The Victorian College of Pharmacy Ltd, Parkville, from a painting by Nornie Gude
VICTORIAN COLLEGE OF PHARMACY LTD

Handbook 1980

VICTORIAN COLLEGE OF PHARMACY LTD
Established 1881
School of The Pharmaceutical Society of Victoria

381 Royal Parade, Parkville, Victoria 3052
Telephone 380 6254

Recognised by the Pharmacy Board of Victoria in accordance with the provisions of the Pharmacists Act 1974
Affiliated with the Victoria Institute of Colleges
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### PRINCIPAL DATES 1980

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>3</td>
<td>College re-opens after Christmas</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>Australia Day — college closed</td>
</tr>
<tr>
<td>February</td>
<td>28</td>
<td>First term begins (first year students only)</td>
</tr>
<tr>
<td>March</td>
<td>3</td>
<td>First term begins (second and third year students)</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Labour Day — college open, lectures continue</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Inaugural address and prize-giving</td>
</tr>
<tr>
<td>April</td>
<td>4</td>
<td>Easter Friday: no lectures</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Lectures resume after Easter recess</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Last day for entry for Pharmacy III May Examination</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Last day for entry for May Final Examination</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>Anzac Day — college closed</td>
</tr>
<tr>
<td>May</td>
<td>6</td>
<td>Conferring of degrees</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>First term ends</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Pharmacy III Examination begins</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Final Examination begins</td>
</tr>
<tr>
<td>June</td>
<td>2</td>
<td>Second term begins</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Queens Birthday — college open, lectures continue</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>Progress Examinations begin</td>
</tr>
<tr>
<td>July</td>
<td>25</td>
<td>Last day for entry for Pharmacy I Examination</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>Last day for entry for Pharmacy II Examination</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>Last day for entry for Pharmacy III Examination</td>
</tr>
<tr>
<td>August</td>
<td>8</td>
<td>Second term ends</td>
</tr>
<tr>
<td>September</td>
<td>1</td>
<td>Third term begins</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>Show Day — college open, lectures continue</td>
</tr>
<tr>
<td>October</td>
<td>3</td>
<td>Last day of entry for Final Examination</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Third term ends</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Final Examination begins</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>Pharmacy I, II, and III Examinations begin</td>
</tr>
<tr>
<td>November</td>
<td>2</td>
<td>Closing date for application for admission to B Pharm course in 1981</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Cup Day — college open, lectures continue</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>Last day for return of locker keys and removal of apparatus</td>
</tr>
<tr>
<td>December</td>
<td>24</td>
<td>Closing date for applications for admission to Graduate Diploma in Hospital Pharmacy course</td>
</tr>
</tbody>
</table>
THE COUNCIL 1979-80

N W Naismith, PhC, MPS, FSHP President

T J Lynden-Bell, PhC, MPS, Vice-President

D W F Bourne, PhC, MPS Honorary Treasurer

G J Duffus, PhC, MPS

H V Feehan, BCom(Hons), AFAIM, AIBA, MRSH

F V Gilbert, PhC, MPS

N H Hookey, PhC, MPS

L Roller, BPharm, MSc, DipEd, PhC, FPS, AMPsS

I F Scholes, BPharm, MPS

B D Taylor, BSc

G N Vaughan, MSc, PhD, FRACI, FPS

R W Webster, MBBS, FRACP, FRACGP

R Burnet, BA, MBA, MAITEA, Registrar
PAST PRESIDENTS

1857-58  Frederick Cooper  1919-21  Henry Budge Taylor
1858-59  Joseph Bosisto     1921-22  Charles G. Imes
1859-60  George Lewis       1922-23  Walter Charles Kernot
1860-61  William Ford       1923-24  Frederick Lee
1861-63  George Wragge      1924-25  Arthur Rudolph Bailey
1864-73  William Johnson    1925-28  Arthur Leslie Jones
1874-76  Joseph Bosisto     1928-30  Alexander McCamey Hadden
1877-78  William Johnson    1930-32  Ebenezer Connal McClelland
1878-80  Cuthbert Robert Blackett  1932-33  Alexander Washington McGibbony
1881-83  William Bowen      1933-34  Albert Gorman
1884-85  Thomas Huntsman    1934-35  Ebenezer Connal McClelland
1885-86  William Bowen      1935-38  Charles Penrose Acteson Taylor
1887-89  Thomas Huntsman    1938-41  William Francis Begg Gough
1890-91  Henry Thomas Tompsitt  1941-45  Samuel James Baird
1891-95  Joseph George      1945-48  Vivian George Morieson
1896-97  Thomas Mordey Blackett  1948-51  Leonard Long
1897-1900 William Witt      1951-53  Albert George Davis
1901-02  Edwin Thomas Church 1953-55  Ivan James Thompson
1903-05  Arthur Rudolph Bailey  1955-60  Eric Scott
1906-08  John Champion      1960-63  Frederick William Johnson
1909-10  Duncan Rankin      1963-65  John Pielichoff Oxley
1911-12  John Charles Pickford  1965-67  Alan Louis Hull
1912-13  Edwin Thomas Church 1967-70  Alistair Ian Kingswell Lloyd
1915-19  David Alexander Cossar  1972-75  Geoffrey Malcolm Oscar
                  1975-78  Graham James Duffus
ACADEMIC STAFF

Dean of the College, Kansas Professor of Pharmacy
G N Vaughan, MSc, PhD, FRACI, FPS

Deputy Dean of the College
I H Pitman, BSc, PhD, PhC, MPS, FRACI

School of Pharmaceutical Chemistry
Dean (Chemistry) and Head of the School, Kansas Professor of Medicinal Chemistry
P R Andrews, BSc(Hons), PhD

Lectorial Staff
G L Blackman, BSc(Hons), PhD, ARACI
H Dowd, MSc, PhC, ARACI
J V Hurley, MSc, DipEd, ARACI
S J Jennings, BSc(Hons), ARACI
M Needleman, BSc(Hons), PhD

Demonstrator Staff
P Harman, BSc(Hons), PhD, ARACI
D Iakovidis, MSc, ARACI
Annabel J Mitchell, BSc(Hons), ARACI
J K Nichols, BSc(Hons)
A L Ottrey, BSc(Hons), PhD, ARACI

School of Pharmaceutics
Dean (Pharmaceutics) and Head of the School, Kansas Professor of Pharmaceutics
I H Pitman, BSc, PhD, PhC, MPS, FRACI

Sigma Industrial Professor, Associate Dean of the School
J A Hersey, BPharm, PhD, DSc, CEng, FPS, FIChemE, FRACI, MBIM

M A Nicholas Industrial Professor
B L Reed, BPharm, PhD, PhC, FPS, MIBiol, MPharmM

Lectorial Staff
P C Bury, MSc, PhD
B C Finnin, BPharm, PhC, FPS
I P Griffith, MA, PhD, MASM
B H Kellett, MSc, DIC, PhD
D J Morgan, MSc, PhD, PhC, MPS
R C Oppenheim, BSc, PhD, DipEd, ARACI
L Roller, BPharm, MSc, DipEd, PhC, FPS, AMPsS
W J Thiel, BSc(Hons), PhD

Demonstrator Staff
May R Admans, BPharm, PhC, MPS
J R Anderson, BPharm, PhC, MPS
Olga Dudinski, MPharm, PhC, MPS
Helen B Roessler, MSc
Dawn W Sayers, PhC, FPS
P L Stephenson, BAppSci, GAIP
School of Pharmacology

Dean (Pharmacology) and Head of the School,
Kansas Professor of Pharmacology and Toxicology
C. Raper, BPharm(Hons), PhD, PhC, MPS

Lectorial Staff
E Jean Cornish, BPharm(Hons), PhD, MPS
I M Coupar, BPharm(Hons). PhD
N P Madsen, MSc, PhD
F J Mitchelson, MSc, PhD, PhC, MPS
A B Traill, BSc

Demonstrator Staff
Choo Lay Khoon, BSc(Hons)
E Malta, BSc(Hons), PhD
P Tawa, BSc(Hons)

Graduate Diploma in Hospital Pharmacy
K Raymond, MPharm, PhD, MPS
Bronwen J Smith, BPharm(Hons), MSc, PhD, MPS

Library

Librarian
Helen M Murphy, BA

Associate Librarian
M E Williams, BA, ALAA
Helen E Comben, BA, ALAA

Administration

Registrar, Board; Executive Director, Society; Executive Director, College
H V Feehan, BCom(Hons), AFAIM, AIBA, MRSH

Deputy Registrar, Board; Deputy Executive Director, Society
S N Leyshon, BEc, AUA(Pharm), DipEd, MPS, AASA, AAIM

Registrar, College
R Burnet, BA, MBA, MAITEA

Special Subject Lecturers
D P Crankshaw, MB, BS, PhD, FFARACS (Pharmacology)
K S Fizelle, LLB (Forensic)
A I K Lloyd, ED, PhC, FPS (Pharmacology)
P J Lumley, BPharm, PhC, FPS (Forensic)
N Martin, ACA (Management)
D B Newgreen, BPharm, PhC, MPS (Forensic)
D A Wishart, LLB, BCom(Commercial Law)
DISTINGUISHED VISITING PROFESSORS

From time to time distinguished overseas professors visit the Victorian College of Pharmacy Ltd and conduct lecture courses to staff and students in their speciality. These visitors generally come to the college during the course of their sabbatical leave granted to them by their University or School of Pharmacy.

Distinguished visitors who have given courses are listed below:

- Professor W C Bowman, Pharmacology (University of Strathclyde) 1967
- Professor M Martin-Smith, Pharmaceutical Chemistry (University of Strathclyde) 1969
- Dr B B Brodie, Pharmacology (National Institutes of Health, USA) 1969
- Professor J R Hodges, Pharmacology (University of London) 1969
- Professor E E Smissman, Medicinal Chemistry (University of Kansas) 1971
- Professor P P Speiser, Pharmaceutics (Federal University of Technology, Zurich) 1971
- Professor E Shotton, Pharmaceutics (University of London) 1974
- Professor R A Wiley, Medicinal Chemistry (University of Kansas) 1974
- Dr T F Patton, Pharmaceutical Chemistry (University of Kansas) 1978
- Professor R F Borchardt, Biochemistry (University of Kansas) 1979

ADMINISTRATIVE STAFF

Dean of College
G N Vaughan

Executive Director
H V Feehan

Registrar
R Burnet

Business Manager
J E Cott

Committees
Christine P Holt

Students' Records
Jean A Gilchrist

Property Manager
R McLaren

NOTE: Students are requested to direct queries concerning their course of studies, scholarships, living allowances, medical certificates, travel documents, military documents, etc, to the Registrar.
Pharmacy Courses

The requirements for the Bachelor of Pharmacy course are specified by the Pharmacists Act 1974 and the Regulations made thereunder. The Act and the Regulations are administered by the Pharmacy Board of Victoria.

In 1966 the Victorian College of Pharmacy became an affiliated college within the Victoria Institute of Colleges.

Entrance requirements

The entrance requirement for the Bachelor of Pharmacy course is the Higher School Certificate Examination of the Victorian Universities and Schools Examinations Board, or its equivalent.

In order to be eligible for admission to the course a person needs to have obtained good passes at the Victorian Higher School Certificate Examination in English, chemistry, physics, and at least one mathematics subject. Chemistry physics and at least one mathematics subject will be counted in the 'best four' for selection purposes. If general mathematics is taken in preference to both pure mathematics and applied mathematics, students are advised to take biology as their fifth subject.

Enrolment

Application forms for admission to the Bachelor of Pharmacy course may be obtained from the Victorian Universities Admissions Committee at 11 Queens Road, Melbourne, 3004. Applications close on October 31 of the year preceding that in which enrolment is desired.

Interstate and overseas students

Application forms for admission to the Bachelor of Pharmacy course may be obtained from the Victorian Universities Admissions Committee at 11 Queens Road, Melbourne, 3004. Applications close on October 31 of the year preceding that in which enrolment is desired. In all instances the Pharmacy Board determines the acceptability of entrance qualifications.

Overseas applicants who seek admission to the college must have passed the equivalent of three GCE, Advanced Level subjects including chemistry, and two from the following three: physics, mathematics, biology. In addition, the subject English must have been passed at Ordinary Level. Students without a strong background in mathematics are not eligible. Overseas students are also advised that they are required to pay tuition fees. Details of the fees are available on request.

Selection

If the number of applicants exceeds the number of vacancies within the college, admissions will be determined by a selection committee.
Exemptions

Students from other institutions may be admitted with advanced standing, which will be determined by Council in each individual case.

Curriculum

The academic course occupies three years of full-time study.

Subjects are:

First Year

Physics (including Mathematics)
Pharmaceutical Chemistry I
Physiology
Pharmaceutics I

Second Year

Pharmaceutics II (including Microbiology)
Pharmaceutical Chemistry II
Pharmacology I (including Biochemistry)

Third Year

Pharmaceutics III
Pharmaceutical Chemistry III
Pharmacology II
Pharmaceutical Administration and Organisation
Forensic Pharmacy

Honours

There will be four grades of honours awarded in the subjects: Pharmaceutical Chemistry I, Physics (including Mathematics), Physiology, Pharmaceutics II (including Microbiology), Pharmaceutical Chemistry II, Pharmacology I (including Biochemistry), Pharmaceutics III, Pharmaceutical Chemistry III, and Pharmacology II.

