THE UNIVERSITY OF SYDNEY

FACULTY OF PHARMACY
HANDBOOK 2011

Handbooks online: **sydney.edu.au/handbooks**

Acknowledgements

The Arms of the University

Sidere mens eadem mutato

Though the constellations change, the mind is universal

Official course information

Faculty handbooks and their respective online updates, along with the *University of Sydney Calendar*, form the official legal source of information relating to study at the University of Sydney. Please refer to the following websites:

sydney.edu.au/handbooks
sydney.edu.au/calendar

Amendments

All authorised amendments to this handbook can be found at sydney.edu.au/handbooks/handbooks_admin/updates2011

Resolutions

The Coursework Clause

Resolutions must be read in conjunction with the *University of Sydney (Coursework) Rule 2000 (as amended)*, which sets out the requirements for all undergraduate courses, and the relevant resolutions of the Senate.

The Research Clause

All postgraduate research courses must be read in conjunction with the relevant rules and resolutions of the Senate and Academic Board, including but not limited to:

1. The *University of Sydney (Amendment Act) Rule 1999 (as amended)*.
2. The *University of Sydney (Doctor of Philosophy (PhD)) Rule 2004*.
3. The resolutions of the Academic Board relating to the Examination Procedure for the Degree of Doctor of Philosophy.
4. The relevant faculty resolutions.

Disclaimers

1. The material in this handbook may contain references to persons who are deceased.
2. The information in this handbook was as accurate as possible at the time of printing. The University reserves the right to make changes to the information in this handbook, including prerequisites for units of study, as appropriate. Students should check with faculties for current, detailed information regarding units of study.

Price

The price of this handbook can be found on the back cover and is in Australian dollars. The price includes GST.

Handbook availability

Handbooks are available as a website, PDF download and print on demand. See the handbooks website at sydney.edu.au/handbooks for more information.

Production

Web and Print Production Website: sydney.edu.au/web_print

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Handbook enquiries

For any enquiries relating to the handbook, please email the handbook editors at wpp.info@sydney.edu.au

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Important dates

University semester and vacation dates for 2011

Summer/Winter School lectures	**Dates**
Summer School - December program	Begins: Monday 6 December 2010
Summer School - main program	Begins: Tuesday 4 January 2011
Summer School - late January program	Begins: Monday 17 January
Winter School - main program	Begins: Monday 27 June
Semester One	**Dates**
International student orientation (Semester One) - STABEX	Monday 14 February and Tuesday 15 February
International student orientation (Semester One) - full degree	Wednesday 16 February and Thursday 18 February
Lectures begin	Monday 28 February
AVCC Common Week/non-teaching Easter period	Friday 22 April to Friday 29 April
International application deadline (Semester Two) *	Thursday 29 April *
Last day of lectures	Friday 3 June
Study vacation	Monday 6 June to Friday 10 June
Examination period	Tuesday 14 June to Saturday 25 June
Semester ends	Saturday 25 June
AVCC Common Week/non-teaching period	Monday 4 July to Friday 8 July
Semester Two	**Dates**
International student orientation (Semester Two) - STABEX	Monday 18 July and Tuesday 19 July
International student orientation (Semester Two) - full degree	Wednesday 21 July and Thursday 22 July
Lectures begin	Monday 25 July
AVCC Common Week/non-teaching period	Monday 26 September to Friday 30 September
Last day of lectures	Friday 28 October
International application deadline (for Semester One, 2011) *	Saturday 29 October *
Study vacation	Monday 31 October to Friday 4 November
Examination period	Monday 7 November to Saturday 19 November
Semester ends	Saturday 19 November

* Except for the faculties of Dentistry, Medicine and the Master of Pharmacy course. See www.acer.edu.au for details.

Last dates for withdrawal or discontinuation for 2011

Semester One- units of study	**Dates**
Last day to add a unit	Friday 11 March
Last day for withdrawal	Thursday 31 March
Last day to discontinue without failure (DNF)	Friday 15 April
Last to discontinue (Discontinued - Fail)	Friday 3 June
Semester Two- units of study	**Dates**
Last day to add a unit	Friday 5 August
Last day for withdrawal	Wednesday 31 August
Last day to discontinue without failure (DNF)	Friday 9 September
Last day to discontinue (Discontinued - Fail)	Friday 28 October
Last day to withdraw from a non-standard unit of study	Census date of the unit, which cannot be earlier than 20 per cent of the way through the period of time during which the unit is undertaken.
Public holidays	**Dates**
Australia Day	Wednesday 26 January
Good Friday	Friday 22 April
Easter Monday	Tuesday 26 April
Anzac Day	Monday 25 April
Queen's Birthday	Monday 13 June
Labour Day	Monday 3 October

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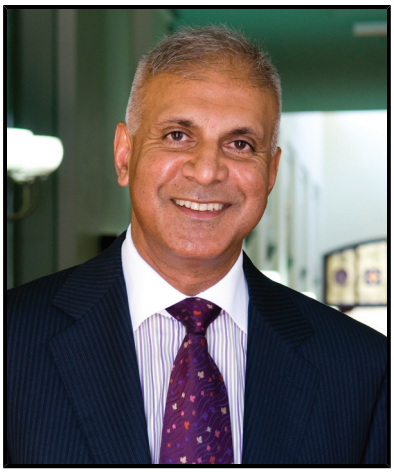
Welcome from the Dean



Welcome to the Faculty of Pharmacy at the University of Sydney. Our faculty has long been recognised as one of the leading centres for Pharmacy education in Australia and enjoys an outstanding national and international reputation for research and innovation.

Over 20% of the 1200 pharmacy students who graduate in Australia each year do so at the Faculty of Pharmacy. Students and staff at the faculty continually strive for excellence in their learning, teaching and research and the Faculty actively promotes opportunities to allow its students to add new skills and experiences to their personal achievements.

Our commitment at the Faculty is to provide our students with a well rounded and professionally relevant pharmacy degree, placing them in high demand with employers and preparing them for a lifetime of learning. We achieve this through an up-to-date teaching curriculum structured around themes and learning outcomes that describe the knowledge, skills and attitudinal milestones to be achieved by students each year. I would encourage all new students to engage fully in university and faculty life from the beginning of semester.

Student life in the Faculty of Pharmacy

As a student you will be taught by, and interact with, world-renowned academics. As well as being known as leaders in their field, they are highly regarded for their friendly approachable style. Outside of the classroom you will have access to a wealth of social, sporting and cultural activities provided by student organisations.

SUPA
The Sydney University Pharmacy Association (SUPA) also provides a range of academic, professional and social activities. SUPA representatives, elected by students, liaise with faculty staff to provide feedback on the student experience and input into the quality assurance process of the faculty.

Specialist programs

The Faculty offers a number of specialist programs designed to help students reach their full potential.

The ***Talented Students Program*** is offered to undergraduate students of superior academic ability, recognising their exceptional quality and enabling them to realise their full academic potential. Students are given the opportunity to experience a wide range of activities across all disciplines of the pharmacy profession. Each student is assigned an academic staff mentor who facilitates their involvement in their chosen pharmacy-related activities.

The innovative ***Blooms Business Skills Program*** is offered to students on a voluntary basis, teaching them business management skills in small seminar groups led by pharmacy owners, all highly successful in their field. The program is increasingly popular with students, especially those who are considering owning a pharmacy in the future.

Summer Vacation Placements provide students with valuable research experience. By gaining a greater understanding of the research process, students are given a preview of what further studies or a career in a research environment might involve.

The ***Industry Placements*** scheme provides 2nd and 3rd Year students with experience in the pharmaceutical industry. Successful applicants undertake work experience for 4 to 8 weeks within local pharmaceutical industries in the Sydney area during the summer vacation break.

Bachelor of Pharmacy curriculum

From 2011, final year Bachelor of Pharmacy students have the option to specialise in rural or industrial pharmacy or take the opportunity to do an international exchange. High achieving students are also offered an Honours option, which involves completion of a substantial research project.

Becoming a Pharmacist

The new Graduate Certificate in Pharmacy Practice offered by the Faculty incorporates an Internship Training Program (ITP). To be able to register as a pharmacist, all graduates must complete an ITP as well as 1824 hours of supervised practice in a hospital or community pharmacy.

Postgraduate coursework and research opportunities

The Faculty has a graduate entry ***Master of Pharmacy*** program designed for those who already have a non-pharmacy degree. This two year degree gives students the skills and knowledge equivalent to the Bachelor of Pharmacy and the opportunity to begin the registration process to becoming a pharmacist.

For those who want to pursue studies in herbal medicines, the faculty has a coursework program leading to a ***Master of Herbal Medicines*** (Graduate Certificate and Diploma qualifications are also available).

The Faculty also offers ***Doctor of Philosophy in Pharmacy*** for students who wish to focus on a research career or gain the ultimate academic qualification. A ***Master of Philosophy in Pharmacy*** is also available.

What can you achieve with a pharmacy degree?

If you enjoy science, health or medicine and want to make a long-lasting difference in people's lives then pharmacy is the career for you. Whether you choose to register as a pharmacist, work with the community or in hospital pharmacy, enter the pharmaceutical industry, work for government agencies, contribute to research and academia or specialise in pharmacy in remote and rural communities, you will have the expertise to help improve the health and well being of the nation.

I would like to wish all our students, new and continuing, every success in the coming year and I hope you have a stimulating, productive and rewarding 2011.

Iqbal Ramzan
Dean of the Faculty of Pharmacy

Senate and faculty resolutions

Resolutions of the Senate

1 Degrees, diplomas and certificates of the Faculty of Pharmacy

(1) With the exception of the Doctor of Philosophy, the Senate, by authority of the University of Sydney Act 1989 (as amended), provides and confers the following degrees, diplomas and certificates, according to the rules specified by the Faculty of Pharmacy. The Doctor of Philosophy is provided and conferred according to the rules specified by the Senate and the Academic Board.
(2) This list is amended with effect from 1 January, 2011. Degrees, diplomas and certificates no longer open for admission will be conferred by the Senate according to the rules specified by the Faculty at the time.

2 Degrees

Code	Course title	Abbreviation	Credit points
PB000	Doctor of Philosophy	PhD	Research
PC082	Master of Philosophy	MPhil(Pharm)	Research
PC034	Master of Pharmacy	MPharm	96
PC032	Master of Herbal Medicines*	MHerbMed	48
PH001	Bachelor of Pharmacy^	BPharm	192

**may be awarded with honours with 12 credit points of extra study.*
^may be awarded with honours in an integrated program.

3 Graduate diplomas

Code	Course title	Abbreviation	Credit points
PF002	Graduate Diploma in Herbal Medicines	GradDipHM	36

4 Graduate certificates

Code	Course title	Abbreviation	Credit points
PG000	Graduate Certificate in Herbal Medicines	GradCertHM	24
PG003	Graduate Certificate in Pharmacy Practice	GradCertPharmPrac	24

Resolutions of the Faculty of Pharmacy for coursework awards

These resolutions apply to all undergraduate and postgraduate coursework award courses in the Faculty, unless specifically indicated otherwise. Students enrolled in postgraduate research awards should consult the resolutions for their course.These resolutions must be read in conjunction with applicable University By-laws, Rules and policies including (but not limited to) the University of Sydney (Coursework) Rule 2000 (the 'Coursework Rule'), the resolutions for the course of enrolment, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended) and the Academic Board policies on Academic Dishonesty and Plagiarism.

Part 1: Course enrolment

1 Enrolment restrictions

Except with the permission from the Dean, a student may not enrol in units of study with a total value of more than 24 credit points in either semester one or two, 12 credit points in the summer session and 6 credit points in the winter session.

2 Time Limits

(1) A student must complete all the requirements for a master's degree within four calendar years of first enrolment.
(2) A student must complete all the requirements for a graduate diploma within four calendar years of first enrolment or six calendar years if enrolled part time.
(3) A student must complete all the requirements for a graduate certificate within two calendar years of first enrolment (except the Graduate Certificate in Pharmacy Practice which must be completed within five calendar years of first enrolment).
(4) A student must complete all the requirements for a bachelor's degree or undergraduate advanced diploma within ten calendar years of first enrolment.

