FACULTY OF SCIENCE—

HANDBOOK 1960

THE UNIVERSITY OF

NEW SOUTH WALES

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Index

Foreword

To all new students to the courses in the Faculty of Science, the teaching staff extends a hearty welcome. This is an occasion for us as it is for you. No science can grow and develop without a stream of young and enthusiastic students continually being added to the group of more experienced scholars seeking to increase understanding of the sciences. It is the blend of youth and experience which provides an ever-changing questing for original thought and new ideas within a stable framework of balanced judgement and wisdom. You are now important members of our scientific community and your importance will grow as you progress through your undergraduate course. We hope that many of you will decide to continue your work beyond the first degree level and will take higher degrees at the University.

In the change from school to University there will be many adjustments for you to make. While you are with us you will be expected to be more independent and to be responsible for your own progress. It is hoped that you will work systematically throughout the year and be successful in your examinations but we would like you to regard this kind of success as incidental to the main purpose of University work which is to develop an intense interest in your subjects for their own sake. We hope that you will be inspired by the University atmosphere to become students in the fullest sense of the term pursuing knowledge wherever it may lead.

If in this process of adjustment you feel uncertain at any time or you would like help of any kind, please do not hesitate to discuss your problems with your lecturers, professors, student advisers or with the Dean. You will find that we all appreciate how you feel as a newcomer to our midst and that we are ready to discuss your problems with you whenever you approach us. But we will not know of your problem unless you tell us.

Finally we would urge you to widen your interests, to take an active part in at least one University society and to join as soon as possible the professional association or society appropriate to your field of specialisation. You will find that most of these associations make provision for student members. It is the wider experience you gain outside the lecture room which will provide you with a University education as opposed to a mere qualification.

PROFESSOR J. F. CLARK,
Dean, Faculty of Science.

Introduction

The University Calendar contains some 600 pages and students often experience difficulty in locating and interpreting information needed from it; indeed the various By-laws and Regulations can only be fully appreciated after some practical knowledge of their operation.

This booklet is designed to summarise in a simple form the information most likely to be required by students in the Faculty of Science about the operation of the University and the courses offered in the Faculty.

The full By-laws and Regulations are given in the University Calendar published annually.

The Science Handbook Committee would welcome suggestions from students that would assist in deciding the contents of future issues of this booklet which it is hoped to expand considerably.

W. J. DUNSTAN,
Convenor, Faculty of
Science Handbook Committee.

Faculty of Science

Schools and Administrative Officers, 1960

Dean:
Professor J. F. CLARK.
Educational Officer for Science Degree Courses:
Mr. L. G. PARRY (School of Applied Physics).
Educational Officer for Applied Chemistry Course:
Mr. W. J. DUNSTAN (School of Chemistry).
Educational Officer for Applied Psychology Course:
Mr. J. C. MURRAY (School of Applied Psychology).
Educational Officer for Applied Biology Course:
Mr. R. BARBOUR (School of Biological Sciences).

School of Biological Sciences:

(Located at Ultimo)
Head of School: Professor B. J. RALPH.
Educational Officers: Mr. R. BARBOUR, Mr. A. WOOD.

School of Chemistry:

(Departments of Analytical Chemistry and Nuclear and Radiation Chemistry located at Kensington. The School Administration and all other departments are located at Ultimo.)
Head of School: Professor D. P. MELLOR.
Professor of Organic Chemistry: Professor S. J. ANGYAL.
Associate Professor of Chemistry: Dr. G. W. K. CAVILL.
Associate Professor of Physical Chemistry: Dr. R. C. L. BOSWORTH.
Educational Officer: Mr. W. J. DUNSTAN.

School of Mathematics:

(Located at Kensington.)
Head of School: Professor G. BOSSON.
Professor of Applied Mathematics: Professor J. M. BLATT.
Associate Professor of Mathematical Statistics: J. B. DOUGLAS.
Educational Officers: Mr. S. SENIOR, Mr. C. KIRKPATRICK.

School of Applied Physics:

(Located at Kensington.)
Head of School: Professor C. J. MILNER.
Associate Professor: Dr. J. F. McCONNELL.
Associate Professor: Dr. J. J. O'DWYER.
Educational Officers: Dr. R. E. LISHMUND; for courses majoring in Physics, Associate Professor J. J. O'DWYER; for servicing courses, Associate Professor J. F. McCONNELL; for Optometry courses, Associate Professor J. LEDERER.

School of Applied Psychology:

(Located at Kensington.)
Head of School: Professor J. F. CLARK.
Educational Officer: Mr. J. C. MURRAY.

Calendar of Dates—1960

First Term ..... **March 7th to May 14th**
Second Term ..... **May 30th to August 6th**
Third Term ..... **August 29th to November 5th**

February—

Monday 29 ..... Enrolment week commences.

March—

Monday 7 ..... Lectures commence.

April—

Friday 8 ..... Conferring of Degrees—Newcastle University College.

Friday 15 to Monday 18 ..... Easter Holidays.
Monday 25 ..... Anzac Day—Public Holiday.
Wednesday 27 ..... Conferring of Degrees—First Ceremony.

May—

Wednesday 4 ..... Conferring of Degrees—Second Ceremony.
Saturday 14 ..... First term ends.
Monday 16 to Saturday 28 ..... Vacation (2 weeks).
Monday 30 ..... Second term commences.

June—

Monday 13 ..... Queen's Birthday—Public Holiday.

August—

Monday 1 ..... Bank Holiday (classes meet as usual).
Saturday 6 ..... Second term ends.
Monday 8 to Saturday 27 ..... Vacation (3 weeks).
Monday 29 ..... Third term commences.

October—

Monday 3 ..... Six-Hour Day—Public Holiday.

November—

Saturday 5 ..... Lectures cease.
Saturday 12 ..... Examinations begin— diploma and 3-term degree courses.

December—

Saturday 3 ..... Examinations end — diploma and 3-term degree courses.

1961

February—

Monday 27 ..... Enrolment week commences.

March—

Monday 6 ..... First term commences.

Requirements for Admission

The requirements for admission to undergraduate courses leading to a Degree are set out in full in the Calendar of the University to which reference should be made for further guidance.

In general, however, applicants may satisfy entrance requirements by passing the New South Wales Leaving Certificate (or equivalent examination) in at least five subjects of which one must be English and one other must be Mathematics I, or Mathematics II, or General Mathematics, three other subjects being chosen from the following groups, at least one of the three being from Group A:

Group A — Latin, French, Greek, German, Italian, Hebrew, Chinese, Japanese, Russian, Dutch, Geology, Geography, Agriculture, Economics, Modern History, Ancient History, Combined Physics and Chemistry, Physics, Chemistry, Physiology, Biology, Botany, or Zoology.

Group B — Applied Mathematics, Music, Theory and Practice of Music, General Mathematics, Mathematics I, Mathematics II, or Descriptive Geometry and Drawing.

(It should be noted that some subjects for the Leaving Certificate are not approved for admission to the University.)

Candidates who successfully meet these conditions shall be classed as "registered students" after enrolment.

Applicants may be accepted as "registered students" of the University if they hold a diploma from the New South Wales Department of Technical Education or any other Technical College recognised by the University. The status of such "registered students" shall be determined by the Professorial Board, which shall also determine whether the applicant's qualifications are sufficient for entry into the Faculty concerned.

A person who has satisfied the examination requirements for entrance to the Diploma Courses of the Department of Technical Education, New South Wales, may also be admitted as a "registered student". This provision shall not apply to examinations held later than March, 1961. Full details of the relevant examination requirements are set out in the Handbook of the Department of Technical Education.

Special Requirements for Part-time Courses

In addition to meeting the above requirements students entering *part-time courses* in the Faculty of Science are required to have completed Mathematics I and Mathematics II, Physics and Chemistry, to Leaving Certificate standard before they are allowed to commence the first-year University subjects.

FEES

Undergraduate (Diploma, Degree or Conversion) Courses

For the purpose of fee determination assessment is on a term basis. A full-time course fee will be charged for any term where more than 15 hours per week instruction, etc., is involved. Where 15 hours or less per week instruction is involved in any term, a part-time course fee will be charged.

(i) Full-time Course Fee — £90 per annum or three payments of £30 per term.

(ii) Part-time Course Fee — £36 per annum or £12 per term for instruction involving over six hours per week.
£18 per annum or £6 per term for instruction involving three hours to six hours per week.

(iii) Thesis Fee — Students who have completed the final examinations but have a thesis still outstanding are required to pay £9 per annum (no term payments).

In addition, all students enrolling for the first time in courses in categories (i) and (ii) above and proceeding to a degree will be required to pay a matriculation fee of £3. A graduation fee of £3 is also payable before admission to a degree.

Library Fee — £5 per annum (payable by all registered students).

Deferred Examinations

£2 for each subject.

Late Fees

(a) Any student who enrols after the third week of any term, irrespective of whether he/she is responsible for the payment of his/her fees, shall be charged a late fee of £1 per term.

(b) The late fee will be increased to £2 in the case of enrolments effected after 31st March (1st term), 30th June (2nd term), and 30th September (3rd term).

Students' Union

Annual subscripition, £2. (Compulsory for all registered students.)