The grades of honours will be: first class (H1), upper second class (H2A), lower second class (H2B), and third class (H3).
Final Examination

In order to register as a pharmaceutical chemist in Victoria students must pass the Final Examination which is conducted by the Pharmacy Board of Victoria. The syllabus for this examination is set out on page 59.

A prerequisite to entering for the Final Examination is that practical training has been undertaken under conditions laid down by the Board, and in premises approved by the Board. Students should check with prospective employers that the premises have received Board approval. This avoids any possible embarrassment, in respect of recognition of practical training.

Practical training

The period of practical training prescribed by the Regulations is 60 weeks. Of this 60 weeks, at least 48 weeks must be served as a trainee under articles; and up to 12 weeks may be served during undergraduateship without being articulated. In all circumstances the practical training must be served in continuous periods of not less than 4 weeks.

The Board encourages undergraduates and graduates to obtain practical training in more than one area of pharmacy, preferably in general, hospital, and industrial practice. This offers a broader and more valuable experience in practical training.

The Board will accept training, providing the establishment concerned has been approved by the Board, in a general practice pharmacy, a UFS dispensary, a hospital (whether public, private, repatriation, or attached to a branch of the armed services), a school of pharmacy, a university department of pharmacology, or the laboratory of a pharmaceutical manufacturer.

The Board will also approve the first year of the Master of Pharmacy programme at the Victorian College of Pharmacy Ltd as adequate practical training and will allow normally such M Pharm students to sit for the Final Examination twelve months after qualifying to graduate.

To avoid embarrassment and possible loss of legal recognition, a check should be made to ensure that all premises, where practical training is sought, have been approved by the Board.

Articles

Articles of traineeship may only be entered into after passing the Pharmacy III Examination. The forms of agreement, which must be completed in triplicate are available from the office of the Board, at $1.00 per set. A fee of $15.00 is charged for the registration of articles of traineeship.
Bachelor of Pharmacy Degree

The degree of Bachelor of Pharmacy (B Pharm) is awarded by the Victoria Institute of Colleges to students who pass the Pharmacy III Examination. The regulations relating to the award of bachelor degrees are printed on page 62, and details of subjects are shown on page 16.

Master of Pharmacy degree

The degree of Master of Pharmacy (M Pharm) is awarded by the Victoria Institute of Colleges to students who successfully complete two years of full-time study after having been admitted to the B Pharm degree.

To be eligible to enter the M Pharm programme students normally are expected to have obtained at least upper second-class honours at the B Pharm examination. In general terms this means that they must be in the upper tenth of the class list.

Students are not precluded from nominating the area in which they wish to pursue their studies. However this is often conditional upon the availability of materials, equipment, and supervisors. Often a student is well advised to place the final choice of area in the hands of the Graduate School.

Students proposing this course are requested to apply in writing to the Dean of the Graduate Faculty in the year prior to their proposed commencement of studies. Programmes for the M Pharm degree normally commence in February of each year.

Each full-time student is eligible to apply for an Australian Government Post-graduate Award or a College Research Scholarship which provide support to the extent of approximately $4200 per annum.

The regulations relating to the M Pharm degree are printed on page 64 and further information on the degree is provided on page 45.

Doctor of Philosophy degree

*Intersearch*. Intersearch is a pharmaceutical graduate research programme conducted at the international level by the United States of America and Australia through the University of Kansas (USA), and the Pharmaceutical Society of Victoria (Australia). It is for graduate students of excellent quality. Intersearch is designed to train doctors of philosophy by teaching the methods of research and at the same time offering a broadening international experience.

A joint degree will be awarded under the names of both institutions. Graduates from this programme will be trained in a manner suitable to the needs of the pharmaceutical industry and institutions of higher learning in both countries.

This joint programme will admit students from either institution to either campus. A further requirement is that each student entering the programme must engage in studies for at least twelve months on each campus. Return tourist class fares are provided for students admitted to the programme. Students will obtain financial support during their studies.
The Intersearch programme therefore offers a good quality American-type PhD degree. Further information, including details of financial support, may be obtained from the Dean of the Victorian College of Pharmacy Ltd who acts as Australian Secretary for the Executive Committee of Intersearch.

*University of Melbourne and Deakin University.* The University of Melbourne and Deakin University are willing to consider recommended B Pharm graduates for entry into external PhD programmes. In such cases joint supervision is required by the College and the University.

**Graduate Diploma in Hospital Pharmacy**

Information on the Graduate Diploma in Hospital Pharmacy is provided on page 46.

**COURSES OF STUDY**

Council's policy concerning courses of study at the Victorian College of Pharmacy Limited.

1. The Pharmacy Board of Victoria
   (a) determines the educational requirements for entry to the Bachelor of Pharmacy degree course, the course of study and the subjects which shall be studied for the prescribed examinations;
   (b) appoints the Board of Examiners; and
   (c) controls and directs examinations at the Victorian College of Pharmacy Limited.

2. The College controls and supervises students admitted to a course of study, and matters relating to a course of study, except those referred to in clause 1 above, will be decided at the absolute discretion of the Council.

3. Subject to these rules, a student must pass the examinations in all the subjects prescribed for study during the first year of the course before the College will admit him to the course of study in the subjects prescribed for the next year of the course and likewise for each succeeding year.

4. A candidate who fails to attain the standard set by the examiners at the annual examinations in any year may be admitted to repeat the course of study in the following year or may be excluded from the course.

5. The privilege of repeating a year will only be extended with the approval of Council.

6. A candidate who fails to attain the standard set by the examiners at the annual examinations on more than one occasion or who fails to attain the standard set by the examiners at the annual examinations after
having been granted advanced standing in the pharmacy course or having failed in another tertiary institution may be excluded from the course.

7 Candidates who present themselves initially for the whole of the Pharmacy III Examination may, at the discretion of the Board of Examiners, be granted credit for single subjects in which they have attained the standard set by the examiners.

8 The single subject credits referred to in rule 7 may not be held beyond the Pharmacy III Examination held in November of the following year, after which time re-entry for the whole examination shall be required.

9 After two years have elapsed following the candidate's initial entry to the Pharmacy III Examination, the College will not accept a further enrolment from the candidate.

10 Where sickness or other circumstances warranting compassion arise, candidates for examinations must furnish written information to the Registrar immediately. In the case of sickness a medical certificate is required and must be forwarded to the Registrar within forty-eight hours of the time of consultation.

11 A candidate must observe the examination rules published on page 60 of this handbook by the Pharmacy Board of Victoria and the Victorian College of Pharmacy Limited.

12 The Council of the College and the Pharmacy Board of Victoria will publish the results of examinations but the Council of the College may, in the case of a candidate's failing to observe the examination rules published on page 60 of this handbook, omit the results of the said candidate and/or exclude the said candidate from further courses of study at the College.

13 Supplementary examinations will be held when necessary at the discretion of the Board of Examiners. Individual examiners may prescribe additional examinations, either written, oral, or practical when and as required. Candidates are therefore advised to be available after the completion of the annual examinations and pending publication of the examination results.
Fees

Students enrolling for the BPharm course will be required to meet the following charges:

<table>
<thead>
<tr>
<th>Charge</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparatus deposit *</td>
<td>$40</td>
</tr>
<tr>
<td>Annual student membership of Pharmaceutical Society of Victoria</td>
<td>6</td>
</tr>
<tr>
<td>Annual subscription to the Victorian Pharmacy Students' Association</td>
<td>15</td>
</tr>
<tr>
<td>Service fee</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>$81</strong></td>
</tr>
</tbody>
</table>

* Refundable, less cost of breakages, at the termination of the course.

In addition to the above fees, approximately $200 per annum is required for text-books, dissecting instruments, stationery, etc.

Students enrolling for the MPharm or Grad Dip Hosp Pharm course will be required to meet the following charges:

<table>
<thead>
<tr>
<th>Charge</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual subscription to the Victorian Pharmacy Students Association</td>
<td>$7.50</td>
</tr>
<tr>
<td>Service fee</td>
<td>$10.00</td>
</tr>
<tr>
<td></td>
<td><strong>$17.50</strong></td>
</tr>
</tbody>
</table>

Overseas students are also required to pay tuition fees. Details of the fees are available on request.

Examination fees

- Final Examination $20

Australian Government means-tested allowances

Information on the Government living, incidentals, dependants, and travel allowances may be obtained from:

- Regional Director
- Victorian State Office
- Department of Education
- 450 St Kilda Road
- Melbourne Vic 3004
- Telephone: 267-2988

Royal Australian Chemical Institute (RACI)

Bachelor of Pharmacy graduates from the Victorian College of Pharmacy Ltd, after a period of practical experience, are eligible to become Associates of the Royal Australian Chemical Institute. This means that such graduates are able to practise in many areas of industry as professional chemists, and receive the salaries determined for Associates of RACI.
PHARMACEUTICS I

A course of 25 lectures and 50 hours of practical work.

Pharmaceutics

Introduction. General orientation to pharmacy, the role of the pharmacist. Opportunities of the pharmacy graduate. Some historical aspects of pharmacy.

The prescription. The model prescription, the legal requirements of a prescription, types of prescriptions, common pharmaceutical Latin abbreviations. Trade names, generic names. The role of the pharmacist in relation to the physician, the prescription and the patient.

Weights and measures. The metric system of weights and measures, pharmaceutical calculations, mass-volume relationships, alcohol and acid dilutions, percentage formulae, wet and dry attenuations.


Dispensing. The qualities of a properly dispensed medicine and dispensing drill as applied to practical pharmacy.

Legal aspects of pharmacy. Sources of formulae, legal precedents for standards. Introduction to the Pharmacists Act, the Poisons Act and Schedules to the Poisons Act.

Posology. Principles of drug administration, effects of varying biological factors, children's dose rules, the doses and uses of some common drugs. The role of the pharmacist in dealing with overdoses.

Dose forms. The oral, rectal, parenteral and topical routes of drug administration. Bulk powders, individual powders, capsules, pills, tablets, ointments, creams, emulsions, solutions, suspensions and drops (eye, ear and nose).

Incompatibility. Some simple aspects of physical, chemical and pharmacological incompatibilities.

Isotonic solutions. Osmotic injury of tissues, freezing point depression and osmotic pressure, osmotic calculations, the Wells approximate $L_{100}$ values. The limitations of physico-chemical methods of adjusting isotonicities, the haemolytic method of Husa, the haematocrit method of Setnikar and Temelcov.

Milliequivalents and millimoles. The electrolytes of normal serum, electrolyte solutions for intravenous use, notation in prescriptions, calculations.

Practical

A course of 50 hours practical work. Simple experiments illustrating the principles of the balance, freezing point depression and incompatibility. The compounding of the various dose forms taught in lectures.

Text-books

Australian pharmaceutical formulary. 12th ed Melbourne, Pharmaceutical Association of Australia and New Zealand.


Pharmaceutics 1 Laboratory Manual. Melbourne, Victorian College of Pharmacy Ltd, 1980

Australian Journal of Pharmacy. CDI section.
References

PHARMACEUTICAL CHEMISTRY I
A course of 75 lectures and 87 hours of practical work.

Physical and Analytical Chemistry
A course of 45 lectures.


Gases and liquids. Kinetic theory; qualitative discussion of chemical concepts derived from kinetic theory of gases, Graham’s law of diffusion, Maxwell’s distribution of molecular velocities, Dalton’s law of partial pressures. The gas laws: the ideal gas law, qualitative aspects of deviation from ideal behaviour, van der Waals’ equation. Changes of state; liquefaction of gases (Andrew’s diagram), vapourisation, the effect of temperature on vapour pressure, latent heat of vaporisation (the Clausius-Clapeyron equation). Applications; local anaesthetics, aerosols.

Phase equilibria. Single component systems; cooling curves, gravimetric analysis applications, sublimation, solid/liquid/vapour equilibria, the H2O phase-diagram, Gibbs’ phase rule. Allotropes; the sulphur diagram, polymorphism and pharmaceutical preparations. Two component systems; solid solutions and eutectic mixtures, crystallisation. Miscible liquid systems; liquid/vapour equilibria, azeotropes. Partially miscible liquid systems; phenol/water and chloroform/water systems. Steam distillation.

Solutions. Gases in liquids; Henry’s law. Liquids in liquids; Raoult’s law. Colligative properties; freezing point, boiling point and osmotic pressure effects. Van’t Hoff and Arrhenius factors. Applications; isotonic solutions, plasmolysis, introduction to membrane transport, dialysis.
**Ionic equilibria in solution.** Dissociation, pH, buffers, indicators, solubility product, complex ion equilibrium. Applications: pharmaceutical analysis, drug absorption and pharmaceutical preparations.

**Reaction kinetics.** Reaction rate, order and molecularity, Zero, first, second and third order reactions. Applications: drug stability, drug absorption, pharmaceutical preparations.


**Co-ordination chemistry.** Complex ions; nomenclature, formation and stability, metal complexes in biological systems. Applications: treatment of metal poisoning, interaction of metal ions with drug molecules.

**Thermodynamics.** First law; internal energy, enthalpy, heat capacity, thermochemistry, activation energy, bond dissociation energy, bond energy, resonance energy. Applications: nutrition, energy transfer in biological systems.

**Drug analysis.** Discussion of methods and principles underlying some analyses selected from the BP and other pharmaceutical compendia.