3 Suspension, discontinuation and lapse of candidature

(1) A candidate who wishes to suspend their candidature must apply, in writing, to the Faculty. The application must be received by the Faculty prior to the census date of the relevant semester.
(2) A candidate may apply for a period of suspension for up to two semesters. Should a candidate wish to suspend their candidature for more than the approved period another application must be made to the Faculty prior to the census date of the relevant semester. If the candidate has previously had two semesters of suspension, or if an application is submitted after the census date for that period, the application will be considered by the Faculty.
(3) Where a candidate has previously enrolled for the relevant semester, a suspension of enrolment may be recorded as Withdrawn (W), Discontinued - Not to count as failure (DNF) or Discontinued with failure (DF).

Part 2: Unit of study enrolment

4 Cross institutional study

(1) Provided permission has been obtained in advance, the Dean may permit a student to complete a unit of study at another institution and have that unit credited to the student's course requirements, provided that:

(a) The unit of study content is not taught in any corresponding unit of study at the University; or
(b) The student is unable, for good reason, to attend a corresponding unit of study at the University.

(2) Cross institutional study is regarded as another form of credit and will be counted as such when considering eligibility.

5 International Exchange

Exchange for pharmacy students is not straightforward due to the strict requirements of the pharmacy courses. For students enrolled in the international major of the Bachelor of Pharmacy, international exchange is permitted in semester 2 of year 4.

Part 3: Studying and Assessment

6 Attendance

(1) Students are required to be in attendance at the correct time and place of any formal or informal examinations. Non attendance on any grounds insufficient to claim special consideration will result in the forfeiture of marks associated with the assessment. Participation in a minimum number of assessment items may be included in the requirements specified for a unit of study.
(2) Students are expected to attend a minimum of 85% of compulsory activities for a unit of study, unless granted exemption by the Dean, Associate Dean or coordinator. The Dean, Associate Dean or coordinator most concerned may determine that a student fails a unit of study because of inadequate attendance. Alternatively, at their discretion, they may set additional assessment items where attendance is lower than 90%.

7 Late submission policy

(1) It is expected that unless an application for special consideration has been approved, students will submit all assessment for a unit of study on the due date specified. If the assessment is completed or submitted within an approved period of extension, no academic penalty will be applied to that piece of assessment.
(2) If an extension is either not sought, not granted or is granted but work is submitted after the extended due date, the late submission of assessment will result in an academic penalty as follows:
    (a) For work submitted after the deadline but up to three calendar days late, a penalty of 15 per cent of the maximum mark awardable for the assignment will apply.
    (b) For work submitted after 3 days and less than one week after the deadline, a penalty of 30 per cent of the maximum mark awardable for the assignment will apply.
    (c) For work submitted more than one week late but less than two weeks after the deadline, a penalty of 50 per cent of the maximum mark awardable for the assignment will apply.
    (d) Work submitted more than two weeks after deadline will not be assessed (zero mark).

8 Special consideration for illness, injury or misadventure

Special consideration is a process that affords equal opportunity to students who have experienced circumstances that adversely impact their ability to adequately complete an assessment task in a unit of study. The Coursework Rule provides full details of the University policy. The procedures for applying for special consideration are described in each unit of study outline.

9 Concessional pass

In this Faculty the grade PCON is not awarded.

10 Re-assessment

(1) In this Faculty re-assessment is offered to students whose performance is in the prescribed range and circumstances.
(2) Re-assessment may be permitted if students in their final year fail a single compulsory assessment resulting in a grade of fail in only that unit of study, preventing them from completing the degree that year. A grade of 50 pass is the maximum grade a student can achieve if they pass the final year rule in the assessment.
(3) Students who have successfully requested special consideration may be allowed to sit the exam or submit the required work at a negotiated date that should not be longer than the period of incapacitation, and in any case normally not longer than 3 months after the original examination or submission date. After this time the student will be considered to have discontinued with permission. Marks will be awarded at full value for re-assessment where special consideration is approved.

Part 4: Progression, Results and Graduation

11 Satisfactory Progress

The Faculty will monitor students for satisfactory progress towards the completion of their award course. In addition to the common triggers used to identify students not meeting academic progression requirements, (as defined by the Progression requirements of the Coursework Rule), students must pass any unit of study identified in the course resolutions as being critical to progression through the course.

12 Weighted Average Mark (WAM)

(1) The University WAM is calculated using the following formula:

$$\text{WAM} = \frac{\text{sum(Wc x Mc)}}{\text{sum(Wc)}}$$

Where Wc is the unit of study credit points x the unit weighting and Mc is the mark achieved for the unit. The mark used for units with a grade AF is zero. Pass/ fail units and credited units from other institutions are not counted.

(2) The weight of a unit of study is assigned by the owning faculty. In the Faculty of Pharmacy, 1000, 2000, 3000 and 4000 level units attempted for the degree, weighted 1, 2, 3, 4 for the respective levels. Units with a result of R (satisfied requirement) are not counted.

Undergraduate degree requirements

Introduction

The Bachelor of Pharmacy is the only undergraduate degree offered at the Faculty of Pharmacy. The degree is a full-time, four year course with progression towards the degree by the accumulation of credit points. The degree may be awarded at the Pass or Honours level.

Results

The following mark ranges apply:

Abbrev	Grade	Mark
HD	High Distinction	85–100
D	Distinction	75–84
CR	Credit	65–74
P	Pass	50–64
R	Satisfied requirements	
F	Fail	Below 50
AF	Absent Fail	

Honours

The following Honours grades apply. A grade of Honours is determined by the HWAM and final mark in Honours units of study.

Grade		HWAM	Minimum average mark in Advanced units
H1M	First class Honours and University Medal	85	90
H1	First class Honours	75	85
H21	Second class Honours, Division 1	70	80
H22	Second class Honours, Division 2	65	75

Bachelor of Pharmacy

New curriculum

The new curriculum allows students to undertake the study of a Major in their final year of the program. Majors are offered in Rural Pharmacy, Industrial Pharmacy and International Exchange. These majors allow students to participate in a range of activities including extended placements in rural or industrial environments or to participate in an international exchange program.

Assumed knowledge

It should be noted that most of the first year units of study will be taught on the assumption that students have reached the standard of assumed knowledge specified in Table 1.

Prerequisites and corequisites

To be eligible to enrol in Second Year, Third Year and Fourth Year units of study, students must have completed the prerequisite unit(s) of study. Any corequisite unit(s) of study not previously completed must be taken concurrently (see Table 1).

Registration requirements for pharmacists

A student who intends to qualify to be registered as a pharmacist under the Pharmacy Act 1964 is first required to qualify for the degree of Bachelor of Pharmacy. In addition he/she is required to serve not less than 1824 hours as an assistant to a registered pharmacist in a pharmacy within the Commonwealth of Australia, at the same time as completing an Intern Training Program (ITP). This period must be served following the successful completion of the degree.

Further details concerning the requirements for registration can be obtained from the Pharmacy Board of Australia.

GPO Box 9958
Melbourne VIC 3001
Enquiries: 1300 419 495
Overseas callers: +61 7 3666 4911
Web: www.pharmacyboard.gov.au

Postal address:
AHPRA
GPO Box 9958
Sydney NSW 2001

Bachelor of Pharmacy

Bachelor of Pharmacy (Honours)

These resolutions must be read in conjunction with applicable University By-laws, Rules and policies including (but not limited to) the University of Sydney (Coursework) Rule 2000 (the 'Coursework Rule'), the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended) and the Academic Board policies on Academic Dishonesty and Plagiarism.

Course resolutions

1 Course codes

Code	Course title
PH001	Bachelor of Pharmacy

2 Attendance pattern

The attendance pattern for this course is full time only.

3 Admission to candidature

(1) Admission to undergraduate courses at the University of Sydney is either on the basis of completion of secondary study via the NSW Higher School Certificate, leading to the award of an Australian Tertiary Admission Ranking (ATAR) plus a satisfactory result in the STAT (Special Tertiary Admissions Test) or equivalent (and subject to special admissions provisions as set out in the Coursework Rule) .

(2) Rural Students Entry Scheme
Students who completed an Australian Year 12 examination in either of the two preceeding years, have no tertiary record, and have completed at least the last four years of secondary education at a rural school, may be eligible for admission under the Faculty of Pharmacy Rural Students Entry Scheme for study in the Bachelor of Pharmacy. Under this scheme, a limited number of places will be available to applicants whose ATAR is not more than five points below the Main Round ATAR cut-off.

4 Requirements for award

(1) The units of study that may be taken for the course are set out in Table 1.

(2) To qualify for the award of the pass degree, a candidate must successfully complete 192 credit points, including:
  (a) 144 core credit points in the first three years; and
  (b) an additional 48 credit points consisting of:
    (i) 48 credit points of core units of study; or
    (ii) 24 credit points of core units of study plus 24 credit points of major units of study.

5 Additional requirements prior to commencing clinical placements

(1) Information about the procedures for gaining clearance for clinical placements will be provided after enrolment.

(2) *Student clearance for clinical placements*
The New South Wales Department of Health requires that all students obtain clearance in order to undertake clinical placements. This involves a criminal record check according to NSW Health policy.

(3) *Prohibited employment declaration*
All students should complete a prohibited employment declaration as required by the NSW Commission for Children and Young People.

(4) *Immunisation*
All students must have evidence of vaccinations and immunisation against certain infectious diseases prior to undertaking clinical placements. The requirements are consistent with Australian public health policy and NSW Health guidelines.

6 Progression rules

(1) Candidates may not take a second year unit of study until they have:
  (a) gained credit for at least 24 credit points in first year units of study; and
  (b) successfully completed the first year units of study, prescribed by the Faculty as qualifying or prerequisite units of study for the second year, as set out in Table 1.

(2) Candidates may not take a third year unit of study until they have successfully completed all the first year units of study, and all the second year units of study prescribed as qualifying or prerequisite units of study for the third year, as set out in Table 1.

(3) Candidates may not take a fourth year unit of study until they have:
  (a) gained credit for at least 18 credit points derived from third year units of study; and
  (b) successfully completed all the third year units of study prescribed by the Faculty as qualifying or prerequisite units of study for the fourth year, as set out in Table 1.

(4) Candidates who fail one unit of study in the third year, and who have no previous record of failure in the degree, may apply for a prerequisite waiver which would allow enrolment in the full complement of subsequent year units of study, together with the failed unit of study.

7 Majors

(1) Completion of a major is not a requirement of the course. Candidates have the option of completing one major. A major requires the completion of 24 credit points chosen from units of study listed in the table for that major. The majors available are:
  (a) Rural
  (b) Industrial
  (c) International
  (d) Management

8 Requirements for the Honours degree

(1) Honours is available to meritorious candidates who complete an alternative set of units of study in the final year of the program. Admission to the honours program is by permission of the program coordinator after the completion of third year.

(2) Admission requires:
  (a) candidates to normally be of no more than three years standing, and normally have no fail or absent fail results; and
  (b) a WAM of at least 65 in year two and three units of study.

(3) Honours students can progress to second semester Honours only if they obtain a credit average in their first semester marks. Students who fail this requirement will go back to the Pass stream, fourth year second semester.

(4) To qualify for the award of the honours degree a candidate must:
  (a) complete the requirements for the pass degree but include the alternative 30 credit point honours pathway described in the table of units for the degree; and
  (b) normally be of no more than four years standing in the degree;
  (c) normally have no fail or absent fail results.

(5) The grade of honours will be determined by HWAM and is awarded with the following grades:

Level of honours	Honours mark	HWAM
First Class	mark >= 85	HWAM >= 75
Second Class, Division 1	mark >= 80	70 <= HWAM < 75
Second Class, Division 2	mark >= 75	65 <= HWAM < 70

Level of honours	Honours mark	HWAM
Honours not awarded	mark < 75	HWAM < 65

Candidates not meeting these criteria will be awarded the pass degree.

(6) HWAM means the Honours Weighted Average Mark calculated from results for all 2000, 3000 and 4000 level units attempted for the degree, weighted 2, 3 and 4 for the respective levels. The Honours units of study are given a weighting of 8 in this calculation.

$$WAM = \frac{sum(M \times C \times L)}{sum(C \times L)}$$

Where M is the mark, C is the credit point value, and L is the level or weighting or level of the unit of study.

9 University Medal

A student must obtain a WAM of 85 or greater over the entire degree, and must achieve minimum final honours mark of 90 or greater in two honours units of study - Research Methods and Honours. The medal is awarded at the discretion of the Faculty to the highest achieving students who in the opinion of the Faculty have an outstanding academic record, in accordance with the Coursework Rule.