Sports Association

Annual subscription, £1. (Compulsory for all registered students.)

General

It is pointed out that fees are payable on a term basis. Students who find difficulty in paying the annual fee are advised:—

(i) to pay the terminal fee by the appointed date;

(ii) that any application for extension of time in which to pay fees due (a maximum of one month may be permitted) must be submitted in writing to the Registrar *before* the date on which late fees are payable.

SCHOLARSHIPS AND CADETSHIPS

Students undertaking courses in the Faculty of Science are eligible to apply for the following scholarships or cadetships:

University Scholarships

The University offers the following Scholarships:—

(1) For students who have completed Trade Courses (Department of Technical Education).

Ten scholarships tenable in Degree or Diploma Courses may be awarded annually to students who have completed a Trade Course and have qualified for admission to a Degree or Diploma Course within three years of the completion of the Trade Course. The scholarships shall be awarded on the results of the examination qualifying for entrance.

(2) For candidates of the Qualifying Examination (Department of Technical Education).

Ten scholarships tenable in Degree or Diploma Courses may be awarded annually to students on the results of the Qualifying Examination (Department of Technical Education).

(3) For candidates at the Leaving Certificate Examination.

Fifteen scholarships tenable in Degree or Diploma Courses may be awarded annually on the results of the Leaving Certificate Examination.

The scholarships shall be awarded under the following conditions:—

(a) A scholarship holder shall be eligible for enrolment in the course selected and will be exempt from payment of University course fees during the currency of the scholarship.

(b) A student may hold only one scholarship at a time.

(c) The University shall have the power to withhold the award of any scholarship if the applicants are of insufficient merit.

(d) Any scholarship may be withdrawn if the progress or conduct of the holder is unsatisfactory.

(e) The holder of a scholarship in any course of part-time instruction must be actively engaged in the relevant trade or profession for which the course has been established.

(f) A scholarship that has been forfeited or withdrawn may be offered to another candidate.

(g) Only results obtained in the year in which the scholarship competitions are conducted may be considered.

(h) Scholarships available on the Leaving Certificate examination will be awarded in order of merit as shown by the highest aggregate marks in six papers, including those specified for the particular scholarships.

(i) Scholarships available on the Qualifying Examination (Department of Technical Education) will be open only to candidates at the examination who have been bona fide part-time students during the year in which they have taken the examination and shall be awarded in order of merit as shown by the highest aggregate marks in five papers, which shall include those prescribed for enrolment in the course in which the student proposes to enrol.

Applications for these scholarships, on forms obtainable from the Registrar, must be lodged with the Registrar, by 16th January, each year.

Commonwealth Scholarships

Open Entrance Scholarships are awarded at matriculation to persons under 25 years of age on 1st January of the year in which the course is to be commenced. In addition a limited number of scholarships are awarded to students proceeding to second or later years of their course, who have not failed in their first year or the year immediately preceding the award of the scholarship. Mature Age Scholarships are also awarded either in the first or later years of a course. Applicants must be over the age of 25 on the 1st January of the year in which a scholarship is awarded, and must be, or have been, under the age of 30 on the 1st January of the year in which the course is or was commenced.

The award of a Commonwealth Scholarship covers the payment of all compulsory fees, i.e., course fees, matriculation fees, Students' Union and Sports Association fees and graduation fee, and library fee.

In addition holders of Commonwealth Scholarships who undertake their courses on a full-time basis may apply for a living allowance which is subject to a means test. The maximum living allowances are £221 p.a. for a student living with his parents and £338 p.a. for a student living away from his parents.

The closing date for applications for Commonwealth Scholarships is 30th November of the year immediately preceding the year for which the Scholarship is desired. Applications for the renewal of these scholarships must be lodged not later than 30th October. Full particulars and application forms may be obtained from the Officer-in-Charge, University Branch Office, Department of Education, University Grounds, University of Sydney (telephone MW 2911).

The John Heine Memorial Scholarship

Students qualified to enrol in the third year of the full-time Applied Chemistry Course or in the Applied Chemistry Conversion Course, and who are employees of a member of the Metal Trades Employers' Association are eligible to apply for the John Heine Memorial Scholarship.

The scholarship has a total value of £250 which is paid at the following rates:—

(i) Final two years of the Applied Chemistry Degree Course:
1st year £100
2nd year £150

(ii) Applied Chemistry Conversion Course:
1 full-time year £250
2 part-time years ....
1st year £100
2nd year £150

Application should be made not later than 31st January of each year to the Secretary, John Heine Memorial Foundation, C/- Metal Trades Employers' Association, 101 Walker Street, North Sydney.

State Bursaries and Exhibitions

A number of exhibitions and bursaries are awarded by the New South Wales Government on the results of the Leaving Certificate Examination and the Qualifying Examination of the Department of Technical Education.

The award of an exhibition exempts the student from payment of fees. Bursaries are awarded subject to the applicant holding an exhibition and satisfying a means test. They are tenable for the duration of one First Degree Course, and provide a living allowance of £65 per annum (£104 per annum if the student is living away from home), and a book allowance of up to £10 per annum. The permissible income of the applicant's family is £1,150 if there are three or fewer dependents, with an increase in the permissible family income of £120 for each additional dependent. Bursary holders are allowed to engage in employment only when it is associated with the course, and the income from such employment must not exceed £300 per annum. Further information can be obtained from the Bursary Endowment Board, C/- Department of Education, Bridge Street, Sydney.

Traineeships and Cadetships

Traineeships and cadetships are offered by the N.S.W. Public Service Board and by the Commonwealth Public Service.

These traineeships make it possible for selected employees of the Commonwealth or State Public Services to undertake full-time University study.

Students receive a salary during their years at the University and are required to undertake their industrial training with the department in which they are employed. Full details of cadetships and traineeships available at any one time may be had, in the case of the State authorities, from the N.S.W. Public Service Board, 19 O'Connell Street; and in the case of the Commonwealth authorities, from the Employment Officer, Commonwealth Public Service Inspector's Office, 119 Phillip Street, Sydney (Telephone BW 5701).

Sponsored Students

Many private industrial and commercial organisations sponsor students in Science Courses. The conditions under which students are sponsored vary from company to company, but in general the company meets all compulsory fees. Industrial training is generally undertaken with the sponsoring company.

Students are advised to consult the Guidance Office, 25 Broadway, or the Student Counsellor at Kensington, for further details concerning scholarships and cadetships and for information concerning companies sponsoring students.

THE GUIDANCE OFFICE

All students enrolling at the University for the first time whether in first year or with advanced standing must make application for enrolment through the University's Guidance

Office, situated at 25 Broadway. Students wishing to enrol in the first year of a course should make their application as soon as the results of their Qualifying Examination are known, in any case not later than 31st January.

Applicants for enrolment with advanced standing (i.e., credit for study at University level already completed) should lodge an application with the Guidance Office not later than 31st December.

Students who wish to transfer from a full-time to a part-time course or vice versa, or who wish to suspend their studies for a period, should also make their application to the Guidance Office.

In addition to its duties in connection with enrolments the Guidance Office also provides a counselling service for all students and prospective students of the University. Information is also provided relating to the vocational opportunities available to graduates in the different courses conducted at the University. All enquiries relating to scholarships should also be made at the Guidance Office.

A special pamphlet setting out the detailed arrangements for the enrolment of students is available without charge from the Guidance Office.

In more detail the activities of the Guidance Office include the following:—

1. Student Counselling

The aim of the counselling service, stated briefly, is to enable the individual to take the fullest advantage of the educational and vocational opportunities available to him.

A prospective student who has not made a definite choice of career may thus consult a Guidance Officer who will discuss with him his previous educational attainments, assessed abilities and inerests in relation to the demands of the many University courses offering, and introduce him to other sources of information and advice.

Each student entering the University is invited to interview a Guidance Officer to discuss his plans, to put any questions of a general kind about the University or his course, and to review his methods of study. Throughout this course, moreover, the service is freely available if he feels the need of help in adjusting himself to University life; if, for example, his study habits do not meet the demands of University work, if his reading skills are similarly inadequate or if he has a distracting personal problem. Such difficulties though not concerned directly with the subjects being studied can nevertheless have a profound effect

upon the student's progress in his course. An appointment may be made personally or by telephone.

2. Educational and Occupational Information Service

Correct and complete information is essential for a proper choice of a vocation or course of training. Closely associated with its counselling activities therefore the Guidance Office provides information for public and students in the following and related matters:—

(a) Courses of training offered, e.g., types, duration, entrance and occupational requirements, fees and special conditions applicable.

(b) Information concerning financial assistance for students, e.g., scholarships, bursaries, exhibitions.

(c) Occupations, e.g., methods of entry, methods of training, prospects, personal qualifications needed and descriptions of the work. Booklets are available covering many occupations and where necessary arrangements can be made for reference to experts in a particular field for detailed advice.

3. Applications for Variations in Courses

Applications for permission to vary, or to secure special admission to courses laid down in the University Calendar, or to defer or resume courses of study, should be made, in the first instance, at the Guidance Office. Where applicable, documentary evidence should be tendered on lodging the application for such a variation. Copies should accompany originals, as this will allow the immediate return of original documents.