**Spectroscopy.** Molecular energy levels, types of electronic transitions. Applications; Beer-Lambert law, determination of complex composition, simultaneous determination of two components.

**Text-books**


**References**


**Organic Chemistry**

A course of 30 lectures.

General introduction to organic chemistry.

Purification, qualitative and quantitative analysis of organic compounds.

Introduction to spectrophotometry applied to organic molecules.

Structural isomerism and stereoisomerism, nomenclature.
The preparation and reactions of the following classes of compounds:
Aliphatic and aromatic hydrocarbons, alkyl and aryl halides, alcohols, phenols, thioalcohols, ethers, aldehydes, ketones, carboxylic acids and their derivatives, amines.

The electronic interpretations of many of these reactions will be discussed.

Substances of pharmaceutical and biological interest will be referred to at appropriate points in the work.

Text-book

Supplementary material
Framework molecular models. Prentice-Hall.

Practical
A course of 87 hours spread over the academic year covering an introduction to practical work in analytical, physical and organic chemistry.

Emphasis is placed on technique and general methods. Students are expected to show initiative in organising their work. Performance in laboratory classes is taken into account in assessing students' results in this subject.

Students are required to wear safety glasses and laboratory coats when attending practical classes in the chemistry laboratories.

Text-book

References

NOTE Each student in first year Chemistry will be issued with a set of apparatus on payment of a deposit which will be refunded when the student leaves the College. The cost of replacing damaged or cleaning dirty apparatus will be deducted from the deposit.
PHYSICS (including Mathematics)

A course of 125 lectures, 63 hours of practical work and 24 tutorials.

Physics

A course of 75 lectures.


Rectilinear motion. Average and instantaneous velocity, and acceleration. Uniformly accelerated motion.


Hydrostatics and hydrodynamics. Equation of continuity and Bernoulli's equation. The Venturi and the Magnus effect. Viscosity and haemodynamics. Turbulent and laminar flow.


Modern Physics. Quantum theory. The failure of classical theory to explain black body radiation, the stability of atoms or the photo-electric effect. Quantization of energy level and light, and the photo-electric equation. Dual nature of light. De Broglie’s hypothesis, electron diffraction and the hydrogen atom. The uncertainty principle and the basis of wave mechanics. The Pauli principle, electron shell theory and chemical bonding.


Practical
Physics, 63 hours. Physics and Mathematics, 24 tutorials.

Text-books


References


Mathematics
A course of 50 lectures per year with tutorial classes and assignments. The course aims to give necessary mathematical techniques for the subjects of the pharmacy degree and prepare future graduates for the increasing use of computers in the profession.

Calculus. Elementary course of differential and integral calculus. The emphasis will be on computation and application of calculus and will include some computer-orientated numerical methods of solution. Specific topics include:
(a) Introduction to analysis; number systems, functions of one and many variables, limits of functions.
(b) Differential calculus (ordinary and partial); techniques of differentiation, main theorems of differential calculus, finding maxima and minima, applications.
(c) Integral calculus; techniques of integration, definite and indefinite integrals, applications.
(d) Differential equations; general concepts, ordinary differential equations of first and second order, applications.
The applications will be chosen from other subjects studied in the first year and the method of development shall stress the computation aspect.
Statistics. Description of sample data by means of tables, graphs and simple arithmetic measures. Random variables and probability distributions; binomial, Poisson and normal. Sampling methods. Tests of hypotheses, e.g. involving t- and chi-square distributions. Linear regression and correlation.

Computer studies. Development of computers and the main components of a computer system. Using the BASIC programming language the student will be required to write and run programming assignments based on problems in the calculus and statistics sections of the course. Data processing, orientated towards the needs of the pharmacist in commerce and research; information storage and retrieval.

Textbooks

References
A guide to HP educational BASIC, Hewlett Packard.

PHYSIOLOGY
A course of 75 lectures and 75 hours of practical work.
1. Basic cell physiology
Cellular biochemistry and metabolism. Constituents of cells, proteins, nucleic acids, carbohydrates, lipids, enzymes and enzyme inhibition. Bioenergetics, concept of free energy change, exergonic and endergonic
reactions, ATP, energy-rich and energy-poor bonds, biological oxidations and oxidative phosphorylation, photosynthesis. Aerobic and anaerobic glycolysis, citric acid cycle. Nucleic acids and protein synthesis, the genetic code. Regulation of metabolism, pacemaker enzymes, control points, induction and repression, limiting metabolites, hormones.

Cellular structure. General structure and functioning of cells, cytoplasm, lysosomes, mitochondria, endoplasmic reticulum, Golgi complex, ribosomes, centrosomes, nucleus.


2. General physiology


Endocrine function. Introduction to the hormonal system, functions of hormones and their release.


Feeding, digestion and absorption. The gastrointestinal tract, its development, function, hormonal and nervous control. Absorption.

Liver. Structure and functions; storage, synthesis, metabolism and excretion; the biliary system.


Temperature regulation. Poikilotherms, heterotherms and homoiotherms. Control mechanisms, temperature receptors, sweat glands, vascular changes.

Special senses. Structure and function of organs concerned in sight, hearing and balance, Chemoreception.


3. Cellular functions

Membranes. Osmotic behaviour of cells, diffusion, the Gibbs-Donnan equilibrium, active transport. The electrical properties of cell membranes, resting and action potentials, the Nernst equation. Propagation of action
potentials in myelinated and non-myelinated fibres, refractory period and after potentials. Effects of anodal and cathodal polarization and of inorganic ions on membranes. Physiological salt solutions.


**Practical**

Practical work will be based on the material dealt with in lectures. Students must provide themselves with dissecting instruments. A list of these will be posted in the department.

**Text-books**

Advice on selection of some of the following books will be given in the introductory lectures.


**References**


**Preliminary reading**

The following texts may be of general interest to students who enter the course without having prior background knowledge in biology.


Second year

PHARMACEUTICS II (including Microbiology)
A course of 87 lectures and 150 hours of practical work.

Pharmaceutics
A course of 46 lectures.

Introduction to biopharmaceutics. Rate limiting steps, the importance of the dose form.

Solutions and solvents. Pharmaceutical solvents; solutes; solution characteristics; mechanisms of solution; temperature effects; dissolution rate; solution formulation; hygrometry; filtration; freeze and spray drying.

Surface and interfacial behaviour. Fundamentals and definitions of surface and interfacial free energy, adhesion and cohesion, spreading, wetting. Surface properties of solutions including surfactant chemistry and classification, Gibbs equation, micellization. Insoluble films, solubilization, detergency, aerosols, foams and defoaming.

Complexation. Classification; introduction to drug binding; chemical interaction; ion exchange.

Containers. Glass and glass containers; plastics and plastic containers; metal tubes; closures.

Rheology. Rheological principles and classification of behaviour, chemical and physical factors affecting rheological properties; application of rheology in product design; rheology of interfaces and solids; instrumentation.

Emulsions. Theories of emulsification; emulsion type; HLB; emulsion stability; formulation and applications.


Ionic equilibrium. Drug solutions as buffers; isotonic buffers.


Practical Pharmaceutics II
A course of 75 hours of laboratory work divided into 5 units. The work is scheduled to co-ordinate with the lectures. Demonstrations and three tests are scheduled. Students will also investigate the formulation of one class of OTC products.

Solutions and solutions. Investigation of factors important in solution formulation including solvent-solute interactions, particle size, cosolvency, in situ procedures and availability of active ingredient. Strong interactions between various components of a formulation will also be investigated.

Bulk and interfacial properties of surfactant solutions. The interfacial properties of surfactant solutions are used to predict behaviour in the bulk of the solution as well as interactions between molecules at the interface. Various ways of increasing the amount of active ingredient in a formulation are studied.

Liquid in liquid dispersions. Investigation of factors important in formulating this type of drug delivery system and the overcoming of formulation and stability problems using these factors.
Rheology. An investigation of the rheological behaviour of pharmaceutical vehicles and products.

Solid in liquid dispersions. Production of a particle size distribution and an investigation of the factors important in suspension stability. Use of these factors in overcoming formulation and stability problems.

Text-books


References


Microbiology

A course of 41 lectures and 75 hours of practical work, covering the following topics to the introductory level.

Historical development: the microscope, germ theory of infectious disease, Koch's postulates.

Microbial world: the protista, fungi, algae, protozoa and lower protista.

Outline of main groups with important examples: blue-green algae, bacteria, rickettsia, chlamydiae, viruses.
Principles of classification.
Occurrence and role of microorganisms in the biosphere.
Basic morphological features of bacteria, fungi and viruses.
Procaryotic cell: biochemistry and function of major structures: cell wall, capsule, appendages, membrane, inclusions, spores, ribosomes, nuclear material. Comparison of procaryotic and eucaryotic cells.
Metabolism: summary treatment of exoenzymes, catabolism and microbial metabolic pathways.
Nutrition of microorganisms, cell division and growth of microorganisms.
Death of microorganisms, kinetics and mechanisms.
Disease and infection, carrier state, sub-clinical infection, portals of entry and exit, host-parasite relationships.
Introductory microbial genetics, molecular mechanisms of mutation, mutagenicity testing.
Variation and adaptation.
Transferable drug resistance.
Mechanisms of pathogenesis, toxins, antiphagocytic activity, inflammatory damage.
Non-specific host resistance: natural, barriers, inflammation, phagocytosis, and lymphatic system.
Acquired specific immunity, antigens, antibodies, cell-mediated immunity. Vaccines and sera.
Hypersensitivity; allergy and adverse drug reactions.
Pathogens associated with the alimentary tract, the urinary and genital tract, and the respiratory tract.
Pathogens from soil; superficial and cutaneous mycoses. Pathogens of the eye and skin.
Viruses, antiviral agents.
Epidemiology of infectious disease.
Introduction to chemotherapy and disinfection.
Principles and practice of sterilization, aseptic dispensing and sterility assurance.

Practical Microbiology
A course of 75 hours of practical work to include basic techniques in light microscopy, staining, aseptic procedures and cultivation of bacteria and viruses; isolation of pure cultures; nutrient and selective media; factors affecting bacterial growth; biochemical activities and distribution of bacteria; fungal morphology; fungal and bacterial spores. Production and assay of some antibiotics; bacterial sensitivity to antibiotics; evaluation of antimicrobial agents; evaluation of procedures for the destruction or removal of microorganisms; investigation of the immune response: applied topics such as introductory serological procedures and processes to prepare, and control the production of sterile pharmaceuticals.

Textbooks

References
PHARMACEUTICAL CHEMISTRY II

A course of 75 lectures and 150 hours of practical work.

Physical and Analytical Chemistry

Spectroscopy. Energy levels for rotational, vibrational and electronic transitions, chromophores, atomic and molecular emission and absorption. Fluorescence, atomic absorption and emission, uv/vis techniques, isosbestic point, apparent deviations from Beer's law, drug analysis.

Gaseous equilibria. Reversible reactions, $K_p$ and $K_c$, homogeneous and heterogeneous systems, catalysis.

Thermodynamics. First law; Kirchhoff's equations. Second law; entropy, molecular basis of entropy, free-energy function, spontaneity of reaction, $\Delta G$ and the equilibrium constant, the van't Hoff equation, the Gibbs-Helmholtz equation, interrelation of emf and thermodynamic constants. Third law; the Nernst heat theorem, absolute entropy, use of third law. Activity; fugacity and activity functions, determination of activity coefficients for gases and binary liquids.

Electrochemistry. Electrochemical cells; chemical and concentration cells, determination of physico-chemical constants. Electrolytes in solution; ionic strength, junction potentials, pH and activity coefficients, pH measurements, determination of activity coefficients, the Debye-Hückel theory. Applications; Donnan membrane equilibria and ion-selective electrodes.


Phase equilibria. Single component systems; Clausius-Clapeyron equation. Two component systems; partially miscible liquids, solid solutions with congruent or incongruent melting points, salt hydrates.

Distribution in liquid/liquid systems. The Nernst distribution law, effect of equilibrium reactions in one phase, effect of partial miscibility. Applications; chromatography and solvent extraction in analytical chemistry.

Chemical structure and biological activity. Drug absorption and distribution, drug design using Hammett/Hansch equations.

Co-ordination chemistry. Inorganic complexes; brief qualitative applications of crystal field theory, colour/magnetic susceptibility and stability, chelation. Applications; sequestering of metal ions, interactions with drugs.

Clinical chemistry. Chemical methods used in diagnostic testing, clinical and analytical chemistry.

Text-books

As prescribed for Pharmaceutical Chemistry I and

SECOND YEAR

References

As prescribed for Pharmaceutical Chemistry I and

Organic Chemistry

Extension of the work of first year in the preparation and reactions of aliphatic and aromatic compounds.
Study of selected classes of polyfunctional compounds including polyhydric alcohols, unsaturated alcohols, aldehydes and acids; hydroxy acids, aldehydic and ketonic acids, dibasic acids and their important derivatives, amino acids and proteins, carbohydrates. Important biological properties of these compounds will be considered.
A more detailed study of stereochemistry and nomenclature.
Introduction to heterocyclic chemistry.
Extension of the study of electronic interpretations and mechanisms of organic reactions.
Spectrophotometry; principles and applications of UV, IR, NMR, and mass spectroscopy.
Selected groups of drugs in common use will be discussed in detail.