10 Transitional provisions

(1) These resolutions apply to students who commenced their candidature after 1 January, 2008 and students who commenced their candidature prior to 1 January, 2008 who elect to proceed under these resolutions.

(2) Candidates who commenced prior to 1 January, 2008 may complete the requirements in accordance with the resolutions in force at the time of their commencement, provided that the requirements are completed by 1 January, 2013. The Faculty may specify a later date for completion or specify alternative requirements for completion of candidatures that extend beyond this time.

Undergraduate units of study

Table 1: Bachelor of Pharmacy pass degree, honours degree and majors

Unit of study	*Credit points*	*A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition*	*Session*
First Year			
BIOL1003 **Human Biology**	6	**A** HSC 2-unit Biology. Semester 1 students who have not completed HSC biology (or equivalent) are strongly advised to take the Biology Bridging Course (in February). **N** BIOL1903 *It is recommended that BIOL (1001 or 1911) be taken concurrently with this unit of study.*	Semester 1 Summer Main
CHEM1611 **Chemistry A (Pharmacy)**	6	**A** HSC Chemistry and Mathematics *Note: Department permission required for enrolment*	Semester 1
PHAR1811 **Foundations of Pharmacy**	6	**A** HSC Chemistry	Semester 1
PHAR1812 **Basic Pharmaceutical Sciences**	6	**A** HSC Chemistry **C** PHAR1811, CHEM1611	Semester 1
CHEM1612 **Chemistry B (Pharmacy)**	6	**C** CHEM1611 Chemistry A (Pharmacy) *Note: Department permission required for enrolment*	Semester 2
MBLG1001 **Molecular Biology and Genetics (Intro)**	6	**A** 6 credit points of Junior Biology and 6 cp of Junior Chemistry **N** AGCH2001, BCHM2001, BCHM2101, BCHM2901, MBLG2101, MBLG2901, MBLG2001, MBLG2111, MBLG2771, MBLG2871, MBLG1901	Semester 2
PHAR1821 **Social Pharmacy**	6	**C** PHAR1811	Semester 2
PHAR1822 **Physical Pharmaceutics and Formulation A**	6	**A** HSC Chemistry and Mathematics **C** PHAR1812	Semester 2
Second Year			
PHAR2811 **Drug Discovery and Design A**	6	**P** CHEM1611, CHEM1612, PHAR1811, PHAR1812, MBLG1001 **C** PHSI2601	Semester 1
PHAR2812 **Microbiology and Infection**	6	**P** BIOL1003, PHAR1811, PHAR1812, MBLG1001	Semester 1
PHAR2813 **Therapeutic Principles**	6	**P** CHEM1611, CHEM1612, BIOL1003, MBLG1001, PHAR1812, PHAR1822 **C** PHSI2601	Semester 1
PHSI2601 **Physiology for Pharmacy**	6	**P** CHEM1611 and CHEM1612 and (BIOL1001 or BIOL1101 or BIOL1901 or BIOL1003 or BIOL1903) and MBLG1001	Semester 1
PCOL2605 **Pharmacology for Pharmacy**	6	**P** CHEM1611 and CHEM1612 and (BIOL1003 or BIOL1903) and MBLG1001 **C** PHSI2601	Semester 2
PHAR2821 **Drug Discovery and Design B**	6	**C** PHAR2811 and PCOL2605	Semester 2
PHAR2822 **Pharmacy Practice**	6	**P** PHAR1811 and PHAR1821 **C** PHSI2601 and PCOL2605	Semester 2
PHAR2823 **Physical Pharmaceutics and Formulation B**	6	**P** CHEM1611, CHEM1612, PHAR1812, PHAR1822 **C** PHAR2812	Semester 2
Third Year			
PHAR3811 **Cardiovascular and Renal**	6	**P** All first and second year units of study. **C** PHAR3812, PHAR3813, PHAR3814	Semester 1a
PHAR3812 **Respiratory**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3813, PHAR3814	Semester 1a
PHAR3813 **Endocrine, Diabetes and Reproductive**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3812, PHAR3814	Semester 1b
PHAR3814 **Gastrointestinal**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3812, PHAR3813	Semester 1b
PHAR3821 **Mental Health**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3822, PHAR3823, PHAR3824	Semester 2a
PHAR3822 **Neurology**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3821, PHAR3823, PHAR3824	Semester 2a
PHAR3823 **Musculoskeletal, Dermatological & Senses**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3821, PHAR3822, PHAR3824	Semester 2b
PHAR3824 **Oncology and Immunology**	6	**P** All first and second year units of study. **C** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3821, PHAR3822, PHAR3823	Semester 2b
Fourth Year			
PHAR4811 **Pharmacotherapeutics**	6	**P** All third year units of study. **C** PHAR4812, PHAR4813, PHAR4814	Semester 1
PHAR4812 **Integrated Dispensing Practice**	6	**P** All third year units of study. **C** PHAR4811, PHAR4813, PHAR4814	Semester 1
PHAR4813 **Novel Therapeutics**	6	**P** All third year units of study **C** PHAR4811, PHAR4812	Semester 1
PHAR4814 **Pharmacy Management I**	6	**P** All third year units of study **C** PHAR4811, PHAR4812, PHAR4813	Semester 1
PHAR4821 **Professional Practice**	12	**P** PHAR4811 **C** PHAR4822, PHAR4823	Semester 2

Unit of study	*Credit points*	*A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition*	*Session*
PHAR4822 **Clinical Placement**	6	**P** PHAR4811 **C** PHAR4821, PHAR4823	Semester 2
PHAR4823 **Pharmacy Services and Public Health**	6	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **C** PHAR4821, PHAR4822	Semester 2
Fourth Year Honours			
PHAR4811 **Pharmacotherapeutics**	6	**P** All third year units of study. **C** PHAR4812, PHAR4813, PHAR4814	Semester 1
PHAR4812 **Integrated Dispensing Practice**	6	**P** All third year units of study. **C** PHAR4811, PHAR4813, PHAR4814	Semester 1
PHAR4813 **Novel Therapeutics**	6	**P** All third year units of study **C** PHAR4811, PHAR4812	Semester 1
PHAR4815 **Research Methods**	6	**P** All third year units of study. **C** PHAR4811, PHAR4812, PHAR4813 *Note: Department permission required for enrolment*	Semester 1
PHAR4830 **Honours**	24	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4815 *Note: Department permission required for enrolment*	Semester 2
Fourth Year Rural Major			
PHAR4811 **Pharmacotherapeutics**	6	**P** All third year units of study. **C** PHAR4812, PHAR4813, PHAR4814	Semester 1
PHAR4812 **Integrated Dispensing Practice**	6	**P** All third year units of study. **C** PHAR4811, PHAR4813, PHAR4814	Semester 1
PHAR4813 **Novel Therapeutics**	6	**P** All third year units of study **C** PHAR4811, PHAR4812	Semester 1
PHAR4814 **Pharmacy Management I**	6	**P** All third year units of study **C** PHAR4811, PHAR4812, PHAR4813	Semester 1
PHAR4824 **Aboriginal and Rural Health**	12	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **C** PHAR4825, PHAR4826 *Note: Department permission required for enrolment*	Semester 2
PHAR4825 **Rural Clinical Placement**	6	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **C** PHAR4824, PHAR4826 *Note: Department permission required for enrolment*	Semester 2
PHAR4826 **Rural Pharmacy Services & Public Health**	6	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **C** PHAR4824, PHAR4825 *Note: Department permission required for enrolment*	Semester 2
Fourth Year International Major			
PHAR4811 **Pharmacotherapeutics**	6	**P** All third year units of study. **C** PHAR4812, PHAR4813, PHAR4814	Semester 1
PHAR4812 **Integrated Dispensing Practice**	6	**P** All third year units of study. **C** PHAR4811, PHAR4813, PHAR4814	Semester 1
PHAR4813 **Novel Therapeutics**	6	**P** All third year units of study **C** PHAR4811, PHAR4812	Semester 1
PHAR4814 **Pharmacy Management I**	6	**P** All third year units of study **C** PHAR4811, PHAR4812, PHAR4813	Semester 1
PHAR4832 **Pharmacy International Exchange**	24	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4814 *Note: Department permission required for enrolment*	Semester 2
Fourth Year Industrial Major			
PHAR4811 **Pharmacotherapeutics**	6	**P** All third year units of study. **C** PHAR4812, PHAR4813, PHAR4814	Semester 1
PHAR4812 **Integrated Dispensing Practice**	6	**P** All third year units of study. **C** PHAR4811, PHAR4813, PHAR4814	Semester 1
PHAR4813 **Novel Therapeutics**	6	**P** All third year units of study **C** PHAR4811, PHAR4812	Semester 1
PHAR4814 **Pharmacy Management I**	6	**P** All third year units of study **C** PHAR4811, PHAR4812, PHAR4813	Semester 1
PHAR4831 **Pharmacy Industrial Placement**	24	**P** PHAR4811, PHAR4812, PHAR4813, PHAR4814 *Note: Department permission required for enrolment*	Semester 2

Units of study

First Year

BIOL1003
Human Biology

Credit points: 6 **Session:** Semester 1, Summer Main **Prohibitions:** BIOL1903
Assumed knowledge: HSC 2-unit Biology. Semester 1 students who have not completed HSC biology (or equivalent) are strongly advised to take the Biology Bridging Course (in February).

Note: It is recommended that BIOL (1001 or 1911) be taken concurrently with this unit of study.

This Unit of Study has four main components: lectures, practicals, workshops and HBOnline activities. The unit of study provides an introduction to human evolution and ecology, cell biology, physiology and anatomy, through lectures and practical work. The unit of study includes human nutrition, distribution of essential requirements to and from cells, control of body functions and defence mechanisms. After discussion of reproduction and development, it concludes with modern studies and research prospects in biotechnology and human genetics.

This unit of study, together with BIOL (1001 or 1911 or 1002 or 1902), or MBLG (1001 or 1901), provides entry to Intermediate units of study in Biology, but the contents of BIOL (1002 or 1902) is assumed knowledge for BIOL (2011 or 2012) and PLNT 2003, and students

entering these units with BIOL (1003 or 1903) will need to do some preparatory reading.

CHEM1611
Chemistry A (Pharmacy)

Credit points: 6 **Session:** Semester 1 **Assumed knowledge:** HSC Chemistry and Mathematics

Note: Department permission required for enrolment.

Chemistry provides the basis for understanding molecular structures and processes, essential knowledge for many later year Pharmacy units of study. Lecture topics include some fundamental concepts, atomic theory, states and properties of matter, equations and stoichiometry, introduction to organic chemistry, nomenclature, aliphatic chemistry, aromatic chemistry, heterocyclic compounds, isomerism, stereoisomerism, reaction mechanisms, biomolecules, amino acids and peptides, carbohydrates, general acid-base theory, atomic structure, chemical bonding. Practical work is designed to enhance confidence and develop skills in the handling and manipulation of chemicals and in the observation and processing of experimental results.

Special preparative studies: Students wishing to enrol in CHEM1611 who do not have the assumed chemical knowledge are advised to consult the School of Chemistry for information about a bridging course.

PHAR1811
Foundations of Pharmacy

Credit points: 6 **Session:** Semester 1 **Assumed knowledge:** HSC Chemistry

Foundations of Pharmacy is a broad introduction to the discipline of pharmacy and the roles that pharmacists play in health care as well as the ideas, issues, skills and knowledge base required of a professional pharmacist. A number of topics are introduced but not covered in depth; they will be further developed in subsequent units of study and later years of the degree. Specific skills in research, critical thinking, writing and presenting are developed in the context of activities designed to orient students to their future profession. The intent is that students begin to think and behave as future members of the profession of pharmacy, and reflect upon the attitudes and beliefs that will shape their practice.

PHAR1812
Basic Pharmaceutical Sciences

Credit points: 6 **Session:** Semester 1 **Corequisites:** PHAR1811, CHEM1611 **Assumed knowledge:** HSC Chemistry

Basic Pharmaceutical Sciences provides an introduction to principles which will be expanded and applied in later years. This unit is concerned with several aspects of pharmaceutical chemistry and pharmaceutics discipline. The physicochemical properties of drugs are explored from the perspective of pharmacy as they complement perspectives gained from chemistry. Further modules provide introduction to solubility characteristics of drug molecules, dosage forms, drug discovery and fundamental mathematics. Small group work in workshop sessions will complement and support the learning of material introduced in lectures.