4. Service to Students from Overseas

(a) Initial application for Enrolment —

Students from overseas already resident in New South Wales should enquire initially and in person at the Guidance Office regarding enrolment procedure.

Intending students who have not yet arrived in New South Wales are advised to address their enquiries to the Guidance Officer, University of New South Wales, Broadway, Sydney, clearly stating details of their educational standing, and forwarding certified or photostatic copies of the examination certificates on which they are depending to qualify for matriculation.

(b) Documentary Evidence —

It is desirable that students from overseas seeking admission to, or advanced standing within, a course should bring

with them to the Guidance Office documentary evidence of all relevant subjects studied in other countries. This evidence might include diplomas, statements of examinations passed, course syllabuses and samples of examination papers. Original certificates should be produced. If these are in a language other than English, it may be necessary subsequently to secure translations from accredited authorities such as the appropriate consular representative, or the New South Wales Government Interpreter and Translator, Central Court of Petty Sessions, Liverpool Street, Sydney.

(c) English Language Test —

A special examination in the English language is generally required of overseas applicants. In certain cases they may be required to undertake a special English Course before, or concurrently with, the main course, and progression in the course may depend on success in this subject. Each person will be advised by the Guidance Officer concerning the requirements in his own particular case, and the student should keep in close touch with the Guidance Office until the English language requirement has been satisfied.

(d) Landing Permits —

The Guidance Office (or the University) is unable to assist in the procurement of "landing permits" for overseas students, who are advised to contact the Australian Commonwealth Government representative in their own country for further advice in this matter.

Location and Hours of Guidance Office

At Sydney the Guidance Office is located at 25 Broadway (ground floor), and is open from 9 a.m. to 9 p.m. daily. Telephone enquiries should be made to 2-0922, Extension 284. A student counselling service is also provided at Kensington — Telephone 33-0351, Extension 462.

Courses

The Faculty of Science provides courses leading to the degree of Bachelor of Science in —

(1) Science

(2) Specialised Courses

(a) Applied Chemistry

(b) Applied Biology

(c) Optometrical Science

(d) Applied Psychology.

A broad programme in the humanities and social sciences is included in all the undergraduate courses leading to a Degree.

By appropriate choice of subjects a student enrolled in the Science Degree Course may major in any school in the Faculty. The course is available either full-time or part-time and at Pass or Honours level. Further details are listed under the various schools. Mr. L. G. Parry (School of Applied Physics, Kensington) is in charge of enrolments and other educational problems of this course.

The Applied Chemistry Course is available both on a full-time and a part-time basis and at Pass or Honours level. It provides a training in fundamental science with emphasis on Chemistry. Mr. W. J. Dunstan (School of Chemistry, Ultimo), is in charge of enrolments and educational matters connected with the School of Chemistry.

The Applied Biology Course is available only on a part-time basis. It may be taken at Pass or Honours level. Mr. R. G. Barbour (School of Biological Sciences, Ultimo), is in charge of educational matters connected with the course.

The courses leading to the Diploma in Optometry and B.Sc. in Optometrical Science are available only on a part-time basis. Associate Professor J. Lederer (School of Applied Physics, Optometry Dept., Ultimo), is in charge.

The Applied Psychology Course is available only on a part-time basis and may be taken at Pass or Honours level. Professor J. F. Clark is in charge of this course.

The specialised courses all contain subjects essential for a full understanding of the major field of study — e.g., the Applied Chemistry Course contains subjects in Physics and Mathematics as well as Chemistry.

In general, full-time courses involve 25-30 hours' tuition

weekly; part-time courses 12 hours weekly. Private study hours are also necessary.

In full-time courses (other than Science), progression is by years. In all part-time courses and the full-time Science Course progression is by subject.

In assessing students' progress in the University courses, consideration is given to work in laboratory, and class exercises and any term or other tests given throughout the year, as well as to the annual examination results. Deferred examinations may be granted to determine the progression of marginal cases.

Students are required to attend lectures punctually and diligently, and to complete all practical work prescribed for the year and course in which they are enrolled. In general, no exemptions from subjects or examinations are granted. Further details governing requirements are given in "General Rules and Information for Students" obtainable from the Guidance Office.

School of Applied Physics

It may fitly be said that the science of Physics underlies all experimental Science. It is by the work of physicists that the deepest present understanding of the inanimate world around us has been attained; and it is only with comprehension of their physical aspects that the nature and qualities of living (and of thinking) beings can be properly appreciated. Moreover, principles and techniques of Physics are to be seen everywhere incorporated in the technology on which modern civilisation is based.

Thus a study of Physics leading to some acquaintance with its elements is suitable for inclusion in any curriculum of study. A good working knowledge of at least the older-established parts of Physics is an essential item for engineers and technologists and indeed for those pursuing any other branch of experimental pure Science. This school has, therefore, as one of its principal functions, the provision of such courses for the benefit of those not intending to follow a professional career in Physics.

However, the main objective of the school is the education and professional training of physicists. The Pass-Degree Course offered is one which seeks to give a broad and balanced treatment of all branches of Physics, without specific emphasis on any branch or topic which may be temporarily prominent. This course precedes an Honours Course in which the student's work will be to some extent specialised in certain fields. These studies are provided for within the framework of the Science Course (see p. 45), as sequences which are appropriate for students seeking qualification as professional physicists, whether they intend to engage in research or industrial practice, or to become teachers of Physics.

For a Pass Degree with a major in Physics it is necessary to complete Physics I, Physics II, and Physics III; Mathematics I is pre-requisite for Physics II, and Mathematics II (either Pure or Applied) for Physics III. The Science Course regulations (see p. 45), also require the student to complete three other Science subjects for a Pass Degree. For one of these, Physics students would usually be well advised to take Chemistry I. For the second, if they find themselves proficient in Mathematics, they should take a third Mathematics subject, since such is among the pre-requisites for admission to the Honours Course (Physics IV). Alternatively, those more inclined to technology may well elect to take, as second option, the subject Physics III (Applied). For the third optional subject a wide choice exists: Chemistry II,

or alternatively General Biology, among others may be commended.

The following programmes show typical alternatives either of which, together with the prescribed Humanities subjects, completes requirements for a Pass Degree:—

	First Year	Second Year	Third Year
A.	Physics I	Physics II	Physics III
	Mathematics I	Mathematics II (Pure)	Mathematics
	Chemistry I	Chemistry II	

	First Year	Second Year	Third Year
B.	Physics I	Physics II	Physics III
	Mathematics I	Mathematics II	Physics III (Applied)
	Chemistry I		
	Geology I (alternatively taken in second year)		

Students with a special interest in Geophysics should consider (consulting also the School of Mining Engineering and Applied Geology), taking the Science Course with major in Physics and in Geology, the programme being

	First Year	Second Year	Third Year
C.	Physics I	Physics II	Physics III
	Mathematics I	Mathematics II	Geology III
	Geology I	Geology II	

together with Humanities as before.

All of the above courses and subjects are available to both full-time and part-time students in Sydney and Newcastle, except that Physics IV (Honours) will be offered for the first time in 1961 (Sydney only). Most of the first year subjects, or alternatives to them are also available, on a part-time basis only, in Wollongong and Broken Hill.

The school offers occasional courses of lectures and/or laboratory work at postgraduate level, these in most cases being designed for graduates in Science, or in either Science or Engineering, rather than for those who have graduated specifically in Physics. Courses have been given in Crystal Structure Determination by X-ray Diffraction, in Acoustics, and in High-Vacuum Physics and Gas-Discharge Physics.

The school also offers opportunities for graduates in Physics to work as research students for the Degrees of Master of Science and Doctor of Philosophy.

Through a Conversion Course, as outlined below, A.S.T.C. diplomates in Physics may attain the Degree of B.Sc. in Applied Physics. Another Conversion Course, provided in the Optometry Department of the school, enables diplomates in Optometry to proceed to the Degree of B.Sc. in Optometrical Science, and is also outlined below.

CONVERSION COURSE—APPLIED PHYSICS

Holders of a Diploma in Physics who have completed the course of study set out in the 1959 Handbook of the Department of Technical Education may qualify for the Degree of Bachelor of Science in Applied Physics by successful completion of the following course, provided that at the conclusion of the Conversion Course they will have had at least three years' experience in an occupation involving the application of physical principles.

		Hours per week 1st year	2nd year
1.14	Physics {Lectures	2½	2½
	Physics {Laboratory	3	3
4.912	Materials Technology	2½	–
10.14	Mathematics	2	4
G13	English or G23 History or G33 Philosophy	2	–
G43	Economics or G53 Government or G63 Psychology or G83 Sociology	–	2
		11½	11½

CONVERSION COURSE — OPTOMETRICAL SCIENCE

Associates of the Sydney Technical College in Optometry may qualify for the award of the degree of Bachelor of Science by satisfactorily completing the requirements as set out below. In general, the requirements fall into two main categories as shown hereunder, but these may be varied by the Professorial Board in individual cases according to the record of the student.

