and structural interpretation. Geological report writing and cartography.

25.033 Geology IIIC **L6T6**

Mathematical Geology and Geological Surveying

Mathematical Geology: An introduction to the mathematical techniques and concepts which may be applied to the analysis of geological data. Measurement scale, probability axioms, frequency analysis and basic geostatistics, sampling theory and techniques. FORTRAN computer programming forms a substantial part of the course with programming exercises in the analysis of map information and other geological data. Quantitative map interpretation with emphasis on trend surface analysis and automatic contouring techniques. *Geological Surveying:* Levels, tacheometers and theodolites. Field techniques. Precision of angular measurements. Stadia surveying. Levelling. Field computations. Topographic maps.

Geochemistry and Petrology

Geochemistry: Some modern methods of rock and mineral analysis. Accuracy, precision and quality of geochemical data. The distribution of elements in terrestrial rocks. Norms. *Clay Mineralogy:* The structures and properties of the clay mineral groups including the kandites, illites, smectites, chlorites, mixed layered and fibrous clay minerals. Techniques for the identification of the clay minerals. Clay-water systems and ion exchange. Chemical weathering and the origin of the clay minerals. *Metamorphic Petrology:* Facies series. Metamorphic reactions. Isograds. Mineral assemblages as geobarometers and geothermometers. Fluids in metamorphism. Fabric. Relationships of deformation and recrystallization. Metamorphic petrology of Australia. *Practical:* Macroscopic and microscopic study of igneous and metamorphic rocks.

Advanced Structural Geology

Analysis of structural elements at the microscopic, mesoscopic and macroscopic scales. Modern methods of analysis, especially petrofabric analysis and AVA. Detailed studies of the analysis of metamorphic terrains, eg Otago Schists; Cooma Complex.

Sedimentary Basin Analysis and Geology of Hydrocarbons

Basin evolution. Analysis of sedimentary and paleoecological systems in fluvial deltaic, nearshore and deepwater environments. Structural systems formed by tensional, compressional and strike-slip tectonics. Geochemistry of hydrocarbons and formation fluids. Factors critical to occurrence of oil, gas and coal. Typical Australian and overseas occurrences. Techniques of exploration, assessment and development of reserves.

Field Mapping and Remote Sensing

Field Mapping: Field mapping in a complex geological terrain, with concentration on the structural geology of deformed and metamorphosed sequences. Writing geological reports, and drafting geological maps. *Remote Sensing:* Exercises in the combined usage of air photos and ERTS imagery for the interpretation of regional and structural geology.

In addition, one of the following topics will be selected after consultation with the Head of School:

1. *Economic Geology B. Mineragraphy, Experimental Petrology*

Economic Geology B: Detailed study of selected major deposits representing particular types of mineralization; geological setting, petrology, mineralogy and genetic aspects. Experimental work in ore genesis—isotope studies, trace elements, phase equilibria, inclusions in minerals. *Mineragraphy:* Reflected light optics: orthoscopic and conoscopic rotation phenomena, determinative methods, textural interpretation of ores. *Experimental Petrology:* Theoretical Petrology. Phase diagrams. Application of thermodynamics to petrological problems. Experimental petrology. *Laboratory:* Economic Geology and Mineragraphy: Study of regional setting, current research, petrology and mineragraphy of selected deposits dealt with in lectures.

2. *Micropalaeontology*

Morphology, stratigraphic distribution and significance of the principal microfossil groups: foraminifera, ostracoda, conodonts, spores and pollen, dinoflagellates, coccoliths and chitinozoa. Extraction techniques.

3. *Surficial Geology*

Processes: weathering and landforms, mass movement, gully and sheet erosion. Fluvial processes and drainage development. Aeolian, glacial, periglacial and coastal processes. Neotectonics.

Soil and surficial sediment evaluation: pedological processes, gilgai formation. Soil fabric analysis at all scales. Principles of surficial stratigraphy. Map analysis and preparation: contour patterns of landforms; geological and geomorphic interpretation of topographic maps. Soil classification, soil map preparation, lithogeomorphic maps.

Problems of mapping Quaternary geology. Quaternary geology: methods of dating, sea level change, glacial sequences, surficial geology of non-glaciated areas of Australia, especially the Riverine Plain. Quaternary sequences in Canada and Europe.

25.404 Geology IV Honours — F

A field assignment with appropriate work in the laboratory on material collected, the results of both the field and laboratory investigations to be presented in a graduation thesis. Advanced lectures, practical work and seminars. Short laboratory assignments on specific problems may be given.

Further details of the Honours course may be had from the Head of School.

25.151 Geoscience IA — F L3T3

This course is provided for students who do not intend studying geology beyond first year. The first part during Session 1 is identical to the first part of 25.011 Geology I, but during Session 2 certain additional topics are presented, while others are treated in less depth than in 25.011 Geology I. No further units in Geoscience are available after this course.

Physical Geology: The origins, structure and main surface features of the earth. Geological cycle: processes of erosion, transportation, sedimentation and lithification. Surface and subsurface water. Weathering, lakes, rivers, glacial phenomena, geomorphology under different climatic regimes. Vulcanism, earthquakes, orogenesis and epeirogenesis. Outlines of plate tectonic theory in relation to continental drift and oceanography.

Crystallography and Mineralogy: Introduction to crystal symmetry, systems, forms, habit, twinning. Occurrence, form and physical properties of minerals. Basic structures of silicate minerals. Mineral classification. Descriptive mineralogy. Principal rock forming minerals.

Petrology: Field occurrence, lithological characteristics and structural relationships of igneous, sedimentary and metamorphic rocks. Introduction to coal, oil and ore deposits.

Stratigraphy and Palaeontology: Basic principles of stratigraphy; introductory palaeontology. The geological time scale. The geological history of the Australian continent and more specifically that of New South Wales in introductory outline.

Practical Work: Preparation and interpretation of geological maps and sections. Map reading and use of simple geological instruments. Study of simple crystal forms and symmetry. Identification and description of common minerals and rocks in hand specimen. Recognition and description of examples of important fossil groups. Supplemented by two half day and two full day field tutorials, attendance at all of which is compulsory.

School of Geography

Undergraduate Study

27.801 Introduction to Physical Geography — S1 L2T2½

The mechanism of the physical environment, with particular exemplification within the Sydney region. Geological controls of landform development; fluvial, slope and coastal processes and landforms, cyclic and equilibrium approaches to landform studies. The global radiation budget and atmospheric circulation, weather and climate in the Sydney region. The hydrologic cycle. Processes and factors of soil formation and the soil profile. Controls of vegetation in the Sydney region. The ecosystem.

Laboratory classes include study and use of geologic and topographic maps and air photographs; use of climatic data and the weather map; soil description. Two field tutorials, equivalent to 16 tutorial hours, are a compulsory part of the course. Students must provide basic drawing equipment.

27.802 Introduction to Human Geography — S2

The relationships between man and the environment, their spatial consequences and the resulting regional structures that have emerged on the earth's surface. Basic concepts and methods for studying the spatial organization of human activities, particularly as they relate to patterns of location and distribution, to the flows, movements and linkages between places and activities, and to the processes operating that give rise to variations from place to place, particularly between urban and rural areas. Australian and South-East Asian examples are used where relevant.

Laboratory classes: presentation and description of geographical data, analysis of spatial patterns, together with appropriate statistical exercises. Includes a compulsory field excursion equivalent to eight tutorial hours.

27.811 Physical Geography **S2**

Prerequisite: 27.813.

Emphasizing inter-dependence of climate, hydrology, landforms, soils and vegetation in major zones. Classification of climates and world climatic patterns. Soil zonality and world soil patterns. World vegetation types and distribution, and their controls. Studies of selected zones with particular reference to the Australasian region.

Laboratory classes: climatic analysis and mapping, and analysis of natural landscapes, including airphoto interpretation, together with appropriate statistical exercises.

27.812 Human Geography **S2**

Prerequisite: 27.813.

The urbanization process in underdeveloped and industrialized societies. Theories, concepts and principles relating to the location, size and spacing of settlements; the economic and social structure of urban areas; city-region relationships. Geographical perspectives on contemporary urban problems are offered, particularly those associated with the concentration of people and activities between regions and within cities, emphasis on spatial variations in housing, employment and service provision.

27.813 Geographic Methods **S1**

Prerequisites: 27.801†, 27.802.

An introductory course in statistical procedures as used in both human and physical geography, including measures of dispersion; measures of spatial distribution; time series; probability distributions; samples and estimates; hypothesis testing; correlation and regression; tests for distribution in space.

27.103 Climatology **S1**

Prerequisites: 1.001, 27.811 or 25.011 or 17.031 and 17.021.

Physical bases for understanding microclimate. Processes of energy exchange at the earth's surface, and the physical and biological controls of the heat and mass budgets. Atmospheric diffusion. Determinants of the local and site-specific climatic environment, particularly topographic, surface cover and substrate conditions. Urban climate and the microclimates of distinctive habitats. Climate in relation to human comfort and health. Building and constructional design aspects of climate and applications of climatology in urban and regional planning. Climatic aspects of the development and utilization of solar and wind energy sources.

27.203 Biogeography **S2**

Prerequisites: 27.811 or 17.031 and 17.021.

Distribution of taxa. Floras of the Southern Hemisphere with particular reference to Australia. Endemic, discontinuous and relict taxa. Dispersal and migration of species. Origin, evolution and geological history of Angiosperms. The development of the Australian biogeographic element. Study of the recent past to understand present distributions of taxa. The role of man and climatic change on Australian vegetation. Detection of pattern and association and their causes. Classification, ordination and mapping of vegetation. Ecology of selected Australian vegetation types. Composition, structure, productivity and environmental controls of heathland, woodland, grassland and rainforest communities. Management of vegetation in different climatic regimes.

Fieldwork forms an integral part of the course.

27.413 Geomorphology **S2**

Prerequisite: 25.001 or 27.811.

Beaches and their response to waves, currents and sediment movement. Barrier systems, lagoons and estuaries. Rock platforms. Quaternary sea level changes. Hydraulic geometry of stream channels, including effects of sediment transport and man's activities. Hillslope form, process and associated slope materials. Methods of slope measurement, analysis and survey. Hillslope models. Systems approach, equilibrium concepts and modelling in landform studies. Field projects in coastal and fluvial geomorphology, and laboratory time is devoted to statistical exercises using data collected from maps, airphotographs and in the field.

27.423 Pedology **S1**

Prerequisites: any two of 2.111, 2.121, 2.131 and 27.811, or 25.012 or 25.022. Excluded: 27.863.

Methodology of pedogenic studies and the application of these studies to the understanding of soil-landform relationships. Soil physical and chemical properties and their interrelationships, emphasizing clay-mineral structure and behaviour, soil solution chemistry, soil water movement and the application of these properties to elements of soil mechanics. Assessment of land hazards and land capability as related to soil properties in natural, rural and urban landscapes, including assessment of soil fertility, swelling characteristics, dispersibility, erodibility and aggregate stability. Laboratory analysis of soil physical and chemical characteristics with emphasis on properties associated with land capability assessment. Statistical analysis of soil data and its application to mapping.

27.823 Urban Geography* **S2**

Prerequisite: 27.812.

The geography of cities in the context of economic and cultural systems, social and political processes, and historical perspectives. Topics: foundations of urban geography; the city in underdeveloped countries and planned economies; the city as an ecosystem; distributions, problems and policies of urban size; growth centres and urban planning; interurban and intraurban movement and linkages; urban residential preferences and spatial differentiation; urban environmental quality and the perceived urban environment. Weekly seminars, and laboratory and fieldwork of a practical nature to include urban survey techniques.

†In special circumstances a student may apply to the Head of School for permission to take 27.801 as a co-requisite.

*Offered for the *last* time in 1978.

27.824 Spatial Population Analysis† S1

Prerequisites: 27.812 and 27.813.

Population growth and structure in an urban and regional context, stressing the components and processes of population change: fertility, mortality and migration set within the framework of demographic transition theory. Theories of migration and mobility and of optimal populations. Demographic and social indicators for urban and regional analysis and their implications for disparities in living conditions, residential differentiation and regional growth. The adjustment of immigrant and migrant populations to the urban environment.

27.825 Urban Activity Systems† S1

Prerequisites: 27.812 and 27.813.

Interaction in time and space within cities and between regions, stressing relationships between transportation, mobility and the environment structure of groups and individuals, as well as problems of accessibility to a wide range of activities, including services and employment. Patterns of flow, transaction and linkage between economic activities. Topics include: the journey-to-work, shopping and travel behaviour, contract networks, and the optimal location of facilities.

27.826 Urban and Regional Development† S2

Prerequisites: 27.812 and 27.813.

Processes of change in the distribution of settlement and economic activity at the regional and metropolitan scales, with special attention to urban and regional development in Australia. Topics include regional balance and polarization, industrial concentration and linkages, dispersal and relocation of manufacturing and services; growth centres and regional multipliers; changes in the inner city and the urban fringe; problems of resource allocation and equity, and regional policies and strategies for urban and regional development; approaches to urban and regional analysis and definition of regional indicators.

27.840 Agricultural Geography* S2

Prerequisites: 27.812 or 15.603 or 53.204 or 51.542.

Physical, economic, political, and other cultural factors involved in origin and change of agricultural landscapes. Spatial patterns of agriculture as the result of individual and group decisions. Innovation diffusion as the process of farming change. Problems of agricultural modernization in South-East Asia. Planning in rural areas, especially the impact on agriculture of competing land uses. Examples mainly drawn from Australasia.

Workshop/seminar classes include treatment of methods of inquiry into agricultural geographical problems and discussion of selected topics.

27.841 Population Geography* S1

Prerequisite: 27.812 or 53.204.

Population growth and contrasts in growth patterns between underdeveloped, modernizing and developed countries. Growth dynamics and their relation to physical and human resources. The demographic transition as a unifying theme. Population densities in urban and rural areas: case studies are drawn mainly from Western Europe, South-East Asia and Australia. Social and economic factors in international and internal migration. Spatial interaction between the populations of rural areas and cities, and between cities. Fertility and mortality variations within and between regions, countries and cities. Urbanization of population. Stable and stationary population theory. World population problems. Workshop tutorials are concerned with session projects.

27.860 Landform Studies S1

Prerequisite: 27.811.

The study of landforms, with particular reference to Australian examples. Geomorphic regions. Plantation surfaces and processes and associated weathering features. The evolutionary and dynamic approaches to landforms, with particular reference to fluvial landforms. Coastal processes and forms. Desert landforms. Landforms as evidence of climatic change.

27.862 Australian Environment and Land Resources S2

Prerequisite: 27.811 or 25.011.

Regional patterns of natural land and water resources of Australia. Climatic, geomorphic, soil and biotic factors affecting past, present and potential modes of land use and stability of primary production. Conditions of the physical environment which favour or impede productive utilization and further development of land, marine, freshwater and energy resources under a changing technology. Problems of avoiding degradation of land quality and natural ecosystems. Case studies from distinctive environmental settings in Australia.

Laboratory/workshop sessions include the study of maps and air photographs of typical environments: local environmental problems are investigated in the field.

27.863 Soils, the Ecosystem and Man S2

Prerequisite: 27.811. Excluded: 27.423.

Soils as an expression of endogenic and external factors and of physical and biological controls, and as a bridge between the physical environment and man's use of the land. Materials and properties of soils. Soils in the ecosystem; interrelationships between soil and climatic, biotic and geomorphic features of the environment. Constraints imposed by soil properties on land use, in both rural and urban settings. Man's effect on the soil, and its consequences, eg, soil pollution, disturbance of soil-moisture and nutrient cycles, soil depletion and erosion.

These themes will be co-ordinated in the study of regional examples in Australia and South-East Asia. There are laboratory workshops, field excursions and group projects.

27.833 Urban Geography (Advanced)* S2

Prerequisites: Graded passes in 27.812, 27.813.

As for 27.823 Urban Geography with additional and more advanced work.

†Offered for the *first* time in 1979.

*Offered for the *last* time in 1978.

27.834 Spatial Population Analysis (Advanced)† S1

Prerequisites: Graded passes in 27.812, 27.813.

Additional and more advanced work relating to the content of 27.824.

27.835 Urban Activity Systems (Advanced)† S1

Prerequisites: Graded passes in 27.812, 27.813.

Additional and more advanced work relating to the content of 27.825.

27.836 Urban and Regional Development (Advanced)† S2

Prerequisites: Graded passes in 27.812, 27.813.

Additional and more advanced work relating to the content of 27.826.

27.850 Agricultural Geography (Advanced)* S2 L3T3

Prerequisites: Graded passes in 27.812, 27.813.

As for 27.840 Agricultural Geography with additional lecture/tutorials, especially relating to agricultural change in Australia.

27.851 Population Geography (Advanced)* S1 L3T3

Prerequisites: Graded passes in 27.812, 27.813.

As for 27.841 Population Geography with additional and more advanced work on techniques of spatial population analysis.

27.870 Landform Studies (Advanced) S1 L3T3

Prerequisites: Graded passes in 27.811, 27.813.

As for 27.860 Landform Studies, with additional and more advanced work, including selected studies of geomorphic processes and of man's influence on those processes.

27.872 Australian Environment and Land Resources (Advanced) S2 L3T3

Prerequisites: Graded passes in 27.811, 27.813.

As for 27.862 Australian Environment and Land Resources plus further study based on additional seminars and reading. Additional topics include **1.** environmental bases for reserving land and water resources for forestry, water supply, wildlife protection, and recreation; **2.** conflicting demands in regional resource development.

27.880 Advanced Geographic Methods F L1T2

Prerequisites: Graded passes in 27.811 or 27.812 and 27.813.

Additional quantitative research techniques normally taken by Honours students in their third year. Research organization, computing including Fortran, collection and organization of data; statistical description; hypothesis testing and sampling; simple and multiple association analysis; nonparametric methods.

Department of Behavioural Science

Graduate Study

30.935G Organization Behaviour A

Develops an understanding of the individual and social factors affecting behaviour in organizations. The broad interdependent social forces shaping contemporary Australian society, and, after society, the individual. The nature of human potential, personality dynamics and motivation. Social trends and discontinuities: changing values and ideologies; theories of personality and socialization; identity, self-esteem and the formation of personality, processes of learning and unlearning; perception and emotion; motivation; personality assessment; aptitude, creativity, job satisfaction and job effectiveness.

30.936G Organization Behaviour B

Prerequisite: 30.935G.

Develops an understanding of organizations as human systems. Systematic theories of organization; the nature and development of interpersonal processes and skills; psychological processes in communication and their application to communication in organizations; small group theory and its application to work groups; stress, conflict and change in organizations; employee, management and organization development.