CHEM1612
Chemistry B (Pharmacy)

Credit points: 6 **Session:** Semester 2 **Corequisites:** CHEM1611 Chemistry A (Pharmacy)

Note: Department permission required for enrolment.

Chemistry provides the basis for understanding molecular structures and processes, essential knowledge for many later year Pharmacy units of study.Lecture topics include redox reactions, electrochemistry, introduction to colloids and surface chemistry, the biological periodic table, radiochemistry, chemical energetics, equilibrium theory, solution theory. Practical work is designed to enhance confidence and develop skills in the handling and manipulation of chemicals and in the observation and processing of experimental results.

MBLG1001
Molecular Biology and Genetics (Intro)

Credit points: 6 **Session:** Semester 2 **Prohibitions:** AGCH2001, BCHM2001, BCHM2101, BCHM2901, MBLG2101, MBLG2901, MBLG2001, MBLG2111, MBLG2771, MBLG2871, MBLG1901 **Assumed knowledge:** 6 credit points of Junior Biology and 6 cp of Junior Chemistry

The lectures in this unit of study introduce the "Central Dogma" of molecular biology and genetics -i.e., the molecular basis of life. The course begins with the information macromolecules in living cells: DNA, RNA and protein, and explores how their structures allow them to fulfill their various biological roles. This is followed by a review of how DNA is organised into genes leading to discussion of replication and gene expression (transcription and translation). The unit concludes with an introduction to the techniques of molecular biology and, in particular, how these techniques have led to an explosion of interest and research in Molecular Biology. The practical component complements the lectures by exposing students to experiments which explore the measurement of enzyme activity, the isolation of DNA and the 'cutting' of DNA using restriction enzymes. However, a key aim of the practicals is to give students higher level generic skills in computing, communication, criticism, data analysis/evaluation and experimental design.

PHAR1821
Social Pharmacy

Credit points: 6 **Session:** Semester 2 **Corequisites:** PHAR1811

This unit of study consists of three streams: Social Pharmacy, which is designed to provide a broad perspective of health and illness, and encourage a view of the patient as a whole person. Topics include self-regulation, pain, chronic illness and support networks. The emphasis will be on the psychosocial processes that underpin patient behaviour. Teamwork, which introduces students to the concept of teamwork and its relevance to the health care setting. Students will play an active role in a team based project incorporating analysis of team processes. Academic Writing Skills, which provides instruction and support for developing skills for academic writing and critiquing.

PHAR1822
Physical Pharmaceutics and Formulation A

Credit points: 6 **Session:** Semester 2 **Corequisites:** PHAR1812 **Assumed knowledge:** HSC Chemistry and Mathematics

This unit of study aims to facilitate an understanding of the physicochemical principles, design, formulation, manufacture and evaluation of pharmaceutical dose forms. The unit starts with an introduction to different dose forms and the importance of route of administration. The formulation of liquid dose forms including parenteral, nasal, ophthalmic and aural products is discussed. Related topics such as diffusion and dissolution of drugs, drug solubilisation, surface and interfacial tension, surface active materials, micelle formation, pharmaceutical complexes and drug-packaging interactions will be covered. Fundamentals of the stability of pharmaceuticals are also presented in this unit. This unit of study also includes mathematical tools required for other units of study.

Second Year

PHAR2811
Drug Discovery and Design A

Credit points: 6 **Session:** Semester 1 **Prerequisites:** CHEM1611, CHEM1612, PHAR1811, PHAR1812, MBLG1001 **Corequisites:** PHSI2601

This unit of study aims to provide the background to the study of drugs and the important interactions of drugs and their targets. Learning about the molecular bases of such interactions requires discussions of the fundamental macromolecules of life: DNA, RNA and proteins and processes as replication, transcription and translation. The course therefore also covers the fundamental mechanisms of the regulation of targets, as well as fundamental molecular interactions important for both detection and diagnostic applications for drugs and metabolites. Fuel metabolism and storage is considered, including

metabolic adaptation and disorders of metabolism. Students get experience with a variety of practical techniques to assist learning in the course.

PHAR2812
Microbiology and Infection

Credit points: 6 **Session:** Semester 1 **Prerequisites:** BIOL1003, PHAR1811, PHAR1812, MBLG1001

This unit of study provides information on the biology of micro-organisms with particular reference to the importance of micro-organisms in pharmacy and the pharmaceutical sciences. The unit also involves the application of basic microbiological principles to the production of clean and sterile pharmaceutical products in both community and hospital pharmacy, and in industrial manufacture. Topics include the comparison of the structure, function and importance of the major groups of micro-organisms; pathogenicity and epidemiology of infectious diseases (e.g., HIV); infection control measures and principles underlying treatment of infectious diseases; mechanisms of action, characteristics, and types of antibiotics and synthetic antimicrobial agents; antibiotic resistance; principles and methods of sterilisation, aspects of disinfection and preservation; concepts of good manufacturing practice and aseptic techniques. The practical component is illustrative of the lectures and focuses on techniques of handling microbial culture and identifying micro-organisms; factors affecting the microbial growth; transmission of diseases and host defence mechanisms; basic aseptic microbiological technique applicable to pharmaceutical sciences; and evaluation of different antimicrobial agents.

PHAR2813
Therapeutic Principles

Credit points: 6 **Session:** Semester 1 **Prerequisites:** CHEM1611, CHEM1612, BIOL1003, MBLG1001, PHAR1812, PHAR1822 **Corequisites:** PHSI2601

This unit of study is intended to provide knowledge in a number of fundamental areas that guide and provide evidence to support the safe, effective and ethical use of medicines. These fundamental areas of knowledge start with an understanding of the relationship between drugs interacting with target sites in the body and the effect produced (i.e. pharmacodynamic principles) and understanding the physiological and physicochemical factors that govern the movement of drugs around the body and the time course of exposure of body tissues and blood to drugs (i.e. pharmacokinetics). These principles involve developing concepts and models to explain drug activity in patients and to guide appropriate drug dosage selection. To support this, relevant mathematical principles involving calculus are introduced during this unit of study.

This unit will also explore reasons behind variability in response to medicines among different individuals. The effects of disease, other drugs, demographics and the genetic basis for variable response will be introduced. Basic pharmacogenetic principles for explaining and predicting pharmacodynamic and pharmacokinetic variability in response will be explored.

Students are also exposed to the notion that medicines may produce adverse effects (as well as beneficial ones). The mechanisms underlying adverse reactions to drugs and how these are classified are explored as are the principles for detecting and avoiding these effects.

Ultimately, many options often exist to manage illness. While the fundamental principles described above assist in understanding how individual drugs should be used, they do not alone provide knowledge to select among alternative options. This unit will introduce students to methods that are used to provide evidence of efficacy and safety of different therapeutic options and to define the place in therapy of these options. To do this, the principles that underpin evidence based medicine (including the clinical trial and pharmacoepidemiology) and the notion of levels of evidence are introduced. Exposure to these principles is intended to develop in students a basic understanding of how to critically evaluate therapeutic options. The evaluation of therapeutic options requires an understanding of statistical methods, which are also introduced during this unit of study.

PHSI2601
Physiology for Pharmacy

Credit points: 6 **Session:** Semester 1 **Prerequisites:** CHEM1611 and CHEM1612 and (BIOL1001 or BIOL1101 or BIOL1901 or BIOL1003 or BIOL1903) and MBLG1001

Physiology for Pharmacy provides a broad basic knowledge of human structure and function. Topics covered include studies of nerve and muscle physiology, and movement and consciousness. It also covers human endocrine hormones, reproduction, blood, heart and circulation, fluid regulation and electrolyte balance, the skin, sensory perception, gastro-intestinal function and respiration.

PCOL2605
Pharmacology for Pharmacy

Credit points: 6 **Session:** Semester 2 **Prerequisites:** CHEM1611 and CHEM1612 and (BIOL1003 or BIOL1903) and MBLG1001 **Corequisites:** PHSI2601

This unit of study provides a basic understanding of drug actions related to physiological and pathological functions. It covers areas of drug-receptor interactions, pharmacodynamics and drug treatment of various physiological systems (e.g. autonomic nervous system, cardiovascular, respiratory and endocrine), management of pain and complementary drug therapy.

PHAR2821
Drug Discovery and Design B

Credit points: 6 **Session:** Semester 2 **Corequisites:** PHAR2811 and PCOL2605

This unit of study covers drug design; physicochemical properties of drugs and how this determines the interactions of small molecules (drugs) with biological macromolecules (enzymes and receptors). All stages in the process of drug design and development will be investigated, including computational drug design and the required mathematics for computation and statistical treatment; role of stereochemistry in drug action, structure-activity relationships and molecular modelling; drug metabolism, bioactivation and inactivation; advanced analytical methods for the identification of drugs, their metabolites and degradation products; sources of drugs; discovery of new small molecules as leads for drug development. Workshops consist of the Stereochemistry/Ligand-Based Drug Design molecular modelling workshop, drug action workshop and drug metabolism problem-based learning workshop.

PHAR2822
Pharmacy Practice

Credit points: 6 **Session:** Semester 2 **Prerequisites:** PHAR1811 and PHAR1821 **Corequisites:** PHSI2601 and PCOL2605

This unit of study is an introduction to Pharmacy Practice. It focuses on disease and the delivery of health care by the pharmacist. It will build on knowledge acquired in Physiology and Pharmacology and aims to develop knowledge and skills around common acute and chronic conditions, with a particular focus on elements of health care delivery that are unique to the pharmacist, within the health care environment. Different models of health care will be used to demonstrate effective health strategies.

PHAR2823
Physical Pharmaceutics and Formulation B

Credit points: 6 **Session:** Semester 2 **Prerequisites:** CHEM1611, CHEM1612, PHAR1812, PHAR1822 **Corequisites:** PHAR2812

This unit of study builds on the material presented in Physical Pharmaceutics and Formulation A. The topics covered in this unit include: solid dose forms and particle science, rheology; dispersion dose forms including suspensions, colloidal dispersions, and emulsions; topical dose forms and semisolids; inhalation pharmaceutical aerosols; protein and peptide drugs and formulations;

rectal products and novel drug delivery technologies. Aspects pertaining to the stability of dose forms are also presented in this unit. Practical activities relate to the preparation, quality control and quality assurance of a marketed solid dosage form.

Third Year

PHAR3811
Cardiovascular and Renal

Credit points: 6 **Session:** Semester 1a **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3812, PHAR3813, PHAR3814

This unit of study will cover the therapeutics of cardiovascular and renal disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of cardiovascular and renal disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with cardiovascular and renal disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3812
Respiratory

Credit points: 6 **Session:** Semester 1a **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3813, PHAR3814

This unit of study will cover the therapeutics of respiratory disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of respiratory disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with respiratory disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3813
Endocrine, Diabetes and Reproductive

Credit points: 6 **Session:** Semester 1b **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3812, PHAR3814

This unit of study will cover the therapeutics of endocrine, diabetes and reproductive disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of endocrine, diabetes and reproductive disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with endocrine, diabetes and reproductive disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3814
Gastrointestinal

Credit points: 6 **Session:** Semester 1b **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3812, PHAR3813

This unit of study will cover the therapeutics of gastrointestinal disorders including the pharmaceutical sciences that underpin such drug therapies.This unit will also include the epidemiology, pathophysiology and clinical features of gastrointestinal disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with gastrointestinal disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3821
Mental Health

Credit points: 6 **Session:** Semester 2a **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3822, PHAR3823, PHAR3824

This unit of study will cover the therapeutics of mental health disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of mental health disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with mental health disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3822
Neurology

Credit points: 6 **Session:** Semester 2a **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3821, PHAR3823, PHAR3824

This unit of study will cover the therapeutics of neurological disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of neurological disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with neurological disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3823
Musculoskeletal, Dermatological & Senses

Credit points: 6 **Session:** Semester 2b **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3821, PHAR3822, PHAR3824

This unit of study will cover the therapeutics of musculoskeletal, dermatological and special senses including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of musculoskeletal, dermatological and special senses disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with musculoskeletal, dermatological and special senses disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

PHAR3824
Oncology and Immunology

Credit points: 6 **Session:** Semester 2b **Prerequisites:** All first and second year units of study. **Corequisites:** PHAR3811, PHAR3812, PHAR3813, PHAR3814, PHAR3821, PHAR3822, PHAR3823

This unit of study will cover the therapeutics of oncology and immunology including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of oncology and immunology disorders. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. On completion of this unit of study students will be able to apply an understanding of the pharmaceutical sciences to optimising the drug and non-drug therapy of patients with oncology and immunology disorders. Interprofessional communication and the application of specialist knowledge to implementing pharmacist cognitive services such as clinical interventions and/or medication management review will also be explored. Students will become familiar with drug information software and a number of computerised drug information databases. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals).