A. Conversion Course for Holders of 5-year Diploma

(1952 and subsequently)

Subject	Hours per week
Advanced Visual Physiology and Physiological Optics	5
Advanced Clinical Optometry	3
Mathematics and Statistics	2
Conversion Humanities — English *or* History *or* Philosophy *and* Psychology *or* Economics *or* Government *or* Sociology	4
	14

To be taken in one year of full-time study, or two years of part-time study of approximately 7 hours per week.

B. Conversion Course for Holders of 4-year Diploma

(1930-1951)

Subject	Hours per week
Optometry II	2
Clinical Optometry II	3
Theory of Optical Instruments	1
Psychology II	2
Optometry III	2
Advanced Visual Physiology and Physiological Optics	5
Advanced Clinical Optometry	3
Mathematics and Statistics	2
Conversion Humanities —	
English *or* History *or* Philosophy, *and* Psychology *or* Economics *or* Government *or* Sociology	4
	24

To be taken in two or three years of part-time study, as selected by the student, of approximately 12 or 8 hours per week.

School of Applied Psychology

It has become a platitude that modern civilisation can command the technical power to produce all that is needed to destroy hunger, want, and fear, but it has failed to develop the social organisation and skills needed to use this power satisfyingly and effectively. There is a lag in knowledge of how to create and control a social structure which can maintain stability and its highest values whilst adapting its form to the ceaseless advance of material invention. To make an industrial society work, we must understand its human as well as technical aspects. Applied Psychology is one of the technologies concerned with such a study of human behaviour. It seeks principles to explain, understand and predict human action. It deals with practical situations but it is based on, and makes its own contributions to, a solid theoretical framework which it shares with academic psychology. It is thus both a technology and a social science.

There are increasing demands for professional psychologists in the fields of industrial psychology, personnel management, "human" engineering (the design of machines and processes allowing for the qualities of the human operator), educational and vocational guidance, clinical psychology, child development, selection and placement in the Armed Services, and teaching and research.

The school provides a five year course in Applied Psychology leading to the Degree of Bachelor of Science with electives in counselling and industrial psychology.

In addition, Psychology may be taken as a major sequence in the Science Course.

APPLIED PSYCHOLOGY COURSE

The first two years of the course leading to the Degree of Bachelor of Science are aimed at giving the student a firm background of psychological theory, such other sciences as he will need in further studies (i.e., Mathematics, Biology and Physics) and a leavening of arts subjects such as English, History and Philosophy. In the third year, the subjects are basic to the courses included in the fourth and fifth years in which the student specialises in either Industrial Psychology or counselling.

The elective in Industrial psychology is intended to meet the demand for students who will engage in personnel work in industry. It involves a study of the individual worker and the organisations in which he works. It is concerned with the study of job success and failure, job satisfaction and dissatisfaction,

industrial motivation, employer-employee relations, acquisition of job skill, conditions affecting job efficiency and the like. These will be the subject of both theory and practical work.

The elective in counselling provides training for people engaged in counselling activities, employed in business and industry, guidance bureaux, colleges and universities. The main emphasis is on counselling principles and techniques. Lectures are also given in individual assessment, occupational information, professional relations, and the counsellor and society. Again, practical work requirements must be fulfilled.

Lectures will be held in the evenings for 10-12 hours per week. Students wishing to qualify for an Honours Degree are required to take an extra year's study.

FIRST YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1 lec. lab./tut.	Term 2 lec. lab./tut.	Term 3 lec. lab/tut.
12.09	Mathematics for Psychology	3 — 0	3 — 0	3 — 0
12.1	Psychology I	3 — 2	3 — 2	3 — 2
G13	English	2 — 0	2 — 0	2 — 0
		8 — 2	8 — 2	8 — 2

SECOND YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1 lec. lab./tut.	Term 2 lec. lab./tut.	Term 3 lec. lab/tut.
17.21	General Biology (by special arrangement Physics I or advanced Mathematics may be substituted)	2 — 4	2 — 4	2 — 4
12.02	Psychology II, Part A	2 — 0	2 — 0	2 — 0
12.02	Psychology II, Part B	0 — 2	0 — 2	0 — 2
G26	History	2 — 0	2 — 0	2 — 0
		6 — 6	6 — 6	6 — 6

THIRD YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1 lec. lab./tut.	Term 2 lec. lab./tut.	Term 3 lec. lab/tut.
12.03A	Psychology IIIA	2 — 0	2 — 0	2 — 0
12.03B	Psychology IIIB	2 — 1	2 — 1	2 — 1
12.10	Psychological Assessment I ..	0 — 2	0 — 2	0 — 2
15.21	Descriptive Economics	2 — 0	2 — 0	2 — 0
G33	Philosophy	2 — 0	2 — 0	2 — 0
		8 — 3	8 — 3	8 — 3

FOURTH YEAR

(30 weeks part-time course)

Industrial Course Elective

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
12.20	Psychology IV (Social)	2 — 1	2 — 1	2 — 1
12.30	Industrial Psychology	2 — 1	2 — 1	2 — 1
12.11	Psychological Assessment II (Industry)	1 — 2	1 — 2	1 — 2
		5 — 4	5 — 4	5 — 4

Counselling Course Elective

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
12.20	Psychology IV (Social)	2 — 1	2 — 1	2 — 1
12.70	Psychology IVb (Principles of Counselling)	2 — 1	2 — 1	2 — 1
12.11A	Psychological Assessment IIa Counselling	1 — 2	1 — 2	1 — 2
		5 — 4	5 — 4	5 — 4

FIFTH YEAR

(30 weeks part-time course)

Industrial Course Elective

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
12.21	Psychology V (Applied Social)	2 — 2	2 — 2	2 — 2
12.40	Personnel Techniques (including Field Work)	1 — 3	1 — 3	1 — 3
12.50	Research Seminar	1 — 0	1 — 0	1 — 0
		4 — 5	4 — 5	4 — 5

Counselling Course Elective

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
12.40A	Psychology Vb (Counselling Techniques including Field Work)	3 — 3	3 — 3	3 — 3
12.43	Professional Relations	1 — 0	1 — 0	1 — 0
12.44	Occupational Information	1 — 0	1 — 0	1 — 0
12.50	Research Seminar	1 — 0	1 — 0	1 — 0
		6 — 3	6 — 3	6 — 3

SIXTH YEAR (HONOURS)

(30 weeks part-time course)

Industrial or Counselling

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
12.31	Psychology VI — Current Issues in Applied Psychology	3 — 0	3 — 0	3 — 0
12.60	History of Psychology	1 — 0	1 — 0	1 — 0
12.51	Research Seminar	1 — 0	1 — 0	1 — 0
		5 — 0	5 — 0	5 — 0

School of Biological Sciences

The impact of the biological sciences on the community is extremely widespread, ranging from agriculture and public health to food processing and the preservation of structural materials. Wherever the care and culture of living organisms or the manipulation and processing of material of biological origin is involved, there is likely to be a need for graduates trained in one or more of the biological sciences. The teaching and research activities of the school include the primary biological sciences, botany, zoology and microbiology, which respectively embrace the study of plants, animals and micro-organisms, and certain of the important sub-divisions of these sciences, such as bacteriology and entomology. The two related sciences, physiology and biochemistry, interpenetrate the primary biological sciences and the latter in particular provides the principal link between these fields of study and the physical sciences. Physiology is concerned with the study of function while biochemistry has as its primary objectives the chemical aspects of structure and the explanation of biological events in physico-chemical terms. Biochemistry is intimately concerned with all the biological sciences and thus forms an essential element in any course where a biological subject is taken as a major.

There are a number of fields in which graduates who have majored in one or more of the biological sciences may make a career. These fields include education, public health, fermentation and food industries and agriculture, as well as a wide range of research activities.

At the present time the school offers courses under two main headings:—

(a) The Science Degree Course, and (b) The Applied Biology Degree Course.

(a) In the Science Degree Course, which can be taken either full-time or part-time, there is no occupational requirement. Majors may be taken in Botany, Zoology, Biochemistry or Microbiology. (See p. 46 for the table of subjects.)

The Science Course offers quite a wide choice of subjects, but attention should be paid to pre-requisites. Thus a student who wishes to take any biological subjects in the later stages of the course must do General Biology as a Group I subject. If Botany II or Zoology II is chosen as a major subject, Chemistry IIA (which contains a strand of Biochemistry), Chemistry II or Biochemistry I must be included in the Group II subjects. Similarly

if Microbiology is selected as a Group III subject, Chemistry IIA or Biochemistry I must be taken from Group II. Biochemistry I (a Group II subject) has Chemistry II as a co-requisite. A student who wanted to do both Botany II and Zoology II would therefore be advised to take Chemistry IIA in conjunction with Botany I and Zoology I in second year (full-time) because of the Chemistry II co-requisite of Biochemistry I.

The choice of subjects will be governed to a large extent by the field which the graduate wishes to enter. For example a student who wants to become a teacher of Biology would be advised to major in both Botany and Zoology. Such a student would take General Biology as the optional subject in Group I, Botany I, Zoology I and either Chemistry IIA (preferably) or Chemistry II from Group II and Botany II and Zoology II as the Group III subjects.

Those students whose interest lies in the direction of the fermentation industries would be well advised to major in Biochemistry and Microbiology, while those who may consider agriculture as their field of choice should major in Botany with perhaps a co-major in Chemistry or Biochemistry. Any of the biological subjects can be taken to Honours level.