30.941G Sociology of Industry

The contributions of sociology to understanding the changing nature of modern industrial and post-industrial societies, including the institutional structure of industrial societies; the relationship between formal and informal recurrent education, employment, visible unemployment, hidden unemployment and underemployment, the nature and implication of multicultural workforces; the social role of technology, interest groups and power relations in employment; values and ideologies of work; modification of bureaucracies and the trends towards industrial democracy.

30.942G Sociology of Occupations and Professions

Prerequisite: Behavioural Science I.

The nature of work and leisure; the nature of formal social roles; vocational choice; careers and retirement; status and occupational stratification; history and nature of professionalism; forms of professional practice; professional specialization; professionals in organizations; professional education and training; professional associations; economic consequences of professionalism; job development; occupational health; and manpower planning and policies.

†Offered for the *first* time in 1979.

30.951G Experiential Learning Groups

Prerequisite: either Behavioural Science I or Sociology of Industry.

Methods of improving interpersonal competence, including the skills of self-understanding and the observation and analysis of interpersonal behaviour; development of skills in listening, communicating, leading, counselling and consulting; class sessions emphasizing experiential learning through feedback, role play, simulation and sensitivity training.

30.955G Human Potentialities

An introduction to identifying and developing human potentialities, combining systems theory and analytic psychology, with special emphasis on innovative capability. Research methods; theories of personal development; assessment of aptitude and personality; the impact of industrial culture on the realization of human potentialities; the creative person; the individuation process; interviewing and counselling; planning integrated approaches to personal development.

30.958G Organizational Communications

The flow of information within the formal organization; systems theory; communication networks within organizations; methodology for studying communication patterns; the communication process and social roles; message exchange between individuals and between organizations. In addition to classwork, students participate in a communication analysis project within an organization.

School of Biochemistry

Undergraduate Study

41.101 Introductory Biochemistry **S1 L4T8**

Prerequisites: 17.021, 2.001.

The chemical properties of amino acids, peptides and proteins, carbohydrates, nucleic acid and lipids and the biological roles of these compounds. The nature and function of enzymes. The intermediary metabolism of carbohydrates, lipids and nitrogenous compounds. The molecular mechanism of gene expression and protein synthesis. Photosynthesis. Practical work to amplify the lecture course.

41.111 Biochemical Control **S2 L2T4**

Prerequisite: 41.101.

The relationship between structure and function of enzymes, selected protein systems and hormones. Metabolic networks and control mechanisms. Practical work to amplify the lecture course.

41.102A Biochemistry of Macromolecules **S1 L3T9**

Prerequisites: 41.101 & 2.002B.

Polysaccharides and glycoproteins, including bacterial cell walls. Chemistry and biology of polynucleotides. Methods of amino acid and nucleic acid sequence analysis. Protein structure and synthesis. Active centres of some proteins. Sub-unit organization of proteins. Enzyme kinetics. Practical work to illustrate the lecture course and to provide experience in modern biochemical techniques.

41.102B Physiological Biochemistry **S2 L3T9**

Prerequisites: 41.101 & 2.002B.

Electron transport and oxidative phosphorylation. Mitochondrial transport and function. Interrelationships in mammalian intermediary metabolism. Biochemical control mechanisms, including hormones and allosteric interactions. Biochemistry of genetic diseases. Selected aspects of differentiation and development in higher organisms. Practical work to illustrate the lecture course and to provide experience in modern biochemical techniques.

41.102C Plant Biochemistry **S2 L2T4**

Prerequisites: 41.101 & 2.002B.

The biochemistry of the major pathways characteristic of plants; topics include the energetics and carbon path of photosynthesis, glyoxalate cycle, growth hormones and regulatory phenomena, nitrogen fixation and assimilation.

Experimental work to illustrate and amplify the course utilizes radioactive isotopes and a number of newer techniques.

41.102D Biosynthesis of Plant Metabolites **S2 L2T4**

Prerequisites: 41.101 & 2.002B. Co-requisite: 41.102C.

This unit complements 41.102C and is taken with it.

Topics: cell wall formation and the synthesis and mobilization of reserve materials; biosynthesis of amino acids, its regulation and their conversion into non-protein materials, eg alkaloids and cyanogenetic glycosides; aromatic ring formation and the isoprene pathway as a source of rubber, steroids, carotenes and essential oils. Flower pigments and phytoalexins.

A combined practical with unit 41.102C illustrates and amplifies the course and includes a wide range of the latest techniques.

41.103 Biochemistry Honours

Advanced training in selected areas of biochemistry including a supervised research program of 500 hours' minimum duration that places emphasis on the use of specialized techniques relevant to the research area. A written thesis on the research is required.

School of Biological Technology

Undergraduate Study

42.101 Introduction to Biotechnology S2 L2T4

Prerequisites: 2.121, 2.131, 17.021, 10.011 or 10.001 or 10.021B and 10.021C.

An introduction to biotechnology as a multidisciplinary subject, dealing with the application of biological systems in industry, agriculture and medicine. The application of the techniques and methodologies of mathematics, the physical sciences and engineering to the understanding and optimization of biological processes. An outline of the field and scope of biotechnology in relation to the development of microbial processes for the production of special chemicals such as antibiotics and enzymes and the production of single-cell protein as an alternative protein source. The role of biotechnology in relation to pollution control and waste disposal. Biotechnological aspects of alternative energy sources. Likely contributions of biotechnology to the problems of developing countries.

The laboratory component emphasizes identification and manipulation of different classes of microorganisms (bacteria, fungi, algae) involved in traditional fermentations, industrial processes and waste treatment.

42.102A Biotechnology A S1 L2T4

Prerequisites: 41.101 and 42.101 or 44.101.

The basic principles involved in the operation of microbial processes on an industrial scale. Includes: the selection, maintenance and improvement of microorganisms; the influence of physical and chemical factors on the microbial environment; the control of environmental factors; the effects of operational patterns on batch and continuous flow cultivation; aeration and agitation; scale-up of microbial processes; air and media sterilization; the harvesting, purification and standardization of products. The principles involved in microbial processes for chemical, pharmaceutical and food production, microbial waste treatment and environmental control. The laboratory component includes manipulation of microorganisms, laboratory-scale fermenter operation, microbial enzyme isolation, visits to industrial fermentation plants and industrial seminars.

42.102B Biotechnology B S2 L2T4

Prerequisite: 42.101.

Application of principles of biotechnology to the analysis and design of microbial processes of industrial relevance (antibiotics, microbial enzymes, single-cell protein from carbohydrates and hydrocarbons, fermented foods and beverages, amino acids and vitamins, microbial polysaccharides, activated sludge and photosynthetic processes for waste treatment, microbial leaching of low-grade minerals). Emphasis on quantitative approach: mass and heat balance calculations, kinetic and thermodynamic analysis, detailed equipment design and specification, process design and layout, process simulation, plant location, application of optimization techniques. The economics of microbial processes are considered and comparison made with alternative modes of production or treatment. The economics of agro-industry in Australia using microbial processes. Marketing of fermentation products, clinical trials required, legal constraints, patent rights. Technical and economic feasibility studies, and a design project.

School of Botany

Undergraduate Study

43.101 Introductory Genetics S2 L2T4

Prerequisites: 17.001 or 17.011 & 17.021 or 17.031 & 17.021.

Various aspects of molecular, organismal and population genetics, including: meiotic and non-meiotic recombination, genome variations, mutagens and mutation rates, cytoplasmic inheritance, gene function, genetic code, gene structure, collinearity of polynucleotide and polypeptide, control of gene action, genes and development, population genetics, genetics and improvement of plants and animals.

43.111 Flowering Plants S1 L2T4

Prerequisites: 17.001 or 17.011 & 17.021 or 17.031 & 17.021.

The vegetative and floral morphology of angiosperms with special reference to variations in morphology, elements of biological classification, nomenclature and identification of native plants. Week-end fieldwork is part of the course.

43.121 Plant Physiology S2 L2T4

Prerequisites: 17.001 or 17.011 & 17.021 or 17.031 & 17.021 and 2.001 or 1.001.

A student may apply to the School for variation of the prerequisite.

The physiology of the whole plant including a consideration of photosynthesis, inorganic nutrition, transport, translocation, physiology of growth and development, and plant growth substances and their application in agriculture.

43.102 Microbial Genetics S1 L2T4

Prerequisite: 43.101.

A detailed study of the mutational basis of microbial variation. Mutagens; mechanisms of mutagenesis; induction, enrichment, isolation and characterization of mutants; mechanisms of repair of mutational damage. Systems of gene transfer and recombination in fungi, bacteria and bacterial viruses; the use of these systems in constructing genetic maps, and as

tools for probing aspects of microbial physiology and biochemistry. Genetic control of gene expression; the operon concept and its application to specific regulatory systems. Genetic code, colinearity between a gene and its product, genes within genes, suppression of mutations. Restriction and modification of DNA; genetic engineering — its implications and prospects. Genetics of nitrogen fixation. The subject may be taken in either second or third year of the Science course provided that prerequisites have been completed.

43.112 Plant Taxonomy S2 L2T4

Prerequisites: 43.111, 43.101 pre- or co-requisite.

This subject alternates each year with 43.162.

Considers the assessment, analysis and presentation of data for classifying plants both at the specific and supra-specific level; the emphasis is on vascular plants. Students are required to attend field excursions all of which form an integral part of the course. The subject may be taken in second or third year of the Science course provided that prerequisites have been completed.

43.122 Biochemical Approaches to Plant Physiology S1 L2T4

Prerequisites: 43.112, 41.101A, 41.101B.

The subject covers the physiology and biochemistry of plant lipids, with special reference to developing tissues; developing and ripening fruits. Project work is important and some attendance is required outside the hours set down in the timetable. Reading and interpreting original scientific papers is an important part of these projects which relate to current work in the fields covered. The subject may be taken in either second or third year of the Science course provided that prerequisites have been completed.

43.131 Fungi and Man S1 L2T4

Prerequisites: 17.001 or 17.011 and 17.021 or 17.031 and 17.021.

An introduction to the biology and taxonomy of fungi followed by a study of their economic importance to man. Includes: fungi as pathogens of plants and animals; use of fungi as food and in the production of useful chemical products; medical uses of fungi, including drugs and hallucinogens; degradation of organic matter, particularly in soils and of timber; interaction of fungi with other organisms; chemical control of fungi.

43.132 Mycology and Plant Pathology S2 L2T4

Prerequisite: 43.131. A student may apply to the School for variation of the prerequisite.

A detailed study is carried out on the fungi, including both saprophytic and plant pathogenic species. The topics considered include: hyphal structure and ultrastructure; morphology and taxonomy of members of major taxonomic groups; spore liberation, dispersal, deposition, germination, infection and the establishment of host-pathogen relationship; morphogenesis of vegetative and fruiting structures; cytology, genetics; ecological considerations of fungi in specialized habitats, survival mechanisms and methods of control of plant pathogens. The subject may be taken in either second or third year of the Science course provided that prerequisites have been completed.

43.142 Ecology and Environmental Botany S1 L2T4

Prerequisites: 17.001 or 17.011 & 17.021 or 17.031 & 17.021.

The soil and atmospheric environments in which plants live and the interaction of plants with their environment. Emphasis is placed on the role of environmental sciences in food production. Students are required to attend three week-day field excursions as part of the practical work. The subject may be taken in either second or third year of the Science course provided that prerequisites have been completed.

43.152 Palaeoecology S2 L2T4

Prerequisite: 43.111.

The evolution of the Australian flora from the Tertiary to the present and the relationships between the present flora and those of neighbouring land masses. Includes an introduction to methods of palynology and palaeoclimatology, as well as numerical methods in phytogeography. A field camp is an integral part of the unit. May be taken in second or third year of the Science course.

43.162 The Plant Kingdom§‡ S2 L2T4

Prerequisite: 43.111.

The major taxa of the Plant Kingdom with emphasis on the green plants. The evolution of basic vegetative structures, reproductive structures and genetic systems are studied. Field work will be part of the course.

43.172 Phycology and Marine Botany‡ S1 L2T4

Prerequisite: 43.111.

The biology of freshwater, marine and soil algae with particular emphasis on the marine flora of S.E. Australia. Field work is part of the course.

43.182 Cellular and Developmental Botany‡ S2 L2T4

Prerequisite: 43.121. This unit may be taken as a co-requisite in some circumstances.

The physiology, organization and interrelations of higher plant cells. Emphasis is placed on the interactions between plant cells and cellular events which control such processes as the regulation of growth and division, the perception of gravity by plants, secretion, seed germination and senescence.

‡These units may be taken in either second or third year of the Science course provided that prerequisites have been completed.

§This unit alternates each year with 43.112 Taxonomy.

School of Microbiology

Undergraduate Study

44.101 Introductory Microbiology S2 L2T3

Prerequisites: 17.011, 17.021.

The general nature, occurrence and importance of micro-organisms. A systematic review of the major groups of micro-organisms: the eucaryotic protista (micro-algae, protozoa and fungi); procaryotic protista (blue-green algae, "higher" bacteria, typical unicellular bacteria and small bacteria-like forms); plant, animal and bacterial viruses. The relationship between micro-organisms and their environment; ecological considerations. Interactions between micro-organisms and higher organisms.

44.111 Microbiology F L1T2

This unit is not acceptable as a prerequisite for Level III Microbiology units except on the recommendation of the Head of School.

A short introduction to microbiology which is designed to familiarize students, without previous biological training, with microorganisms and with the methods used in their isolation and identification. The content of the course is similar to that of 44.101.

44.102 General Microbiology S1 L4T8

Prerequisites: 44.101, 41.101 or 41.101A & 41.101B.

Double unit, Level III.

Systems for the isolation, identification and taxonomic description of microorganisms; fine structure, cyto-chemistry, genetics of bacteria and viruses; metabolic requirements of micro-organisms; microorganisms and their environment; growth, inhibition and death; energy-yielding and biosynthesizing systems; genotypic and phenotypic control systems.

44.112 Applied Microbiology S2 L4T8

Prerequisite: 44.102.

Endeavours to relate the basic facts about microorganisms to a variety of practical conditions. The occurrence, importance, activity and control of microorganisms in soil, air, water and in their relationship with higher organisms (other than man); their industrial applications including manufacture, preservation and spoilage of food and dairy products. The nature of bacterial and fungal diseases of man, their cultural and serological diagnosis, epidemiology, treatment and prevention will be discussed in some detail.

44.122 Immunology S2 L2T4

Prerequisites: 17.011, 17.021, 41.101 or 41.101A & 41.101B.

Single unit, Level III.

Basic immunology and immunological techniques. The interdisciplinary nature of the subject makes this unit suitable for students taking any major sequence in biological science and also for higher degree students who require a background training in immunology. The course includes phylogeny and ontogeny of the immune response; antigen and antibody structure; antigen-antibody reaction; immunochemistry; immunogenetics, clinical immunology; transplantation.

44.132 Virology S2 L2T4

Prerequisite: 44.102.

The structure, replication and behaviour of animal, plant and bacterial viruses; applications of virological techniques; virus diseases of animals and plants, their epidemiology and control.

44.513 General Microbiology

Microbial taxonomy, structure and function, physiology, ecology and genetics.

44.523 Applied Microbiology

Selected aspects of industrial microbiology including fermentation processes, food production and food spoilage, soil microbiology; pathogenesis of microorganisms and host resistance; diagnostic medical microbiology; chemotherapy, disinfection and sterilization.

44.533 Immunology

Phylogeny and ontogeny of the immune response, non-specific and specific immune mechanisms; hypersensitivity reactions; immunochemistry; diagnostic serology, immunoprophylaxis and therapy.

44.543 Virology

A detailed study of virus-host interactions based on examples of bacterial and animal viruses; virus genetics; epidemiology of virus diseases; diagnostic virology.

44.553 Electron Microscopy

The principles and practice of electron microscopic techniques.

44.563 Microbiology Project I

A supervised laboratory project of 150 hours' duration designed to provide experience in a wide range of microbiological and immunological techniques and to introduce students to the general principles of research methodology, particularly at an applied level.

44.573 Microbiology Project II

A supervised laboratory project of 300 hours' duration. While considerable emphasis will be given to acquiring technical competence in many microbiological or immunological techniques, the projects in this unit will provide greater scope for training in research methodology.

44.583 Microbiology Project III

A supervised laboratory project of 500 hours' minimum duration. These projects provide training in research in fundamental aspects of microbiology or immunology, with special emphasis on the development and use of specialized techniques relevant to the particular field of study.

School of Zoology

Undergraduate Study

45.101 Biometry **S1 L2T4**

Prerequisites: 17.011 or 17.031, 17.021.

Statistical methods and their application to biological data, including: introduction to probability. The binomial, poisson, negative binomial, normal distributions; student's t, $\chi 2$ and variance ratio tests of significance based on the above distributions; the analysis of variance of orthogonal and some non-orthogonal designs. Linear regression and correlation. Introduction to non-linear and multiple regression. Introductory factorial analysis. Introduction to experimental design. Non-parametric statistics, including tests based on $\chi 2$, the Kruskal-Wallis test, Fisher's exact probability test and rank correlation methods.

45.201 Invertebrate Zoology **S2 L2T4**

Prerequisites: 17.011 or 17.031, 17.021.

A comparative study of the major invertebrate phyla with emphasis on morphology, systematics and phylogeny. Practical work to illustrate the lecture course. Obligatory field camp.

45.301 Vertebrate Zoology **S1 or S2 L2T4**

Prerequisites: As for 45.201 above.

A comparative study of the Chordata. Morphology, systematics, evolution, natural history, with reference to selected aspects of physiology and reproduction. Practical work to supplement the lecture course. Field excursions as arranged. This unit is offered in Sessions 1 and 2.

45.112 Marine Ecology **S1 L2T4**

Prerequisites: 17.011 or 17.031 and 17.021 plus 45.201 or 25.022 or 2.002D.

A study of the ecology of marine organisms with particular reference to the physical, chemical and biological environment in which they occur. Both field and laboratory practical work are included.

Students intending to enrol in this unit should register with the School of Zoology for the February field trip by 8 January.

45.121 Evolutionary Theory **S1 L3T1**

Prerequisites: 17.011 or 17.031, 17.021.

Current evolutionary theory, emphasizing the population level. Ecological genetics, evolutionary aspects of ecological niche theory, speciation, coevolution and general evolutionary genetics. Some background in genetics is desirable.

45.122 Animal Behaviour **S2 L2T4**

Prerequisites: 45.101, 45.201, 45.301.

An introduction to ethology, the biological study of behaviour. Physiological, ecological, developmental and evolutionary aspects of behaviour are examined as important elements in the analysis of behaviour, particularly social behaviour. Both field and laboratory work are included.

45.132 Comparative and Environmental Physiology **S2 L2T4**

Prerequisites: 45.301, 41.101, 45.201.

The physiology of the various classes of vertebrate animals with particular emphasis on the adaptation of the animal to its environment. Includes: osmotic and ionic regulation, respiration and circulation, temperature regulation, nerve and muscle function, digestion and metabolism.