Text-books


Supplementary material

Framework molecular models. Prentice-Hall.

Practical

A course of 150 hours of practical work.

Emphasis is placed on technique and general methods. Students are expected to show initiative in organising their work. Performance in laboratory classes is taken into account in assessing students' results in this subject.

Students are required to wear safety glasses and laboratory coats when attending practical classes in the chemistry laboratories.
Organic. Unit operations: crystallization, filtration, distillation, sublimation, extraction, steam distillation, thin layer, gas and column chromatography.

Preparative. Experiments using common reagents and reactions.

Qualitative. Systematic qualitative organic analysis by chemical and instrumental methods. Simulated organic analysis by computer techniques.

Quantitative. Analysis of pharmaceutical compounds by gravimetric, volumetric, colorimetric and complexometric analysis.

Physical. Investigation of adsorption, distribution, solubility product, equilibrium constant, kinetics, heat of reaction, liquid-vapour equilibrium and electrode potentials.

Instrumental. Quality control of pharmaceuticals by potentiometric and conductometric titrations, spectrophotometry, polarography, and atomic absorption methods.

Text-books


Reference


NOTE The balance of the refundable deposit from first year will be retained in second year to cover the cost of replacing damaged or cleaning dirty apparatus. Any student who has had excessive breakages in first year, which have been deducted from the deposit, may be required to lodge a further deposit.
PHARMACOLOGY I

A course of 55 lectures and 57 hours' practical work.


Autacoids. Synthesis, storage, release, metabolism and pharmacological actions of substances such as histamine, 5-hydroxytryptamine, kinins, prostaglandins. Substances released during anaphylaxis. Antigen-antibody reactions as they affect allergic and inflammatory states. Drugs used in the treatment of allergies, acute inflammatory conditions and collagen diseases.


Cardiovascular physiology and pharmacology. The heart, origin and conduction of excitation, effects of vagal and sympathetic stimulation on SA node, AV node and conducting tissue. The normal electrocardiogram, bipolar and unipolar leads. Cardiac arrhythmias, sinus, atrial and ventricular arrhythmias, conduction block. Production and suppression of cardiac arrhythmias by drugs. The pumping action of the heart, events of the cardiac cycle, heart sounds, the venous pulse. Effects of vagal and sympathetic stimulation on cardiac contractility. Cardiac output, its measurement and regulation. Circulation. Haemodynamics, pressures and flow in arteries, capillaries and veins. The systemic circulation, nervous and humoral control, auto-regulation. Blood flow through special regions, the pulmonary, coronary, cerebral, splanchnic, muscle and skin circulations. Integrative analysis of the circulation, hypertension, shock and congestive heart failure. Drugs used in the treatment of cardiac failure and ischaemic heart disease. Atherosclerosis and drug treatment of hyperlipidaemia. Therapeutic regimes in hypertension, shock and peripheral vascular disease.


Practical

In vivo and in vitro experiments to illustrate principles discussed in the lecture course.
Text-books

References
SECOND YEAR

BIOCHEMISTRY

A course of 20 lectures and 21 hours of practical work.

Chemistry of Biological Compounds

Carbohydrates. Definition; functions; classification; monosaccharides, optical isomerism, aldoses and ketoses, ring structures, phosphate esters, acid and amine sugars, chemical properties; structures of disaccharides and polysaccharides.

Lipids. Definition; classification; functions; neutral fats, saturated and unsaturated fatty acids; waxes; phospholipids; sphingomyelins; cerebrosides; steroids; fat-soluble vitamins; serum lipoproteins.

Proteins. Definition; structures and classification of amino acids; zwitterions; chemical reactions; peptide bonds; primary structure of proteins; properties due to side chains; electrophoresis; chain conformation; quaternary structure; denaturation; classification.

Nucleic acids. Definition; purine and pyrimidine bases, nucleosides, nucleotides, structure of DNA and RNA; nucleoproteins.

Metabolism

Enzymes. Definition; physical factors influencing reaction rates; specificity; mechanism of action; Michaelis-Menten kinetics; inhibition; classification; co-factors; allosteric enzymes.

Bioenergetics. Concept of free energy change; energy-rich compounds; coupled reactions; oxidative phosphorylation; inhibitors.

Digestion. Action of enzymes secreted into mouth, stomach, small intestine; action of bile salts; absorption of monosaccharides, amino acids and lipids.

Carbohydrate metabolism. Embden-Meyerhof pathway; anaerobic glycolysis; tricarboxylic acid cycle; net ATP production; glycolysis; glycogenolysis; pentose phosphate pathway; gluconeogenesis; hormonal regulation.

Lipid metabolism. Beta-oxidation of fatty acids; ketogenesis; ATP production; fatty acid synthesis; cholesterol synthesis; relationship of serum lipids to atherosclerosis; drugs controlling serum lipids; hormonal influences.

Amino acid and protein metabolism. Essential amino acids; transamination; deamination; urea formation; fate of carbon skeleton; inborn errors of metabolism; precursor functions and amino acids.

Practical Biochemistry


Bioenergetics. Comparison of acid lability of phosphoryl derivatives, enzymic hydrolysis of ATP.

Carbohydrate metabolism. Effects of glucose, insulin, adrenaline, tolbutamide and glucagon on blood sugar levels.

Lipids. Thin layer chromatography of plasma lipids.

Nucleic Acids. Determination of liver DNA and RNA content.

Text-books


References


PHARMACEUTICS III

A course of 75 lectures and 150 hours of practical work. In addition there will be a non-examinable course of 4 tutorials consisting of case studies in professional pharmacy.


Drug stability. Introduction, applied kinetics, shelf-life, storage, accelerated ageing, pH profiles of hydrolysis, solvents and catalysts, photochemical reactions and sunscreens, the stabilities of some representative drugs, oxidation, stabilization.

Incompatibility. Professional aspects, representative physical and chemical incompatibilities. In vivo drug interactions, basic principles, mechanisms, examples.


Pharmaceutical information. Sources and retrieval, pharmaceutical aspects of computerization.


Practical Pharmaceutics III

The manufacture of tablets, tablet coating, tablet testing. Preparation of ointments, creams, suppositories, etc. General dispensing. Formulation. Sterilization, sterility testing, preparation and testing of injections, large volume intravenous solutions, ophthalmic preparations.

Investigational projects in Biopharmaceutics. Practical tutorials in calculations, incompatibilities, drug interactions, and pharmacokinetics.
Text-books


References


Journal of pharmacy and pharmacology.

Journal of pharmaceutical sciences.


PHARMACEUTICAL CHEMISTRY III

A course of 75 lectures and 150 hours of practical work.

Relationship of chemical property and structure to biological activity. Solubility, partition coefficient, surface activity, degree of dissociation, acidity constant, redox potential, resonance, hydrogen bonding, interatomic distance, chelation, isosterism.

Pharmacodynamics, stereochemistry and structure-activity relationships. Cholinergics, anticholinergics, adrenergics, adrenergic blocking agents, histamine and antihistaminics, prostaglandins.

Compounds affecting the central nervous system. Structure activity relationships and chemical properties of analgesics, sedatives, hypnotics, tranquillisers, antidepressants, CNS stimulants, hallucinogenic agents.

Chemotherapy. Dyes, arsenicals, sulphonamides, antituberculous compounds, specificity of structure, antimalarials.
**Antibiotics.** Penicillins and cephalosporins, streptomycin, chloramphenicol, actinomycins, tetracyclines, erythromycin and griseofulvin.

**Steroids.** Sterols, stereochemical properties and reactions, conformational analysis, biosynthesis, bile salts, steroid hormones, cardioactive glycosides, steroidal alkaloids.

**Terpenes and fat soluble vitamins.** Monoterpenes, diterpenes, sesquiterpenes, carotenes, vitamins A, D, E and K.

**Water soluble vitamins.** Vitamin B series and vitamin C.

**Alkaloids.** The structure and properties of selected alkaloids of pharmaceutical interest.

**Data systems.** Applications of computers in chemistry, chemical and drug information systems, Wiswesser Notation.

**Radiochemistry.** Radioactivity, production and use of tracers, transuranic elements, separation and use of non-radioactive isotopes, biological aspects of radiation, radiopharmaceuticals.

**Biosynthesis and metabolism.** The biosynthesis and metabolism of biologically important molecules.

**Analytical pharmaceutical chemistry.** Analytical techniques used in pharmaceutical science. Analysis of drugs and chemicals. Analysis of drugs in biological systems. Quality control procedures. Diagnostic methods and clinical chemistry.

**Topical research.** A chemical review of major current research papers in the pharmaceutical sciences. The literature of medicinal chemistry.

**General topics.** Reference will be made to the following groups of compounds which are not easily placed in distinct chemical classes because of the diversity of structure of compounds showing a given biological activity. Some compounds may have also been considered elsewhere in the syllabus. Thyroid hormones and antithyroid drugs, anti-inflammatory agents, diuretics, antihypertensive agents, cardiac drugs, coagulants and anticoagulants, hypoglycaemic agents.

**Drug design.** Molecular design, miscellaneous factors, examples of drug design.

**References**


**Practical**

**Organic.** Preparation of organic compounds, including compounds of pharmaceutical interest. Separation of mixtures, identification and characterisation of unknown organic compounds, including the use of spectroscopic methods. Metabolism. Application of computers in drug information systems. Applications of instrumental techniques in pharmaceutical science.
Physical and analytical. Analysis of drugs. A research project will be undertaken in an area of analytical chemistry. The project will be selected by the student and will have a pharmaceutical or clinical theme. A detailed research report must be submitted.

General. Emphasis is placed on technique and general methods. Students are expected to show initiative in organizing their work. Performance in laboratory classes is taken into account in assessing students' results in this subject.

Students are required to wear safety glasses and laboratory coats when attending practical classes in the chemistry laboratories.

Text-books
As prescribed for Pharmaceutical Chemistry II (Practical) and

NOTE The balance of the refundable deposit from first and second years will be retained in third year to cover the cost of replacing damaged or cleaning dirty apparatus. Any student who has had excessive breakages in previous years, which have been deducted from the deposit, may be required to lodge a further deposit.

PHARMACOLOGY II
A course of 75 lectures and 100 hours' practical work.


Clinical pharmacology. A therapeutic approach to disease states involving the following systems: eye, uterus, connective tissue, skin, respiratory and gastrointestinal tracts.
**Biochemical Pharmacology.** Molecular biology. Genetic function of DNA; DNA replication; genetic code; template RNA; transcription of code; activation of amino acids; ribosomes; translation of code; polypeptide formation; inhibition of protein synthesis. Cellular regulatory mechanisms. Allosteric control; induction and repression; compartmentation; hormones. Drug metabolism. Types and sites of biotransformation; induction of liver microsomal drug-metabolizing enzymes; conjugation. Drugs acting on cell division. Chemotherapy of cancer, carcinogens.

**Parasitic disease and its treatment.** The life histories of various parasites and the methods used for their eradication with particular reference to chemotherapy.

**Development of new drugs.** Preclinical and clinical evaluation of drugs, governmental regulatory bodies.

**Drug toxicity.** Toxicity testing, iatrogenic disease, drug interactions, environmental pharmacology, treatment of toxicity.

**Practical**

*In vivo* and *in vitro* experiments to illustrate the principles discussed in the lecture course.

**Text-books and references**

As under Pharmacology I. In addition the following books are recommended as references.


**FORENSIC PHARMACY**

A course of 25 lectures.

Introductory lectures on:

(a) The history of our governmental system including the legislative, administrative and judicial bodies

(b) Our laws and their origin

(c) Statutory interpretation.

The aim of the course is to develop a sense of legal and professional responsibility.

The subject deals with the legislation that is applicable to drugs, medicines (drugs in compound form), poisons, and pharmacy generally. A knowledge of the following in so far as they relate to pharmacy:

Pharmacists Act and Regulations.

Poisons Act and the Regulations
The Health Act and Regulations including Food and Drug Standards Regulations and Cleanliness (Food, Drugs and Substances) Regulations
National Health Act and Regulations
Therapeutic Goods Act
Weights and Measures Act
Stock Medicines Act
Commonwealth Spirits Act and Regulations
Labour and Industry Act
Postal Regulations
Code of good manufacturing practice

The course will also consider standards of professional conduct, interprofessional relations, organisation of health services in Victoria and pharmacy organizations in Victoria.

PHARMACEUTICAL ADMINISTRATION AND ORGANIZATION

A course of 50 lectures.

Accounting

Basic accounting terminology. The fundamental accounting equation. A modified system of accounting typically used by a professional enterprise. An insight into a totally automated accounting system suitable for a pharmacy.

A consideration of the nature of financial analysis; approaches to the analysis of financial statements; methods of financial analysis; funds statements and their interpretation, and the computation and interpretation of strategic ratios from financial statements.

A study of managerial control of a pharmacy through accounting systems including fixed and variable cost analysis, break-even analysis, application of fixed and variable costs to budgets, cash budgeting, profit forecasting and planning.

An introduction to the subject of partnerships.
Commercial Law

Contract. Formation and contents of contract; misrepresentations; rights and liabilities; termination of contracts.

Sale of goods. Definitions; requirements for enforceability; implied warranties and conditions; carriage of goods; rights and obligations of parties in relation to delivery; acceptance etc.