(b) The Applied Biology Degree Course is offered only on a part-time basis. Students attending this course must be employed in an occupation involving some aspect of biological science.

The course is of six years duration for a Pass Degree and seven years for an Honours Degree.

Majors may be carried out in Biochemistry, Entomology and Microbiology, or combination of these with Chemistry.

The first two years of the course give basic training in Physics, Chemistry, Mathematics and Biology. In the third year, Physical Chemistry and Organic Chemistry are compulsory subjects and in addition two elective subjects must be chosen from the four which are offered, namely Analytical Chemistry, Inorganic Chemistry, Botany and Zoology.

In the fourth year Biochemistry is a compulsory subject and three elective subjects must be chosen from five:

Physical Chemistry, Organic Chemistry, Experimental Biology, Entomology and Microbiology.

In the fifth year either two major sequences may be selected from Biochemistry, Entomology and Microbiology or a combination of one of these with two of the five electives offered.

The Humanities subjects are studied in sixth year.

There are pre-requisites involved in taking certain subjects; thus a student who wished to take Organic Chemistry in his fifth year would have taken Organic Chemistry as an elective subject in his fourth year. These pre-requisites should be kept in mind when considering elective subjects. Students are required to be employed in an occupation involving some aspect of the application of Biological Science to industry.

FIRST YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
1.11	Physics, Part I	1½ — 1½	1½ — 1½	1½ — 1½
2.41	General Chemistry, Part I	2 — 4	2 — 4	2 — 4
10.11B	Mathematics, Part I	2 — 1*	2 — 1*	2 — 1*
		5½ — 6½	5½ — 6½	5½ — 6½

* Tutorial

SECOND YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
1.11	Physics, Part II	1½ — 1½	1½ — 1½	1½ — 1½
2.41	General Chemistry, Part II	1 — 2	1 — 2	1 — 2
17.21	General Biology	2 — 4	2 — 4	2 — 4
		4½ — 7½	4½ — 7½	4½ — 7½

THIRD YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
2.32D	Physical Chemistry	1 — 2½	1 — 2½	1 — 2½
2.62	Organic Chemistry	1 — 0	1 — 2½	1 — 0
	Plus TWO electives from—			
2.52	Analytical Chemistry	1 — 2½	1 — 2½	1 — 2½
2.42	Inorganic Chemistry	1 — 2½	1 — 0	1 — 0
17.31	Botany	1 — 2	1 — 2	1 — 2
17.71	Zoology	1 — 2	1 — 2	1 — 2
		4 — 6½-7½	4 — 7-9½	4 — 4½-7

Students majoring in Entomology must take 17.31 Botany and 17.71 Zoology as electives.

FOURTH YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
17.13	Biochemistry	1 — 2	1 — 2	1 — 2
	Plus THREE electives from—			
2.33	Physical Chemistry	1 — 2	1 — 2½	1 — 2½
2.63	Organic Chemistry	1 — 2½	1 — 2	1 — 2½
17.23	Experimental Biology	1 — 2	1 — 2	1 — 2
17.41	Entomolgy	1 — 2	1 — 2	1 — 2
17.51	Microbiology	1 — 2	1 — 2	1 — 2
		4 — 8-8½	4 — 8-8½	4 — 8-9

Elective subjects must be chosen with due regard to pre-requisites. Students majoring in Entomology must include Experimental Biology as an elective.

FIFTH YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
EITHER—any two major sequences from—				
17.14	Biochemistry	2 — 4	2 — 4	2 — 4
17.42 17.43	Entomology and Entomology	2 — 4	2 — 4	2 — 4
17.52 17.53	Microbiology and Microbiology	2 — 4	2 — 4	2 — 4
		4 — 8	4 — 8	4 — 8
OR—one major sequence (from above) plus two electives from—				
2.34D	Physical Chemistry	1 — 3	1 — 3	1 — 3
2.64D	Organic Chemistry	1 — 3	1 — 3	1 — 3
2.65B	Applied Organic Chemistry (Chemistry and Analysis of Food)	1 — 3	1 — 3	1 — 3
17.42	Entomology	1 — 2	1 — 2	1 — 2
17.52	Microbiology	1 — 2	1 — 2	1 — 2
		4 — 8-10	4 — 8-10	4 — 8-10

SIXTH YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1 lec. lab./tut.	Term 2 lec. lab./tut.	Term 3 lec. lab/tut.
G13	English or G23 History	2 —0	2 —0	2 —0
G30.1	Logic	1 —0	1 —0	1 —0
G43	Economics or G63 Psychology or G83 Sociology	2 —0	2 —0	2 —0
G50.1	Government	1 —0	1 —0	1 —0
		6 —0	6 —0	6 —0

ADDITIONAL FOR HONOURS

Students desiring to take Honours must apply to the Head of the School of Biological Sciences not later than the 31st December in the year in which the fifth year is completed. The programme of study can be taken over two part-time years or one full-time year, and will be made up as follows (for two part-time years):—

	Hours per week
Humanities	3
Advanced Formal instruction in the field of study	3
Research project	7
	13

Advanced formal study and a research project can only be undertaken in the subject(s) in which the student has majored. The three fields in which Honours may be taken are:—

Biochemistry, Entomology, Microbiology.

A thesis embodying the results of the research project must be submitted.

BASIC BIOLOGY COURSE FOR SCIENCE GRADUATES

A short course designed to provide basic instruction in biological science is offered to graduates and diplomates in science and to other persons with approved scientific training. While primarily designed to broaden scientific background, the needs of science teachers have been kept especially in mind in framing this course which, it is hoped, will make some contribution towards alleviating the shortage of science teachers with biological training.

The course may be taken in two years or more of part-time study. Students completing the course in two years will undertake the following programme of study:—

FIRST YEAR

(30 weeks part-time course)

		Hours per week for 30 weeks lec. lab./tut.
17.13	Biochemistry	1 — 2
17.21	General Biology	2 — 4
		3 — 6

SECOND YEAR

(30 weeks part-time course)

Students will take three subjects from the following list, one of which must be either 17.31 Botany or 17.71 Zoology.

		Hours per week for 30 weeks lec. lab./tut.
17.23	Experimental Biology	1 — 2
17.31	Botany	1 — 2
17.41	Entomology I	1 — 2
17.51	Microbiology	1 — 2
17.71	Zoology	1 — 2
		3 — 6

School of Chemistry

The needs of the chemistry industry for men competent to devise and develop new processes and to improve existing ones and for men competent to operate these can best be met by different types of training. The University offers several distinctly different courses in which the word chemistry appears—viz.: Applied Chemistry, Chemical Engineering and Industrial Chemistry. The latter two are in the Faculty of Technology and differ from the Applied Chemistry course in that they contain subjects in engineering principles basic to design, construction and operation of plant and equipment in lieu of some of the more advanced aspects of chemistry. For research and development chemistry, as well as general laboratory work a training in fundamental science with a strong emphasis on chemistry is essential. It is this type of training that is provided by the Applied Chemistry Course where instruction is given in the underlying principles of inorganic, physical, organic, analytical and nuclear chemistry. In the final year of this Course, students are given the opportunity of concentrating on fields of chemistry in which they are particularly interested. Graduates of the School of Chemistry who have taken a degree in Applied Chemistry find employment not only in industry and in universities but also in the C.S.I.R.O., Defence Research, Customs, Agriculture and Public Health, and many other government laboratories.

The School also provides courses in chemistry which form part of the requirements of the Science course (see p. 45). No industrial training is required for this course. By taking a double major in chemistry in the third year of the Science course, it is possible to reach a high degree of specialisation in the subject and, at the same time, obtain a substantial background of supporting science subjects.

Both the Applied Chemistry and the Science courses provide a training in chemistry at a level which satisfies the requirements for professional chemists. The essential difference between the two main chemistry courses is this: the Applied Chemistry course is the more extensive of the two, embracing as it does each of the major disciplines in chemistry. Another distinctive feature is that it demonstrates how fundamental knowledge in the various branches of chemistry may be applied to industry.

On the other hand, the Science chemistry course which requires an equally high standard in the various fields of chemistry offers a student either of two possibilities. By taking a double major in chemistry in the third year, he may reach a high degree of

specialisation in the subject but instead of being concerned with applications of chemistry to industry, he will in the second year of the course take other supporting science subjects. The other possibility is to combine chemistry with another third year science subject, such as mathematics, physics, biology, or geology. Chemistry combined with mathematics will provide a useful basis for the advanced study of X-ray crystallography; combined with geology, it will be of assistance to any one who later wishes to specialise in geochemistry.

For the student who graduates in the science course with chemistry as the major subject, there is a wide choice of opportunities for employment similar to those listed above. In addition, the course is well suited to the needs of science teachers.

The highest degree of specialisation in chemistry at the undergraduate level may be gained by means of an honours degree, the work for which entails a research project. An honours degree may be taken in either Applied Chemistry or Chemistry (as part of the Science course). For the latter a double major in chemistry is desirable but by no means essential. Chemistry III combined with such Science subjects as Physics III, Mathematics III or Geology III also forms a good foundation for an honours degree in chemistry.