45.142 Developmental and Reproductive Biology **S1 L2T4**

Prerequisites: 45.201, 45.301.

A survey of reproductive mechanisms, reproductive histology, reproductive endocrinology and embryology, with particular reference to the comparative aspects in vertebrate species. A detailed treatment of marsupial and monotreme reproduction.

45.202 Advanced Invertebrate Zoology **S1 L2T4**

Prerequisite: 45.201.

A comparative study of the environmental and sensory physiology of invertebrates.

45.302 Vertebrate Zoogeography **S2 L2T4**

Prerequisite: 45.301. Co-requisite: 45.122 or 45.132 or 45.142.

A geographic approach to the current distribution, abundance and types of vertebrate species in the Australian region. Particular emphasis is placed on the basic principles of speciation, the history of the Australian continent, vertebrate adaptations and changes in the distribution and abundance of the Australian vertebrate fauna under the influence of man.

45.402 Insects **S1 L2T4**

Prerequisites: 45.201, 45.101.

A comparative study of the internal anatomy and external morphology of insects. Classification and bionomics of major groups and families. A collection of insects is to be made. Practical work to include dissections, a study of mouthparts, wing venations, segmentation, etc. Field excursions as arranged.

45.412 Insect Physiology **S1 L2T4**

Prerequisite: 45.402.

The functions of the various organ systems and of the whole insect. Various aspects of reproduction, growth and metabolism. Experimental work to illustrate the lecture course.

45.422 Applied Entomology **S2 L2T4**

Prerequisite: 45.412.

Fundamentals of insect control. Pest species and types of damage caused. Control by insecticides, physical and biological means. Insect toxicology. Insecticide resistance. Practical work to illustrate the above and also various aspects of bioassay in entomology. Field excursions as arranged.

45.432 Project **S2 L2T4**

Prerequisite: 45.412.

Selected aspects of insect physiology, ecology and toxicology. Treatment of topics in depth rather than breadth. Practical work illustrates the lectures and places emphasis on design and planning of experiments.

School of Philosophy

First Enrolment in Philosophy

New students will normally enrol in

52.103 Introductory Philosophy A (Session 1).

52.104 Introductory Philosophy B (Session 2).

Each of these has 1-unit value.

Students who do not take Philosophy in Session 1 may, however, still qualify for admission to Level II work by passing 52.104 Introductory Philosophy B in Session 2.

Students in their second or later year of study may proceed to Level II work after passing 52.103 Introductory Philosophy A alone.

Upper and Advanced Level

Students may not proceed to Level II work in Philosophy in their first year of study in the Faculty. Students in later years may proceed to Level II work after passing two Level I half-units (or one Level I unit) in either session.

At Level II, Philosophy is presented in session-length 'half-units', some dealing with particular philosophical topics and others capable of being taken in sequences to give more sustained treatments of larger areas. This arrangement makes it possible to offer a wide range of half-units from which students may select freely, subject only to certain stipulations regarding prerequisites.

In certain circumstances the prerequisites specified for units or half-units within this list may be waived; for example, in the case of students who have already studied similar material in other Schools, or who wish to take isolated units or half-units relevant to another discipline without counting them as part of a Philosophy sequence. Students who feel they have a case for a concession of this kind should consult the School.

A maximum of three units (six half-units) at Level II may be taken as part of the Science course, exclusive of General Studies. Additional units may, with permission, be substituted for a part of the General Studies requirement, in accordance with the provisions laid down in the General Studies Handbook.

Selection of Units

Although students at Level II have a wide choice of units, they are recommended to plan a sequence of mutually relevant ones, taking into account the prerequisites of those they may wish to take later. Tabulated Information and School recommendations are available at the School, and students needing assistance should consult the School personally.

Level I units

52.103 Introductory Philosophy A **S1 L3T1**

An introductory course in philosophy.

Topics include: some arguments for the immortality of the soul; the problem of personal identity; the nature of Freud's theory of dream interpretation, whether scientific or non-scientific; objectivity, subjectivity and ideology.

52.104 Introductory Philosophy B **S2 L3T1**

A further introductory course in philosophy.

Topics include: the logician's approach to language, reasoning and belief, the rise of modern scepticism and problems about the source of our knowledge; the nature of moral problems; deduction in modern formal logic and related problems of the ambiguity of natural languages.

Level II units

52.153 Predicate Logic **S1 L2T0**

Prerequisite: 56.162.

A system of natural deduction is presented for the first order predicate calculus, including identity and definite descriptions. Emphasis is upon construction of formal derivations, methods of showing the invalidity of formal arguments, and the evaluation of informal arguments by symbolization.

52.163 Descartes **S1 L2T0**

*Prerequisite: Level II status in Philosophy**.*

The main issues raised in the philosophy of Descartes and their importance for the development of modern philosophy. Emphasis is on the *cogito ergo sum* argument, the Cartesian method and the search for rational certainty, his theory of ideas, the body-mind problem, and his account of freedom.

52.173 British Empiricism **S2 L2T0**

*Prerequisite: Level II status in Philosophy**.*

A survey of the empiricist tradition with special concentration on Locke and Berkeley.

52.193 Scientific Method **S1 L2T0**

*Prerequisite: Level II status in Philosophy**.*

The nature of empirical knowledge as exemplified in the physical and social sciences and in history, with emphasis on the concept of explanation, the nature of induction and scientific laws, counterfactual statements, and the paradoxes of confirmation.

52.203 Classical Political Philosophy **S1 L2T0**

*Prerequisite: Level II status in Philosophy**. Excluded: 52.182.*

The basis of political society, its various functions and its relation to the individuals in it, investigated through the works of a number of historically central philosophers. Topics include the theory of a social contrast, the establishment of political rights and obligations, and the relation of moral and political concerns within a political society.

Level II status in Philosophy consists in **1. being in second or later year of university study, and **2.** having taken and passed at least one Level I Philosophy half-unit. If the unit is composed of two half-units, these must have been passed in the same session. The prerequisite may be waived in certain cases by the School.

52.213 Sartre **S1 L2T0**

Prerequisite: 52.163 or 52.493.

An examination of Sartre's account of freedom, relations between persons and his social theory.

52.223 Foundations of Mathematics **S2 L2T0**

Prerequisite: 52.153.

A selection of problems concerning the foundations of Mathematics including the following topics: Non-Euclidean Geometry and consistency proofs, Axiomatics, Aritinomies of naive set theory, Logicism, Intuitionism, Formalism, Godel's Incompleteness result.

52.233 Argument **S2 L2T0**

*Prerequisite: Level II status in Philosophy**.*

A theoretical study of practical argumentation in the court-room, politics and everyday life as compared with argument in logic, mathematics and theoretical science. Confirmation and probability, authority, testimony, precedent; rules of debate; criteria of validity; problem of mechanization of practical arguments; logical rationalism and scepticism.

52.263 Philosophy of Psychology **S2 L2T0**

Prerequisite: 52.193.

A critical examination of some aspects of fundamental theory of psychology, with special emphasis on classical and contemporary behaviourism and behaviourist orientated psychology, and on the general conceptions of 'behaviour' and 'purpose'.

While Psychology I is not a prerequisite for this course, a preparatory survey of the introductory chapters of J. O. Whittaker's *Psychology* is of value to students.

52.273 Aesthetics **S2 L2T0**

*Prerequisite: Level II status in Philosophy**.*

An examination of the central concepts, types of judgment, and theories occurring in the fields of aesthetics, art criticism and literary criticism.

52.283 Philosophical Study of Woman **S2 L2T0**

*Prerequisite: Level II status in Philosophy**.*

Crucial structures involved in women's situation.

52.293 Plato's Later Dialogues **S2 L2T0**

Prerequisite: 52.483 Plato's Theory of Forms (or, by permission, a course covering similar material).

A course centred round some of Plato's later dialogues, the *Theaetetus* and *Sophist* in particular.

52.303 Spinoza and Leibniz **S2 L2T0**

Prerequisite: 52.163.

The main issues raised in the philosophy of the two great seventeenth-century rationalists, with emphasis upon the development of their metaphysical systems in response to unresolved problems in the philosophy of Descartes and to contemporary scientific thinking. Their ethical views.

52.323 Set Theory **S1 L2T0**

Prerequisites: 52.153 or 26.812 or 10.001 or 10.011 or 10.021B and 10.021C.

An axiomatic development of Zermelo-Fraenkel set theory, including a construction of the natural numbers, equinumerosity, ordinal and cardinal numbers, the axiom of choice and some of its consequences.

52.333 Philosophy of Perception **S2 L2T0**

Prerequisite: 52.163 or 51.173.

What it is that we are directly aware of when we perceive something. Emphasis on twentieth-century sense-data theories and their critics.

52.343 Privacy and Other Minds **S1 L2T0**

Prerequisite: 52.163 and either 52.173 or 52.243.

An introduction to the questions of (a) whether there is anything that a person can know which it is logically impossible for anybody else to know, (b) whether it is logically possible that anybody should speak a language that cannot be understood by anybody else, and (c) how we come to understand another person's mind.

52.353 History of Modern Logic **S1 L2T0**

Prerequisite: 52.153.

Not offered in 1978.

A historical treatment of selected topics in logic since Boole, with particular reference to Frege, Russell and Wittgenstein.

52.373 Philosophical Foundations of Marx's Thought **S1 L2T0**

*Prerequisite: Level II status in Philosophy**.*

A discussion of the basics of Marx's historical materialism and dialectical materialism.

52.393 History of Traditional Logic **S2 L2T0**

Prerequisite: 52.153.

Not offered in 1978.

A historical treatment of selected topics in logic before 1850, including: the traditional theory of deduction; the rhetorical tradition; topics and fallacies; the medieval theory of terms; traditional treatments of modality; logic in India and China.

52.403 Model Theory **S2 L2T0**

Prerequisite: 52.323 or 10.1123.

The metamathematics of the predicate calculus from the point of view of model theory. Topics include the deduction theorem, consistency, completeness, theories with equality, prenex normal forms, categoricity and second order theories.

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52.413 Reading Option A **S1 or S2**

Admission by permission, to suitable students with good passes in at least two half-units at Upper Level. A course of individually supervised reading and assignments on an approved topic not otherwise offered.

52.423 Seminar A **S2 L0T2**

Admission by permission, based on a student's performance in Level II units. Topics vary and are influenced by student requests. Possible topics include: Contemporary Ethics; Logical Atomism; Wittgenstein; Theories of the Emotions.

52.433 Seminar B **S1 L0T2**

As for 52.423 Seminar A.

52.443 Seminar C **S2 L0T2**

As for 52.423 Seminar A.

52.453 Reading Option B **S1 or S2**

As for 52.413 Reading Option A.

52.463 Introduction to Transformational Grammar **S1 L2T0**

Prerequisite: Any Level I unit.

Transformational grammar from the beginning: its history, goals, theory and practice. The emphasis is on understanding and constructing arguments for one transformational system over another.

52.473 Semantics of Natural Language **S2 L2T0**

Prerequisite: 52.153 or 52.463.

A study of recent developments in that area which is the common concern of linguistics, logic and the philosophy of language. Topics include the goals of linguistic theory, the relevance of formal logic to natural language, and truth, meaning, and presupposition in natural language.

52.483 Plato's Theory of Forms **S1 L2T0**

*Prerequisite: Level II status in Philosophy**.*

(Not available to students who have taken a similar course at Level I).

A study of some dialogues of Plato, with special attention to Socratic definition and Plato's Theory of Forms.

52.503 Utopias **S1 L2T0**

*Prerequisites: Level II status in Philosophy**; and 58.182 or 52.203.*

Traces the various developments in utopian theory by studying the acknowledged classics in the field, eg Edward Bellamy's *Looking Backward*, William Morris's *News from Nowhere*, and examining the arguments of the critics of Utopia, eg Karl Marx, Karl Popper. The practical details of utopian settlements, especially those created in the 'New World', like Robert Owens' New Heaven and the Rappite community's Harmony. This course is conducted through seminars and assessed by essays.

52.513 Social and Political Philosophy **S2 L2T0**

*Prerequisites: Level II status in Philosophy** and 52.182 or 52.203.*

Largely through contemporary writings, including a number of journal articles, the course examines such notions as justice, liability, responsibility, coercion, rights and punishment and the issues surrounding these notions.

52.523 Classical Ethical Theories **S1 L2T0**

*Prerequisite: Level II status in Philosophy**.*

A survey of some central and quite influential works in the history and development of moral philosophy. Comparison of certain aspects of these moral theories, comparison of the varying approaches taken by these philosophers, and the development of certain ideas through these philosophers. Most attention, however, is directed towards examining and understanding each theory in itself.

52.533 Contemporary Ethics **S2 L2T0**

Prerequisite: 52.523.*

Not offered in 1978.

A survey of some central themes in contemporary ethical theory (beginning with G. E. Moore), focusing primarily on questions concerning the use, meanings, and logic of moral terms and concepts.

52.543 The Philosophy of Love **S1 L2T0**

Prerequisite: 52.163 or 52.173 or 52.263.

Four main topics:

1. The distinction between *eros* and *agape*. This, together with the cognate distinctions between desire and love and between lust and love, is considered with an emphasis on Plato, St Paul, St Augustine, St Thomas Aquinas, and Luther. Ovid, Lucretius and Freud are given secondary consideration in this section (Freud on genital and narcissistic love).

2. The relation between love and reason. This, together with the relation between love and will, is studied mainly in Plato, St Augustine and St Thomas. Freud is given secondary consideration.

3. Union and separation. This is studied mainly in Plato, St Augustine, Plotinus. Secondary consideration will be given to St Teresa, Hegel and McTaggart and Freud.

4. Courtly and romantic love. The attachment to the unattainable which is treated in various texts from the troubadors to the modern novel and film.

52.553 Contemporary Moral Issues **S2 L2T0**

*Prerequisite: Level II status in Philosophy**.*

Investigation and discussion of a number of contemporary moral issues such as abortion, prejudice and discrimination, privacy, war and civil disobedience, punishment, and sexual morality.

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52.563 Hume **S1 L2T0**

*Prerequisite: Level II status in Philosophy**. Excluded: 52.152.*

A study of Hume's epistemology, his discussion of arguments for the existence of God, free will and the basis of morals.

52.573 Psychoanalysis — Freud and Lacan **S2 L2T0**

*Prerequisite: Level II status in Philosophy**.*

A discussion of psychoanalytic theory, particularly for what it shows about the relation between the individual and the social or between subjects and ideology.

52.583 Theories, Values and Education **S1 L2T0**

*Prerequisite: Level II status in Philosophy**.*

The nature of theories of education, and the contributions to them of philosophy, psychology and sociology; values in education and the social sciences; the justification of an ordering of educational goals.

School of Sociology

Undergraduate Study

53.103 Introduction to Contemporary Industrial Society **1 unit**

53.104 Introduction to Social Theory **1 unit**

Prerequisite: 53.103.

The course descriptions for 53.103 and 53.104 are given below.

1. An introduction to three issues prominent in the study of contemporary industrial society, ie work, inequality and socialization, studied in the context of both theory and empirical evidence. Students are expected to present written and oral assignments during the session.

2. An introduction to sociology that focuses on the thought of four seminal theorists. The course treats the work of Marx, Weber, Durkheim and Simmel in some detail. Students are expected to examine salient aspects of these writings and present written and oral assignments during the session.

School of Librarianship

Graduate Study

55.112 Libraries and Information

The role of the library in the total communication system of society, as an agency for the preservation, dissemination and development of knowledge and information. The history of libraries and their involvement in social and technological change. The provision, functions and services of various types of library with particular reference to the Australian environment. The role of the librarian in the library and in the information process; the library profession. Librarianship in relation to information science.

55.114 Communication and Record

The communication process. The development of various kinds of record to serve communication and to preserve knowledge. The development of printing and the book, and of other forms of record. The effects of recent technical innovations in transmitting and recording information. Reprography in relation to the diffusion of knowledge and to libraries. The mass media and their role in communication. The inter-relationships of the printed word, reading and the mass media.

55.122 Library Materials Selection and Organization

The selection and acquisition of library materials in all physical forms. The book trade and other sources of supply. The cataloguing, classification, indexing and circulation of materials in relation to the needs of users. The role of mechanization and automation.

55.123 Reference Service and Materials

1. Information sources, especially reference books, and their uses in library processes and reader services. Using publications to provide information at various levels in different library situations. **2.** The bibliography as a record of publication in the mass and as a guide to individual items. National, trade and subject bibliography. Indexes and abstracts. **3.** Reference books not limited to a particular subject: publication methods, coverage, organization of content, studied in relation to purpose and use. **4.** The principles and methods of reference work, its place in the total information network and in library service. Question analysis, search strategy and presentation of results to the user. The relationship of traditional reference methods to the design of mechanized information retrieval systems.

Level II status in Philosophy consists in **1. being in second or later year of university study, and **2.** having taken and passed at least one Level I Philosophy half-unit. If the unit is composed of two half-units, these must have been passed in the same session. The prerequisite may be waived in certain cases by the School.

55.124 Library Administration

The principles of administration and their application to libraries. Setting library objectives and measuring library achievement. Tools and methods of administration. The management of library staff and library finance. Administrative implications in the provision of library services and the adoption of techniques, including electronic data processing. The authority relationships of libraries; the library in the political process.

Subject Bibliography: The Humanities; The Social Sciences; Pure and Applied Sciences; Law; Government Publications

The structure of the literature, with special reference to the information and research needs of users. Publications embodying original work, criticism, exposition, popularisation. The major reference works in the field. Important collections in libraries, and other sources of publications and information. Problems of availability of resources.

55.231 Subject Bibliography: The Humanities

55.236 Subject Bibliography: Law

55.232 Subject Bibliography: The Social Sciences

55.233 Subject Bibliography: Pure and Applied Sciences

55.238 Subject Bibliography: Government Publications

55.362 Mechanized Systems for Libraries

Justification, analysis and design of automated systems for technical processing in libraries, such as ordering and acquisitions, cataloguing, circulation, serials control and reference. Computer hardware, peripherals, allied processing equipment. Basic programming and library systems analysis. File organization, bibliographic record design, file maintenance, report generation and search programs. Survey of mechanized systems and library networks. MARC, MEDLARS, OCLC and other shared cataloguing projects. Comparison of batch and on-line systems. When and what to automate. Human factors in automation of libraries. Cost analysis.

55.371 Literature for Young People

Printed materials for children and young adults in relation to their needs, interests and abilities. Criteria for evaluation and selection for library collections. Use of materials in reading guidance with children and young adults.

55.373 Public Libraries

The purpose of the public library in the community examined through a comparative study of public library services with emphasis on special programs of service to adults, young adults and children; surveys and plans for the introduction of library service to specific regions.

55.378 University and College Libraries

Trends and developments in tertiary education in relation to the purposes and functions of university and college libraries. The library's response to the university environment and to the library user through its resources and services.