Negotiable instruments. Use and types of instruments; negotiability; essential elements of form; liability as parties; effect of forgery and unauthorised endorsement; cheques and their crossing.

Insurance. Types of insurance; concept of good faith; indemnity contracts; insurable interest; cover-notes; subrogation.


Negligence and workers compensation. Duty of care; breach of duty; damage; seller’s negligence; negligent statements; employee protection generally; workers compensation; definition of ‘worker’; scope of entitlement; benefits available; proposed national compensation and rehabilitation.

Text material required

Victorian Statutes:
- Goods Act 1958
- Workers Compensation Act 1958
- Consumer Affairs Act 1974

Commonwealth of Australia Statutes:
- Trade Practices Act 1974

Management

Human behaviour. The individual; groups; motivation; the client, customer relations, communications.

Partnerships. Practical and legal aspects of partnerships.

Marketing. Consumer needs; principles of marketing; principles applied to pharmacy.

Pricing. Pricing of prescriptions.

Pharmacy and the nation. Productivity of health professions; characteristics of pharmacy workforce.
Notes

(1) Lectureships in Forensic Pharmacy and in Pharmaceutical Administration and Organization have been endowed by Richardson-Merrell Pty Ltd.

(2) Pricing documents are supplied to students by courtesy of The Pharmacy Guild of Australia (Victorian Branch).
The Graduate School of the VCP was established in 1970 for the purpose of administering the international graduate research programme known as Intersearch (see page 12). The University of Kansas demanded a graduate school capable of negotiating with its own graduate school on matters relating to the administration of Intersearch. This Intersearch programme leads to a PhD degree awarded jointly by the Pharmaceutical Society of Victoria and the University of Kansas, USA. The Graduate School originally consisted of five appointed Victoria Professors and five appointed Kansas Professors who all acted additionally as the Executive Committee of Intersearch.

In the same year (1970) formal, government-sponsored awards (PGAs), for the regular training of graduate students within the VCP, provided support for the training of the students for the M Pharm degree of the VIC.

Council enlisted those faculty members of the VCP with a training in research methodology, adequate for the supervision of graduate students, to supplement the existing ten foundation members of the Graduate School of the VCP. Some distinguished outside experts, with an interest in the research thrust of the VCP and, in numbers, approximately equal to those internal (on-campus) members of the graduate faculty, joined the Graduate School.

The functions of the Graduate School are selection, admission, supervision and examination of graduate students. All students wishing to be considered for higher degrees must make application through the Dean of the Graduate School.

Dr G N Vaughan was appointed Foundation Dean of the Graduate School in 1970. The people involved in graduate studies at the VCP are:

Dean, Graduate School
Colin Raper

Executive Committee, Graduate School
Colin Raper (chairman)
Peter R Andrews
Ian H Pitman
Geoffrey N Vaughan
President-in-office, Victorian College of Pharmacy Ltd

Members, Graduate School
Peter R Andrews, professor, PhD Melbourne
Arnold H Beckett, professor, PhD London
Graeme L Blackman, lecturer, PhD Monash
William C Bowman, professor, DSc London
Geoffrey Burnstock, professor, DSc Melbourne
Peter C Bury, senior lecturer, PhD Monash
Brian M Comben, industrialist, PhD Melbourne
Sir John W Cornforth, professor, D Phil Oxford
E Jean Cornish, senior lecturer, PhD London
Ian M Coupar, lecturer, PhD London
Peter H Elworthy, professor, PhD London
Ian P Griffith, lecturer, PhD Australian National
John A Hersey, industrial professor, DSc London
Takeru Higuchi, regents professor, PhD Wisconsin
Bruce H Kellett, lecturer, PhD London
Gerhard Levy, professor, PharmD California
Norman P Madsen, senior lecturer, PhD Queensland
Michael Martin-Smith, industrialist, PhD Rochester
William R McLeod, psychiatrist, MD Melbourne
Frederick J Mitchelson, senior lecturer, PhD London
Lester A Mitscher, professor, PhD Wayne State
Dennis J Morgan, lecturer, PhD Sydney
Howard E Mossberg, dean, PhD Florida
Manuel Needleman, senior lecturer, PhD Glasgow
Sir Gustavus J V Nossal, professor, PhD Melbourne
Richard C Oppenheim, senior lecturer, PhD Melbourne
John D Paull, anaesthetist, MB, BS, Melbourne
Sir Walter Perry, vice-chancellor, DSc St Andrews
Ian H Pitman, professor, PhD Australian National
Michael J Rand, professor, PhD Sydney
Colin Raper, professor, PhD London
Kenneth Raymond, senior lecturer, PhD London
Barry L Reed, industrial professor, PhD Intersearch
Charles O Rutledge, professor, PhD Harvard
Edward Shotton, professor, PhD London
Grisha Sklovsky, chief information officer, IngDoc Lyons
Bronwen J Smith, lecturer, PhD Melbourne
Anne Stafford, pharmacologist, PhD Sydney
William J Thiel, lecturer, PhD Monash
Geoffrey N Vaughan, dean, PhD Melbourne
Duane G Wenzel, professor, PhD Wisconsin

The members of the Graduate School (Executive Committee, Intersearch) who currently administer the Intersearch programme are, at the same time, active members of the graduate faculty of the VCP. These members are listed below:

Executive Committee, Intersearch
Takeru Higuchi (president)
Peter R Andrews
John A Hersey
Lester A Mitscher
Howard E Mossberg (secretary, USA)
Ian H Pitman
Colin Raper
Charles O Rutledge
Geoffrey N Vaughan (secretary, Australia)

Research

Research facilities are available within the Graduate School for students to undertake graduate work in experimental and theoretical areas of
the pharmaceutical sciences. Students may enter for the M Pharm, PhD (Intersearch), D Pharm (Pharmaceutical Society of Victoria) degrees by arrangement with the Graduate School. The following fields of research are available for graduate studies:

**Pharmaceutics**
- Pharmaceutical Sciences
- Pharmaceutical Formulation
- Biopharmaceutics
- Pharmaceutical Technology
- Physical Pharmacy
- Pharmacokinetics
- Microbiology

**Pharmaceutical Chemistry**
Analytical chemistry of dosage forms and biological systems, applications of instrumentation in pharmaceutical science, drug design and synthesis, natural product chemistry. Clinical chemistry to support drug research in hospital practice, plus chemical support for industrial and community practice.

**Pharmacology**
Pharmacological studies of cholinergic and adrenergic systems, coronary physiology, reproductive physiology, biochemistry.

**Regulations**
The rules and regulations for the award of the above degrees are detailed on page 64 of the handbook.

**Graduate Diploma in Hospital Pharmacy**

The Victorian College of Pharmacy Ltd commenced teaching a graduate diploma in hospital pharmacy in 1978. Any pharmacist with hospital experience is eligible to apply for admission to the course. Applications close on 24 December of the year preceding that in which enrolment is desired. The course is conducted on a part-time basis over two academic years. It is the student’s responsibility to arrange the necessary day release from the hospital pharmacy department (a total of 27 days each year are required).

The course is planned around three major areas: clinical pharmacology, clinical pharmaceutics and applied or hospital pharmacy practice. Wherever possible the lectures on clinical pharmacology are designed to interface with clinical pharmaceutics to show the relevance of pharmaceutical aspects such as doseform design, dosage regimen and medicine selection. The section on hospital pharmacy practice will introduce the student to pertinent subjects such as drug distribution, unit dose packing, IV additives, radiopharmaceuticals, drug monitoring and quality control. It will also extend to other fields including patient counselling, microbial contamination and clinical trials.

Generally, lectures will be held in the mornings at the College of Pharmacy. Didactic formal contact over the two academic years is about 165 hours,
approximately broken down as follows:

Clinical Pharmacology 108 hours
Clinical Pharmaceutics 37 hours
Applied Hospital Pharmacy Practice 20 hours

In addition, formal course work on data processing, application of computers, information retrieval and relevant biostatistics will be presented. This will account for another 15 hours of formal lecture time.

Afternoons are generally reserved for assignment topics. These will be tutorials, discussion groups clinical sit-ins, student-presented seminars, ward rounds, hospital/work visits, visits to biochemical, haematology and pathology laboratories, laboratory exercises and demonstrations. These will account for another 250 hours formal contact time over the two years.

Great importance is placed on the active participation of each of the students in seminar presentation and discussion groups. The students' performances at these seminars and tutorials will be closely monitored; marks will then be allocated on degree of participation in discussions, on rapport established with colleagues, on information contributed and on communicative ability.

In addition to the timetabled activities, it is expected that the student will spend another 4-6 hours per week on personal private study. This will involve library and literature assignments, preparation of patient's case histories from the base hospital, and relearning basic material for on-coming lectures.

Projects organised in conjunction with the Course Director and Hospital Chief Pharmacists will be undertaken at the students' hospitals. Such projects, where possible, will be selected to meet the student's individual interests and will take advantage of the particular skills and expertise of the hospital and chief pharmacist concerned.

Students will be called upon to deliver formally the results of their projects at appropriate intervals. Marks will be accredited for such presentations.

CLINICAL PHARMACOLOGY

A course of 108 lectures.

Advanced pharmacology. This will consist of revision and an updating of knowledge acquired during practice, and from the BPharm course. Advanced studies will include mechanisms of drug action, interactions, selective toxicity, pharmacology in relation to age and in relation to genetic-based disorders.

Pathophysiology of disease and therapeutics. This section embraces diseases of the following organs and systems: cardiovascular system, blood, respiratory system, gastrointestinal tract, liver, gall bladder and pancreas, kidneys and urinary tract, endocrine glands, connective tissue, bone, reproductive tract, skin, ear, nose, throat, eye; in addition, diseases due to pathogenic organisms, inborn errors of metabolism, disorders of water, electrolyte and acid base balance, psychiatry, tissue and organ growth, wounds, neoplastic and immunologically-based diseases and poisoning are also covered.

General health science in relation to drugs and therapy. Environmental hazards in relation to toxicity, epidemiological approach to disease, ageing, preventive medicine and drug dependence are included in this section.

During the course, aspects under the headings above which have a
common theme, will be considered concurrently (possibly centred around a particular disease state) in order to maintain an integrated approach.

**Textbooks**

Advice on selection of some of the following books will be given in the introductory lectures.

- **Avery, G S, Drug treatment, Sydney, Adis, 1976.**
- **Harrison, R T, Principles of internal medicine, 7th ed New York, McGraw-Hill, 1974.**
- **Herfindal, E T and Hirschman, J L, Clinical pharmacy and therapeutics, Baltimore, 1975.**
- **Laurence, D R, Clinical pharmacology, 4th ed Edinburgh, Churchill Livingstone, 1976.**

**CLINICAL PHARMACEUTICS**

A course of 37 lectures.

Relevant topics in the syllabus of the BPharm course will be extended and practical applications will be emphasised. This section will comprise three main areas.

**Applied biopharmaceutics.** Drug absorption, distribution, factors in drug action, drug response in pathological states, protein and tissue binding, biopharmaceutics of drug interactions, bioavailability, correlation of *in vitro* tests with clinical response, generic and therapeutic equivalence, pharmacokinetic modelling, multidose pharmacokinetics and prediction of blood levels from dosage regimens, clinical pharmacokinetics in renal, hepatic, cardiac failure and malabsorption states, blood levels and pharmacodynamic effects, non-linear systems, sustained release formulations and novel, programmed release dosage forms.

**Applied microbiology.** Preparation and testing of injections, large volume intravenous solutions and ophthalmics, intravenous additives, renal and peritoneal dialysis, laminar flow technology, microbial contamination and microbial limit tests.

**Applied pharmaceutics.** Pertinent aspects of formulation, stability quality control, GMP, physical and chemical incompatibility associated with intravenous additives.

**Textbooks**

- **Gibaldi, M, Biopharmaceutics and clinical pharmacokinetics, 2nd ed Philadelphia, Lea and Febiger, 1977.**

**APPLIED HOSPITAL PHARMACY**

A course of 20 lectures.

**Applied statistics.** Biostatistics pertinent to clinical orientation, eg, design of clinical trials, statistics of regression and correlation, analysis of variance, sampling, probability and quality control.

**Computers and hospital practice.** Applicability of the computerization of pharmacy services in the following areas: maintaining patient profiles,
medication records, transcription and medication errors, budget and stock control, economic utilisation of drug resources, drug information services; data file and data base handling techniques, introduction to relevant languages.

(Note: It is the aim of this section to orientate the participant more towards system analysis and implementation, rather than to actual detailed programming.)

Pharmacy practice. Subjects such as consultative interview techniques and patients' drug histories, patient orientated medicated records, patient compliance, drug distribution systems, unit packs and relevant packaging technology, ward and ward stock control, drug information services, intravenous additives, parenteral alimentation, and radiopharmaceuticals will be offered, possibly as electives.

All enquiries related to the Graduate Diploma should be addressed to the Course Director.
Sponsorships

In addition to the sponsors of subject exhibitions and special awards, which are duly acknowledged in this handbook, the Council of the College would like to record its gratitude in respect of the following major areas of support:

**Sigma Industrial Professorship**
Sigma Co Ltd supported an Industrial Professorship in Pharmaceutics in 1971 for a period of three years. This support has twice been extended for a further three years. The foundation and present incumbent of this chair is Professor John A Hersey.