This unit of study is parallel to the practical components including laboratory classes and experiential placements.

Fourth Year

PHAR4811
Pharmacotherapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4812, PHAR4813, PHAR4814

This unit of study will focus on developing learners' understanding of the use of medicines and related appropriate health measures in special patient populations (e.g. paediatrics). This unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, learners will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help learners explore information sources for drug use and integrate knowledge of clinical indices, laboratory data, medication use history and demographic information to optimise drug therapy in response to the needs of individual patients. Learners will gain 'hands-on' practice in the provision of patient-specific medicine use education and explore key issues concerning the maintenance of vigilance for medicines use specific to certain population groups.

PHAR4812
Integrated Dispensing Practice

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4811, PHAR4813, PHAR4814

Integrated Dispensing Practice links together the skills and knowledge that students have developed in Dispensing and Pharmacy Practice in second and third years, and will be developing in fourth year. The emphasis is on clinical practice and develops the theme that dispensing is not a single event but a process which draws on skills and knowledge from a variety of areas of pharmacy practice, including communication with the patient and prescriber. This is achieved using a simulated practice environment in which students learn to integrate the skills they have developed in dose form preparation with their clinical skills, forensic and administrative requirements (including the use of computer-based dispensing programs), as well as the professional aspects of pharmacy in delivering a patient-centred care.

PHAR4813
Novel Therapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812

This unit of study aims to expose students to emerging therapeutic and diagnostic biotechnologies. This unit expands on second and third year pharmaceutical science units of study by exploring novel and developing biotechnologies, such as gene therapy, vaccines, DNA arrays, cell therapies, novel diagnostic methods, new drug targets and drugs/therapies as well as clinical development processes. Sources of information for new biotechnology developments will be explored and practical exercises in interpreting and translating this information to patients and other health professionals will be provided. This unit of study will foster necessary skills to prepare pharmacists for their evolving roles associated with the choice, application and monitoring of new biotherapies. The exercises are designed to support the development of generic collaborative skills necessary for project work, such as planning and project management, conflict resolution and written and oral communication skills.

PHAR4814
Pharmacy Management I

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812, PHAR4813

This unit of study focuses on the business skills necessary to manage either a community or hospital pharmacy. It focuses on three specific essential topics; accounting and financial management, human resource management and marketing. Material in each topic is managerially relevant and applied to the pharmacy context.

PHAR4821
Professional Practice

Credit points: 12 **Session:** Semester 2 **Prerequisites:** PHAR4811 **Corequisites:** PHAR4822, PHAR4823

This unit of study should consolidate previous units from year one to semester 1 of year four of the curriculum, through the presentation and solving of clinical and ethical problems. It continues a focus on knowledge consolidation, therapeutics, application of knowledge, and disease state management within a self-directed learning environment (problem based learning). The unit consists of lectures, hands-on workshop sessions, on-line learning and problem-based tutorial classes.

PHAR4822
Clinical Placement

Credit points: 6 **Session:** Semester 2 **Prerequisites:** PHAR4811 **Corequisites:** PHAR4821, PHAR4823

This unit of study is entirely comprised of clinical and experiential placements. These placements will be undertaken in settings of professional practice - in community pharmacies, hospital pharmacies and clinics and other professional organisation sites. The placements may include rural as well as metropolitan sites, and involve the public and private health sector. Students will complete portfolio tasks, relevant to the practice setting. These include practice skills development, including oral and written communication skills. A reflective diary will be included in the portfolio and assessment. This unit of study provides the opportunity for students to apply and consolidate their knowledge within the context of their practice placement setting.

PHAR4823
Pharmacy Services and Public Health

Credit points: 6 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **Corequisites:** PHAR4821, PHAR4822

This unit of study will focus on developing students' understanding the public health system, the role of pharmacy within the public-health context, health policy and regulation affecting the functioning of pharmacy and the use of pharmaceuticals in Australia. We will develop students' skills in how to identify, access and interpret relevant policy, regulatory and public-health literature and information sources. Topics which underpin the understanding of public health including, pharmaco-epidemiology and pharmacoeconomics, will also be addressed.

Through workshops and assignments, students will be given the opportunity to integrate their learning by exploring case studies. Students will apply their knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

Fourth Year Honours

PHAR4811
Pharmacotherapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4812, PHAR4813, PHAR4814

This unit of study will focus on developing learners' understanding of the use of medicines and related appropriate health measures in special patient populations (e.g. paediatrics). This unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, learners will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help learners explore information sources for drug use and integrate knowledge of clinical indices, laboratory data, medication use history and demographic information to optimise drug therapy in response to the needs of individual patients. Learners will gain 'hands-on' practice in the provision of patient-specific medicine use education and explore key issues concerning the maintenance of vigilance for medicines use specific to certain population groups.

PHAR4812
Integrated Dispensing Practice

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4811, PHAR4813, PHAR4814

Integrated Dispensing Practice links together the skills and knowledge that students have developed in Dispensing and Pharmacy Practice in second and third years, and will be developing in fourth year. The emphasis is on clinical practice and develops the theme that dispensing is not a single event but a process which draws on skills and knowledge from a variety of areas of pharmacy practice, including communication with the patient and prescriber. This is achieved using a simulated practice environment in which students learn to integrate the skills they have developed in dose form preparation with their clinical skills, forensic and administrative requirements (including the use of computer-based dispensing programs), as well as the professional aspects of pharmacy in delivering a patient-centred care.

PHAR4813
Novel Therapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812

This unit of study aims to expose students to emerging therapeutic and diagnostic biotechnologies. This unit expands on second and third year pharmaceutical science units of study by exploring novel and developing biotechnologies, such as gene therapy, vaccines, DNA arrays, cell therapies, novel diagnostic methods, new drug targets and drugs/therapies as well as clinical development processes. Sources of information for new biotechnology developments will be explored and practical exercises in interpreting and translating this information to patients and other health professionals will be provided. This unit of study will foster necessary skills to prepare pharmacists for their evolving roles associated with the choice, application and monitoring of new biotherapies. The exercises are designed to support the development of generic collaborative skills necessary for project work, such as planning and project management, conflict resolution and written and oral communication skills.

PHAR4815
Research Methods

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4811, PHAR4812, PHAR4813

Note: Department permission required for enrolment.

Research Methods is a component of the Honours elective, and is designed to extend students' knowledge and skills in research methods and problem solving, as well as oral and written scientific communication. The workshop and seminar series in the unit will equip students with the advanced research skills needed for their research projects. Research projects will be commenced in Semester 1 and completed in Semester 2 under the direct supervision of an academic staff member.

PHAR4830
Honours

Credit points: 24 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4815

Note: Department permission required for enrolment.

This unit of study is designed to extend the Pharmacy undergraduate's knowledge and skills in research practice and problem solving, and written and oral scientific communication acquired in PHAR4815. Honours provides an important basis for those who may wish to branch into specialised areas and will be particularly useful for those seeking

employment in industry, government, hospital laboratories, research institutions and also for those considering continuation to postgraduate studies.

The workshop/tutorial/seminar component of the course will assist in the development of advanced research skills and will complement the research project. A final research presentation and report describing research results and conclusions is to be conducted at the end of the semester.

Fourth Year Rural Major

PHAR4811
Pharmacotherapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4812, PHAR4813, PHAR4814

This unit of study will focus on developing learners' understanding of the use of medicines and related appropriate health measures in special patient populations (e.g. paediatrics). This unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, learners will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help learners explore information sources for drug use and integrate knowledge of clinical indices, laboratory data, medication use history and demographic information to optimise drug therapy in response to the needs of individual patients. Learners will gain 'hands-on' practice in the provision of patient-specific medicine use education and explore key issues concerning the maintenance of vigilance for medicines use specific to certain population groups.

PHAR4812
Integrated Dispensing Practice

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4811, PHAR4813, PHAR4814

Integrated Dispensing Practice links together the skills and knowledge that students have developed in Dispensing and Pharmacy Practice in second and third years, and will be developing in fourth year. The emphasis is on clinical practice and develops the theme that dispensing is not a single event but a process which draws on skills and knowledge from a variety of areas of pharmacy practice, including communication with the patient and prescriber. This is achieved using a simulated practice environment in which students learn to integrate the skills they have developed in dose form preparation with their clinical skills, forensic and administrative requirements (including the use of computer-based dispensing programs), as well as the professional aspects of pharmacy in delivering a patient-centred care.

PHAR4813
Novel Therapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812

This unit of study aims to expose students to emerging therapeutic and diagnostic biotechnologies. This unit expands on second and third year pharmaceutical science units of study by exploring novel and developing biotechnologies, such as gene therapy, vaccines, DNA arrays, cell therapies, novel diagnostic methods, new drug targets and drugs/therapies as well as clinical development processes. Sources of information for new biotechnology developments will be explored and practical exercises in interpreting and translating this information to patients and other health professionals will be provided. This unit of study will foster necessary skills to prepare pharmacists for their evolving roles associated with the choice, application and monitoring of new biotherapies. The exercises are designed to support the development of generic collaborative skills necessary for project work, such as planning and project management, conflict resolution and written and oral communication skills.

PHAR4814
Pharmacy Management I

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812, PHAR4813

This unit of study focuses on the business skills necessary to manage either a community or hospital pharmacy. It focuses on three specific essential topics; accounting and financial management, human resource management and marketing. Material in each topic is managerially relevant and applied to the pharmacy context.

PHAR4824
Aboriginal and Rural Health

Credit points: 12 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **Corequisites:** PHAR4825, PHAR4826
Note: Department permission required for enrolment.

This unit of study introduces students to health issues in rural and remote communities which may result from the social, environmental and political underpinnings of these communities. Students will be made aware of diseases which are more prevalent in rural than metropolitan settings. Issues relating to cultural diversity and indigenous health in rural and remote areas will be explored and different modes of communication and service delivery will be investigated.

PHAR4825
Rural Clinical Placement

Credit points: 6 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **Corequisites:** PHAR4824, PHAR4826
Note: Department permission required for enrolment.

Rural Clinical Practice is an experiential unit of study. Students complete extended placements in a variety of rural and remote settings. Clinical Practice allows students to integrate their knowledge and skill base within a variety of professional placements. Students gain an awareness of how patients, pharmacists and other health professionals interact to ensure Quality Use of Medicines as well as an understanding of the role of the pharmacist within the healthcare team.

PHAR4826
Rural Pharmacy Services & Public Health

Credit points: 6 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4814 **Corequisites:** PHAR4824, PHAR4825
Note: Department permission required for enrolment.

This unit of study will focus on developing students' understanding of the Public Health System, the role of pharmacy within the public-health context, health policy and regulation affecting the functioning of pharmacy and the use of pharmaceuticals in Australia. The unit will focus on Pharmacy services and public health in rural and remote Australia. We will develop students' skills in how to identify, access and interpret relevant policy, regulatory and public-health literature and information sources. Topics which underpin understanding of public health including, pharmaco-epidemiology and pharmacoeconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning by exploring case studies. Students will apply their knowledge to address population health care problems with a special emphasis on achieving the quality, safe and judicious use of medicines in health care in rural and remote Australia.

Fourth Year International Major

PHAR4811
Pharmacotherapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4812, PHAR4813, PHAR4814

This unit of study will focus on developing learners' understanding of the use of medicines and related appropriate health measures in special patient populations (e.g. paediatrics). This unit of study will

draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, learners will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help learners explore information sources for drug use and integrate knowledge of clinical indices, laboratory data, medication use history and demographic information to optimise drug therapy in response to the needs of individual patients. Learners will gain 'hands-on' practice in the provision of patient-specific medicine use education and explore key issues concerning the maintenance of vigilance for medicines use specific to certain population groups.