55.381 Special Libraries

The nature of special libraries and the environments in which they operate. The evolution of the special library. The relationships of the special library to its parent organization, to its users and to other sources of information. The functions of the special library and their translation into appropriate services. Systems and techniques relevant to special libraries, including mechanized information systems. Staffing, siting, planning special libraries. Measurement of special library effectiveness.

53.385 School Libraries I

The information environment of educators. Educational issues and their effect on libraries. The development of the role of the library in the school in relation to educational thought and practice. The provision, administration and organization of school library resources and services on national, state and local levels. The roles of school and public libraries and the community library concept.

55.386 School Libraries II

Subject curriculum studies in relation to the selection of materials and library programs. Materials studies in relation to the range and type of materials and their application to curriculum subjects. The compilation of subject bibliographies. Media production and services in relation to subject curriculum studies. Methods of individual and group reader education and the teaching of library skills.

55.712 Archives Theory and History

Archives theory studied historically. Public administration, administrative history and government records. The history of archives institutions. Archives legislation. Business, institutional and other non-governmental archives. Private papers, local history collections. Uses of archives for information and in research. The development and role of the archives profession. National and international archives associations; constitutions, programs, publications.

55.713 Archives Administration

1. Relations between archive-creating bodies and archives institutions. Commercial and legal practice, forms and terminology relevant to the understanding of archives. The elements of records management.

2. Archives management: acquisition, arrangement and description, the publication of finding aids, the application of automation, microcopying. Conservation of materials. Repository planning.

3. The principles of administration and their application to archives institutions.

4. Service to users of archives, including questions of access and copyright. Publication of archives.

55.714 Information Environment for Archivists

Information sources which supplement archives: academies, learned societies, institutions, including libraries, galleries and museums. Libraries of various types studied in relation to the needs of archivists; acquisition of materials by purchase, gift, exchange and legal deposit; organization of materials for use. Bibliographical description and national and international documentation standards. Documentary materials in non-book form and their use in research. Dissemination of texts and other types of record by reprography and in microform.

Master of Librarianship Subjects

55.801G Library and Information Services Management A

Legislative and financial aspects of library provision. Libraries in the political process. Authority relationships and the nature of the library as a bureaucracy.

Siting and planning of libraries. Patterns of administrative organization in libraries. Position classification and personnel administration. The management of library finances.

55.803G Library and Information Services Management B

The assessment of information needs of various groups and the design of appropriate services. Library systems analysis. The integration of libraries in information networks.

Applications of operations research and computer technology in library management and in the dissemination of information by other agencies. Evaluation of libraries and other information services.

55.805G Issues in Librarianship

Contemporary issues in librarianship, including the provision of libraries and information by governments and by private enterprise; automation, information science and libraries; cataloguing, classification and bibliographical control; problems of publication growth and library size; libraries in the social environment.

55.807G Research Methods in Librarianship

The nature, necessity and techniques of research in librarianship and contributions of information science; functions and techniques of statistical analysis; preparation of research proposals; state of the art of research in librarianship and the evaluation of research projects.

School of Education

Graduate Study

Diploma of Education

58.001 Educational Psychology

A general overview of significant aspects of human behaviour in educational settings. Topics: classroom discipline and behaviour modification; individual differences, cognitive growth and intelligence, socialization through the school, evaluation, the psychology of adolescence, memory, learning theories, motivation, efficient instruction and learning disabilities.

58.002 Philosophy of Education

Subjects in Session I are designed to explore philosophical questions concerning teaching and learning with particular reference to the various subjects taught in schools. Issues are raised concerning the relationships between school subjects, the connection between knowledge and the development of mind, the value of school subjects in relation to other activities which could compose education and the social and ethical context of education. These issues are followed up in much more detail in Options in Session 2.

A focus of subjects in Philosophy of Education in Session 1 is upon logical and epistemological questions which are internal to the various teaching subjects. To this end students are asked to select their Philosophy of Education group from one of the following:

Philosophical problems in Mathematics and Education *or*
Philosophical problems in Language and Education *or*
Philosophical problems in Literacy Appreciation and Education *or*
Philosophical problems in History and Education *or*
Philosophical problems in Science and Education *or*
Philosophical problems in Social Science and Education *or*
Philosophical problems in Curriculum and Education.

58.003 Sociology of Education

The role of education in Australian society with particular attention to Australian education systems, inequality and the role of the Department of Education and implications of sociology for educational aims. Adolescent groups, including deviants and cultural deprivation. Social structures in the secondary school and the school in the local community. A study of teacher groups, including role and professionalism.

58.004 Electives

Electives are offered in Education subjects and in Method and Curriculum studies to meet the differing professional needs and interests of students with varying backgrounds. Students are encouraged to initiate further elective courses. No restriction is placed on the choice patterns of students.

58.005 Education Options

Normally students are required to choose one option from each of the three areas of Educational Psychology, Philosophy of Education and Sociology of Education. This requirement may be varied at the discretion of the Head of School with respect to students who have completed two or more years of undergraduate study in one of the above areas.

Educational Psychology: Aspects of Research in Educational Psychology; Computer-Assisted Instruction; Behaviour Modification; Learning Difficulties in a Normal Classroom; Motivation in the Classroom; Child Development II; How Children Think; Individual Differences.

Philosophy of Education: Psychoanalysis and Behaviourism; Children's Rights; Ethical Theory and Moral Education; Current Social Problems and the Curriculum; Authority and Education; The Individual, Society and Schooling; Philosophy of Curriculum Construction; Philosophical Problems in Education; Methodology for Criticism in Education; Progressive Education.

Sociology of Education: Aborigines and Education; Society Today and Tomorrow; Socio-Cultural Influences on the Education of Adolescents; Sociology of Migration; Sociology of Minority Groups in Australia; The Sociology of the School and Classroom; The Role of Education in Society; Women and Education; Social Class and Inequality of Educational Achievement; The Socialization of Pupils and Teachers.

The options presented depend on student demand. Particular combinations of subjects are not permitted because of similarity of content.

From any one of the following combinations **1.** to **5.** students may choose no more than *one* option:

1. Children's Rights; Authority and Education.

2. Authority and Education; Progressive Education.

3. Current Social Problems and the Curriculum; The Individual, Society and Schooling; Society Today and Tomorrow; The Role of Education in Society.

4. Aborigines and Education; Sociology of Migration; Sociology of Minority Groups in Australia.

5. Sociology of Minority Groups; Women and Education.

58.021 Commerce/Economics Method

This subject examines Commerce curriculum and methodology as taught to Forms 2 to 4, and Economics as studied in Forms 5 and 6. The New Commerce Syllabus follows the Special Development of Concepts Approach and concentrates on topics that are relevant and meaningful. It also lays a conceptual foundation for the study of Economics in the senior school.

Note: A knowledge of bookkeeping is necessary to the study of Commerce Method and tutorials are arranged for those with no previous bookkeeping experience.

58.022 English — Single Method

58.023 English — Double Method

The seminar part of this subject has three constituents. The curriculum studies strand deals with the objectives of English teaching as well as the content, range and suitability of work for each form and level. The Method studies strand examines how these objectives can be implemented in the classroom, with special emphasis on imaginative methods of approach. The professional skills strand is a workshop program aimed at developing techniques for exploring and implementing new approaches to English.

It is possible for graduates who have at least two years of English or at least two years of drama accompanied by one year of English in the undergraduate course, to elect to study double English Method. In addition to the single Method course, such students will intensively study specific areas of the English curriculum and participate in practical investigations related to the teaching of English.

58.024 French Method

58.026 German Method

58.036 Spanish Method

These subjects have several aspects. Method discusses audio-visual language teaching including some attention to the history and development of these Methods and of linguistics. Practical sessions complement this theory; teaching techniques are considered, material from the audio-visual course utilized and practice teaching problems discussed.

58.025 Geography Method

Lecture-discussions are aimed at interpreting the syllabuses through a variety of approaches, understanding the structuring of individual lessons as part of work units, and examining methods of presentation of material in relation to pupil motivation, classroom management and varying class ability levels.

This is followed by an in-depth treatment of some aspects of Geography teaching through workshops structured around a range of audio-visual materials. Experience is gained in the production of fieldwork units, printed materials, wall charts, black and white and colour 35 mm slides, overhead transparency materials, sound cassettes and multi-media kits.

58.026 German Method

See 58.024.

58.027 History Method

History Method: The seminar program covers the nature and value of history, study of history syllabuses with major attention devoted to those of New South Wales, varieties of lesson procedures and teaching techniques, development and use of audio-visual aids, methods of assessment and related matters. The program is closely related to practice teaching experiences. In the later part of the course, particular attention is given to the planning and development of units of work accompanying resource material.

58.028 Industrial Arts Method

The subject includes the application of principles dealt with in philosophy, psychology and theory of education to the teaching of the Industrial Arts.

An introduction to commonly-used Industrial Arts instructional procedures such as the demonstration, the application of audio-visual aids and effective management of Industrial Arts workshops and laboratories. Curriculum developments are explored using an historical approach, leading to a consideration of the philosophy, aims and objectives of current Industrial Arts programs. Other aspects of the subject are devoted to the planning of facilities, sequencing of course content and programming, and the evaluation of courses and students.

58.029 Library Method

The subject prepares teachers for the role of School Librarian whose special competence is professional knowledge about the materials of instruction. The newly developing school library is an Educational Resource Centre and includes a wide variety of learning resources which are integrated with school curricula.

Lectures/discussions are planned to include aspects of Educational Media, Library Administration, Children's Literature, Cataloguing and Classification, Selection and Evaluation of Materials and Integration with School Program.

58.030 Mathematics — Single Method

58.031 Mathematics — Double Method

These subjects have six main aims: to examine the objectives of teaching mathematics at the secondary level, to consider elementary notions concerning a mathematics curriculum and its construction, to compare the New South Wales secondary mathematics syllabuses with those of other systems, to discuss strategies and methods of teaching mathematics with special reference to the School and Higher School Certificates, to prepare mathematics aids for classroom use and to consider evaluation in all its aspects.

It is possible for graduates whose major subject is science to take Mathematics Method as a single teaching subject in conjunction with Science Method. The program for this subject is devised on an individual basis by consultation.

58.032 Science — Double Method

58.033 Science — Single Method

These subjects are designed to build confidence in the use of a wide variety of teaching techniques and procedures. A range of resource materials developed in recent curriculum projects in secondary science both in Australia and overseas are introduced. An attempt is made to investigate the practical implications for science teaching of topics dealt with in Education A: eg contributions of the learning theorists, curriculum theories, student evaluation and class control.

Owing to the increasing emphasis on integrated science courses in NSW high schools, an attempt is made to offer a diverse range of electives covering aspects of the teaching of the traditional disciplines, physics, chemistry, biology and geology, as well as electives on various themes common to all science teaching, such as quantitative thinking, the philosophy of science, evaluation of science learning and social aspects of science.

Some sections of the subject are compulsory, eg those designed to introduce the features basic to all science teaching, and certain sections for those students with no tertiary study in the scientific discipline concerned. Students may choose a major component of studies from the range of electives offered. A certain minimum number of electives must be completed during each Session by students taking Science as a Double Teaching Subject. A smaller number of electives must be completed over the whole year by students taking Science as a Single Teaching Subject. However, all students are encouraged to complete as many electives as time and interest allow.

58.034 Slow Learner Method

Prerequisite: A major in psychology is required. In special cases the Head of School may exempt a student from this requirement.

Children designated 'slow learners' may be placed in segregated classes, usually referred to as General Activity Classes, or they may be integrated into ordinary level or modified level classes. An integrated approach to the teaching of language and communication, social sciences and mathematics is adopted, with particular emphasis upon remedial reading. The psychology of the slow learner is treated, with a balance between the theoretical issues and practical classroom techniques involved. With the co-operation of schools, observation and involvement in regular practical class experience is undertaken early in the course.

58.035 Social Science Method

Prerequisite: ***1.*** *a 3-year major in History or Geography or Economics (that subject being the major method) plus* ***2.*** *at least 2 years of university study in one or more of the following: History, Geography, Asian Studies, Economics, Economic History, Government, Political Science, Anthropology, Sociology (the units of a major sequence are not accepted if already used as the basis for selection of the major teaching method). Other social science subjects may be considered appropriate.*

Social Science/Asian Social Studies or
Social Science/Ancient History

Opportunity exists for a limited number of students (provided they have the necessary prerequisites) to do one of the above method combinations. All three courses emphasize the development of effective methods of building knowledge, inquiry skills, attitudes and values about societies—ancient and modern, eastern and western. A feature of each course is the opportunity to prepare and test resource material.

58.036 Spanish Method

See 58.024.

58.037 Method and Curriculum Studies

A flexible arrangement of studies is offered, which may include method options, further study in particular teaching subjects, and cross method studies.

58.051 Practice Teaching

In Session 1 there are approximately 12 days of supervised teaching practice in schools, followed in Session 2 by a block practice of 20 days.

58.052 Applied Studies in Teaching

Teaching techniques and practice: micro-teaching, audio-visual instruction, selected activities and school visits.

Selected activities: each student is encouraged to nominate a project, or practical activity, to be completed either in a school or at the University.

Undergraduate Study

Education Subjects in Science Education, Mathematics Education and Industrial Arts

58.071 Methods of Teaching IA (Industrial Arts Course) F T3

Prerequisite: 58.512. Co-requisite: 58.513.

The application of principles dealt with in Philosophy and Theory of Education, and in Educational Psychology, to the particular case of teaching in the Industrial Arts subject area. For example, the aims of industrial arts teaching are analysed and the provision of effective learning experiences are discussed. Practical work, demonstrations by the teacher, audio-visual aids, programmed instruction and the planning of lessons to incorporate such learning experiences effectively. Classroom management and workshop organisation are also dealt with, as is the teaching of various skills.

School Experience. Students begin teaching practice in their third year. The school experience in that year is designed to give them a gradual introduction to teaching and this will be consolidated in their fourth year.

58.072 Methods of Teaching IIA (Industrial Arts Course) F T3

Prerequisite: 58.071. Co-requisite 58.514.

Curriculum development in Industrial Arts, further discussion of instructional procedures, evaluation of student achievement and the planning and management of facilities. The aims and objectives of Industrial Arts teaching are considered including reference to the influence of historical, social and technological factors upon them. The selection and sequencing of content is dealt with as a basis for programming. Principles of evaluation introduced in Educational Psychology are applied to the case of Industrial Arts and special techniques are considered. Instructional procedures discussed include questioning, explanation, exposition, group processes and the use of practical work. The planning and management of facilities include consideration of the Planning Unit and the Resource Centre in the Integrated Industrial Arts Complex.

58.512 Introduction to Education F L2

The subject serves as a basis for study in greater depth of educational psychology, philosophy and theory of education research methods and sociology of education in succeeding years and shows the contribution of each to the practice of teaching. This contribution is discussed in lectures and seminars and illustrated by school visits which take place at various times throughout the year. This time allocation for the subject includes 14 hours spent in fieldwork involving the visits to schools.

58.513 Education IA F L4

Prerequisite: 58.512. Co-requisite: 58.523 or 58.533 or 58.071.

Educational Psychology

Areas considered include learning, cognition and individual differences.

Philosophy and Theory of Education

Curriculum theory and curriculum development, theory in education with reference to educational objectives, and an analysis of values leading to a concept of education. Various concepts examined within the context of theory and values, such as: responsibility and punishment, indoctrination, equality, creativity.

Research Methods in Education

An introduction is provided to the methods and principles of research in education. Topics emphasize those techniques necessary for the analysis and interpretation of data from educational research designs of both the experimental and survey type. Includes: simple and multiple correlation and regression, and a detailed treatment of analysis of variance.

Sociology of Education

An investigation of the role of education in Australian society with particular attention given to inequality, adolescent groups including a study of deviants and cultural deprivation. A sociological analysis of classroom groups including group interaction, reference group theory and role theory. An analysis of social structure in the secondary school and the school in the local community. A study of teacher groups with particular attention given to role and professionalism.

58.523 Education IB F L1T4

Prerequisites: 1.011 or 1.001 and 2.001, 17.011, 17.021, 25.011 58.512. Co-requisite: 58.513.

Science Curriculum and Instruction

The application of principles dealt with in Educational Psychology and Philosophy and Theory of Education to the particular case of science teaching. Learning in science and the role of teacher demonstrations/pupil practical work. Preparation and use of audio-visual aids, lesson planning and classroom management. Assistance in the development of teaching skills is provided in peer group microteaching situations. Resources for learning the professional responsibilities of the Science teacher. The teaching of selected topics in Biology, Chemistry, Geology and Physics is commenced and this is developed further in the fourth year.

58.514 F T4
and
58.584 Education IIA F T3

Prerequisite: 58.513. Co-requisite: 58.524 or 58.534 or 58.071.

Students enrolled in the BSc(Ed) Degree Course (406) take the subject 58.514 Education IIA which consists of four options, each of which occupy two hours per week of class time for one session.

Students enrolled in the BSc DipEd Degree Courses (407 and 408) take the subject 58.584 Education IIA which consists of three options, each of which occupy two hours per week of class time for one session.

The options may be chosen from those given below. However, whether a given option is offered depends on the availability of staff in a given year and other options may be added from time to time.

Options in Educational Psychology

Educational Measurement: The purposes and methods of measurement available to the classroom teacher, including the use of standardized tests. The place of Guidance Counsellors in an evaluation program is considered.

Motivation in the Classroom: Observations of various forms of communication in the classroom suggestive of inner needs. Consideration is given to procedures to facilitate awareness of such motives and possible methods for satisfying or controlling them.

Personality: Structure and culture; normal and abnormal behaviour; adjustment and readjustment; attitudes and traits; analysis and measurement; a further look at empathy, role playing and sensitivity training in the classroom.

Computer Assisted Instruction: Within the next few years computers will be commonplace in the classroom requiring teachers with new skills and knowledge. The purpose of this option is to provide a foundation for the skill development necessary to use CAI effectively. It involves both theoretical and practical components, the latter using computer terminals located in the School of Education. No prior experience is assumed.

Programmed Instruction: Students develop appropriate skills and knowledge in the field of programmed instruction to enable them to function effectively in the preparation of instructional sequences which are educationally sound. The use of computer assisted instruction, allowing a practical evaluation of its effectiveness. Students co-operate in the preparation and trialling of programmed materials which might contribute to available teaching resources in their area.

Audio-visual Aids: Students discuss psychological concepts such as *attention, novelty* and its determinants, *perception* in relation to the process. This provides a basis for a study of the techniques and equipment involved in the preparation of teaching aids for classroom use. A group project utilizing these skills and knowledge should produce some useful, psychologically-based materials.

Options in Philosophy and Theory of Education

Ethical Theory and Moral Education: The educational implications of the major ethical theories: the structure of ethical theories; educational implications consistent with a given structure; and practical issues concerned with moral education.