**Nicholas Industrial Professorship**
Nicholas International Ltd is supporting an M A Nicholas Industrial Professor in Biopharmaceutics for an initial period of five years from 1978. Dr Barry L Reed is the foundation professor of biopharmaceutics.

**Sigma Research Fellowship**
Sigma Co Ltd is currently supporting a research assistant in the School of Pharmacology.

*Recipient:*

1978  Li Chung Kong
1979  Ong, Suan Beng

**Nicholas Research Fellowship**
Nicholas International Ltd is currently supporting two graduate research students undertaking the Master of Pharmacy degree.

*Recipients:*

1978  Desmond B Williams
1979  Christopher J Farquhar

**David Newnham Memorial Leukaemia Research Fellowship**
Friends and relatives of the late Mr David Newnham have established a memorial fund to foster research which impinges on possible contributions to an understanding of the disease leukaemia.

*Recipient:*

1978  Barrie C Finnin
1979  Barrie C Finnin
Pharmaceutical Society Research Fellows

The Society conducts an ongoing Drug Research Appeal which has been generously supported by many private and organisational donors, both within and outside the profession. The following fellowships are being provided from the Drug Research Appeal Fund.

Recipients:
1978 Ho Tak Chiu
1978 Ong Suan Beng
1978 Dorothy J Snell
1978 Tsui Chi Yan
1978 Kathryn Wyatt
1978 Yeung Chi Ming
1979 Koay Bee Bee
1979 Jean Kozak
1979 Lee Man Kok
1979 Dorothy J Snell

Cyril Tonkin Scholarship

The Pharmaceutical Society of Victoria has awarded Cyril Tonkin Scholarships to four graduate research students, one of whom is undertaking an Intersearch Doctor of Philosophy degree, and three of whom are undertaking a Master of Pharmacy degree.

Recipients:
1978 Kwok Yui Hunt
1978 Grant A McPherson
1978 Lisette J Wolf
1979 Kwok Yui Hunt
1979 Lai Kei Yin
1979 Lisette J Wolf

Perkin-Elmer Research Fellowship

Perkin-Elmer Pty Ltd is currently supporting a graduate research student undertaking a Master of Pharmacy degree.

Recipient:
1979 Geoffrey Beamiss

Mental Health Authority of Victoria

The Mental Health Authority of Victoria is currently supporting a research student undertaking a Master of Pharmacy degree.

Recipient:
1978 Seo Pheak Son
1979 Seo Pheak Son
<table>
<thead>
<tr>
<th>Subject</th>
<th>Value</th>
<th>Qualification</th>
<th>Donor or Style</th>
</tr>
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<tbody>
<tr>
<td>First Year: Pharmaceutics I</td>
<td>$100</td>
<td>best student</td>
<td>Sigma Co Ltd</td>
</tr>
<tr>
<td>First Year: Pharmaceutical Chemistry I</td>
<td>$100</td>
<td>best student</td>
<td>Sigma Co Ltd</td>
</tr>
<tr>
<td>First Year: Physics</td>
<td>$50</td>
<td>best student</td>
<td>Salaried Pharmaceutical Chemists’ Association</td>
</tr>
<tr>
<td>First Year: Physiology</td>
<td>$50</td>
<td>best student</td>
<td>Ramsay Surgical Ltd</td>
</tr>
<tr>
<td>Second Year: Pharmaceutics II</td>
<td>$100</td>
<td>best student</td>
<td>Bequest late H T Tompsitt</td>
</tr>
<tr>
<td>Second Year: Pharmaceutical Chemistry II</td>
<td>$100</td>
<td>best student</td>
<td>Bequest late H T Tompsitt</td>
</tr>
<tr>
<td>Second Year: Pharmacology I</td>
<td>$100</td>
<td>best student</td>
<td>Sigma Co Ltd</td>
</tr>
<tr>
<td>Third Year: Pharmaceutics III</td>
<td>$100</td>
<td>best student</td>
<td>Bequest late H T Tompsitt</td>
</tr>
<tr>
<td>Third Year: Pharmaceutical Chemistry III</td>
<td>$100</td>
<td>best student</td>
<td>Bequest late H T Tompsitt</td>
</tr>
<tr>
<td>Third Year: Pharmacology II</td>
<td>$100</td>
<td>best student</td>
<td>Sigma Co Ltd</td>
</tr>
<tr>
<td>Third Year: Forensic Pharmacy</td>
<td>$50</td>
<td>best student</td>
<td>Kodak (A/asia) Pty Ltd</td>
</tr>
<tr>
<td>Third Year: Pharmaceutical Administration and Organisation</td>
<td>$50</td>
<td>best student</td>
<td>Kodak (A/asia) Pty Ltd</td>
</tr>
</tbody>
</table>
### Special Awards

<table>
<thead>
<tr>
<th>Style</th>
<th>Value</th>
<th>Qualification</th>
<th>Donor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freda Smalley Exhibition</td>
<td>$50</td>
<td>best female student at Pharmacy III Examination</td>
<td>Women Pharmaceutical Chemists' Association of Victoria</td>
</tr>
<tr>
<td>Pharmacy Gold Medal</td>
<td>—</td>
<td>best student at Pharmacy III Examination</td>
<td>Pharmaceutical Society of Victoria</td>
</tr>
<tr>
<td>Francis Hardey Faulding Exhibition</td>
<td>$50</td>
<td>best male student at Pharmacy III Examination</td>
<td>F H Faulding &amp; Co Ltd</td>
</tr>
<tr>
<td>P D L Exhibitions</td>
<td>3 x $100</td>
<td>best three students at Final Qualifying Examination in Practical Pharmaceutics</td>
<td>Pharmaceutical Defence Ltd</td>
</tr>
<tr>
<td>Byron Stanton Exhibition</td>
<td>$50</td>
<td>best student in the biological sciences</td>
<td>VPSA</td>
</tr>
<tr>
<td>Guild Exhibition</td>
<td>$100</td>
<td>best student in the physical sciences</td>
<td>The Guild Insurance Co Ltd</td>
</tr>
</tbody>
</table>
College rules
(Issued by the Council)

Classes
1 Students are required to familiarise themselves with the time-tables and to observe the hours of attendance at lectures, tutorials, practical work, and all examinations.
2 Every student is required to attend at least three-fourths of the lectures and three-fourths of the practical work, in each subject, in order to complete satisfactorily any year of the course.
3 During classes students must confine themselves to their allotted places. Talking and noise during the delivery of lectures are prohibited.
4 Only such experiments and operations as are sanctioned by the lecturer are to be undertaken.
5 Smoking is not permitted in lecture theatres, laboratories, or the assembly hall, where facilities are not provided. (When smoking in the library please use the ash-trays provided.)
6 No chemicals, drugs, or biological materials may be taken into or out of the laboratory without the permission of the lecturer-in-charge.

Finance
7 All apparatus lent or hired to students must be returned clean and in good order, or paid for.
8 Credit for term attendances at lectures cannot be given until all fees due have been paid.
9 No student shall be allowed to enter on a new term at the College while fees for the previous term are unpaid, unless a satisfactory reason is given to the Business Manager.
10 Any damage done to the furniture, fittings, books, specimens, or apparatus in the College by any student shall be a charge against such student, who shall be held liable for the cost of any repairs or replacements necessary.
11 Students must enter for examinations before the closing date of entry. A fee is chargeable for late entries.

Conduct
12 Before leaving the laboratories students must clean and arrange their benches for the benefit of subsequent classes. Apparatus must be put away in its proper place.
13 Suitable footwear must be worn by students on the College premises.
14 When using the library the rules in force at the time must be strictly observed.
15 Food refuse must be either returned to the cafeteria or placed in a rubbish-bin, which is fitted with a lid.
16 All used food utensils and food containers must be returned to the cafeteria immediately after use.
17 One of the functions of the Dean and the other administrative officers is to protect life and property. Students interfering with such things as lighting, fire hoses, safety apparatus, or door locks can create a hazard to life. Fireworks are completely banned on College premises.
As the College campus, like its budget for cleaning and repairs, is small, any forms of campus ‘rags’ or games are not permitted.

The College is allowing an increasing amount of expensive research and other equipment to be used by students for teaching purposes. Any careless damage to such equipment will be regarded as a serious breach of College rules.

Where a student has been guilty of any misconduct or breach of these rules, he may be reprimanded by a Lectorial Board, or reported by it to the Council, to be dealt with as the Council shall think fit.

WARNING  Students are requested to exercise the utmost care with drugs and chemicals, many of which are either inflammable or poisonous.

A particularly strong warning is given to students concerning the handling of live microorganisms, and exposure to radiations of any kind. Take no liberties. Where the slightest doubt exists, refer to a member of staff.

An outline of the safety procedures adopted by the College is given in the booklet “Safety precautions and emergency procedures” which is issued to students at the start of the course.

VICTORIAN PHARMACY STUDENTS ASSOCIATION

Student activities at the College centre around a Student Representative Council. The SRC performs a leading part in student government and is the point of contact between the corporate body of students and the College administration.

It is responsible for the organisation and development of student activities on the campus which cover sporting, cultural and social activities.

Several student organisations are affiliated with the Student Council. Students may obtain further information about these organisations at the SRC office.

Students are encouraged to make full use of these facilities.

A Student Council is essential to a College of advanced education which is seeking the development of its students so that they can, in the future, take leading parts in community affairs as well as in their respective professions.

STUDENT COUNSELLING

A counselling service is available to all students who may wish to seek advice or discuss any problems that may arise during the pharmacy course.

Appointments for interviews may be arranged by personal approach to either of the two counsellors:

Mr Robert Burnet (Registrar)
Mr Louis Roller (School of Pharmaceutics).
C L BUTCHERS MEMORIAL LIBRARY

The C L Butchers Memorial Library comprises about 12,000 volumes, including several historic runs of pharmacy journals, and a number of valuable old books. The library has been planned as a special collection on drug technology, and not as a general library. Of its type it is the most important collection in Australia. It has been maintained since 1857 and was designed primarily for the use of members of the Pharmaceutical Society of Victoria. The free use of the library has been extended by the Society to outside professional and academic institutions, private corporations and the academic staff of the college.

Council has directed that the administration of the library be attached to the Dean's office. A student representative sits on the library committee.

Students are more than welcome to use the library which is available to them for study and reference purposes. However, they are requested to consider the rights of the other users of the library facilities and to conform to the rules. The basic hours of opening are from 9.00 am to 5.00 pm from Monday to Friday.

Library Rules

1 The library is available for study and reference purposes.
2 'Sub-total' silence is requested in the library at all times, at the discretion of the Dean or his staff who may be in charge at the time.
3 Bags, food, and drinks are not permitted in the library.
4 Some overnight loans are permitted, but these must be returned by 9.00 am on the following morning.
5 Periodicals may not be borrowed by students.
6 'Library Use' slips are to be made out for counter reserve material, which must be returned to the counter after use.
7 Borrowers are responsible for the 'making good' or replacement of library material damaged or lost while in their charge.
8 Smoking is permitted in the western end of library if ash trays are used.
9 Users failing to observe the current rules may be suspended from using the library.

BANKING FACILITIES

The National Bank of Australasia Ltd, University Branch offers facilities for current and savings accounts at their office on the ground floor of the new laboratory block.

Hours of operation are from 12.30 pm to 3.00 pm, Monday to Friday inclusive.
Pharmacy Board of Victoria (Constituted 1878)

M G Blachford, PhC, MPS President
P Moore, PhC, MPS Treasurer
R W Ashton, PhC, MPS
W J Baneth, PhC, MPS
J R Coppock, BPharm, PhC, MPS
M Gandolfo, PhC, MPS
W A Mercer, PhC, MPS, LHA
N W Naismith, PhC, MPS, FSHP
I H Pitman, BSc, PhD, PhC, MPS, FRACI
J C Urquhart, PhC, MPS
H V Feehan, BCom(Hons), AFAIM, AIBA, MRSH Registrar
S N Leyshon, BEc, AUA(Pharm), DipEd, MPS, AASA, AAiM Deputy Registrar

Functions of Board and Society

The Pharmacy Board of Victoria is a quasi-legal body constituted by statute and answerable to the Victorian State Parliament through the Minister of Health. The Board meets and has its administrative offices in the Victorian College of Pharmacy.

The Board, in effect, approves the prescribed subjects to be studied by students undertaking the pharmacy course, is responsible for the control and direction of all examinations in pharmacy, attends to the registration of pharmacists, and supervises the practical training of students, including the registration of articles of traineeship, approval of preceptors and the issuing of student’s record books. The Board’s function is to act primarily in the interests of the public. The Registrar of the Board is also the Executive Director of the Pharmaceutical Society of Victoria.

The Pharmaceutical Society of Victoria on the other hand is a professional society incorporated under articles of association. The affairs of the Society are administered by a Council of twelve members. The pharmacists of Victoria comprise the membership of the Society. The Society’s function is to act primarily in the interests of the pharmacists who are its members. For nearly a century the Pharmaceutical Society of Victoria owned and operated a College which taught students of pharmacy in a school recognised by the Pharmacy Board.

In 1976 the Council of the Pharmaceutical Society of Victoria determined to establish a new and separate Council to administer the affairs of the College. The new Council assumed its responsibilities from January 1, 1977.
The Board's examinations are conducted in the College. A great amount of co-operation exists between the Board and the Society. The Pharmacists Act 1974 provides that the Pharmacy Board of Victoria shall have power to control and direct examinations concerned with the pharmacy course.