PHAR4812
Integrated Dispensing Practice

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4811, PHAR4813, PHAR4814

Integrated Dispensing Practice links together the skills and knowledge that students have developed in Dispensing and Pharmacy Practice in second and third years, and will be developing in fourth year. The emphasis is on clinical practice and develops the theme that dispensing is not a single event but a process which draws on skills and knowledge from a variety of areas of pharmacy practice, including communication with the patient and prescriber. This is achieved using a simulated practice environment in which students learn to integrate the skills they have developed in dose form preparation with their clinical skills, forensic and administrative requirements (including the use of computer-based dispensing programs), as well as the professional aspects of pharmacy in delivering a patient-centred care.

PHAR4813
Novel Therapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812

This unit of study aims to expose students to emerging therapeutic and diagnostic biotechnologies. This unit expands on second and third year pharmaceutical science units of study by exploring novel and developing biotechnologies, such as gene therapy, vaccines, DNA arrays, cell therapies, novel diagnostic methods, new drug targets and drugs/therapies as well as clinical development processes. Sources of information for new biotechnology developments will be explored and practical exercises in interpreting and translating this information to patients and other health professionals will be provided. This unit of study will foster necessary skills to prepare pharmacists for their evolving roles associated with the choice, application and monitoring of new biotherapies. The exercises are designed to support the development of generic collaborative skills necessary for project work, such as planning and project management, conflict resolution and written and oral communication skills.

PHAR4814
Pharmacy Management I

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812, PHAR4813

This unit of study focuses on the business skills necessary to manage either a community or hospital pharmacy. It focuses on three specific essential topics; accounting and financial management, human resource management and marketing. Material in each topic is managerially relevant and applied to the pharmacy context.

PHAR4832
Pharmacy International Exchange

Credit points: 24 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4814

Note: Department permission required for enrolment.

This unit of study will provide students with the opportunity to experience other healthcare systems through performing coursework at international universities. The students will attend all classes in prescribed units of study offered by the host institution. These units of study will be agreed by the Faculty and the host institution and will be selected for level, content, and exposure of our students to the different healthcare system and roles of a pharmacist in the host country. The overall assessment and workload will be agreed between the two institutions and will be commensurate with 24 credit points.

Fourth Year Industrial Major

PHAR4811
Pharmacotherapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4812, PHAR4813, PHAR4814

This unit of study will focus on developing learners' understanding of the use of medicines and related appropriate health measures in special patient populations (e.g. paediatrics). This unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, learners will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help learners explore information sources for drug use and integrate knowledge of clinical indices, laboratory data, medication use history and demographic information to optimise drug therapy in response to the needs of individual patients. Learners will gain 'hands-on' practice in the provision of patient-specific medicine use education and explore key issues concerning the maintenance of vigilance for medicines use specific to certain population groups.

PHAR4812
Integrated Dispensing Practice

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study. **Corequisites:** PHAR4811, PHAR4813, PHAR4814

Integrated Dispensing Practice links together the skills and knowledge that students have developed in Dispensing and Pharmacy Practice in second and third years, and will be developing in fourth year. The emphasis is on clinical practice and develops the theme that dispensing is not a single event but a process which draws on skills and knowledge from a variety of areas of pharmacy practice, including communication with the patient and prescriber. This is achieved using a simulated practice environment in which students learn to integrate the skills they have developed in dose form preparation with their clinical skills, forensic and administrative requirements (including the use of computer-based dispensing programs), as well as the professional aspects of pharmacy in delivering a patient-centred care.

PHAR4813
Novel Therapeutics

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812

This unit of study aims to expose students to emerging therapeutic and diagnostic biotechnologies. This unit expands on second and third year pharmaceutical science units of study by exploring novel and developing biotechnologies, such as gene therapy, vaccines, DNA arrays, cell therapies, novel diagnostic methods, new drug targets and drugs/therapies as well as clinical development processes. Sources of information for new biotechnology developments will be explored and practical exercises in interpreting and translating this information to patients and other health professionals will be provided. This unit of study will foster necessary skills to prepare pharmacists for their evolving roles associated with the choice, application and monitoring of new biotherapies. The exercises are designed to support the development of generic collaborative skills necessary for project work, such as planning and project management, conflict resolution and written and oral communication skills.

PHAR4814
Pharmacy Management I

Credit points: 6 **Session:** Semester 1 **Prerequisites:** All third year units of study **Corequisites:** PHAR4811, PHAR4812, PHAR4813

This unit of study focuses on the business skills necessary to manage either a community or hospital pharmacy. It focuses on three specific essential topics; accounting and financial management, human resource management and marketing. Material in each topic is managerially relevant and applied to the pharmacy context.

PHAR4831
Pharmacy Industrial Placement

Credit points: 24 **Session:** Semester 2 **Prerequisites:** PHAR4811, PHAR4812, PHAR4813, PHAR4814

Note: Department permission required for enrolment.

This unit of study will provide students with the opportunity to experience the practice of pharmacy in one of a range of industrial/organisational settings. Students will contribute to the activities of the host organisation, e.g. helping to develop and prepare consumer-relevant information sheets on managing medicines. The overall workload will be agreed and will be commensurate with 24 credit points.

Master of Pharmacy

Introduction

This postgraduate coursework program in pharmacy is a graduate entry level or professional masters degree offered to applicants who have completed an undergraduate degree. With a strong practical focus, the course is designed to provide an alternative mode of entry into the pharmacy profession.

Results

The following mark ranges apply:

Abbrev	Grade	Mark
HD	High Distinction	85–100
D	Distinction	75–84
CR	Credit	65–74
P	Pass	50–64
R	Satisfied requirements	
F	Fail	Below 50
AF	Absent Fail	

The course has been designed to satisfy the academic requirements for registration with the Pharmacy Board of Australia.

Registration requirements for pharmacists

A student who intends to qualify to be registered as a pharmacist under the Pharmacy Act 1964 is first required to qualify for the degree of Master of Pharmacy. In addition he or she is required to serve not less than 1824 hours as an assistant to a registered pharmacist in a pharmacy within the Commonwealth of Australia. This period must be served following the successful completion of the degree.

Further details concerning the requirements for registration can be obtained from the Pharmacy Board of Australia

GPO Box 9958
Melbourne VIC 3001
Enquiries: 1300 419 495
Overseas callers: +61 7 3666 4911
Web: www.pharmacyboard.gov.au

Postal address:
AHPRA
GPO Box 9958
Sydney NSW 2001

Master of Pharmacy

These resolutions must be read in conjunction with applicable University By-laws, Rules and policies including (but not limited to) the University of Sydney (Coursework) Rule 2000 (the 'Coursework Rule'), the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended) and the Academic Board policies on Academic Dishonesty and Plagiarism.

Course resolutions

1 Course codes

Code	Course title
PC034	Master of Pharmacy

2 Attendance pattern

The attendance pattern for this course is full time only.

3 Master's type

The master's degree in these resolutions is a professional master's course, as defined by the Coursework Rule.

4 Admission to candidature

(1) Available places will be offered to qualified applicants based on merit, according to the following admissions criteria.
(2) Admission to the degree requires:
  (a) a bachelor's degree from a recognised institution; and
  (b) satisfactory score in the GAMSAT, or MCAT for international applicants; and
  (c) a minimum GPA as determined by the Faculty; and
  (d) completion of an equivalent to a minimum of 42 of the 54 credit points of prerequisite units of study human biology, chemistry, calculus, statistics, biochemistry, physiology and pharmacology; and
  (e) a satisfactory score for the Pharmacy Case Study Scenario.

5 Requirements for award

(1) The units of study that may be taken for the course are set out in Table 2.
(2) To qualify for the award of the Master of Pharmacy a candidate must complete a prescribed course of 96 credit points of units of study.

6 Additional requirements prior to commencing clinical placements

(1) Information about the procedures for gaining clearance for clinical placements will be provided after enrolment.
(2) *Student clearance for clinical placements*

The New South Wales Department of Health requires that all students obtain clearance in order to undertake clinical placements. This involves a criminal record check according to NSW Health policy.

(3) *Prohibited employment declaration*

All students should complete a prohibited employment declaration as required by the NSW Commission for Children and Young People.

(4) *Immunisation*

All students must have evidence of vaccinations and immunisation against certain infectious diseases prior to undertaking clinical placements. The requirements are consistent with Australian public health policy and NSW Health guidelines.

7 Progression rules

Except with the permission of the Faculty, candidates may not take second year units of study until they have gained credit for all 48 credit points in first year units of study.

8 Transitional provisions

(1) These resolutions apply to students who commenced their candidature after 1 January, 2011 and students who commenced their candidature prior to 1 January, 2011 who elect to proceed under these resolutions.

(2) Candidates who commenced prior to 1 January, 2011 may complete the requirements in accordance with the resolutions in force at the time of their commencement, provided that requirements are completed by 1 January, 2016. The Faculty may specify a later date for completion or specify alternative requirements for completion of candidatures that extend beyond this time.

Units of study: tables

Table 2: Master of Pharmacy degree

Unit of study	*Credit points*	*A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition*	*Session*
Year 1			
PCOL5001 **Current Topics in Pharmacology**	6		Semester 1
PHAR5513 **Pharmaceutical Chemistry 1A**	6		Semester 1
PHAR5515 **Pharmaceutical Science**	6		Semester 1
PHAR5516 **Pharmaceutical Chemistry 1B**	6	**C** PHAR5513 and PHAR5515	Semester 2
PHAR5517 **Pharmaceutics 1B**	6	**C** PHAR5515	Semester 2
PHAR5518 **Pharmacy Practice A**	6		Semester 2
PHAR5505 **Clinical Residency 1**	12	**C** PHAR5518	S2 Late Int
Year 2			
PHAR5507 **Dispensing Practice**	6	**P** PHAR5517	Semester 1
PHAR5508 **Pharmacy Practice B**	6	**P** PHAR5505 and PHAR5518	Semester 1
PHAR5514 **Pharmaceutics 2A**	6		Semester 1
PHAR5506 **Pharmaceutical Chemistry 2B**	6	**P** PHAR5513, PHAR5516	Semester 2
PHAR5509 **Integrated Pharmaceutics**	6	**P** PHAR5517 **C** PHAR5514	Semester 2
PHAR5510 **Pharmacy Practice C**	6	**C** PHAR5508	Semester 2
PHAR5512 **Clinical Residency 2**	12	**C** PHAR5508 and PHAR5510	S2 Late Int

Units of study: listings

Year 1

PCOL5001

Current Topics in Pharmacology

Credit points: 6 **Teacher/Coordinator:** Dr Slade Matthews **Session:** Semester 1 **Classes:** 2hrs of lectures and 3hrs laboratory classes/workshops per week **Assessment:** final examination (50%), mid-semester examination (25%) in-semester assessments (25%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit aims to develop students' understanding of the therapeutic applications of drugs based on their underlying pharmacodynamic and pharmacokinetic properties, concentrating on the pharmacology of agents most widely used in Australia and exploring issues related to the use and safety of these agents.

PHAR5513

Pharmaceutical Chemistry 1A

Credit points: 6 **Teacher/Coordinator:** A/Prof J Hanrahan **Session:** Semester 1 **Classes:** 2 x lectures/wk, 5 x 2hr tutorials, 4 x 4hr workshops and self-directed learning **Assessment:** Exam (60%), laboratories (25%), workshops (10%) and modelling (5%) **Practical field work:** 3 x 4hr labs **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit will explore the physicochemical properties of drugs and how this determines the interactions of small molecules (drugs) with biological macromolecules (enzymes and receptors). All stages in the process of drug design and development will be investigated, including computational drug design, structure activity studies, synthesis and activity assays. Students will also gain experience in a variety of experimental techniques related to drug design. In addition, students will develop skills including critical thinking, the use of information technology and report writing.