Justification for Teaching: Examines certain broad aims of education and expectations of teachers in order to see how far they might be justified and how practically possible they might be. The stated aims of the Wyndham Scheme are then put to the theoretical and practical test. Finally students are asked to defend the teaching of certain subjects with special reference to science and industrial arts, by showing what benefits will be brought to their pupils. (This option does not duplicate material covered in curriculum and instruction strands.)

Methodology for Criticism: 1. Develops methods and techniques whereby meaningful discussion of educational issues can take place. 2. Critical discussion on issues such as: examinations, assessment, schooling, discipline, equality of opportunity, university degrees, authority, curricula, subjects, indoctrination.

Moral Education in the Schools: Such issues as: What is moral education? How best can it be brought about? Should schools be concerned with moral education? Do schools confuse moral with practical, prudential, religious and even aesthetic issues, and what might be the consequences and implications of this?

Social Philosophy and Education: Some of the main themes in social philosophy, including the social principles of democracy, freedom and authority, constraint, the individual and society, equality of opportunity. The social functions of the school, and the problems of the above concepts within the closed society of the school.

Philosophy of the Curriculum: How is knowledge involved in education? Are there structures of knowledge which could structure the curriculum? What are the connections between knowledge and skill and knowledge and understanding? What is meant by 'integration of the curriculum'? What is at issue between the advocates of specialized versus general education? Should there be a compulsory curriculum? What is the importance of psychological and sociological considerations in the curriculum formation?

The Aims of Education in Theory and Practice: The theories of some influential educationists and some attempts to apply them. Progressive theories and schools, and the de-schooling movement.

Philosophy of Science and the Teaching of Science: Post-'classical' philosophy of science with an emphasis on the work of Kuhn, Lakatos and Feyerabend, and some elements of Karl Popper's work as a background. What is scientific activity? Evaluation of School Science courses and ways in which they can be improved.

The social dimensions of science and recent work on values, goals, purposes in scientific activity, encompassing wide ranging issues from rationality in science; religion and science; Are Marxism and Freudianism scientific enterprises? What bases are there for the 'Science for the People' movement? What influences science in a capitalist society?

Science and Religion in Education: Comparison of religious beliefs with science, the place of science and religion in the school. Do science and religion conflict? Are religious beliefs like scientific beliefs? Are they rational? How can they be supported? Can faith replace reason? Is there a God? Can there be miracles? Has the teaching of religion a place in schools? Should a science teacher avoid disturbing religious belief? Has the teacher a right to argue for a religious or atheistic viewpoint? The problem of evil.

Options in Research Methods in Education

Educational Research: Provides a basis in some depth for applied educational research. It forms a sequence with the research methods strand in 58.513 Education IA.

Options in Sociology of Education

Australian Education Systems—An Historical and Sociological Analysis: The historical development of Australian education. The sociological perspective is applied to investigate whether Australian education systems are meeting the needs of Australian society.

Society Today and Tomorrow: Implications for Education: Some major characteristics of and trends in society, such as urbanization, social change, bureaucratic organization, the counter culture, community vs. association, and work and leisure patterns, with special reference to the ecological situation and the significance of values and value transfer. Possible curriculum implications and some of the fundamental questions these social issues raise concerning the role education plays in society.

Socio-Cultural Influences on the Education of Adolescents: The application of the sociological perspective to the education of adolescents.

The Education of Disadvantaged Groups: The education of disadvantaged groups in Australia, in particular, women and migrants.

58.524 Education IIB **F L1T4**

Prerequisites: 58.513, 58.523.

Science Curriculum and Instruction

Curriculum theory and applications of the principles involved in curricula for secondary school science in Australia and overseas. The specification of objectives of instruction, the sequencing of content, and evaluation of learning outcomes in science in the secondary school. Consideration of the Personal Development Program in New South Wales High Schools. Professional responsibilities and professional development of the Science teacher. The teaching of Biology, Chemistry, Geology and Physics.

58.533 Education IC **F L3**

Prerequisite: 10.001 or 10.011, 58.512. Co-requisite: 58.513.

Mathematics Curriculum and Instruction

The application of principles dealt with in Educational Psychology, Philosophy and Theory of Education and Sociology of Education to the particular case of mathematics teaching. The study of theories of learning as related to the teaching of mathematics. The development of skills in strategies and methods of teaching mathematics; lesson planning and classroom management. Discussion of the place of aids in the teaching of mathematics and the preparation of some aids. A study of the history and development of mathematics and the implications of these for teachers. The teaching of topics related to New South Wales syllabuses in mathematics, years 7 to 10.

58.534 Education IIC **F L3**

Prerequisites: 58.513, 58.533.

Mathematics Curriculum and Instruction

Examination of the aims of teaching mathematics as they are related to the Aims of Secondary Education in New South Wales. Comparison of New South Wales syllabuses with interstate and overseas curricula. Curriculum development and implementation. A systematic review of books and journals relating to mathematics education. An examination of recent trends in mathematics teaching especially the mathematics laboratory, group activities and structured materials. Professional responsibilities and professional development of the mathematics teacher. Use of the computer and its applications. Consideration of various forms of evaluation of student achievement. The teaching of topics related to New South Wales syllabuses in Mathematics, years 11 and 12.

58.542 Education ID **F L1T2**

Industrial Arts Curriculum and Instruction

An introductory course in Industrial Arts education designed to provide students with basic knowledge about classroom management, workshop organization and the various special methods employed in the teaching of the industrial arts in secondary schools. The course encompasses a general consideration of the scope of secondary school industrial arts and, through a general survey of syllabus material, a preliminary consideration of aims and objectives of the various school programs including the place of personal skills development in Industrial Arts.

The laboratory program is designed to provide basic workshop/laboratory methodology applicable to junior school industrial arts, such methodology being particularly applicable to the syllabi for Form 1 Craft, Technics years 7-10 (in particular those strands drawing from the broad areas of woodworking and metalworking), and Industrial Arts, years 9-10 (in relation to its workshop/laboratory aspects only).

58.543 Education IID **F L1T2**

Industrial Arts Curriculum and Instruction

Session I, is directed towards the preparation of students for their first period of Teaching Practice, as set out under the subject 'School Experience I'. Examines: School structure and organization, the roles of teachers and administrators and the rights, responsibilities and legal obligations of teachers; methods of instruction applicable to the various aspects of secondary school industrial arts, with use being made of micro-teaching techniques to allow students the opportunity for personal development in the general area of class control and management; safety in school workshops and laboratories, particularly in relation to teacher responsibility for adequate safety instruction and supervision. The requirements of the NSW Department of Education and the Department of Labour and Industry are examined, the aim being to develop in the students desirable attitudes and practices relating to the provision of a safe working environment in the secondary school.

The laboratory component of the course is again primarily directed towards workshop/laboratory methodology applicable to junior school syllabi, with emphasis upon more advanced methodology applicable to such strands of Technics as cabinetwork, Building Construction, Plastics and Boatbuilding in FRP. In addition, methods directed towards the Graphical Communication strand of Technics, the Technical Drawing Syllabus years 9-10, and the Graphics aspects of the Industrial Arts–Engineering Science syllabus, are explored. Students work in the drawing studio during this part of the course.

58.544 Education IIID **F L1T2**

Industrial Arts Curriculum and Instruction

Covers the curriculum development in industrial arts, further discussion of instructional procedures and the evaluation of student achievement, teaching programs and courses of instruction. Examines significant developments in industrial arts education using an historical approach and this, together with an examination of relevant philosophical sociological and psychological factors, is aimed at assisting students to formulate their own philosophy of industrial arts education. Detailed work on the planning and management of facilities is undertaken, including consideration of resource centres in industrial arts complexes. Principles of evaluation introduced in Educational Psychology will be applied to the case of Industrial Arts and special needs and techniques considered.

Innovation in industrial arts education; the development of new courses and syllabuses, and the application of other areas of Industrial Arts such as industrial design and traditional technology to secondary school industrial arts education programs.

The laboratory program for Session I will include methodology directed towards the design aspects of the Industrial Arts syllabus (years 9-10), particularly relating to the application of the principles and methods of industrial design. It is envisaged that students may work with several of a wide variety of materials, including wood, metal, plastics, FRP or leather.

Session II laboratory work is directed to the implementation of the Industrial Arts–Engineering Science syllabus, years 11-12, particularly to the concept of design analysis. Emphasis is placed upon the development of an integrated laboratory/investigation program by the students.

In addition, students as part of their laboratory program are required to submit a major project at the end of Session II.

58.584 Education IIA **F T3**

See entry under 58.514.

58.593 School Experience I

Prerequisite: 58.512. Co-requisite: 58.523 or 58.533 or 58.071.

A gradual introduction to teaching. Each student is placed in a high school for one half-day per week in Session 2. The student is associated with a teacher and progresses from a helping role to one in which he assumes responsibility for conducting complete lessons.

58.594 School Experience II

Prerequisites: 58.593 and 58.072 or 58.523 or 58.533. Co-requisites: 58.524, 58.534 or 58.072.

The subject provides extensive opportunities for students to develop teaching competence. Each student is placed in a high school for one day per week and works in close association with a teacher.

Graduate Study

Master of Education Subjects

Miscellaneous Subjects

58.201G Comparative Education

Methodology of comparative education, with particular reference to cultural perspectives. Selected educational problems in various advanced societies. Problems peculiar to underdeveloped countries.

58.202G Educational Planning and Administration

General principles of administration applied to the organization and administration of education. The factors underlying the administration of the Australian educational systems, both government and independent. Politics and economics of education. Aspects of social psychology relevant to educational administration.

58.204G Educational Theory in the Twentieth Century

A critical appraisal of the work of theorists such as: Dewey, Buber, Berdyaev, Sartre, Homer Lane, A. S. Neill, Nunn, Hutchins Mannheim, Makarenko. Recent educational theories relating to the curriculum, such as those of Bruner and Hirst. Selected viewpoints on moral education. An analysis of the concept of theory in relation to educational writing.

58.206G History of Education

1. History of Western Education. **2.** History of Australian Education. In each part there is both a study of movements and cultures as well as of distinguished thinkers. Part **1** provides a background for understanding **2.** Australian education traces the growth of national education, the relationship between denominational and national systems, the impact of various acts and the work and influence of men such as Wilkins, Parkes, Rusden and Board.

58.212G Mathematics Education

Theories of instruction, theories of cognitive growth and principles of curriculum development; the application of these theories and principles to aspects of a mathematics curriculum; an examination of new mathematics curricula in Australia and overseas in terms of the above theories and principles.

58.215G Social Sciences Education

The place of the various social science disciplines, including history in secondary education. Topics include philosophical and methodological issues as they relate to education, principles of curriculum development and examination of recent trends in secondary curricula in the various social studies subjects in Australia and overseas.

Philosophy of Education Subjects

58.219G Educational Research I

An introduction is provided to the methods and principles of research in the social sciences. A study is made of the theory of educational research relevant to report or thesis presentation. Practical experience is also provided. The subject content includes elementary statistics and research design.

58.220G Educational Research II

Prerequisite: 58.219G or equivalent.

An extension of Educational Research I. Emphasis is placed on the collection and reporting of data using a variety of research designs. The associated analytic techniques are discussed in depth.

58.221G Educational Research IIIA

Prerequisite: 58.220G or equivalent.

An advanced course in research design with an emphasis on the analysis of survey data. It includes the following topics: quasi and non-experimental design; theory and methods of scaling; multiple regression analysis with an emphasis on continuous variables; path analysis and other related topics.

58.222G Educational Research IIIB

Prerequisite: 58.220G or equivalent.

An advanced course in research design with an emphasis on the analysis of data from controlled experiments. Includes the following topics: repeated measures analysis of variance; analysis of covariance; multiple regression with an emphasis on categorical variables; trend analysis and other related topics.

58.223G Research Design I

This subject, along with Research Design II, is specifically designed for the non-mathematically inclined student who wishes to conduct qualitative educational research and/or who wishes to be able to understand and evaluate research studies in Education. An introduction is provided to the methods and principles of educational research. Looks specifically at quantitative research and examines the methodology used.

58.224G Research Design II

Prerequisite: 58.223G.

Emphasis on qualitative research. In addition, evaluation of both quantitative and qualitative research projects is made.

58.225G Multivariate Analysis in Educational Research A

Co-requisite: 58.221G or 58.222G.

Provides a basis for understanding the principles underlying those multivariate techniques most commonly applied in educational research. The mathematics required for an understanding of multivariate analysis, consisting mostly of matrix algebra, is taught as part of the course. Other topics include characteristics of samples from the multivariate normal population, simultaneous tests of significance for regression coefficients, a test for complete independence, and tests of hypotheses on means.

58.226G Multivariate Analysis in Educational Research B

Prerequisite: 58.225G. Co-requisite: 58.221G or 58.222G.

This course extends the study of multivariate analysis in education provided in Multivariate Analysis in Educational Research A. Topics to be considered include the principles underlying the multivariate analysis of variance, independence of sets of variates and canonical correlation, principal components analysis, factor analysis or applications to classification problems.

58.254G The Philosophy of Mind and Educational Theory

A survey of theories of the nature of the mind, followed by discussion of specific issues chosen from among the following, together with the implications of various positions for educational theory: behaviourism, materialism and dualism; the Skinner/Chomsky debate; the explanation of action; the nature of concepts and conceptional development; knowledge of other minds; freedom of the will; minds and machines; rationality.

58.256G Moral Education I

Concept of morality; values and moral values; relationship between educating and valuing. Concepts of heteronomy and autonomy. Kant and links with empirical research of Kohlberg's. Dewey's proposals for moral education. Moral education and the forming of dispositions. Claims to moral knowledge. Moral education and rationality; the problem of transcendental justifications; the problem of form and content in rational moral education. Indoctrination; relationship between intention, method and content.

58.257G Moral Education II

Prerequisite: 58.256G.

The question of autonomy in relation to rational moral education: Kant, Peters, Feirberg, Baier etc on autonomy. The concept of neutrality; relevance to moral education. Rights: moral, legal, 'natural' and 'human' rights. Problems of equality and justice in social and educational philosophy. Social contract approaches. Utilitarianism and rule-utilitarianism. Respect for persons: freedom and free schools; problems of justification of freedom.

58.258G Philosophy of the Curriculum I

Philosophical considerations relevant to an analysis of such issues as integration of the curriculum, specialized versus liberal education, the 'hidden' curriculum, compulsory curricula, vocational education, the education of the emotions, etc. Analysis of such concepts as rationality, autonomy, equality, freedom, intelligence, creativity, knowledge, self-realization, wants, needs, interests etc, with a view to establishing their significance in curriculum construction.

58.259G Philosophy of the Curriculum II

Prerequisite: 58.258G.

An examination of epistemological, logical, psychological and sociological considerations in curriculum construction. Issues in traditional epistemology and logic are related to psychological questions concerning, for example, mental abilities, behavioural objectives and the concept of mind and to sociological questions concerning knowledge and control and the social context of knowledge. The relevance of such work to current curriculum issues such as the relationship between means and ends in curriculum construction and the nature of the 'hidden curriculum' is explored.

58.264G Philosophy of Science Education

Prerequisite: 58.334G.

An advanced and detailed examination of recent debate in philosophy of science, featuring the work of Popper, Lakatos, Kuhn, Feyerabend, Althusser etc. Particular attention is paid to epistemological issues and how the debate affects the philosophical problem of knowledge and its development. This provides the foundation for examining curricula and classroom practices. Additionally, the ramifications for philosophical, sociological and psychological studies of education are presented.

58.265G Philosophy of Literary Education I

Philosophical and psychological considerations in analysis of the aims and nature of literary education, eg the relevance of literary critical concepts and procedures to the teaching of English in schools; moral concerns in literature and their significance for teachers and children (including the question of censorship and the issue of 'suitable' books for children); the role of 'feeling' and emotion in literary response; the nature of 'empathy' in the context of fiction; creativity; intention; imagination; etc.

58.266G Philosophy of Literary Education II

Prerequisite: 58.265G.

The relationship between education and knowledge. Literature as a form of knowledge. Literary criticism as a form of knowledge. Cognitive and affective objectives in literary education.

58.267G Philosophy of History Education I

Understanding and explanation in history teaching. Values and the problem of selection in history teaching. Causal judgement in history and its significance for teaching history.

58.268G Philosophy of History Education II

Prerequisite: 58.267G.

Covering law theories of historical explanation. Empathy in history and in education. Relativism and objectivism in history: implications for teaching. History as a form of knowledge.

58.269G Philosophy of Maths Education I

The nature of mathematical reflection and its place in education. Mathematics as a form of knowledge, as science and as art. The relation of mathematics to other disciplines. The incorporation of mathematics into an integrated curriculum.

58.270G Philosophy of Maths Education II

Prerequisite: 58.269G.

The foundations of mathematics, theories about mathematics learning, and the construction of curricula. The logic of mathematics.

58.271G Philosophy of Language Education I

The influence of language on belief and belief on language. The Sapir-Whorf hypothesis. Meaning and translation. The roles of grammar, translation, reading and conversation in language learning. Language as the arbiter of thought. Language, rationality and objectivity. Machine translation and machine rationality.

58.272G Philosophy of Language Education II

Prerequisite: 58.271G.

Language as racial tool. The role of language in transmitting culture, values and attitudes. Sociolinguistics and ideology. Language and learning. Depth grammar, innate structures, reinforced responses and the intentional development of language.

58.273G Philosophy of Social Science Education I

The philosophical foundations of social science are examined and classical debates in this field investigated. Debates concerning such notions as: law, causality, action, explanation, understanding, theory, observation etc. Methodological considerations are examined as they bear on the practice of the social sciences: empiricism, rationalism, positivism, behaviourism etc. This leads to an examination of ideology in social science. Curricula development and classroom practices in social sciences are examined in the light of the above.

58.274G Philosophy of Social Science Education II

Prerequisite: 58.273G.

An extension of the Session I course. Its foci depend on student interest and developments in the early course. Areas of study that may be undertaken include: a detailed investigation of particular social sciences, such as history, economics, anthropology, geography, etc, with a view to better understanding their theoretical and ideological dimensions; a study of the problems associated with an integrated social science; detailed investigation of values in social science and their justification and implementation; and the bearing of the above subjects on social science teaching and curricula development.

Sociology of Education Subjects

58.303G Sociological Theory Applied to Education

A survey of the major trends in sociological theory and its relevance to education and educational research is made. A critical examination of theorists such as Durkheim, Weber, Marx, Mead, Parsons, Goffman, and others provides the main thrust of the course.

58.305G The Role of Education in Society A

An investigation of the actual social effects of educational institutions. Examines orthodox and radical education literature on, for instance, the school's role in socialization and social selection and allocation, the economic functions of education, the child's experience of school, the history of education, and the changing role of the university. Liberal, Deschooling and Marxist explanations of existing educational systems and their social functions are then considered, with special reference to the claim that schools cannot be reformed towards pleasant, democratic and educative institutions while they are required to carry out the social and economic functions they now perform.