The College teaching staff act as examiners for the Pharmacy Board in the Pharmacy I, II and III examinations.

The Pharmacy I, Pharmacy II and Pharmacy III examinations are conducted respectively at the end of successive years of the course. The Final Examination is conducted at the conclusion of the period of practical training.

**Form of examinations**

The Examinations shall consist of theoretical, practical, or oral examinations as may be required by the examiners concerned.

The Pharmacy I Examination shall consist of examinations in the following:

- Pharmaceutics I
- Pharmaceutical Chemistry I
- Mathematics
- Physics
- Physiology

The Pharmacy II Examination shall consist of examinations in the following:

- Pharmaceutics II
- Pharmaceutical Chemistry II
- Microbiology
- Pharmacology I
- Biochemistry

The Pharmacy III Examination shall consist of examinations in the following:

- Pharmaceutics III
- Pharmaceutical Chemistry III
- Pharmacology II
- Pharmaceutical Administration and Organization
- Forensic Pharmacy

The Final Examination shall consist of examinations in the following:

- Dispensing (practical)
- Pharmaceutical Practice (oral)

**SYLLABUS**

**Pharmacy I, II and III Examinations**

The syllabus for the Pharmacy I, II and III examinations will be the syllabus set for the three years of the course respectively.
Final Examination

The syllabus is as follows:

1. **Dispensing (Practical)**
   
   This is a three hour test conducted in the School of Pharmaceutics by the Pharmacy Board in co-operation with the academic staff.

   The candidate will be required to exhibit a well developed skill in the preparation and presentation of pharmaceutical products often extemporaneously prepared and in the dispensing of prescriptions. Appreciation and resolution of contemporary problems in modern medication is also expected. The candidate is also required to write a concise but accurate and intelligible record of all relevant quantitative and qualitative information as to his bench operations. Facility in common pharmaceutical calculations, speed and accuracy in weighing, measuring and blending, unfaltering care and cleanliness as well as the use of good technical English in reporting are essential. Free use of the common compendia and pharmaceutical references during the examination is permitted.

2. **Pharmaceutical Practice (oral)**
   
   This takes the form of an interview with a member or members of the Pharmacy Board. The candidate will be required to quickly establish a formal and co-operative relationship with his interviewer and to intelligibly discuss the State and Federal laws relating to the practice of pharmacy in Victoria, to read prescriptions and discuss medication problems.

   The interviewer will require evidence that the candidate has been able to learn technical and forensic details of the kind of pharmaceutical practice he has been engaged in during his traineeship.

   The candidate will be expected to exhibit knowledge of the responsibilities of pharmacists under the:

   (a) Pharmacists Act 1974
   (b) Pharmacists Regulations 1976
   (c) Poisons Act 1962
   (d) Drugs of Addiction and Restricted Substances Regulations
   (e) Poisons Regulations 1963
   (f) Part XIV of the Health Act and the relevant sections of the Regulations
   (g) Stock Medicines Act, Stock Foods Act, Pesticides Act and Regulations
   (h) National Health Act and Regulations.

**Closing date of entry**

This will be advertised in the Australian Journal of Pharmacy, the Pharmaceutical Society's News Bulletin, the College calendar of dates and a personal communication will be sent to each trainee at his last known address.
Examination rules
(Issued by the Pharmacy Board of Victoria)

The following examination rules are issued by the Pharmacy Board of Victoria and the Victorian College of Pharmacy Limited. These rules should be read in conjunction with Council's policy concerning courses of study published on page 13.

1 An entry for an examination will only be accepted from students who have attended at least three fourths of the lectures and at least three fourths of the practical work of each subject for which the student is required to enter.

2 Candidates will be permitted to enter the examination room fifteen minutes prior to the commencement of the examination.

3 Candidates may read the examination paper prior to the commencement of the examination but may not begin writing until advised to do so by the supervisor.

4 Candidates may not leave the examination until it has been in progress for half an hour.

5 Candidates arriving more than half an hour after the examination has commenced will not be admitted.

6 In the case of written examinations, candidates will not be allowed to bring in any text books, lecture notes or other written material except where specific instructions have been given by the examiner in charge of the subject. In any case the use of text books borrowed from the library of the Victorian College of Pharmacy will not be permitted.

7 Tables of logarithms will be available if required and candidates may bring a slide rule with them if they so desire. Unprogrammed electronic calculators may be used in examinations. However, no claim for special consideration on the grounds of calculator breakdowns will be accepted and candidates should therefore be able to use logarithm tables efficiently.

8 Candidates must not communicate with one another whilst in the examination room.

9 No examination books, tables of logarithms or other material which is the property of the Pharmacy Board of Victoria or the Victorian College of Pharmacy are to be removed from the examination room.

10 At the end of an examination all candidates must remain seated until all examination books have been collected.

11 Candidates must not communicate with examiners prior to the publication of results.

12 Where sickness or other circumstances warranting compassion arise, candidates for examinations must furnish written information to the Registrar immediately. In the case of sickness a medical certificate is
required and must be forwarded to the Registrar of the College within forty-eight hours of the time of consultation.

13 Supplementary examinations will be held when necessary at the discretion of the Board of Examiners. Individual examiners may prescribe additional examinations, either written, oral, or practical when and as required. Candidates are therefore advised to be available after the completion of the annual examinations and pending publication of the examination results.

14 The Council of the College and the Pharmacy Board of Victoria will publish results of examinations, but the Council of the College may, in the case of a candidate's failing to observe these examination rules, omit the results of the said candidate and/or exclude the said candidate from further courses of study at the College.

15 Failure to comply with any rule or instruction by the supervisor will be regarded as a breach of discipline and may be reported to the Registrar of the College.

16 Any communication regarding examinations must be addressed in the initial instance to the Registrar of the Victorian College of Pharmacy.

17 In these rules 'examination' includes supplementary examinations and any additional examination, either written, oral or practical, prescribed by an individual examiner.
REGULATIONS FOR THE AWARD OF BACHELOR DEGREES

Definitions
1 In these regulations:
"Affiliated College" means any institution which is an affiliated college within the meaning of the Victoria Institute of Colleges Act 1965,
"Bachelor Degree" means any bachelor degree which is specified from time to time in the Schedule of the Victoria Institute of Colleges Statute 8.1 — Degrees and Diplomas,
"Board" means the Board of Studies of the Victoria Institute of Colleges,
"College" means the affiliated college at which a candidate is enrolled or proposes to enrol in an approved course leading to a bachelor degree,
"Council" means the Council of the Victoria Institute of Colleges,
"Institute" means the Victoria Institute of Colleges,
"Registrar" means the Registrar of the Victoria Institute of Colleges.

Admission requirements
2 A candidate for a bachelor degree shall:
   (a) Qualify for admission to an affiliated college in a course of study whose curriculum and entrance requirements have been approved by the Council for the purposes of the award of that degree;
   (b) Complete all requirements relating to attendance at lectures and practical classes, assignments and examinations laid down by the college and as approved by the Council from time to time; provided that a candidate who has completed appropriate study at another institution may, at the discretion of a college, be admitted to a course leading to a bachelor degree in that college.

Reports on students admitted
3 Upon the request of the Registrar, an affiliated college shall furnish information on the qualifications of persons admitted to courses of study leading to the award of a bachelor degree.

Approval of Courses of Study
4 The Council may approve a course of study in an affiliated college leading to the award of a bachelor degree on such conditions and for such terms as, on the advice of the Board, it deems appropriate.

Periodic Reviews
5 The Board shall make such arrangements as it deems appropriate for the periodic review of standards of achievement of students completing approved courses leading to bachelor degrees and shall report to the Council on its findings. In the light of such reports, the Council may withdraw approval of a course of study or confirm such approval either conditionally or unconditionally.
Examination of Candidates

6 An affiliated college granted approval to conduct a course leading to the award of a bachelor degree shall be responsible for the examination of students enrolled in such course, provided that the Board at its discretion, may require a college to appoint an examiner or examiners acceptable to the Board and external to the college staff to report on the standards achieved by candidates completing the final year of an approved degree course.

Fees

7 Notwithstanding any fees levied by the college, a candidate shall pay such fees as may be determined from time to time by the Council.

Eligibility for Degree

8 A candidate who has satisfied the requirements of Regulations 2 and 6 shall be qualified to be admitted to the relevant bachelor degree and upon applying to the Registrar in writing shall be entitled to have the degree conferred upon him.

Principals to Certify

9 At least thirty days before the date fixed for a ceremony at which bachelor degrees will be conferred by the Council the Principal of an affiliated college at which a candidate has completed an approved course of study and fulfilled all other requirements for the award of a degree shall forward to the Registrar a list of the names of the persons who have qualified for a bachelor degree together with a signed certificate that all of the candidates named have fulfilled all of the conditions for the degree laid down in these regulations.

Conferring the Degree

10 Such certified candidates shall have the degree conferred upon them by the President of the Institute or his representative according to procedure determined by the President.

Degree without Examination

11 On the recommendation of the Board, the Council may admit to a bachelor degree without examination, or with such special examinations as may be prescribed by the Board, any person who has completed or has carried out such formal academic study, research, investigation or developmental work or has achieved such eminence in a relevant profession as, despite his noncompliance with the requirements of Regulation 2, in the opinion of the Board warrants his admission to the degree.
Register
12 The Registrar shall keep registers of names of all graduates on whom bachelor degrees are conferred and the dates of such conferment.

College Rules to Apply
13 Except as specifically provided in these regulations, the rules for enrolment of students in the college, as published in the then current handbook of the college, shall apply to students of the college enrolling to undertake an approved course of study for a bachelor degree.

The Victoria Institute of Colleges is currently considering additional regulations for the award of the degree Bachelor of Pharmacy. These additional regulations will be made known immediately they are available.

REGULATIONS FOR THE AWARD OF DEGREE OF MASTER

Definitions
1 In these regulations:
"Affiliated College" means any institution which is an affiliated college within the meaning of the Victoria Institute of Colleges Act,
"Board" means the Board of Studies of the Victoria Institute of Colleges,
"College" means the affiliated college in which a person is, with the approval of the Board, undertaking a course of study, research programme or other requirement of the Board in respect of a candidature, or the affiliated college in which an applicant proposes to enrol for such purpose,
"Council" means the Council of the Victoria Institute of Colleges,
"Institute" means the Victoria Institute of Colleges,
"Degree of Master" means a degree of master specified in the schedule to the Victoria Institute of Colleges Statute 8.1—Degrees and Diplomas, and
"Registrar" means the Registrar of the Victoria Institute of Colleges or any other person appointed by the Council to act as Registrar for the time being.

Candidature
2 The Board may admit persons to candidature for a degree of master and any person so admitted may proceed to undertake the course of study, research programme or other requirement prescribed by the Board, in respect of his candidature.

Admission to Candidature
3 (1) A person may be admitted to candidature for a degree of master pursuant to regulation 4(1) or 4(2) or 4(3), who is recommended for admission to candidature by the college in which he proposes to undertake his course of study or research programme and who satisfies the Board that he:
By degree

(a) has qualified for a first degree of the Institute (or such other degree as the Board may deem equivalent for this purpose) at a standard considered by the Board to be sufficiently meritorious; or

By other award

(b) (i) has qualified for any other award judged by the Board to be of relevant character and appropriate standard; and

(ii) has produced evidence of professional experience through which he has developed his applied knowledge of the relevant field of study, such as satisfies the Board that he has the capacity to undertake study for the degree of master; and

(iii) has fulfilled any other conditions relating to prerequisite study which the Board may have imposed in respect of his admission to candidature.

By publication

(2) A person may be admitted by the Board, to candidature for a degree of master, who:

(a) has held for a minimum period of five years

(i) a first degree of the Institute or of an Australian university, or of any other institution approved by the Board for this purpose; or

(ii) such other qualifications as might be approved by the Board in individual instances, provided that an applicant who is not resident in Victoria may be admitted to candidature only if he has gained a tertiary qualification from a Victorian institution; and

(b) submits to the Board a publication or publications based on original research, investigation or developmental work carried out by him in an industrial, commercial, governmental, educational or research organization, approved by the Board for the purpose, or carried out as a member of the staff of an affiliated college; provided that the subject and nature of the research work are accepted by the Board as appropriate for examination for the award of the degree of master.

Types of Courses

4 The following types of courses of study and research programmes may be approved by the Board as appropriate for candidates to undertake for qualifications for the award of degree of master:
*Formal Course of Study

(1) a formal study of a structured course of subjects which takes the understanding of a major discipline to a higher intellectual level than that reached in the final year of any relevant first degree course which is regarded by the Board as an appropriate level of entry to a course leading toward a degree of master, together with a minor thesis based on some investigational work (hereinafter referred to as a formal course of study);

*See VIC Council Policy Statement dated 30 April 1973 on allowable proportions of course work in master degree programmes.

College-based Research Programme

(2) presentation of a major thesis based on original research, investigation or developmental work, carried out under supervision in an affiliated college by a candidate enrolled as a student of the college (hereinafter referred to as a college-based research programme);

Non-College-based Research Programme

(3) presentation of a major thesis based on original research, investigation or developmental work, carried out by a candidate enrolled as a student of an affiliated college in an approved industrial, commercial, governmental, educational or research organization under the supervision of not less than two supervisors, of whom one is a full-time member of the staff of the college and appointed by the college (hereinafter referred to as a non-college-based research programme).