Textbooks

Patrick GL. An Introduction to Medicinal Chemistry (4th ed). Oxford University Press, 2009

PHAR5515
Pharmaceutical Science

Credit points: 6 **Teacher/Coordinator:** Dr R Rohanizadeh **Session:** Semester 1 **Classes:** 2 x lec/week **Assessment:** 2 x 1.5hr exams (70%), microbiology workshops (10%), drug molecular properties workshops (10%), metabolism assignments (10%). **Practical field work:** 1 x 3hr workshop/week **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study will provide an introduction to the concepts required for the study of Pharmacy and integrate knowledge from the various sub-disciplines within the Pharmaceutical Sciences. Topics studied include physicochemical/molecular properties underlying drug action, toxicology, drug metabolism, bioactivation and inactivation, identification of drugs and their metabolites, micro-organisms in pharmacy, sterilisation techniques, disinfection and preservation of pharmaceutical products, and cleanroom technology. These concepts will be further explored in workshop formats.

Textbooks

Recommended: Denyer SP, Hodges NA & Gorman SP. Hugo & Russell's Pharmaceutical Microbiology, 7th edition, Blackwell, 2004
D.A. Williams & T.L. Lemke eds; (2002) Foye's Principles of Medicinal Chemistry, 5th Ed., Lippincott, Williams & Wilkins.
Wallwork, S.C. & Grant, D.J.W. (1977). Physical Chemistry for students of Pharmacy and Biology. New York: Longman, Third edition.
Casarett and Doull's toxicology: the basic science of poisons. 6th edition (2001).
D.G. Watson (2005) Pharmaceutical Analysis, 2nd Ed.,Churchill-Livingstone.

PHAR5516
Pharmaceutical Chemistry 1B

Credit points: 6 **Teacher/Coordinator:** A/Prof David Hibbs **Session:** Semester 2 **Classes:** 3 x lectures/tutorials per week, 10 hours of self-directed learning **Corequisites:** PHAR5513 and PHAR5515 **Assessment:** 2 x 1.5 hr exams (60%); laboratories & workshops (40%) **Practical field work:** 2 x 4hr laboratory practicals, 4 x 4hr computer-based practical workshops and 2 x 2hrs herbal workshops **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study utilises the knowledge gained in PHAR5513 Pharmaceutical Chemistry 1A to develop students' ability to apply basic scientific and medicinal chemistry concepts in the rationalization of observed biological activities for a series of drug molecules. The unit of study will be presented as a series of discrete topic areas based on therapeutic classes (hormonal, cardiovascular, herbal medicines, central nervous system, chemotherapy, antihistamines, photochemotherapy and sunscreens) and macromolecular targets (enzyme, G-protein coupled receptor, nuclear receptor). Lectures will be supported by self-directed learning and tutorials. Students will also undertake quantitative structure-activity relationship (QSAR) computer-based workshops and herbal medicine practicals as well as prepare a herbal medicine assay and oral presentation. These learning activities will further develop students' skills in critical thinking, the use of information technology and report writing.

Textbooks

Foye's Principles of Medicinal Chemistry (6th edn), edited by TL Lemke&DA Williams, Williams & Wilkins, 2008
Patrick, G. L. An Introduction to Medicinal Chemistry (3rd edn) Oxford University Press, 2005

PHAR5517
Pharmaceutics 1B

Credit points: 6 **Teacher/Coordinator:** Dr D Traini **Session:** Semester 2 **Classes:** 3 x lectures/week **Corequisites:** PHAR5515 **Assessment:** Final exam (65%), minor exam (10%), laboratory practicals (25%) **Practical field work:** Laboratory work, 4hr/week for 2 weeks **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

In this unit of study students learn to evaluate the physicochemical principles, design, formulation, and manufacture of pharmaceutical dose forms. The formulation of liquid dose forms including parenteral, nasal, ophthalmic and aural products is discussed. Related topics such as diffusion and dissolution of drugs, drug solubilisation, surface and interfacial tension, surface active materials, micelle formation, pharmaceutical complexes and drug-packaging interactions are covered. Other topics covered in this unit include solid dose forms and particle science, rheology, dispersion dose forms including suspensions, colloidal dispersions, and emulsions; topical dose forms and semisolids; inhalation pharmaceutical aerosols; protein and peptide drugs and formulations; rectal products; novel drug delivery technologies. Aspects pertaining to the stability of dose forms are also presented in this unit.

Textbooks

Aulton M.E. Pharmaceutics: The Science of Dosage Form Design (7nd edn) Churchill Livingston
A.T. Florence & D Attwood Physicochemical Principles of Pharmacy MacMillan 1988

PHAR5518
Pharmacy Practice A

Credit points: 6 **Teacher/Coordinator:** Dr K Williams **Session:** Semester 2 **Classes:** 3 x lectures/wk and 2 x 2hr tutorials/wk **Assessment:** Tutorial contribution (30%), exams (oral and written) (70%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study is the first of three integrated units (Pharmacy Practice A, Pharmacy Practice B and Pharmacy Practice C) that will be completed during the MPharm program. It will commence with an introduction to the profession of pharmacy, the Australian health care and drug distribution systems, and the National Medicines Policy, including the National Strategy for Quality Use of Medicines. Themes such as evidence based practice, pharmacoepidemiology, drug information, medication safety, ethics and communication skills will be introduced early in the unit of study and will then be revisited and reinforced in the remainder of Pharmacy Practice A, as well as throughout Pharmacy Practice B and C. During the second half of semester, a number of therapeutics topics will be covered in a problem-based learning format. Practice-based tutorials will be supplemented with relevant therapeutics lectures and other learning resources. Students will explore the role of the pharmacist in advising on primary and self care, performing clinical interventions, conducting medication reviews, monitoring therapeutic outcomes and participating in therapeutic decision making within these therapeutic areas.

Textbooks

Therapeutic Guidelines, Therapeutic Guidelines Ltd, North Melbourne, Vic. (latest editions)
Australian Medicines Handbook, Rossi S (ed), 2011
Clinical Pharmacy and Therapeutics (4th edn), Walker R, Whittlesea C (eds), 2007

PHAR5505
Clinical Residency 1

Credit points: 12 **Teacher/Coordinator:** Dr B Bajorek **Session:** S2 Late Int **Classes:** 5 x lectures, 30hrs of tutorials/workshops and 40hrs of on-line workshops **Corequisites:** PHAR5518 **Assessment:** Continuous assessment via clinical portfolios, including skill-based competencies (30%); tutorial/workshop participation, including pre-work (30%); oral presentation (20%); reflection (10%); and preceptor evaluation (10%) **Practical field work:** 168hrs of off-campus experiential placements over 6 wks **Campus:** Camperdown/Darlington **Mode of delivery:** Clinical Experience

This unit of study integrates the information and skills developed in Pharmacy Practice A and Current Topics in Pharmacology within an experiential setting, providing students with the opportunity to enhance their knowledge and skill base. Students will undertake their learning within both the community and hospital setting, where they will: observe the role of the pharmacist, and their relationship to other health care professionals, within the health care team; utilise their communication skills to educate and deliver drug information to pharmacy clients (patients, pharmacists, health professionals, peers); and develop their clinical knowledge by observing, monitoring, and researching the application of pharmacotherapy to patient care, focusing on the core therapeutic areas (as covered in coursework). Additionally, students will participate in campus-based (face-to-face and/or on-line) tutorial and/or workshop sessions, as well as on-line activities and self-directed learning modules, that will enable them to demonstrate, in a group setting, clinical knowledge and skill development, as well as provide a forum to discuss various practice issues, as experienced during clinical placement.

Year 2

PHAR5507
Dispensing Practice

Credit points: 6 **Teacher/Coordinator:** E Sainsbury **Session:** Semester 1 **Classes:** 1 x 2hr lecture/wk, 7 x 1hr tutorials and 6 x 2hr tutorials **Prerequisites:** PHAR5517 **Assessment:** Practical exams (30%), written exam (30%), continuous practical assessment (30%), dispensing portfolio (10%). Satisfactory performance in all areas of this unit of study is required. **Practical field work:** 7 x 3hr practicals and 5 x 2hr practicals **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study gives an introduction to dispensing practice, accuracy in dispensing, legal aspects of dispensing prescriptions, procedures for dispensing prescriptions, documentation of dispensing procedures, containers and labelling of dispensed medicines, dispensing of particular formulations, effect of changing formulation variables on the physical properties and efficacy of pharmaceutical products, dispensing and therapeutics and dosage. A series of workshops and practical classes complements the lectures, allowing students to dispense and critically assess a variety of pharmaceutical products and a range of proprietary items, as well as facilitating the development of error-detection skills. During the second half of the semester, the process of dispensing is extended to include therapeutic aspects and recommendations.

Textbooks
Australian Medicines Handbook 2010 or 2011
Australian Pharmaceutical Formulary (21st edition)

PHAR5508
Pharmacy Practice B

Credit points: 6 **Teacher/Coordinator:** Dr B Chaar **Session:** Semester 1 **Classes:** 2 x lectures/wk and 2 x 2hr tutorials/wk **Prerequisites:** PHAR5505 and PHAR5518 **Assessment:** Tutorial participation and contribution (30%), final written exam (40%), MCQ exam (30%). **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study is a continuation of Pharmacy Practice A. A number of therapeutics topics will be covered in a problem-based learning format. Practice-based tutorials will be supplemented with relevant therapeutics lectures and other learning resources. Students will explore the role of the pharmacist in advising on primary and self care, performing clinical interventions, conducting medication reviews, monitoring therapeutic outcomes and participating in therapeutic decision making within these therapeutic areas. This unit of study will facilitate students to gain in-depth knowledge about the pharmacotherapy of disease states through self-directed learning. Themes such as evidence based practice, pharmacoepidemiology, drug information, medication safety, ethics and communication skills will be incorporated throughout the unit of study.

Textbooks
Therapeutic Guidelines, Therapeutic Guidelines Ltd, North Melbourne, Vic. (latest editions) Australian Medicines Handbook, Rossi S (ed), 2008 Clinical Pharmacy and Therapeutics (4th edn), Walker R, Whittlesea C (eds), 2007

PHAR5514
Pharmaceutics 2A

Credit points: 6 **Teacher/Coordinator:** Dr M Bebawy **Session:** Semester 1 **Classes:** 3-5 x lectures/wk and 2hr workshops scheduled as required **Assessment:** Quizzes (summative and formative) (30%), workshops (formative), final examination (summative) (70%). All assessments are compulsory. **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study is intended to provide knowledge in a number of fundamental areas that guide and provide evidence to support the safe, effective and ethical use of medicines. These fundamental areas of knowledge start with an understanding of the relationship between drugs interacting with target sites in the body and the effect produced (i.e. pharmacodynamic principles) and understanding the physiological and physicochemical factors that govern the movement of drugs around the body and the time course of exposure of body tissues and blood to drugs (i.e. pharmacokinetics). These principles involve developing concepts and models to explain drug activity in patients and to guide appropriate drug dosage selection.

This unit will also explore reasons behind variability in response to medicines among different individuals. The effects of disease, other drugs, demographics and the genetic basis for variable response will be introduced. Basic pharmacogenetic principles for explaining and predicting pharmacodynamic and pharmacokinetic variability in response will be explored.

Students are also exposed to the notion that medicines may produce adverse effects (as well as beneficial ones). The mechanisms underlying adverse reactions to drugs and how these are classified are explored as are the principles for detecting and avoiding these effects.

Ultimately, many options often exist to manage illness. While the fundamental principles described above assist in understanding how individual drugs should be used, they do not alone provide knowledge to select among alternative options. This unit will introduce students to methods that are used to provide evidence of efficacy and safety of different therapeutic options and to define the place in therapy of these options. To do this, the principles that underpin evidence based medicine (including the clinical trial and pharmacoepidemiology) and the notion of levels of evidence are introduced. Exposure to these principles is intended to develop in students a basic understanding of how to critically evaluate therapeutic options.

PHAR5506
Pharmaceutical Chemistry 2B

Credit points: 6 **Teacher/Coordinator:** Dr R Roubin **Session:** Semester 2 **Classes:** 2 x 1hr lectures/wk and 7 x 3hr workshops as well as self-directed learning **Prerequisites:** PHAR5513, PHAR5516 **Assessment:** Exam (50%), drug action workshop I (15%), drug action workshop II (15%), drug action workshop III (20%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

The aim of this unit of study is to explore recent advances in drug technology and to illustrate how basic research underpins clinical practice and pharmaceutical care. Students will be exposed to the newly developed and "up-and-coming" biotechnologies such as gene therapy, immunotherapies and prodrugs in the context of neurological disorders, inflammatory diseases, cancer and AIDS. Students will also obtain molecular insights into the actions of natural products. On successful completion of this unit of study, students will: be aware of the latest advances in drug technology; understand how basic research underpins clinical practice and pharmaceutical care; have developed advanced literature searching skills and be able to comprehend the work in original research articles and extract the relevant information from those articles; have improved their writing and oral communication skills; and comprehend the role chemistry plays in determining the molecular basis of drug action. This unit of study will hone the student's critical thinking, literature searching and scientific presentation skills - thus equipping the students with the essential skills for life-long learning.