Attention is then given to the concept of education and to educational ideals, for the purpose of clarifying thought on the extent to which existing schools and universities are educative.

Finally, related issues within the area of general social theory are considered, especially the consensus and conflict perspectives on society. Marxist social theory is briefly examined, as is the social and educational significance of values, ideas, knowledge and ideology.

58.306G The Role of Education in Society B

Concerned with the aims education should pursue in view of some major characteristics, trends and problems evident on the global scene. Main focus is the possibility that continued expansion of industrial production and consumption might soon generate serious resource, environmental and international problems; if this growth commitment has a doubtful future, the present aims of education may have to be reversed. Central themes include the population problem, resources, environmental impact, the relations between rich and poor nations, the capitalist economic system, materialist elements in western culture, and futurology.

Brief examination of a number of issues to do with the quality of life and related questions, such as inequality in society, the claimed decline of community, sexual repression, war, work, leisure, and the counter culture. Implications for desirable social change are discussed and thought is given to alternative aims for education suggested by the foregoing investigations.

58.307G Introduction to Sociology of Education

Topics such as the nature of Sociology, models of society, and society and culture are introduced and the relationship to the Sociology of Education is stressed. A brief review of stratification and class theory with emphasis on the usefulness for educators is included. The concept of equality of educational opportunity is reviewed. A review is made of some of the current work in Sociolinguistics.

58.308G Special Problem Areas in Sociology of Education

Prerequisite: 58.305G or equivalent.

Topics include specific problems of inequality of education opportunity, compensatory education, the role of women with special reference to education, school systems, migrants and aborigines, community and school.

58.309G Selected Topics in Sociology of Education

Prerequisite: At least 2 Sociology of Education subjects at MEd level or equivalent.

Topics include a study of interaction and group processes in the classroom, sociology of the school, curriculum as socially derived knowledge, the impact of the media on teaching and learning teacher role, sociology in teacher training, the impact of community groups on the school and teaching as a profession.

58.310G Advanced Sociology of Education

Prerequisite: At least 3 Sociology of Education subjects at MEd level or equivalent.

Investigates principles and methodology of Sociology. Theoretical perspectives of influential sociological writers are studied, with particular attention given to their impact on the study of educational institutions. Some emphasis is placed on the theory of organizations and how it relates to schools.

58.311G Mathematical Applications in the Sociology of Education A

An introduction to mathematical approaches to the sociology of education. The application of elementary mathematical models to educational administration, the analysis of classroom processes, and educational outcomes, as well as other areas of specific interest to students are considered.

Topics are selected from measurement, structural, causal, and dynamic models, and game-theory. The mathematical prerequisites for an understanding of these topics is taught as part of the course. No mathematical skills beyond those normally acquired in high school are required initially.

58.312G Mathematical Applications in the Sociology of Education B

Prerequisites: An introductory course in differential and integral calculus, plus 58.311G.

Extends the study of the application of mathematical models in the sociology of education provided in mathematical models in the Sociology of Education A. Topics may include the uses of stochastic processes in describing learning and other sequentially dependent processes, the uses of differential equations to describe group processes, and other areas of interest to students.

58.313G A Sociological Analysis of Australian Education

Examines Australian educational organizations from a sociological perspective. Investigates whether Australian education meets the needs of modern Australian Society and examines major current issues affecting educational innovation. Topics include: equality of educational opportunity, the education of migrant, aborigine and disadvantaged adolescents, the economics and politics of Australian education, and teachers and the bureaucracy. The course looks particularly at recent educational innovations, and the distribution of power in Australian educational organizations.

58.314G Applied Sociological Research

Introduces students to applied research in the sociology of education. Content is tailored to the needs of students enrolled in the course and may include: methodology and the logic of sociological enquiry; an evaluation of recent studies on Australian educational systems; how to use the computer in sociological research. Students are encouraged to conduct their own research study into an area within the field of sociology of education.

Science Education Subjects

58.330G General Issues in Science Education

Aims of science education; theories of cognitive growth and learning; principles of curriculum development and issues influencing curriculum development in science education; eg science and society, integration of the sciences, the nature of science and 'scientific attitudes'; a survey of recent research in science education.

58.331G The Development of Scientific Concepts

Prerequisite: 58.330G or equivalent.

A consideration of the nature of concepts and conceptual structure in science and theories of cognitive development, followed by the implications of Piagetian, Brunerian and neo-Piagetian developmental models for secondary science education.

58.332G Evaluation in Science Education

Prerequisite: 58.330G or equivalent.

Aims, objectives and evaluation. Method of assessment for achievement, attitudes, interests, practical work, cognitive preferences. Survey of test instruments. Test construction. Course evaluation principles and examples.

58.333G Primary Science Education

Prerequisite: 58.330G or equivalent.

Aims of primary science education, the problem of integrating science with other subjects in the primary curriculum, and implications of the theories of Piaget, Bruner and Gagné for teaching science in the primary school. Examination of such elementary science curricula as Science-A Process Approach, Science Curriculum Improvement Study and Science 5-13.

58.334G The Nature of Science and Science Education

Prerequisite: 58.330G or equivalent.

The nature of science and its implications for science education. Aspects of scientific methodology, scientific concepts, aims in science and characteristics of scientists. Includes an examination of the nature of theories, the propagation and testing of theories, the characteristics of scientific communities, the personalities of scientists, scientific attitudes, the nature of observations, experiments, laws, definitions, explanations and predictions, and the role of 'control' in science. The effectiveness of the historical case study, the scientific paper, the experiment, and the direct exposition of the nature of science in portraying the scientific enterprise.

58.335G Curriculum Development in Science

Prerequisite: 58.330G or equivalent.

Curriculum theory discussed and used in investigating recent curriculum development projects in science. Factors involved in curriculum planning, such as objectives, content selection, learning experiences, and evaluation; influences involved in providing impetus for change and in implementing new curricula. The recent projects investigated include A.S.E.P., B.S.C.S., C.H.E.M.S., I.S.C.S., P.P., S.C.I.S.P. and Nuffield Foundation Projects.

Educational Psychology Subjects

58.360G Introduction to Educational Psychology

Psychological factors influencing the behaviour of teachers and learners. Various aspects of classroom and school organizational procedures analyzed with regard to their psychological importance in the teaching/learning process.

58.361G Introduction to Child Growth and Development

An introductory theoretical and practical subject offering an understanding of cognitive, physical, social and emotional development in children. Better known theories of development and the importance of all this for the practising teacher.

58.362G Child Growth and Development

An extension in depth of the analysis of development commenced in Introduction to Child Growth and Development. Course work concentration on the application of research and theory, including a child study. Fundamental assumption and methodology associated with the concept of development.

58.363G Cognitive Development and Classroom Learning

Prerequisite: 58.360G or equivalent.

Includes considerations of the theories of Bruner, Gagné, and Piaget. Implications of these theories for instructional sequence and design.

58.364G Instructional Technology

Prerequisite: 58.360G or equivalent.

Those variables which may be manipulated to optimize the instructional process. The instructional principles introduced in other subjects extended and developed to provide a psychological foundation for pre-planned instructional sequences. Includes considerations of programmed instructions and computer-assisted learning. A small project in the student's discipline area is required.

58.365G Motivation and Attitudes in School Settings

Prerequisite: 58.360G or equivalent.

Procedures to facilitate awareness of motives and possible methods for satisfying or controlling them. The relationship between fundamental motives and attitudes to both educational and social issues.

58.366G History of Educational Psychology

Prerequisite: 58.360G or equivalent.

Basic assumptions behind, and the origins and progressive development of, basic concepts in educational psychology and their impact upon education. Includes the major aspects of educational psychology and the influences upon it which remain relevant to the present day.

58.367G Contemporary Issues in Educational Psychology

Prerequisites: 58.360G or equivalent plus one other educational psychology subject or equivalent.

Analysis of the major issues which preoccupy educational psychologists in the world today. Wherever possible, it deals with the Australian contribution to those areas being considered.

58.368G Psychology, History and Literature

Prerequisite: 58.360G or 58.361G or equivalent.

How psychological research may give new insights in literary criticism and teaching and research in history and literature.

58.371G Advanced Developmental Psychology in Educational Behavioural Settings

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

Students choose *one* of three intensive studies:

1. *Pre-School and Infant Development:* Major implications for education and further development of environmental and hereditary interactions up to the age of seven years.

2. *Development in the Primary School Child:* Major research findings and developmental theories as they affect the primary school child.

3. *Adolescents and Youth:* Major factors which influence development from the age of entry into secondary school until the acceptance of adult roles in society. Includes: study of students in tertiary institutions and late adolescents in work situations, as well as concentrating on young people of secondary school age.

58.372G Learning Theory and Classroom Instruction

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

The history, the development and the contemporary application of major learning theories with emphasis on their effects on classroom instructional patterns and the insights they provide which might help modify future instructional patterns.

58.373G Behaviour Modification in the Classroom and School Setting

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

The basic principles of conditioning and their application to the manipulation of learning behaviours in educational environments.

58.374G Social Learning and Education

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

The principles of social learning and the implications of the major research findings as they affect educational procedures.

58.375G Psychophysiology in the Classroom

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

A practical study of human reactions to standard interaction in the learning and teaching situation. Physiological changes on both learner and teacher under differing conditions of stress and motivation related to relevant psychological constructs such as attention and perception.

58.377G Personality Development and Counselling Techniques in Education

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

Clinical methods and counselling procedures suitable to an educational setting. The student may concentrate on children at any of the stages of development: primary school age, secondary school age, tertiary institution.

58.378G The Role of the School Psychologist

Prerequisite: a 3-year major in Psychology at undergraduate level or equivalent.

Vocational guidance techniques and problems, appropriate concepts of testing, and the place of psychology in the school curriculum.

58.379G Exceptional Children in the Classroom

Prerequisites: 58.360G plus 58.361G plus 58.362G or equivalents.

After examining problems involved in the term 'exceptional children' an operative definition for exceptionality in the classroom would be established. The study of exceptional children that should give teachers concern would range from the genius to the physically, emotionally and mentally impaired.

58.380G Exceptional Children — Language Disabilities

Prerequisites: 58.360G plus 58.361G plus 58.362G or equivalents.

A study of the theoretical views of neobehaviourists, psycholinguists and other language theorists is briefly reviewed before examining language disorders in children which arise from **1.** environmental causes; **2.** neurological and other disorders within the child; and **3.** malfunctioning due to faulty interaction between the child and his environment. Examination of some of the material available for assessing language functioning.

58.381 Advanced Exceptional Children A

Prerequisites: a 3-year major in Psychology plus 58.379G and 58.380G.

Within the context of the theoretical study for this course, the student elects to work with and instruct an exceptional child in skill areas for a minimum of 20 hours spread over a period of 10 weeks. A written record of the diagnoses, instructional goals, and progress of the child is kept. Depending on the particular classification of the exceptional child (eg autistic, blind, cerebral palsied, etc) the student undertakes an extensive review of the literature. With this general theoretical background and practical experience gained in working with a child, a report is to be prepared in which hypotheses would be proposed for future research.

58.382G Advanced Exceptional Children B

Prerequisites: a 3-year major in Psychology plus 58.379G and 58.360G.

A student selects a different area of exceptionality from that studied in Advanced Exceptional Children I. Practical experience for a minimum of 20 hours spread over 10 weeks is required. Emphasis is to be placed on tailoring the instruction to the needs and limitations of the exceptional child and to supplying guidance to the parents. In the theoretical area emphasis is placed on the educational and vocational opportunities available for people classified under the exceptional condition being studied, with particular reference to Australia. The final report is to take the form of a submission with carefully documented evidence for the recommendations proposed.

58.383G Computer-Assisted Instruction I

An introduction to CAI emphasizing the language *TUTOR*. No background knowledge of computing is expected. Students construct psychologically-sound lessons in an area of their choice using terminals located in the School of Education. The bulk of the coursework is taught by means of CAI. At the completion of the course students are expected to be familiar with the *KRONOS* editing system and have written both linear and branching programs. (These form the basis of assessment.)

58.384G Computer-Assisted Instruction II

Prerequisite: Computer-Assisted Instruction I, or equivalent.

Further theoretical investigations and practical applications of CAI. The use of *TUTOR* is extended and students are introduced to the role of other languages (such as *BASIC* and *APL*) in the development of CAI systems. Complex branching programs are constructed and tested by students. A comparison of language efficiency, involving translation, is expected.

58.385G Cognitive Development in Children and Adolescents

The importance of twentieth-century theories of cognitive development for educational practice. How do psychologists attempt to 'explain' thinking and its development in children? This subject brings together in development sequence the major twentieth-century theories of cognitive development. It examines the concepts, the assumptions, and models which these theories have utilized, and uncovers old concepts in new guises. Discussion covers the utility for education of each of the cognitive theories included.

58.601G Theories of Counselling

Includes fundamental considerations of models for guidance and pupil personnel procedures. Cognitively and effectively oriented counselling approaches, leading to the development of a personal theory of educational counselling. Relationships to practice, both actual and possible.

Counselling objectives, their interaction with therapeutic relationships, the process of change, and the contributions of research and evaluation concerning these concepts.

Counselling within a bureaucracy, professional ethics concerning the child, the parent, the school and the educational authority, and conflicts in client-employee expectations.

The counsellor and society, socially acceptable as opposed to socially unacceptable behaviour, individuality, personal liberty, social expectations and conformity are discussed in the perspective of the counsellor's future role.

58.602G Psychological Analysis: Assessment and Diagnosis

Lectures, demonstrations, discussion and practice covering the rationale of psychometrics and the development of a philosophy of testing, concepts of individual differences, and normative constructs as well as the administration of a range of instruments of measurement and evaluation. Tests of both group and individual. Tests cover general ability and specific measures over both cognitive and personality fields. Practical work includes administration and a consideration of the principles behind each test, and a thorough coverage of marking, recording, interpretation, analysis of results, and the presentation of results to school staffs and other reportees of varying levels of sophistication.

All age groups and levels of education are covered.

58.603G Counselling Interventions

Covers both theoretical consideration and practical experience incorporating: **1.** interviewing techniques: conduct, practice and assessment of the interview; **2.** therapy and the individual child; **3.** counselling techniques with groups and their evaluation; **4.** principles of group dynamics.

Special and appropriate emphasis of these principles and practices in relation to the area of vocational guidance.

Overlaps of these considerations with the concept of compensatory education leading to coverage of remedial teaching resources and methods, the diagnosis of disability and appropriate remediation, particularly in relation to the teaching of reading and number.

Intervention strategies and the whole concept of consultation.

58.604G Personality Theories

The history and importance of the development of major personality theories which affect counselling procedures. Depth theorists, behavioural approaches, factor analytic conceptions, and the contribution of major eclectic theories. Emphasis on the significance of each theory for the practical counsellor.

58.605G Human Development

The major theories of child development relevant to counselling techniques and practice. Emphasis on learning theories, the relevance of cognitive development, and the importance of affective characteristics in relation to counselling procedures.

58.606G Contemporary Issues in Counselling and Counselling Psychology

Includes consideration of those issues which currently preoccupy the deliberations of leaders in the field of counselling. Deals also specifically with the operation of guidance organizations in the Department of Education and similar authorities. Systematic study will be carried out of people record systems, case files, counsellor organization, inspection, transfer and promotion, the Adjustment Section. Consultants in Special Education, Educational Clinics, and Specialist Counsellors, as well as area organization, materials, equipment and expenses.

The guidance functions of other Australian Government departments, Technical Education, the Health Commission and the Department of Labour and Industry. Related vocational agencies such as Vocational Guidance Bureau and Commonwealth Employment Service are studied and discussed in the light of major contemporary developments.

58.607G Research Methods and Evaluation in Counselling

A thorough study of research methods which are most appropriate to the counselling area. Oriented to other theoretical courses listed above, but also provides a sound basis for the compilation of special reports of theses by candidates.

58.608G Professional Practice

Preliminary theoretical considerations leading to the application of knowledge in a variety of counselling areas including the following:

The Secondary School: **1.** Principles of guidance and counselling in High Schools Organization and methods. Relationships with other professionals in the school. Definition of professional roles. **2.** Case work with adolescents. **3.** Individual academic and learning difficulties. Diagnosis and treatment. Study techniques. Poor relations. Educational resources and the individual child. **4.** School and Class Placement. Course, subject and level choices. **5.** Vocational choice in relation to course content and performance. Preparation for post school study and employment. **6.** Guidance teaching, including health education, sex education, drug education.

The Primary School: **1.** Psychological assessment. Group testing in Grades Four and Six. Grading and promotion issues. **2.** Individual consideration of atypical children. Use of nonverbal and individual assessment instruments. Slow learners, children with language or behaviour problems. Special placement. **3.** Casework in Primary setting. **4.** Consideration of Secondary selection and placement procedures in the New South Wales State system. Rationale, criteria, prediction of success, analysis, admission committees, restricted entry, grading. Preparation of Sixth Grade children for High School. **5.** Placement procedures in local schools, including administrative requirements.

The Lower Primary School: **1.** Methods of observing and assessing developmental levels. The ingredients of intellectual, social and scholastic functioning. **2.** Assessment and implications of lateral dominance. **3.** Lower Primary casework. **4.** Special activities organized to develop sound working knowledge of methods and techniques used in this area, including approaches to the teaching of Reading, Number and other skills.

Specialist Counselling: **1.** Examination of issues involved and problems encountered in dealing with significantly atypical children. Visual, auditory and language impairment. Children in Hospital Schools, in settings for the behaviourally disturbed and in the care of the Department of Youth and Community Services. **2.** The role and function of the Specialist Counsellor. Procedure and practice.

The following field experience is also covered: **1.** Initial observation of the School Counsellor at work. **2.** Psychological and educational assessment practice. **3.** Casework in Primary, Lower Primary and Secondary Schools. **4.** Within Education Department facilities, practice with District School Counsellors in city and country settings; visits to acquire knowledge of the Area Guidance functions (Education Clinic, Adjustment, Duty Counselling, Assessment Officer investigation), Vocational Camps, special education provisions; participation in research project. **5.** Within other Government Departments, placement with District Officers of the Department of Youth and Community Services; visits to Vocational Guidance Bureau, Child Health Centres, Commonwealth Employment Service and other related agencies.

School of History and Philosophy of Science

Undergraduate Study

62.001 History and Philosophy of Science I

The Origins of Modern Science*

Session 1

An introductory course tracing the main developments in the history of science between 1300-1800 with emphasis on the seventeenth-century Scientific Revolution.

The Social History of Science*

Session 2

An introduction to study of the scientific enterprise in its social and cultural context. The course will deal with topics such as: the relations between social needs and scientific development, the nature and functions of scientific societies and academies; the influence of technology on science and of science on technology; science and the State in the twentieth century.