The first year of the full-time Applied Chemistry course is identical with the first year of Chemical Engineering, Food Technology, Fuel Technology, Metallurgy and Textile Technology. In the first two years of the part-time course the work in chemistry, physics and mathematics is identical with that taken in the same years of the Chemical Engineering, Food Technology, Industrial Chemistry and Metallurgy courses. Students in any of these courses may, therefor, transfer from one to another without loss of standing, up to the end of the first year full-time, or second year part-time.

APPLIED CHEMISTRY—FULL-TIME

This course may be taken at Pass or Honours standard. The Pass course requires full-time attendance at the University for the first and second years and part-time attendance for the third and fourth years. The Honours course requires full-time attendance for three years, the fourth year requiring full-time attendance for one term and part-time attendance for two terms. Both Pass and Honours students will be required to complete satisfactorily a course of approved practical training in industry.

FIRST YEAR

(30 weeks day course)

		Hours per week					
		Term 1		Term 2		Term 3	
		lec.	lab./tut.	lec.	lab./tut.	lec.	lab./tut.
1.11	Physics	3	— 3	3	— 3	3	— 3
2.41	General Chemistry	3	— 6	3	— 6	3	— 6
5.101	Engineering Drawing and Materials	2	— 0	1	— 3	0	— 0
5.211	Workshop Processes and Practice	0	— 3	0	— 0	0	— 0
10.11	Mathematics	4	— 2*	4	— 2*	0	— 0
10.11B	Mathematics	0	— 0	0	— 0	2	— 2*
G10	English	2	— 0	2	— 0	0	— 0
G20	History	1	— 0	1	— 0	1	— 0
		15	— 14	14	— 14	10	— 11

* Tutorial.

SECOND YEAR

(30 weeks part-time course)

		Hours per week					
		Term 1		Term 2		Term 3	
		lec.	lab./tut.	lec.	lab./tut.	lec.	lab./tut.
1.2	Physics*	1½	— 1½	1½	— 1½	1½	— 1½
2.32	Physical Chemistry	1	— 2½	1	— 0	1	— 0
2.33	Physical Chemistry	1	— 2½	1	— 2½	1	— 2½
2.42	Inorganic Chemistry	1	— 0	1	— 0	1	— 2½
2.52	Analytical Chemistry	1	— 2½	1	— 2½	1	— 2½
2.53	Analytical Chemistry	1	— 2½	1	— 2½	1	— 2½
2.62	Organic Chemistry	1	— 0	1	— 2½	1	— 0
2.63	Organic Chemistry	1	— 2½	1	— 2½	1	— 2½
2.72	Mathematical Chemistry	1	— 0	1	— 0	1	— 0
G30	Philosophy	0	— 0	2	— 0	2	— 0
		9½	— 14	11½	— 14	11½	— 14
	* Alternative Subject—						
2.23	Chemical Instrumentation	1	— 1½	1	— 1½	1	— 1½

THIRD YEAR

(30 weeks of 2 half days and 3 evenings per week)

		Hours per week					
		Term 1		Term 2		Term 3	
		lec.	lab./tut.	lec.	lab./tut.	lec.	lab./tut.
2.34	Physical Chemistry	1	— 4½	1	— 4½	1	— 4½
2.73	Mathematical Chemistry	1	— 0	1	— 0	1	— 0
2.64 or *2.64A	Organic Chemistry	1	— 4½	1	— 4½	1	— 4½
	Social Science Elective	2	— 0	2	— 0	0	— 0
		5	— 9	5	— 9	3	— 9

* 2.64A is to be taken by students desiring to take 2.65A or 2.65B in fourth year.

FOURTH YEAR

(30 weeks of 2 half days and 2 evenings per week)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
3.14A	*Industrial Chemistry	1½ — ½	1½ — ½	1½ — ½
	Advanced Elective (Humanities or Social Science)	0 — 0	2 — 0	2 — 0
Plus one of:—				
2.35	Applied Physical Chemistry	1 — 4½	1½ — 4½	1 — 4½
2.44	Inorganic Chemistry	1 — 4½	1 — 4½	1 — 4½
2.54	Analytical Chemistry	1 — 4½	1 — 4½	1 — 4½
2.65	(A or B) Applied Organic Chemistry	1 — 4½	1 — 4½	1 — 4½
2.85	Nuclear and Radiation Chemistry	1 — 4½	1 — 4½	1 — 4½
		2½ — 5	4½ — 5	4½ — 5

* Includes Factory visits.

HONOURS

Students desiring to take Honours must apply to the Head of the School of Chemistry not later than 31st December of the year in which the second year is completed. Practical training in the chemical industry will be undertaken during those two terms in which the student studies part-time.

Candidates for Honours are required to complete the following programme in third and fourth years:—

THIRD YEAR

(30 weeks day course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
2.34	Physical Chemistry	1 — 4½	1 — 4½	1 — 4½
2.64 or 2.64A	Organic Chemistry	1 — 4½	1 — 4½	1 — 4½
2.73	Mathematical Chemistry	1 — 0	1 — 0	1 — 0
3.14	Industrial Chemistry*	1½ — ½	1½ — ½	1½ — ½
	Social Science Elective	2 — 0	2 — 0	0 — 0
Plus one of:—				
2.44	Inorganic Chemistry	1 — 4½	1 — 4½	1 — 4½
2.54	Analytical Chemistry	1 — 4½	1 — 4½	1 — 4½
		7½ — 14	7½ — 14	5½ — 14

* Includes Factory visits.

FOURTH YEAR

(One term full-time, two terms part-time)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
2.44	Inorganic Chemistry	1 — 4½	1 — 4½	1 — 4½
	Advanced Elective (Humanities or Social Science)	0 — 0	2 — 0	2 — 0
	Research Project*	0 — 20	0 — 3	0 — 3
	If 2.44 was completed in third year, then one of:—			
2.35	Applied Physical Chemistry	1 — 4½	1 — 4½	1 — 4½
2.54	Analytical Chemistry	1 — 4½	1 — 4½	1 — 4½
2.65 (A or B)	Applied Organic Chemistry	1 — 4½	1 — 4½	1 — 4½
2.85	Nuclear and Radiation Chemistry	1 — 4½	1 — 4½	1 — 4½
		1 — 24½	3 — 7½	3 — 7½

* Full-time work (20 hours) on the Project may be completed in first, second or third terms.

APPLIED CHEMISTRY—PART TIME

This course has been designed for students employed in the chemical industry. The programme of study is equivalent to that of the full-time course and extends over six or seven part-time years, depending on whether a Pass or Honours degree is taken.

FIRST YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab/tut.
1.11	Physics, Part I	1½ — 1½	1½ — 1½	1½ — 1½
2.41	General Chemistry, Part I	2 — 4	2 — 4	2 — 4
10.11-B	Mathematics, Part I	2 — 1*	2 — 1*	2 — 1*
		5½ — 6½	5½ — 6½	5½ — 6½

* Tutorial

SECOND YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
1.11	Physics, Part I	1½ — 1½	1½ — 1½	1½ — 1½
2.41	General Chemistry, Part II	1 — 2	1 — 2	1 — 2
5.101	Engineering Drawing and Materials	2 — 0	1 — 3	0 — 0
10.11-B	Mathematics, Part II	2 — 1*	1 — 1*	1 — 1*
		6½ — 4½	4½ — 7½	3½ — 4½

* Tutorial

THIRD YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
1.2	Physics*	1½ — 1½	1½ — 1½	1½ — 1½
2.32	Physical Chemistry	1 — 0	1 — 0	1 — 2½
2.42	Inorganic Chemistry	1 — 2½	1 — 0	1 — 0
2.52	Analytical Chemistry	1 — 2½	1 — 2½	1 — 2½
2.62	Organic Chemistry	1 — 0	1 — 2½	1 — 0
2.72	Mathematical Chemistry	1 — 0	1 — 0	1 — 0
		6½ — 6½	6½ — 6½	6½ — 6½

* Alternative Subject

2.23	Chemical Instrumentation ..	1 — 1½	1 — 1½	1 — 1½

FOURTH YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
2.33	Physical Chemistry	1 — 2	1 — 2½	1 — 2½
2.53	Analytical Chemistry	1 — 2½	1 — 2½	1 — 2
2.63	Organic Chemistry	1 — 2½	1 — 2	1 — 2½
2.73	Mathematical Chemistry	1 — 0	1 — 0	1 — 0
3.14A	Industrial Chemistry*	1½ — ½	1½ — ½	1½ — ½
		5½ — 7½	5½ — 7½	5½ — 7½

* Includes Factory visits

FIFTH YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1	Term 2	Term 3
		lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
2.34D	Physical Chemistry	1 — 3	1 — 3	1 — 3
2.64D	Organic Chemistry	1 — 3	1 — 3	1 — 3
Plus one of—				
2.35D	Applied Physical Chemistry	1 — 3	1 — 3	1 — 3
2.44D	Inorganic Chemistry	1 — 3	1 — 3	1 — 3
2.54D	Analytical Chemistry	1 — 3	1 — 3	1 — 3
2.65 (A or B)	Applied Organic Chemistry	1 — 3	1 — 3	1 — 3
2.85D	Nuclear and Radiation Chemistry	1 — 3	1 — 3	1 — 3
		3 — 9	3 — 9	3 — 9

SIXTH YEAR

(30 weeks part-time course)

		Hours per week		
		Term 1 lec. lab./tut.	Term 2 lec. lab./tut.	Term 3 lec. lab./tut.
G13	English or G23 History	2 — 0	2 — 0	2 — 0
G30.1	Logic	1 — 0	1 — 0	1 — 0
G43	Economics or G63 Psychology or G83 Sociology	2 — 0	2 — 0	2 — 0
G50.1	Government	1 — 0	1 — 0	1 — 0
		6 — 0	6 — 0	6 — 0

ADDITIONAL FOR HONOURS

Students desiring to take Honours must apply to the Head of the School of Chemistry not later than 31st December in the year in which the fifth year is completed. The full programme of study (i.e., the Humanities and the course set out below) may be taken over two part-time years or one full-time year.