Study Programme Requirements

5 (1) A candidate proceeding to a course of study or research programme pursuant to regulations 4(1) or 4(2) or 4(3) shall complete a course of study or research programme or combination thereof such as is approved by the Board, in respect of his candidature.

(2) A candidate proceeding to a course of study pursuant to regulations 4(2) or 4(3) shall be required to undertake, during the first year of his candidature, a structured course of formal study in a form approved by the Board, designed to advance his knowledge of certain specialized disciplines and to acquaint him with the methodology of research, unless it can be shown that the candidate has previously completed a postgraduate programme, which has fulfilled this purpose, or had experience deemed by the Board to be equivalent.

(3) An application for candidature pursuant to regulations 4(1) or 4(2) or 4(3) shall be submitted to the Board on the applicant's behalf by the principal of the college and shall be in a form prescribed by the Board.

(4) The Board shall determine whether an applicant shall be admitted to candidature. In arriving at such determination the Board shall take into account, amongst other things, the facilities available for the student to undertake the course, the allocation of time between various aspects of the proposed course of study, and
the subject and nature of the applicant's proposed research programme.

Duration

6 (1) The Board shall not certify as to the successful completion of a course of study or research programme undertaken by a candidate until the elapsed period from the date of approval of the candidature is:

(a) in respect of a candidate who is admitted to candidature pursuant to regulation 3(1)(a) two years; and

(b) in respect of a candidate who is admitted to candidature pursuant to regulation 3(1)(b), such minimum period as the Board may in any instance determine.

(2) In regard to any stipulated period of full-time study or work the Board may determine, in respect of a candidate, the equivalent period to be spent in part-time study or work or in varying segments of full-time or part-time study or work.

Criteria for Publications

7 (1) For the purpose of assessing an application pursuant to regulation 3(2), the Board shall require that any publication submitted in respect of the application:

(a) has been the subject of critical independent examination prior to publication;

(b) is available to the general public;

(c) is accompanied by documentary evidence that the applicant is the author; and

(d) where it consists of several papers, relates to one aspect of the subject.

(2) A report issued by an organisation shall not, without the express consent of the Board, be accepted as a publication for the purpose of these regulations.

(3) Where a paper has been published jointly, the applicant shall provide the Board with a written statement indicating the extent of the applicant’s personal contribution to the project reported in the publication and any co-author or any person who in respect of the publication had been a supervisor of the applicant’s work shall provide the Board with such documentary evidence as the Board may direct on the extent of the applicant’s contribution to the project and the authorship of the publication.

Supervisors

8 (1) For a candidate undertaking study by formal course of study or a college-based research programme, the college shall appoint at least one supervisor who shall be a member of the staff of the college and who shall supervise and assist the candidate.
(2) For a candidate proceeding by non-college based research programme the college shall appoint not less than two supervisors, of whom at least one shall be a member of staff of the college and of whom at least one shall be a person who is associated with the organization in which the candidate is to carry out his programme.

(3) In respect of any such candidate, the college shall submit to the Board, at the completion of the first year of study and after the results of any examination are known, a report of approximately three hundred words on the work of the candidate, prepared by each supervisor, together with:

(a) the results of any examination of the candidate;
(b) details of any modifications made to the candidate's approved course of study or research programme;
(c) suggested modifications for the candidate's course of study or research programme; and
(d) a recommendation as to whether the candidature should be continued or terminated.

Intermediate Examination

9 (1) Unless otherwise provided by the Board, a candidate shall, before being admitted to the second year of his course of study or research programme, undertake satisfactorily an intermediate examination of a type approved by the Board.

(2) A college may, on the recommendation of a supervisor, require a candidate to undertake satisfactorily such additional examination requirements related to the approved course of study or research programme as his supervisor or supervisors may determine.

(3) The college shall be responsible for the conduct of any intermediate examination and any additional examination pursuant to regulation 9(2) above.

Candidate's Progress

10 The Board may, upon the recommendation of the college or at its own discretion, terminate the candidature of a candidate whom the Board considers not to be making satisfactory progress in his course of study or research programme, presentation of thesis or any other requirement.

Examinations

11 (1) In regard to candidates proceeding pursuant to regulation 4(1) or 4(2) or 4(3) the college shall recommend, and the Board may approve, the appointment of not less than two examiners, neither being a candidate's supervisor, to examine a candidate for a degree of master.
(b) Not more than one of any such examiners may be a member of the staff of the college or any other place in which any research or developmental work included in the candidate's thesis or publication was carried out and no person may be appointed as an examiner who has been associated either directly or indirectly with the candidate's course of study or research programme.

(2) In regard to candidates admitted to candidature pursuant to regulation 3(2) the Board shall appoint at least two examiners to examine the publication or publications submitted by the candidate in respect of his candidature.

(3) The Registrar shall notify examiners of their appointment by the Board.

(4) The name of any examiner must not, without the approval of the Board, be disclosed to a candidate.

(5) Each examiner shall report to the Board on the standard of the candidate's complete course of study, research programme, thesis or publications as the case may be, and recommend the decision which the Board should take in respect of the candidature.

(6) If differing recommendations are received from examiners, and the Board is considering failing the candidate, a referee examiner shall be appointed by the Board to examine the candidate, to consider the other examiners' reports, and to recommend the action to be taken by the Board in respect to the candidature.

(7) A candidate shall not submit for final examination more than twice on the one course of study or research programme.

**Thesis or publications**

12 (1) A candidate shall, except as provided in regulation 13 hereunder, submit to the Board four bound copies of his thesis or publications, as the case may be. All copies of such thesis or publications shall conform with such specifications as are prescribed by the Board from time to time, and shall include a summary of approximately two hundred words and a certificate signed by the candidate to the effect that the work has not previously been submitted on behalf of the applicant, either in whole or in part, in respect of any other academic award.

(2) Two copies of the thesis or publications shall become the property of the institute and one further copy of the thesis shall become the property of the college.

(3) If the research project has arisen in an organization other than an affiliated college, and the circumstances warrant the imposition of a measure of secrecy, the Board may direct that the thesis shall not become available for consultation until a maxi-
mum period of eighteen months has elapsed from the date of such direction.

(4) The Board may require a candidate to produce such evidence as it may direct to establish that any thesis or other publication may be published without infringing any agreement, patent, copyright, statutory obligation or contractual relationship.

(5) The Council's policy on confidentiality, as published from time to time, shall apply in respect of any thesis, material, or other publication forming the whole or part of a candidate's course of study or research programme.

(6) The Council shall be free to allow the thesis to be consulted or borrowed and, subject to the provisions of the Copyright Act (1912-1968), may issue the thesis or publications in whole or in part in photostat or microfilm or other copying medium.

Submissions in the Arts

13 (1) A candidate who is admitted to candidature in a field of the arts shall submit to the Board such compositions, designs, works of art, adjudicated performance, recordings or other forms of work as the Board shall deem appropriate in any case.

(2) Where a thesis forms part or all of the submission by such candidate, such thesis may, to the extent approved by the Board, be in the form of photographs or other means of recording.

(3) In connection with any submission to be made in a field of the arts, the Board shall advise the person seeking admission to candidature of any of its requirements in respect to ownership of any forms of work so submitted.

(4) In all other respects the provisions of paragraphs (3) to (6) inclusive of Regulation 12 shall apply in regard to any written thesis submitted in respect of a candidate in a field of the arts.

Fees

14 Notwithstanding any fees levied by the college, an applicant or candidate or graduand shall pay such registration, examination, graduation and other fees as may be determined from time to time by the Council.

Eligibility for Degree

15 A candidate who has satisfied the requirements of these Regulations shall, on the recommendation of the Board, and with the approval of the Council, be admitted to the appropriate degree of master and may apply in writing to the Registrar to have the degree conferred upon him.

Conferring of Degree

16 The degree shall be conferred by the President of the Institute (or his representative) according to procedure determined by the President.
Degree without Examination
17 On the recommendation of the Board, the Council may admit to a degree of master without examination, or with such special examinations as may be prescribed by the Board any person who, having graduated at any university or other tertiary institution, has completed such formal academic study, research or investigation or achieved such eminence in the relevant profession as may be deemed, in the opinion of the Board, to be equivalent of the requirements in Regulation 4.

Register
18 The Registrar shall keep a register of names of all graduates on whom a degree of master is conferred and the date of such conferring.

College Rules to Apply
19 Except as specifically provided in these regulations, the rules for enrolment of students in a college, as determined by the college, shall apply to a candidate undertaking a course of study or research programme leading to a degree of master.

Delegation by Board of Studies
20 There shall be a Standing Committee on Higher Degrees established by the Board to which the Board may delegate such responsibilities in respect to the implementation of these regulations as it deems fit.
REGULATIONS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHARMACY

The Pharmaceutical Society of Victoria established in 1973 the degree of Doctor of Pharmacy (D Pharm) for its members. The D Pharm programme is funded wholly by the Society. The degree is of the "research" type and therefore is similar to the professional Pharm D degree, which is awarded widely throughout the United States.

The regulations concerning the award of the D Pharm degree together with the guidelines are recorded.

Nature of degree
1 The Doctor of Pharmacy degree (D Pharm) is a research degree awarded by the Pharmaceutical Society of Victoria for the presentation of a thesis.¹

Admission to candidature
2 A candidate for the degree of Doctor of Pharmacy must:
   (a) be a member of the Pharmaceutical Society of Victoria;
   (b) hold a Master degree recognised for the purpose of this regulation by the Council;
   (c) be accepted by the Council on the recommendation of the executive of the Graduate School of the Victorian College of Pharmacy Ltd.

Course of Study
3 After being accepted a candidate must pursue a course of advanced study and research for at least two years.

Examination
4 The Council, on the recommendation of the executive of the Graduate School, shall appoint not less than three examiners, one of whom may be the supervisor and at least two of whom will be external examiners.
5 The executive of the Graduate School may prescribe examinations as required additional to the examination of the thesis.

Thesis
6 Four copies of the thesis will be presented. One copy of the thesis of each candidate fulfilling the requirements for admission to the degree shall be deposited in the library of the Society.

Awarding body
7 In every instance Council will be the body which awards the degree on the recommendation of the examiners.
8 Council will direct that a roll of all D Pharm graduates be kept and that such roll be published in the annual report of the Society.

A candidate may not present as his thesis any work for which any other degree has been conferred on him, but he will not be precluded from incorporating such work or any part thereof in his thesis provided
(i) he has stated his intention to do so in his application for candidature and
(ii) he indicates in his thesis the part of the work which has been so incorporated.
GUIDELINES
These guidelines should be read in conjunction with the regulation for the Degree of Doctor of Pharmacy.

Examination
1 The Council, on the recommendation of the executive of the Graduate School, shall appoint not less than three examiners, one of whom may be the supervisor and at least two of whom shall be external examiners.
2 The dean of the appropriate school shall act as chairman of the panel but need not be one of the three examiners. If the head of the appropriate school is not an examiner he shall not have a vote.
3 Each examiner shall read the thesis and may require the candidate to answer viva voce or in writing any questions concerning the subject of the thesis.
4 Before making their formal return the examiners shall consult together or otherwise communicate with each other with regard to the thesis submitted.
5 The result of the examination shall be in accordance with the decision of a majority of the examiners.

Thesis
6 Four bound typewritten or printed copies of the candidate's thesis shall be lodged with the Executive Director of the Society. The form of the typewritten or printed copies shall be in accordance with the following specifications:
   (i) Theses should be double-spaced typed on metric size A4 paper. Only one side of the paper should be normally typed on.
   (ii) There should be a margin of 3 cm on the left-hand side of all pages.
   (iii) Pages should be numbered consecutively and clearly; interpolated sheets should be marked distinctly [eg 52(a)] or as the case may require.
   (iv) The title of the thesis, the degree for which it is submitted, the year of submission and the full name of the author should be shown on the title page.
   (v) A summary of approximately 200 words should be included.
   (vi) All references should be listed at the end of the thesis.
   (vii) The spine of each bound copy must carry the name of the author, the title of the work (abbreviated if necessary), the year of submission and the inscription 'D Pharm'.
   (viii) In his thesis the candidate should indicate the sources from which his information is derived, the extent to which he has availed himself of the work of others and, in general terms, the portions of his work which he claims as original. When a candidate submits work carried out in collaboration with another person, he should indicate his own share in the work.
The following form of bequest may be used by intending benefactors of the Victorian College of Pharmacy Ltd:

I give to the Victorian College of Pharmacy Ltd, 381 Royal Parade, Parkville, Victoria, the sum of................................ to be paid free of taxation, and I direct that the receipt of the President, Deans, or Registrar be accepted as a sufficient discharge for the same.

The Victorian College of Pharmacy Ltd, although preferring bequests without circumscription, will strictly carry out an expressed intention of a testator in applying a gift to a specific object.

In the case of a substantial gift, the Victorian College of Pharmacy Ltd will take steps to perpetuate the name of the donor.

Testators are invited to consult with the President, Deans or Registrar so that the College will not be hampered in carrying out their real intention. Detailed directions, without guidance, may prove unsuitable to existing or future conditions. For example, experience shows that organisation, subject titles, emphasis on teaching and research, etc., change with the passage of time.

May the senior members of the College staff advise you before making the final decision?
Recommended Price $3.00