62.002 History and Philosophy of Science II

The Principles of the Philosophy of Science

Session 1

A general introduction to the philosophy of science. Following a preliminary examination of the nature of some of the common forms of argument employed in natural science and mathematics, several of the more central problems of the philosophy of science will be discussed, such as: the structure of scientific

*Not offered in 1978.

theories; the nature of scientific explanation and prediction; the status of scientific laws; confirmation and falsification; the function of models and analogies; the status of theoretical entities; paradigms; and the dynamics of scientific development and change. Historical case studies taken from the post-Newtonian period will be used to illustrate the philosophical issues.

Selected Topics in the Histories of the Sciences

Session 2

Students will choose two of the following Histories*:

1. *The History of Biology*

Main themes in the development of biology as a science, with emphasis upon the nineteenth and twentieth centuries.

2. *The History of Chemistry*

The establishment of the atomic theory. The evolution of the atomic theory is traced from the time of Dalton to that of Mendeleef, with a careful examination of the steps leading to the determination of atomic weights, the writing of chemical formulae, the establishment of the valencies of the elements, and the construction of the periodic table.

3. *The History of Geology*

The history of geology in outline from antiquity to the present, with more detailed consideration of the following topics: the uniformitarian/catastrophist debate in the early nineteenth century; the birth of glacial geology; the contribution of Kelvin and the age of the earth; the history of the hypothesis of continental drift from Wegener to the present; paradigmatic geology in the first half of the twentieth century.

4. *The History of Physics**

A critical study of the origins and development of modern theories of space and time, and matter and radiation. The course begins with the 'two small dark clouds' on the horizon of classical physics, the null result of the Michelson-Morley experiment and the ultra-violet catastrophe highlighted in the Rayleigh-Jeans law, and goes on to consider the empirical and theoretical background to the major revolution in the conceptual evolution of physics, which finally resulted in the theories of relativity and quantum mechanics. The logical structures of these theories are examined and some famous 'paradoxes' are discussed in order to demonstrate the incomplete nature of some orthodox interpretations of relativistic and quantum phenomena.

62.042 Science Education and the Dynamics of Scientific Development* S1 or S2 L3T1

Prerequisite: 58.512 or special permission of the School of History and Philosophy of Science.

An examination of the role of science education within the economy of scientific activity and development. *Topics:* Education in relation to the scientific community as a whole; theories of scientific development and change, with special reference to the critique of Thomas Kuhn's *The Structure of Scientific Revolutions;* science education in relation to the life-cycles of scientific paradigms; the structures and functions of the different classes of scientific publications, with special reference to textbooks; the uses and 'misuses' of the history of science in the teaching of science; the relationships of syllabuses and teaching techniques to research methodology and the dynamics of scientific development; science education considered as a factor in the determination of scientific 'style' and philosophies of science; the effects of moral, political and other values on science and science education. The topics are discussed with special reference to suitable examples selected from the histories of science and of science education.

62.012 The Origins of Modern Science S1 L2T4

Prerequisites: A pass in four Level I units from Table 1 excluding Philosophy and Engineering units.

An introductory course dealing with the Scientific Revolution of the seventeenth century, the philosophical issues being discussed in their historical context. The course surveys the major achievements of science during the period, particularly the Copernican Revolution, the construction of dynamics from Galileo to Newton, and Harvey's physiology. The cultural and intellectual background of these achievements and their effects on European thought will be discussed.

62.022 The Social History of Science — From the French Revolution to the Second World War S2 L3T3

Prerequisites: As for 62.012.

The development of the scientific movement, in its social and cultural context, from the French Revolution to the 1930s. Includes: consideration of the different national contexts of the scientific movement; its relations with the State, with the universities and other teaching institutions, and with the professions of medicine and engineering; the communications system in science and the nature and functions of scientific societies; the effects of science on technology and of technology on science; the institutionalization and professionalization of science.

62.032 The Scientific Theory S2 L2T4

Prerequisites: As for 62.012.

The scientific theory — its origins, nature and nurture. With particular reference to selected historical examples chosen from both the physical and biological sciences, a number of philosophically interesting problems relating to scientific theories are subjected to analysis. Includes: the principles of theory construction; perception and observation; the structure of scientific revolutions; scientific apologetics; the structure of theories; scientific explanation; the status of laws and theoretical terms; the 'existence' of theoretical entities; relationships between theory and observation; the functions of models; the principles of theory establishment and rejection.

62.013 History of the Philosophy of Science F L2T1

Prerequisites: 62.012 or 62.022 or 62.032.

The development of ideas concerning the nature and methods of the sciences from antiquity to the present day: Platonism and Aristotelianism; Descartes, Leibniz and Continental rationalism; Bacon, Locke, Berkeley, Hume and British empiricism; Kant and Kantians; Herschel, Whewell, Mill and the revival of inductivism; Comte, Mach and nineteenth-century positivism; Peirce, James and pragmatism; Poincaré

*Not offered in 1978.

and conventionalism; Duhem and instrumentalism; Meyerson and realism; Einstein and the relativists; Eddington's selective subjectivism; Bridgman and operationalism; the Vienna Circle and logical positivism; Carnap and positivist reductionism; Popper and falsificationism; Hesse and modelism; Kuhn and Lakatos; Feyerabend and methodological anarchism.

62.033 The Development of Theories of Matter — S1 L3T3

Prerequisites: 62.012 or 62.022 or 62.032.

The development of man's ideas about the nature of matter: 'the oldest conceptual tool in the Western speculative tradition'. A broad coverage of this many-sided topic is offered, from antiquity to the present, though the main emphasis is placed on ideas in the seventeenth, eighteenth, and nineteenth centuries. A consideration of the speculations — both 'plenist' and 'atomistic'— of the Greeks leads to an account of the discussion and elaboration of these views in the Medieval period and the Renaissance. Then, the rise of the 'mechanical philosophy' in the seventeenth century is discussed, with consideration of the Cartesian and Newtonian schemes. This leads to an account of the elaboration of the Newtonian world-picture — in both its 'mechanist' and 'materialist' modes — that took place in the eighteenth century, including consideration of such diversions as the 'nutshell' theory, and the doctrine of point masses of Boscovich. Ideas on elements, 'principles' and 'simple substances' are also treated. For the nineteenth century, there is a detailed discussion of Dalton's atomic theory, and the subsequent 'atomic debates'. Some account of the nineteenth-century chemical theories of bonding and structure is given, and finally there is a brief discussion of twentieth-century developments such as the advent of theories concerning subatomic particles, the Bohr theory of the atom, the quantum theory, and the wave/particle model.

62.043 The Historical Foundations of Experimental Biology — S1 L2T4

Prerequisites: 62.012 or 62.022 or 62.032.

The development of experimental biology from the work of Vesalius in the mid-sixteenth century to that of Bernard in the mid-nineteenth century, with emphasis on the development of physiology. Includes: the Vesalian tradition; the work of Harvey, with special reference to the circulation of the blood and the functioning of the heart; Descartes and the mechanization of biology; Malpighi, Hooke and early microscopy; Hales and plant physiology; theories of animal heat and respiration; the work of Haller, Bichat, Magendie and Bernard on animal physiology.

62.053 The History of Theories of Generation and Heredity — S2 L2T4

Prerequisites: 62.012 or 62.022 or 62.032.

The development of theories relating to generation and heredity, with special reference to the interplay of scientific, social and ideological factors. Largely concerned with the period from 1830 to 1930. Includes: the cell theory; sexual and asexual reproduction; embryology; the theory of spontaneous generation and its overthrow; Mendel and his predecessors; the rise of classical genetics and the background to the Synthetic Theory of evolution; molecular biology and DNA.

62.063 History and Philosophy of Cosmology* — S2 L2T4

Prerequisites: 62.012 or 62.022 or 62.032.

The main formative influences that have shaped the science of cosmology. The work of investigators such as Wright, Kant and Herschel on the Milky Way, which followed from the work of Galileo and Newton on motion and gravitation. The implications of the researches of Olbers and Hubble for an expanding universe. The conceptual and observational framework of the present situation in cosmology and cosmogony; central physical-philosophical problems raised by various models of the universe concerning space and time, matter and radiation. Problems which have their parallels in the mathematical astronomy of the Greeks, and the beginnings of modern cosmology following upon the Copernican revolution.

62.073 Predicate Logic and the Foundations of Mathematics — F L2T1

Prerequisite: 52.162 or prescribed reading preceding long vacation.

(Offered by the School of Philosophy.)

Predicate Logic

A system of natural deduction for the first order predicate calculus, including identity and definite descriptions. Emphasis is upon construction of formal derivations, methods of showing the invalidity of formal arguments, and the evaluation of informal arguments by symbolization.

Foundations of Mathematics

An introduction to a selection of problems concerning the foundations of Mathematics, including non-Euclidean geometry and consistency proofs, axiomatics, antinomies of naive set theory, logicism, intuitionism, formalism, Godel's incompleteness result.

62.083 Marxism and Science — F L0T3

Prerequisites: 62.012 or 62.022 or 62.032.

A course of weekly seminars and directed readings on Marxism and science. Includes: Marxist interpretations of scientific knowledge and its development, the claims of Marxism to be a science, the critique of non-Marxist philosophies of science, and the nature and function of ideology in relation to scientific knowledge.

62.093 Science and the Strategy of War and Peace — F L1T2

Prerequisites: 62.012 or 62.022 or 62.032.

Aims to give historical perspective to the impact of science and technology on the art of war from Leonardo da Vinci to contemporary problems of nuclear disarmament and the arms race. Emphasis on the intellectual challenges, social consequences and moral dilemmas posed by twentieth-century developments in the mechanization of warfare, communications, surveillance and physical, chemical, nuclear and biological weaponry; the early history of the atomic scientists and the nuclear age; Einstein and Russell and the anti-war movements; the role of the military–industrial complex; the dynamics of the arms race and its limitation; the technological elaboration of armaments in the 1960s; the opportunity cost of military expenditure.

*Not offered in 1978.

School of Social Work

Undergraduate Study

63.123 Australian Social Organization

After an examination of the demographic characteristics of Australia, a number of major organizational areas of Australian society are studied, for example, its organization with respect to industry and commerce, government, the law, religion, and the institutions of social welfare.

The subject calls for extensive reading, associated with regular classroom exercises.

63.203 Human Behaviour I

The person through the age cycle: the process of 'normal' growth and development using a multi-disciplinary approach. The maturational phases of the life cycle, beginning with the pre-natal period, proceeding to birth, new-born, infancy, pre-school, childhood, adolescence, young adulthood, middle years, old age, dying and bereavement.

The various frames of reference—biological, psychological and sociological—used to define and interpret the phases.

63.211 Social and Behavioural Science — Basic Theory

A consideration of a series of concepts, frameworks, models, theories in the social and behavioural sciences of particular relevance for social work practice.

63.231 Research Methods I

The focus of the course is on the consumption of social research—philosophical bases of science and social science —what is science, what is social science, what are the generally accepted attitudes and why. The relevance of these philosophical questions to social workers. The important historical and normative linkages underpinning current thinking about social work research.

The nature of evidence examined in the contexts of the major types of social research and research designs. A discussion of the techniques of data analysis and measurement appropriate to particular designs, so that research studies can be critically evaluated for their usefulness and generalizability.

63.263 Social Work Practice IA

Various forms of interpersonal communication with particular emphasis on its behavioural effects; the principles and techniques of interviewing. Emphasis on experiential learning, through role-playing and skill-practice exercises, video-tapes and tape-recordings, students learn preliminary skills in interpersonal helping.

Unitary models for social work practice are presented; within this framework students begin to develop the analytical, discriminative, and interactional skills necessary for its effective use over a range of intervention situations.

63.242 Social Philosophy I

A general introduction to normative ethics or moral philosophy. Analysis and critical evaluation of beliefs about means and ends in social living. Scope of ethics. Relativism. Ideals of life. Intrinsic and instrumental value. Different ethical theories—deontological and teleological. Free-will. Meta ethics.

63.251 Social Welfare I

Australian social welfare history. An exploration of the rise and development of Australian social welfare institutions, provisions and ideology within their historical context.

63.272 Social Work Practice IB

Under the supervision of a field instructor of the School, usually in a fairly structured social work agency, a student begins to learn to apply the principles of professional practice. Emphasis is on work with a range of clients and of social problems, rather than on depth of experience. Aim is to begin to acquire, in an actual practice setting, skills and responsibility in interpersonal relations.

The duration of this first field placement is 40 working days (280 hours).

63.303 Human Behaviour II

An interdisciplinary approach to the development of deviant behaviour at various age stages, in individuals, groups and communities—biological, psychological, and social deviance. Concepts of disease and pathology; of social problems—definition, incidence, ætiology. Differences and similarities. Classroom learning is reinforced by observation of behaviour, under simulated and actual life conditions.

63.342 Social Philosophy II

Analysis and critical evaluation of beliefs about means and ends in a society with a liberal democratic system of government. The state and society. Power, authority, sovereignty. Moral and other grounds of political obligation. Liberal democracy. Challenges and alternatives. Freedom. Rights and duties. Justice and equality. Justice and desert. Verification issues.

63.353 Social Welfare II

Organizational Analysis of Social Welfare Systems:

The relevance of organization theory for understanding social welfare systems. Five concepts of organizational level: International, national, community, agency, and professional. Dimensions of the system: goals, the objectives, clients and potential clients, the use and availability of resources (personnel, fiscal and technological), auspice or sponsorship, location, external and internal influences, stability and change, the politics of the system. Policy issues inherent in the range of alternatives within and between dimensions.

Social Welfare Sub-Systems:

A comparative study of the main social welfare sub-systems in an urban industrial society, with particular reference to Australia. Categories of sub-system—defined by a common social goal—income security, health, housing, education, civil and political rights. Each sub-system is studied in terms of its major organizational dimensions, as outlined above, and an attempt is made to evaluate the efficiency and effectiveness of each sub-system.

63.363 Social Work Practice IIA

Further learning in a general approach to social work practice, developing different aspects of unitary models.

63.371 Social Work Practice IIB

Usually as a member of a student unit located in a social work agency and supervised by a field instructor of the School, the student has learning experiences which help him to acquire further skills in social work practice. Stress is placed on gaining self-awareness, understanding of conscious use of self in interpersonal relationships, and skills in problem definition and interpersonal helping. In the course of this placement the student gains understanding and responsibility in job management.

The duration of this second field work placement is 45 days.

63.431 Research Methods II

The social worker as experimenter—the methodology of intensive and extensive research with particular emphasis on the utility of evaluative research. The process from problem formulation to publication of findings examined in a workshop setting with the aim of operationalizing projects which go beyond a simulation exercise.

63.453 Social Welfare III

Social Welfare Sub-Systems

A comparative study of the main social welfare sub-systems in an urban industrial society, with particular reference to Australia. Categories of sub-system: Defined by population category—age groups, physical disability, mental disability, sex, ethnicity, war service, religion, socio-legal deviance, geographic location, occupation, economic status.

Each sub-system is studied in terms of its major organizational dimensions, its efficiency and effectiveness.

Social Welfare Planning

Different bases of planning and co-ordination: **1.** The relationship between different levels of social organization; functional divisions on the one level of social organization and other linkage questions. **2.** Definition of a social problem as a basis for organization. Students undertake a project on a selected social problem, studying its definition, incidence, theories of causation, and policies and provision to cope with it. **3.** The role of the social worker and the social work profession in social welfare planning. The objective in this subject is to develop sound professional judgment in relation to social welfare problems, policies and provision, not to teach social policy practice roles as such.

63.463 Social Work Practice IIIA

Through a variety of educational means, students concentrate upon gaining professional competence in the following social work methods—social casework, social group work, community work, and social welfare administration. A student chooses one of these as a major elective through the year, and one as a minor elective in Session 1.

63.472 Social Work Practice IIIB

1. This placement is taken in one of a wide variety of agencies, some beyond the metropolitan area. These agencies represent a complete range of social work methods so that students may gain practice skills in one or more of the methods as presented in the preceding practice subject, Social Work Practice IIA. This placement also expects of students an increased level of autonomy in practice within the authority of their agency service.

The duration of this placement is 40 days.

2. Usually as a member of a student unit located in a social work agency and supervized by a field instructor of the School, the student has further learning experiences in the social work method on which he has elected to concentrate in Social Work Practice IIIA.

The duration of this fourth and final placement is 45 days.

63.483 The Social Work Profession

The professions in modern industrial societies. The professionalization of social work. The organization of the social work profession in Australia, the USA and Britain, and internationally—its educational institutions, employing agencies, and professional associations. The size, characteristics, location, objectives, and values of the profession. Current challenges and growing points of professions.

Contemporary issues facing the social work profession—its distribution within social welfare services by professional methods, and geographically; its sex composition; problems or professional organization; international responsibilities; relationships with client and other population groups; relationships with other professions; relationships with other welfare personnel; the profession's priorities.

Graduate Study

63.801G Advanced Social Work Practice I (Interpersonal Helping)

Existing and emerging Social Casework and Social Group Work theory. Various casework and group work models critically evaluated; emphasis on their local applicability.

63.816G Advanced Social Work Practice I (Community Work)

Recent developments in advanced social work practice at the community level.

63.818G Advanced Social Work Practice I (Administration)

Theory related to organizational processes: communication, decision-making, leadership, efficiency and effectiveness. Organizational goals. Bureaucratic organizations. Relationship of statutory welfare organizations with the political aims of Government. Role of Boards in voluntary social welfare organizations; relationship of administrator with Board. Service delivery and evaluation.

63.802G Advanced Social Work Practice II (Interpersonal Helping)

Following 63.801G, examination of a range of appropriate strategies of intervention. Method application within client, worker and agency systems. Current controversial views about interpersonal helping with reference to problems of selection and integration.

63.817G Advanced Social Work Practice II (Community Work)

Develops 63.816G, dealing with a further analysis of community work method and practitioner skills. Auspice for community work practice, its implication for practice methods; relevance to organizational goals and policy.

63.819G Advanced Social Work Practice II (Administration)

Develops 63.818G and deals with the theory and practice skills related to the management task: planning, directing, organizing, staffing, controlling. Budgeting and finance in social welfare organizations. Methods of organizational analysis. Organizational change-process and strategies. Relationship of organizations with the environment: public, consumers, the welfare sector co-ordinating bodies and representation.

63.805G Issues for the Social Work Profession

Contemporary issues facing the social work profession—its distribution within social welfare services, by professional methods, and geographically; its sex composition; problems of professional organization; international responsibilities; relationships with client and other population groups; relationships with other professions; relationships with other welfare personnel; the profession's priorities.

63.806G Social and Behavioural Science

Recent and current developments in the social and behavioural sciences; psychodynamic theory, phenomenology, behaviourism, general systems theory, communication theory, small group theory, organizational theory, with relevance to social work practice.