		Hours per week		
		Term 1 lec. lab./tut.	Term 2 lec. lab./tut.	Term 3 lec. lab./tut.
2.44D	Inorganic Chemistry	1 — 3	1 — 3	1 — 3
	Research Project	0 — 10	0 — 10	0 — 10
If 2.44D was taken in fifth year, then one of—				
2.35D	Applied Physical Chemistry	1 — 3	1 — 3	1 — 3
2.54D	Analytical Chemistry	1 — 3	1 — 3	1 — 3
2.65	(A or B) Applied Organic Chemistry	1 — 3	1 — 3	1 — 3
2.85D	Nuclear and Radiation Chemistry	1 — 3	1 — 3	1 — 3

CONVERSION COURSE—APPLIED CHEMISTRY

Holders of a diploma in Chemistry who completed the course of study prior to 1954 are required to complete the following additional subjects to qualify for the degree of Bachelor of Science:—

		Hours per week
1.11	Physics, Part II	3
10.11	Mathematics, Part II	2
G13	English or G23 History or G33 Philosophy	2
G43	Economics or G53 Government or G63 Psychology or G83 Sociology	2
		9

In addition, a thesis must be presented which may involve advanced laboratory work, together with any special subjects prescribed in each case.

The student is required to attend full-time for one academic year or for such other time as approved by the Professorial Board.

A course in leather chemistry is available on a part-time basis for those employed in the Leather industry. The course may be taken over six years for a Pass degree or over seven years for Honours. Year I is identical with that of the Applied Chemistry course outlined above. For further details see the University Calendar.

School of Mathematics

Throughout Australia and, in fact, throughout the world, there is an extreme shortage of mathematicians in universities, in industry, in research establishments and in schools. Employment can be found for mathematicians with almost every type of qualification.

In the past, the employment of mathematicians in industry was rather rare. Over the last few years there has been a remarkable change. It is now realised that every reasonably large concern must employ a statistician. There must be efficient supervision of the quality and testing of products. Analysis of sales and business methods must be in the hands of an expert. Students interested in positions of this kind should complete the course in Theory of Statistics.

Statisticians are also found in many research establishments, where they are concerned with the design of experiments and the analysis of the results obtained. Analysis of data concerning the incidence of diseases such as poliomyelitis and lung cancer have been achievements of these professional mathematicians.

One of the spectacular aids to industry is the high-speed computer. The small machines costing a hundred or so pounds can be managed by relatively unskilled persons, but it requires skilled training to maintain and programme for a high-speed machine costing many hundreds of thousands of pounds. The number of persons in Australia qualified to take charge of a large machine is quite small. A graduate with satisfactory attainments in machine operation is assured of a well-paid and interesting position.

The courses in Applied Mathematics include training in programming for the digital computers and in all aspects of numerical analysis. Students will have considerable practice on the university's computer UTECOM.

The fourth year course in Applied Mathematics, in addition to computer work, contains a large strand of mathematical physics. A student who is interested in mathematical physics should consult the Professor of Applied Mathematics before enrolment.

It must not be thought that an honours degree is necessary for success in these fields. Pass degrees are satisfactory for positions in government departments, insurance companies and laboratories, but, of course, an honours degree would in almost all cases give priority.

The growth of population in Australia has resulted in a large increase in the enrolments of Australian universities. At the

moment the shortage of mathematicians in the universities is desperate. The number of students graduating in mathematics in all Australian universities could easily be absorbed in the staff of this university alone. Many Australian graduates go overseas to very pleasant and lucrative positions.

A student who graduates with a B.Sc. degree with honours should find little difficulty in becoming a university lecturer after, perhaps, two or three years as a teaching fellow while working for a higher degree.

In striking contrast to the situation overseas, particularly in the U.S.A., Australian industry does not appear ready to employ pure mathematicians. This probably accounts for Australia losing many of its best pure mathematicians to overseas appointments. It is hoped that this will be rectified in the near future. The present avenues of employment for pure mathematicians in Australia are in the universities, C.S.I.R.O., other research establishments and the teaching service.

If the student examines carefully the comments following this preamble, he will notice that the courses in Theory of Statistics and Applied Mathematics are so linked with the Pure Mathematics course that a student may change from one of these to Pure Mathematics at any stage.

The Courses and Subjects Provided by the School

The School of Mathematics provides courses at the Pass and Honours levels in Pure Mathematics, Applied Mathematics and Theory of Statistics. Full details of the subjects and their relations with other subjects in the Science Course are found in the University Calendar (1959). However, the pre-requisites and co-requisites of these subjects have been considerably modified since the printing of this Calendar. The new regulations will appear in the 1960 edition. The following notes set out the present position. Any student who does not feel confident that he understands the situation should consult one of the enrolment officers of the school. .

Honours Courses in Mathematics

The honours courses require four years of study. In the fourth year the student must devote his full time to his chosen subject and to a course in Humanities. Entry to the fourth year depends on the completion of a number of pre-requisite subjects. This means that, for each course, five subjects are prescribed by the School. For courses commencing in 1960 the general regulations of the Faculty of Science demand, in addition to the Mathematical subjects, the completion of three other Science subjects (two in first year and one in second year) and four subjects in Humanities.

(a) Pure Mathematics

In order to qualify for entry to the fourth year, the student must have completed five mathematical subjects: Mathematics I, Higher Mathematics II (Pure), Higher Mathematics III (Pure) and two other subjects chosen from those taught by the School.

(b) Applied Mathematics

The five prescribed subjects for entry to the fourth year are Mathematics I, Higher Mathematics II (Pure), Higher Mathematics III (Pure), Higher Mathematics II (Applied) and Higher Mathematics III (Applied).

(c) Theory of Statistics

The five prescribed subjects for entry to the fourth year are Mathematics I, Higher Mathematics II (Pure), Higher Mathematics III (Pure), Theory of Statistics I (Higher) and Theory of Statistics II (Higher).

All students, whether studying for honours or not, will attend Mathematics I during the first year. Any student interested in gaining an honours degree should consult one of the professors in the School of Mathematics during his first year. He should certainly have an interview before enrolling in the second year.

It should be noted that transfer from the Higher level to the ordinary level of the various mathematical subjects can be made at any time if the student feels that he has made a mischoice. In the list of pre-requisites for the fourth year in Pure Mathematics the "other two subjects" mentioned need not be higher level subjects. If a student is studying for an honours degree in either Theory of Statistics or Applied Mathematics and for some reason finds this is unsuitable, he can, without loss of time, turn his interests to Pure Mathematics. Transfer from ordinary courses to higher courses will leave the student with an almost impossible task and could only be made in exceptional circumstances.

Pass Courses

Except for students who wish to take Theory of Statistics II, there are few restrictions on the choice of subjects. Naturally, there is the general rule that the first stage of a sequence of subjects must precede later stages.

The course of study for a student wishing to graduate at the Pass level in Theory of Statistics must include Mathematics I, Mathematics II (Pure), Mathematics III (Pure), Theory of Statistics I and Theory of Statistics II.

Though there is no regulation to demand it, students who wish to specialise in Applied Mathematics are strongly advised to take Mathematics III (Pure) if they wish to attempt Mathematics III (Applied) in the third year. This would mean of necessity, the inclusion of five mathematical subjects for the degree.

Mathematics as a Subsidiary Subject

It is the opinion of the School of Mathematics that in order to gain a major in Mathematics, five subjects must be completed by graduation. Students whose main interests lie in other fields will not desire to include so much Mathematics.

If it is intended that only three mathematical subjects are to be taken, then Mathematics I, Mathematics II (Pure) and Mathematics III (Pure) would be a sequence providing some depth. However, consideration should be given to the inclusion of Theory of Statistics I or Mathematics II (Applied). These are second year (Group II) subjects. The combination of at least one of these with Mathematics II (Pure) gives a broader coverage at somewhat less depth than Mathematics III (Pure). Both Theory of Statistics I and Mathematics II (Applied) can be attempted without the inclusion of Mathematics II (Pure).

School Teachers

There is no doubt that in order to be fully qualified as a High School teacher of Mathematics, it is desirable that Mathematics I, Mathematics II (Pure) and Mathematics III (Pure) should be passed. It is recommended that two other subjects should be selected from the Theory of Statistics or Applied Mathematics sequences. This extra work will broaden the prospective teacher's outlook and will certainly improve his teaching work.