63.807G Social Policy Analysis

A comparative examination of the development of social policy and social administration as a subject area in Britain, Australia, the United States, and other countries. Boundary problems, characteristic concerns, social policy and economic policy, social policy and the social sciences, the movement towards more systematic analysis.

63.808G Professional Interpersonal Competence

An examination of the various roles of the profession from the perspective of the interpersonal competence required. Various theories with possible application for increasing professional competence in personal interaction.

63.809G Project

A study project undertaken by each candidate. The project is an original but limited investigation into some area of social welfare. Each candidate will have a project supervisor.

63.811G Practice Theory and Social Welfare Administration

Implications for the structuring of social welfare services, of contemporary developments in methods of social work practice. Professional development and staff development; relative responsibilities. Professional supervision; structures and processes.

68.812G Project Seminar

Candidates are expected to present formally the progress of their projects. This provides for discussion of projects between candidates and an opportunity to deal collectively with problems encountered.

63.814G Social Planning

An analysis of social planning processes—task definition, policy formulation, programming, and evaluation and feedback. Australian and overseas examples. The location and scope of planning structures. A critical review of the stage of development of social planning theory.

63.815G Social Work Research Methods

Uses and abuses in research in social work; types of research in social work; steps in the research process; defining program and research objectives; involving the sponsor in the research process; research design; defining and operationalizing the independent and dependent variables; problems of reliability and validity; types of data collection; data analysis; preparing the research report; value questions in social research.

School of Anatomy

Undergraduate Study

70.011A Histology I **S1 L2T4**

Prerequisite: 17.021.

Cell form and tissue structure. Cell structure and function. Cell function and evolution. Epithelial cells and tissue. Connective tissues and connective cells. Muscle cells and muscle tissue. Nerve cells and nervous tissue. Cellular interrelations. Structure of organs and organ systems. Skin and derivatives. Development and structure of teeth. Circulatory system. Oral cavity. Alimentary canal and associated glands. Respiratory system. Urinary system. Eye, ear. Reproductive system.

70.011B Mammalian Embryology **S2 L2T4**

Prerequisite: 70.011A.

History of embryology and its development as a science. The mammalian reproductive system. Gametogenesis. Fertilization and cleavage. Development and implantation of blastocyst. Development of embryonic disc, embryonic membranes, placenta. Comparative mammalian placentation. Human embryogenesis. Development of human foetus. Characteristics of external form. Teratology. Human organology. Comparative mammalian development. Biochemistry and embryogenesis.

70.011C Introductory Anatomy **S1 L2T4**

Prerequisite: 17.021.

Introduction to gross anatomy, based on a study of prosected specimens. Musculoskeletal, cardiovascular, respiratory, gastrointestinal, genitourinary and nervous systems. General topographical and surface anatomy. Normal variations including those related to sex and age (childhood, adolescence, maturity, senescence).

70.012A Musculoskeletal Anatomy **S1 L2T4**

Prerequisites: 70.011A, 70.011C.

The topographical anatomy of the limbs and the musculoskeletal framework of the trunk. Distribution of nerves and vessels. Living and radiological anatomy.

70.012B Visceral Anatomy **S2 L2T4**

Prerequisites: 70.011A, 70.011C.

The topographical anatomy of the great visceral systems — gastrointestinal, respiratory, cardiovascular and genitourinary — and of the head and neck. Living and radiological anatomy.

70.012C Neuroanatomy **S1 L2T4**

Prerequisites: 70.011A, 70.011C.

The neurons, neuronal satellite cells. Functional anatomy of the central nervous system. Blood supply of central nervous system. Organs of special sense. Endocrine glands. Principles of peripheral nerve distribution.

70.303 Kinesiology **S2 L2T4**

Prerequisites: 70.012A, 70.012C.

Study of movement in vertebrates, kinesiological recording, anatomical factors affecting movement, mechanics of posture and locomotion, comparative vertebrate locomotion, development and organization of movement in the human, the facilitation of movement.

70.304 Histology II **S2 L2T4**

Prerequisite: 70.011A.

Mammalian histology, with particular reference to the human. Practical histological procedures: fixation, section preparation, staining. Microscopy. Theoretical, practical and applied histochemistry.

School of Physiology and Pharmacology

Physiology is the study of the normal functions and phenomena of living things. It covers a very wide field of study, from the physical and chemical function of single cells to the highly integrated control systems operating within the animal body. These control systems, which involve nervous, hormonal and chemical components, regulate the activities of the various cells throughout the animal. Although most aspects of physiology are included in the courses offered in this School, the main research interests of members of staff and graduate students lie in the following areas: control of blood vessels; physical properties of excitable membranes; mechanisms of synaptic and neuromuscular transmission; movement of materials across small blood vessels; gas exchange in the respiratory system, reflex mechanisms in respiratory and cardiovascular activity; proprioception; the coding of sensory information by the nervous system; studies on endocrine functions.

The field covered by physiology overlaps that of many other disciplines, and it is necessary for a student to have a sound understanding of chemistry, mathematics, biology and physics in order to gain value from any course in physiology. In addition, a good knowledge of biochemistry is necessary for the study of physiology as a major subject.

Undergraduate Study

73.011A Principles of Physiology **L2T4**

Prerequisites: 73.011A, 2.121, 2.131, 10.001 or 10.011 or 10.021 B & C (*may be accepted as co-requisite).*

Generally taken in the second year of the science course by a number of groups of students, including physiotherapy and optometry students as well as those intending to major in physiology. Introduction to fundamental physiological principles, dealing first, with basic cellular function in terms of chemical and physical principles, and second, with the operation of the various specialized systems in the body, for example, the cardiovascular system, whose function it is to transport materials to and from the tissues of the body; the respiratory system which must maintain the exchange of oxygen and carbon dioxide between the atmosphere and the blood; the gastro-intestinal system which enables food materials to be modified by digestion and absorbed into the circulation; the kidney which is involved in the regulation of body fluid and electrolyte balance and with the excretion of the waste products of metabolism; the endocrine system which releases chemical messengers, called hormones, that are carried in the blood stream to regulate a great variety of body functions, eg metabolism and reproductive activity; the nervous system which by means of very rapidly propagated electrical impulses is responsible for all our movements, sensations, memories, emotions and consciousness itself.

73.012 Physiology II **L4T8**

Prerequisites: 73.011A, 41.101, 41.111. Students enrolled in the Program 73/2 (Physiology/Chemistry) may choose 2.003J and 10.211A in place of 41.101 and 41.111.

A major subject offered in third year, providing a more advanced course of study concentrating on such facets of the subject as circulation, respiration, the biophysics of cell membranes, neurophysiology, endocrinology and reproduction.

In both subjects 73.011A and 73.012, students spend considerable time performing laboratory experiments which illustrate various physiological principles and introduce them to the techniques used in physiological investigation.

73.012A Membrane Biology

73.012B Neurophysiology

73.012C and D Organ Physiology

Prerequisites: normally as for 73.012.

These one- or two-unit courses form sub-sections of 73.012, Physiology II, and may be studied only with the permission of the Head of School.

School of Community Medicine

Undergraduate Study

79.201 Population Genetics Theory **S1 L2T3**

Prerequisites: 45.101 or (10.311A and 10.311B) or (10.321A and 10.321B) or 10.331.

Models of genetic systems and growth of populations, with essential mathematical and statistical theory; illustrated by examples from human genetics. Limitations of models.

Models of population growth in discrete and continuous time with non-overlapping and overlapping generations. An extension of the Hardy-Weinberg principle to finite populations and several loci. The concept of inbreeding, calculation of coefficients of consanguinity, effects of inbreeding, effective population number. Fisher's Fundamental Theorem of Natural Selection. Advanced treatment of factors maintaining gene frequency equilibria in populations, including balance between mutation and selection, heterozygotic advantage, and genetic loads. Effects of finite population number, including random gene frequency drift.

79.202 Quantitative Methods in Human Genetics **S2 L2T3**

Prerequisites: 9.801 or 43.101; 9.811 or (10.311A and 10.311B) or (10.321A and 10.321B) or 10.331 or 12.152 or 45.101.

Application of the principles of genetics and the theory of statistics to the study of human populations.

Estimates of population parameters, uses of measures of relatedness, discrimination between models of inheritance, design and analysis of surveys of families and twin pairs, genetic models of qualitative and quantitative variation, use of probability models in genetic counselling and determining effects of medical intervention.

79.302 Biochemical Genetics of Man **S2 L2T4**

Prerequisites: 43.101, 41.101.

Inherited variation of blood group antigens, serum proteins and red-cell enzymes, their possible selective roles and their application to the study of differences between and within populations. Application of statistical techniques to analyzing population data.

79.401 Genetics of Behaviour **S2 L2T3**

Prerequisite: 17.011 or 17.031.

Covers the behavioural traits in invertebrates and mammals, including man, in which genetic factors can be identified.

Principal subject areas: Models for behaviour genetics in invertebrates and mammals, with discussion of and practice in research methodologies; mathematical treatment of data; genetic factors in human intelligence; genetics of mental retardation and psychological illness in man, with appropriate clinical contact and discussion.

*2.131 may be accepted as a co-requisite.

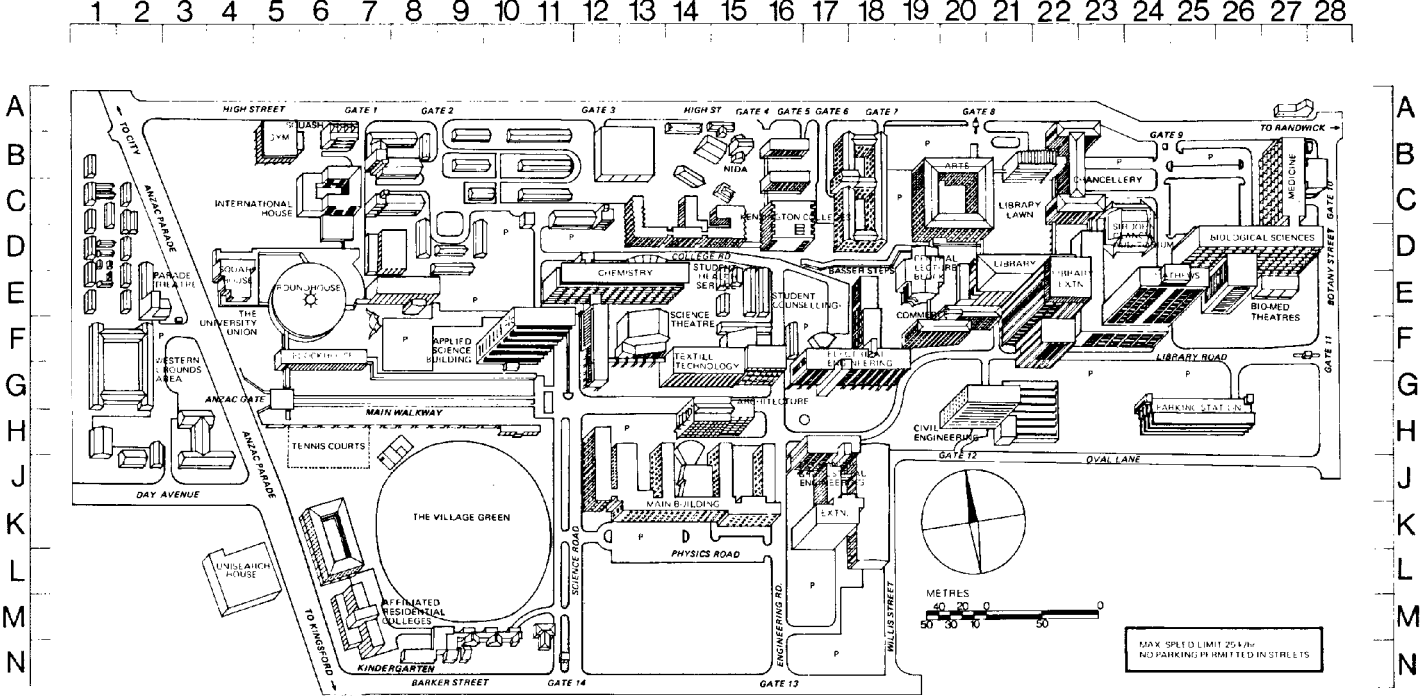
The University of New South Wales Kensington Campus 1978

Buildings

Applied Science F10
Architecture H14
Banks F22
Barker Street Gatehouse N11
Basser College C18
Biological Sciences D26
Biomedical Lecture Theatres E27
Central Lecture Block E19
Central Store B13
Chancellery C22
Civil Engineering H20
Classroom Block (Western Grounds) H3
Dalton (Chemistry) F12
Electrical Engineering G17
Electrical Engineering Theatre F17
Goldstein College D16
Golf House A27
Gymnasium B5
House at Pooh Corner N8
International House C6
John Goodsell (Commerce) F20
Keith Burrows Lecture Theatre H14
Kensington Colleges C17
Main Building K15
Maintenance Workshop B13
Mathews F23
Mathews Theatres D23
Mechanical and
Industrial Engineering J17
Medicine (Administration) B28
Menzies E21
Metallurgy E8
Morven Brown (Arts) C20
New College (Anglican) L6
Newton J12
Old Main Theatrette J14
Parade Theatre E3
Parking Station H25
Philip Baxter College D14
Robert Heffron (Chemistry) E12
Sam Cracknell Pavilion H8
Science Theatre F13
Shalom College (Jewish) N9
Sir John Clancy Auditorium C24
Sir Robert Webster
(Textile Technology) G14
Squash Courts B7
Unisearch House L5
University Regiment J2
University Union
(Roundhouse) — Stage I E6
University Union
(Blockhouse) — Stage II G6
University Union
(Squarehouse) — Stage III E4
Wallace Wurth School of Medicine C27
Warrane College (Roman Catholic) M7
Wool and Pastoral Sciences B8

General

Accountancy C20
Admissions Office B23
Anatomy C27
Applied Geology F10
Applied Science (Faculty Office) F10
Appointments Office B23
Architecture
(including Faculty Office) F10
Arts (Faculty Office) D20
Australian Graduate
School of Management F23
Biochemistry D26
Biological Sciences (Faculty Office) D26
Biological Technology D26
Biomedical Library F23
Bookshop G17
Botany D26
Building H15
Cashier's Office B23
Centre for Medical Education
Research and Development F26
Chaplains E15
Chemical Engineering F10
Chemical Technology F10
Chemistry E12
Child Minding Centre N8
Civil Engineering H20
Closed Circuit Television Centre F19
Commerce (Faculty Office) F20
Community Medicine E25
Computing Services Unit F21
Drama D9
Economics F20
Education G1
Electrical Engineering G17
Engineering (Faculty Office) K17
English C19
Examinations and Student Records B22
Fees Office B23
Food Technology F10
French C20
General Studies C20
Geography (Extension) K17
German C20
Health Administration C22
History C20
History and Philosophy of Science C19
Industrial Arts B1
Industrial Engineering J17
Institute of Languages G14
Institute of Rural Technology B8
Law (Faculty Office) F21
Law Library F21
Librarianship B10
Library E21
Lost Property F20
Marketing F19
Mathematics F23
Mechanical Engineering J17
Medicine (Faculty Office) B27
Metallurgy E8
Microbiology D26
Mining Engineering K15
Music B11
National Institute of Dramatic Art C15
Nuclear Engineering F18
Optometry H12
Pathology C27
Patrol and Cleaning Services F20
Philosophy C20
Physics K13
Physical Education and
Recreation Centre (PERC) B5
Physiology and Pharmacology C27
Political Science C19
Postgraduate Committee
in Medical Education B27
Postgraduate Extension Studies
(Closed Circuit Television) F19
Postgraduate Extension Studies
(Radio Station and Administration) F23
Psychology F23
Public Affairs Unit C23
Regional Teacher Training Centre D26
Russian D20
Science (Faculty Office) F23
Social Work F1
Sociology C20
Spanish and Latin American Studies D19
Student Amenities and Recreation E15
Student Counselling and Research E16
Student Employment C22
Student Health E15
Students' Union E4
Surveying (Extension) K17
Teachers' College Liaison Office F16
Tertiary Education Research Centre E16
Textile Technology G14
Town Planning K15
University Union (Blockhouse) G6
Wool and Pastoral Sciences B8
Zoology D26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GATE 9
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TO CITY
ANZAC PARADE
SQUASH
GYM
INTERNATIONAL HOUSE
NIDA
KENSINGTON COLLEGE
ARTS
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CHANCELLERY
MEDICINE
GATE 10
BOTANY STREET
GATE 11
COLLEGE RD
CHEMISTRY
STUDENT HEALTH SERVICE
BASSER STEPS
LIBRARY
BIOLOGICAL SCIENCES
BIO-MED THEATRES
PARADE THEATRE
SOUTH HOUSE
ROUND HOUSE
THE UNIVERSITY UNION
SCIENCE THEATRE
STUDENT COUNSELLING
COMMERCE
LIBRARY ROAD
WESTERN GROUNDS AREA
APPLIED SCIENCE BUILDING
TEXTILE TECHNOLOGY
ANZAC GATE
MAIN WALKWAY
ARCHITECTURE
CIVIL ENGINEERING
PARKING STATION
TENNIS COURTS
GATE 12
OVAL LANE
DAY AVENUE
THE VILLAGE GREEN
MAIN BUILDING
PHYSICS ROAD
EXTN.
UNILATCH HOUSE
AFFILIATED RESIDENTIAL COLLEGES
SCIENCE ROAD
ENGINEERING RD.
WILLIS STREET
TO KINGSFORD
KINDERGARTEN
BARKER STREET
GATE 14
GATE 13
METRES
40 20 0 0
50 30 10 50
MAX. SPEED LIMIT 25 k/hr
NO PARKING PERMITTED IN STREETS

This Handbook has been specially designed as a source of reference for you and will prove useful for consultation throughout the year.

For fuller details about the University—its organization, staff membership, description of disciplines, scholarships, prizes, and so on, you should consult the Calendar.

The Calendar and Handbooks also contain a summary list of higher degrees as well as the conditions for their award applicable to each volume.

For detailed information about courses, subjects and requirements of a particular faculty you should consult the relevant Faculty Handbook.

Separate Handbooks are published for the Faculties of Applied Science, Architecture, Arts, Commerce, Engineering, Law, Medicine, Professional Studies, Science (including Biological Sciences and the Board of Studies in Science and Mathematics), the Australian Graduate School of Management (AGSM) and the Board of Studies in General Education.

The Calendar and Handbooks are available from the Cashier's Office. The Calendar costs $3.50 (plus postage and packing, 90 cents). The Handbooks vary in cost. Applied Science, Arts, Commerce, Engineering, Professional Studies and Sciences are $2.50. Architecture, Law, Medicine and AGSM are $1.50. Postage is 40c in each case. The exception is General Studies, which is free.