Those who feel that they may be interested in proceeding to a higher degree after graduation are advised to attempt some of the courses at the higher level.

Students with Low Mathematical Qualifications

Students who have only General Mathematics at the Leaving Certificate or who have been inadequately prepared even though they have passed both Mathematics I and II, should see that they do not fall behind the class. Tutorial time is provided by the School in Mathematics I. Students should use these tutorial periods to obtain advice on supplementary reading to make up any deficiencies in their pre-university training. If, after receiving this advice, the student cannot keep up with class, he should consult a senior member of the staff of the School of Mathematics.

Students Transferring from Other Courses

The mathematical subjects of the Science Course differ quite considerably from the mathematics taught to students following other courses (e.g., Engineering). Students transferring to the Science course and wishing to obtain credit for work done in previous courses should make application through the Guidance Office as early as possible. The staff of the School will advise students in such cases but this does not relieve the student of the responsibility of making an early application through the correct channels.

Subjects Subsidiary to Mathematics

As mentioned above, a student wishing to major in Mathematics must pass other Science subjects in accordance with Science Course regulations. However, it is worth noting that the Applied Mathematics course has a considerable content of Mathematical Physics and there is no doubt that Physics I and/or Physics II would assist the student.

SCIENCE COURSE

The Faculty of Science offers in this course a broader range of subjects and studies leading to a B.Sc. than in the courses in applied sciences which are supervised by particular schools in the Faculty.

A pass degree may be awarded after three years' study as a full-time student or after seven years of study as a part-time student attending only at evening sessions.

An honours degree may be awarded after an additional year of full-time specialised study in one of the Schools of the Faculty and in some cases additional work is required in preliminary years. For the convenience of students engaged in part-time studies some of the Schools of the Faculty offer honours courses over two additional years of evening study. A student contemplating an honours course should consult the Head of the School in which he proposes to continue his studies in order to ascertain any special conditions and choice of subjects which may be considered desirable.

The subjects are divided into (A) the compulsory humanities and (B) the Science subjects. The level of the Science subjects is denoted by a group number and an acceptable course may, subject to pre-requisite and co-requisite provisions, be chosen in accordance with the following pattern:—

The compulsory Humanities: English (G10), History (G20), Philosophy or a Social Science Elective, and a Final Elective (being a second stage in one of the earlier Humanities subjects).

Eight Science subjects, three being chosen from Group I, of which at least two must be chosen from the subjects Mathematics I, Chemistry I, or Physics I, three from Group II and two from Group III, except that a student may modify this pattern by—

(a) Substituting a Group I subject for a Group II subject and/or

(b) Substituting a Group II subject for a Group III subject as long as the remaining Group III subject is from Group III part A.

Thus a satisfactory course could be Humanities, four Group I subjects, three Group II subjects, and one Group III subject.

TABLE OF SUBJECTS†

	Hours per week		
	Term 1	Term 2	Term 3
	lec. lab./tut.	lec. lab./tut.	lec. lab./tut.
(A) HUMANITIES—			
G10 English	1 — 0	1 — 0	2 — 0
G20 History	1 — 0	1 — 0	2 — 0
Philosophy or Psychology or Economics or Government or Sociology	2 — 0	2 — 0	2 — 0
Advanced Elective (Humanities or Social Science)	0 — 0	2 — 0	2 — 0
(B) SCIENCE SUBJECTS—			
Group I			
Chemistry I	3 — 4	3 — 4	3 — 4
Mathematics I	4 — 2	4 — 2	4 — 2
Physics I	3 — 3	3 — 3	3 — 3
Geology I	3 — 4	3 — 4	3 — 4
Psychology I	3 — 4	3 — 4	3 — 4
General Biology*	2 — 4	2 — 4	2 — 4
Geography I‡	2 — 3	2 — 3	2 — 3
Group II			
Chemistry II	4 — 8	4 — 8	4 — 8
Mathematics II (Pure)	3 — 2	3 — 2	3 — 2
Mathematics II (Applied)	3 — 4	3 — 4	3 — 4
Higher Mathematics II (Pure)	6 — 0	6 — 0	6 — 0
Higher Mathematics II (Applied)	4 — 3	4 — 3	4 — 3
Physics II	4 — 4	4 — 4	4 — 4
Geology II	4 — 6	4 — 6	4 — 6
Psychology II	3 — 6	3 — 6	3 — 6
Theory of Statistics I	4 — 3	4 — 3	4 — 3
Chemistry IIA*	3 — 6	3 — 6	3 — 6
Biochemistry I*	3 — 6	3 — 6	3 — 6
Botany I*	3 — 6	3 — 6	3 — 6
Zoology I*	3 — 6	3 — 6	3 — 6
Geography II‡	2 — 3	2 — 3	2 — 3
Group III			
Part (a)			
Chemistry III	4 — 10	4 — 10	4 — 10
Mathematics III (Pure)	4 — 1	4 — 1	4 — 1
Higher Mathematics III (Pure)	6 — 1	6 — 1	6 — 1
Physics III	4 — 8	4 — 8	4 — 8
Geology III	5 — 8	5 — 8	5 — 8
Psychology III	4 — 7	4 — 7	4 — 7
Biochemistry II*	3 — 10	3 — 10	3 — 10
Botany II*	3 — 10	3 — 10	3 — 10
Zoology II*	4 — 9	4 — 9	4 — 9
Microbiology I*	4 — 8	4 — 8	4 — 8
Geography III‡	2 — 3	2 — 3	2 — 3

† A student who selects an unusual combination of subjects or subjects chosen from more than one group in one year may be required, owing to the exigencies of the time table, to attend for more than the minimum number of years and/or at night classes.

Part (b)			
Mathematics III (Applied)	3 — 4	3 — 4	3 — 4
Higher Mathematics III (Applied)	5 — 3	5 — 3	5 — 3
Theory of Statistics II	4 — 4	4 — 4	4 — 4
Chemistry III (Supplementary)	3 — 7	2 — 8	2 — 8
Physics III (Applied)	4 — 4	4 — 4	4 — 4

* Available at Sydney only.

‡ Available at Newcastle only.

Students studying part-time will usually enter separate classes in which the full subjects shown in the Table are available in two parts, usually, though not invariably, designed for study in consecutive years. Students in subjects from Group I usually attend the classes for applied science courses and in addition to normal matriculation requirements students taking Chemistry I/1 and Physics I/1 are normally required to have passed in Chemistry and Physics at the Leaving Certificate or equivalent examination.

The regulations governing this course allow students to progress by passing by subject and not neccessarily by passing in the full year's work and particular attention should be given in planning a course to the restrictions in pre-requisites and co-requisites which are given below.

PRE-REQUISITIES AND CO-REQUISITES

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

(b) Before enrolling in any mathematics subject from Group II (Mathematics II, Pure or Applied at either level, or Theory of Statistics I) a student must have attended classes and satisfied the examiners in Mathematics I.

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

Subject	Pre-requisite
Group II—	
Chemistry IIA	Chemistry I and General Biology
Physics II	Mathematics I
Botany I	General Biology
Zoology I	General Biology
Biochemistry I	General Biology
Theory of Statistics I	Mathematics I

Group III—	
Chemistry III	Mathematics I
Physics III	Either level of Mathematics II (Pure) or either level of Mathematics II (Applied)
Botany II	Chemistry IIA or Biochemistry I or Chemistry II
Zoology II	Chemistry IIA or Biochemistry I or Chemistry II
Microbiology I	Chemistry IIA or Biochemistry I
Theory of Statistics II	Mathematics II (Pure) or Higher Mathematics II (Pure)
Physics III (Applied)	Physics II
Higher Mathematics III (Pure)	Higher Mathematics II (Pure) and one other Group II subject of the School of Mathematics

(d) Enrolment in the subject in the left-hand column shall not be approved unless the corresponding subject/subjects listed in the right-hand column are taken concurrently or have been completed.

Subject	Co-requisite
Group II—	
Mathematics II (Applied)	Mathematics II (Pure) or Higher Mathematics II (Pure)
Higher Mathematics II (Applied)	Higher Mathematics II (Pure)
Biochemistry I	Chemistry II
Group III—	
Chemistry III (Supplementary)	Chemistry III
Theory of Statistics II	Mathematics III (Pure) or Higher Mathematics III (Pure)
Higher Mathematics III (Applied)	Higher Mathematics III (Pure)

(e) Before enrolling in an Advanced Elective (Humanities or Social Science), the student shall have attended the classes and satisfied the examiners in each of the subjects:—G10 English, G20 History and one of Philosophy, Psychology, Economics, Government or Sociology.

(f) Students taking Mathematics III (Applied) are strongly advised also to complete Mathematics III (Pure) or Higher Mathematics III (Pure).

Provision is made in the regulations requiring the approval of the Dean of the Faculty for the overall course of study and for any changes contemplated.

Enquiries about this course should be made in the first instance to the Guidance Office and then to Mr. L. G. Parry, Room 108, Main Building, Kensington. Phone FF0351, Ext. 282.

DESCRIPTION OF SUBJECTS

Descriptions of subjects of study are printed in the University Calendar.