Textbooks
TL Lemke & DA Williams. Foye's Principles of Medicinal Chemistry (Lippincott Williams & Wilkins, 6th Ed, 2008)
W-C Shen & S.G. Louie. Immunology for pharmacy students (Harwood Academic, 1999)

PHAR5509
Integrated Pharmaceutics

Credit points: 6 **Teacher/Coordinator:** Dr Fanfan Zhou **Session:** Semester 2 **Classes:** 3 x 1hr lectures/wk and 1 x 3hr workshop/wk **Prerequisites:** PHAR5517 **Corequisites:** PHAR5514 **Assessment:** Exam (40%) and workshop presentations (60%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study aims to expose the students to six themes associated with new drug development. As an integrated pharmaceutics course, this unit covers the topics of preclinical screening, ADME and animal testing, pre-formulation, formulation, clinical trials and finally product marketing and post marketing responsibilities. Themes will be introduced in the form of lectures given by the faculty as well as presented by invited scientific professionals.

PHAR5510
Pharmacy Practice C

Credit points: 6 **Teacher/Coordinator:** Dr K Williams **Session:** Semester 2 **Classes:** 3 x lectures/wk and 2 x 2hr tutorials/wk **Corequisites:** PHAR5508 **Assessment:** Tutorial contribution (30%) and exams (70%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study is a continuation of Pharmacy Practice A and B. A number of therapeutics topics will be covered in a problem-based learning format. Practice-based tutorials will be supplemented with relevant therapeutics lectures and other learning resources. Students will explore the role of the pharmacist in advising on primary and self care, performing clinical interventions, conducting medication reviews, monitoring therapeutic outcomes, participating in therapeutic decision making and involvement in health promotion and public health within these therapeutic areas. Themes such as evidence based practice, pharmacoepidemiology, drug information, medication safety, ethics and communication skills will be incorporated throughout the unit of study.

Textbooks
Therapeutic Guidelines. Therapeutic Guidelines Ltd, North Melbourne, Vic., latest editions Australian Medicines Handbook, Rossi S (ed), 2011 Clinical Pharmacy and Therapeutics (4th edn), Walker R, Whittlesea C (eds), 2007

PHAR5512
Clinical Residency 2

Credit points: 12 **Teacher/Coordinator:** Professor A McLachlan **Session:** S2 Late Int **Corequisites:** PHAR5508 and PHAR5510 **Assessment:** Block 1: reflective diary (10%), portfolio of cases and activities (10%), preceptor evaluation (20%), case two (15%); Block 2: reflective diary (10%), preceptor evaluation (20%), case two or project report (15%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** 2 x 2wk experiential placements **Campus:** Camperdown/Darlington **Mode of delivery:** Clinical Experience

This is an experiential unit of study. Off-campus placements will provide students with opportunities to enhance their knowledge and skill-base within clinical and professional settings. The sites may include primary and tertiary health care, general and specialist practice in rural and metropolitan areas, professional organisations and Quality Use of Medicines settings as well as the pharmaceutical industry. Two block placements are undertaken, 1 x 2 weeks in July (Block 1) and 1 x 2 weeks in November/December (Block 2). The July placement must be undertaken in a clinical setting, either community pharmacy or hospital.

Graduate Certificate in Pharmacy Practice

Introduction

The Faculty of Pharmacy offers a Graduate Certificate in Pharmacy Practice, which incorporates an Intern Training Program (ITP). Only the two ITP units, Applied Pharmacy Practice 1 and Applied Pharmacy Practice 2, will be offered in 2011.

Results

The following mark ranges apply:

Abbrev	Grade	Mark
HD	High Distinction	85 - 100
D	Distinction	75 - 84
CR	Credit	65 - 74
P	Pass	50 - 64
R	Satisfied requirements	
F	Fail	Below 50
AF	Absent Fail	

About the Intern Training Program

The ITP is a competency-based program, developed to address the Competency Standards for Pharmacists in Australia, 2003 in accordance with the Accreditation Standards for Australian Pharmacy Intern Training programs 2010.

The program is intended to provide interns with experiential learning so that at the completion of the program they can apply the required knowledge, attributes and skills to demonstrate competence in the required standards. The program has been developed not only to address the competence required by the standards, but with a focus on a program that is relevant to contemporary pharmacy practice. The multiple modes of delivery engaged in the program will enhance the learning experience.

The ITP units are based on the highly successful program at Monash University and the University of South Australia. This is the only ITP that also provides intern pharmacists with an opportunity to build on the base program to obtain formal postgraduate qualifications in pharmacy practice and clinical pharmacy.

Program Objectives

1. To provide high quality, multimodal, comprehensive learning experiences, so, at the completion of the program, interns have the “knowledge, skills and attributes which meet all functional areas described in the current Competency Standards for Pharmacists in Australia necessary to commence unsupervised practice as a competent registered pharmacist”
2. To provide comprehensive support to interns to assist them as they progress from intern to registered pharmacist
3. To immerse interns in the experience of lifelong learning and provide an opportunity for pharmacists to obtain formal postgraduate qualifications in pharmacy practice.

Graduate Certificate in Pharmacy Practice

These resolutions must be read in conjunction with applicable University By-laws, Rules and policies including (but not limited to) the University of Sydney (Coursework) Rule 2000 (the 'Coursework Rule'), the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended) and the Academic Board policies on Academic Dishonesty and Plagiarism.

Course Resolutions

1 Course codes

Code	Course title
PG003	Graduate Certificate in Pharmacy Practice

2 Attendance pattern

The attendance pattern for this course is part time (domestic students only).

3 Admission to candidature

(1) Available places will be offered to qualified applicants based on merit, according to the following admissions criteria.
(2) Admission to candidature requires a bachelor's degree or higher award in Pharmacy from the University of Sydney, or qualifications deemed by the Faculty to be equivalent.
(3) Applicants must be planning to commence internship (pre-registration) practical training at a Pharmacy Board of Australia approved pharmacy or hospital, under supervision of an approved pharmacist preceptor, within 90 days of commencing the course. Registered pharmacists are also eligible to enrol.

4 Requirements for award

(1) The units of study that may be taken for the course are set out in the Table for the Graduate Certificate in Pharmacy Practice.
(2) To qualify for the award of the Graduate Certificate in Pharmacy Practice a candidate must complete 24 credit points, including all 4 units of study listed in the Table for the Graduate Certificate in Pharmacy Practice.

Unit of Study table

Unit of study	*Credit points*	*Session*
PHAR7111 Applied Pharmacy Practice I	6	Semester 1
PHAR7121 Applied Pharmacy Practice II	6	Semester 2

Unit of Study listings

PHAR7111
Applied Pharmacy Practice I

Credit points: 6 **Session:** Semester 1 **Classes:** Three day block seminar series for face-to-face teaching and learning and continuous flexible delivery. **Assessment:** Satisfactory contribution to on-line discussion groups or phone-conferencing, satisfactory completion of computer-generated calculations, small group participation and contribution, attendance and contribution at seminars. **Campus:** Camperdown/Darlington **Mode of delivery:** Distance Education/Intensive on Campus

Note: Department permission required for enrolment.

This unit of study comprises monthly case problems related to specific practice issues which will explore all the relevant professional issues for pharmacy practitioners. On-line phone-conferencing (for rural candidates or those without internet access) and moderated discussion forums in small groups will explore the relevant issues around the case problem each month. Face to face seminars will cover relevant issues including evidence based practice, competencies, framework for practice, public health policy, privacy issues, communication and counselling and specific aspects of clinical pharmacy. Emphasis will be given to problem-solving, communication and responding to symptoms. Scenarios where legal, social and workplace issues come into play will be included. The syllabus is orientated to issues that arise in the day-to-day practice of pharmacy. Bachelor of Pharmacy graduates undertaking their pre-registration experience in community pharmacy will be exposed to issues relevant to hospital pharmacy, and vice versa.

This unit of study will develop graduates' independence and life-long learning skills of communication, capacity for enquiry and research, critical thought and analysis, problem solving, teamwork, numeracy and effective use of information technology.

PHAR7121
Applied Pharmacy Practice II

Credit points: 6 **Session:** Semester 2 **Classes:** Three day block seminar series for face-to-face teaching and learning and continuous flexible delivery. **Assessment:** Satisfactory contribution to on-line discussion groups or phone-conferencing, satisfactory completion of computer-generated calculations, small group participation and contribution, attendance and contribution at seminars. **Campus:** Camperdown/Darlington **Mode of delivery:** Distance Education/Intensive on Campus

Note: Department permission required for enrolment.

Applied Pharmacy Practice II further develops the technical, clinical, personal and professional skills acquired as a pharmacy graduate that form the basis of future practice. This unit of study uses multiple methods of delivery to explore the range of issues that are relevant to the day-to-day practice of pharmacy. The issues include: systematic approach to problem solving; therapeutics; evidence based practice; patient monitoring; symptomology; patient outcomes; methods of improving adherence; multiple medication management; pharmaceutical care; standards and competencies for pharmacy practice; community pharmacy practice; hospital pharmacy practice; ethics; legal aspects; multidisciplinary approach to healthcare; primary care; over- the-counter medicines; communication and counselling; public health; pharmaceutical calculations; risk management; dealing with difficult clients, staff situations and other healthcare practitioners.

Master of Herbal Medicine

Introduction

Postgraduate coursework programs in Herbal Medicine offered by the Faculty of Pharmacy include:

Master of Herbal Medicines
(MHerbMed) – Course code PC032

Graduate Diploma in Herbal Medicines
(GradDipHerbMed) – Course code PF002

Graduate Certificate in Herbal Medicines
(GradCertHerbMed) – Course code PG000

Results

The following mark ranges apply:

Abbrev	Grade	Mark
HD	High Distinction	85 - 100
D	Distinction	75 - 84
CR	Credit	65 - 74
P	Pass	50 - 64
R	Satisfied requirements	
F	Fail	Below 50
AF	Absent Fail	

Objectives

The Master of Herbal Medicines, Graduate Diploma in Herbal Medicines, and Graduate Certificate in Herbal Medicines are designed to provide health care professionals and science graduates with an advanced education encompassing scientific and pharmaceutical aspects of herbal medicines, and their clinical applications. Candidates will at the same time acquire systematic knowledge of traditional medicine.

The programs are suitable for postgraduate studies by pharmacists, practitioners and dispensers of complementary medicine and Chinese medicine, medical practitioners, science graduates and professionals who would like to specialise in herbal medicines manufacturing, government regulation and research.

Program outcomes

Graduates with a pharmacy or medical background will gain appropriate knowledge and skills to enable them to provide information and in-depth advice on herbal products in their practice.

Graduates with a traditional Chinese medicine or medical acupuncture background will extend their scientific and pharmaceutical knowledge underpinning the clinical application of Chinese herbal medicines, attain knowledge on the interaction between Western and Chinese medicine, and extend skills necessary to prescribe or dispense scheduled herbs safely in the regulatory context.

Graduates from other scientific disciplines will gain and/or expand their knowledge and further develop skills necessary for work in manufacturing, teaching and the research areas of herbal medicines.

Program requirements

The Herbal Medicines programs are available for both part-time and full-time study. However, international students are only permitted to enrol full-time.

The course consists of lectures, tutorials, laboratory practical, excursions, and assignment projects. There are approximately eight hours (two/three evenings) of lectures/tutorials per week during semester for part-time study and approximately sixteen hours (five evenings) of lectures/tutorials per week during semester for full-time study.

Extra hours are required to attend excursions, carry out literature searches, complete assignments and undertake other self-directed study. Honours students should be prepared to conduct their research at the university during the daytime in addition to attending classes in the evening.

Summary of requirements for full-time study

Program	Credit points required	Minimum time for completion	Maximum time for completion
Master of Herbal Medicines	48	1 year	2 years
Master of Herbal Medicines (honours level)*	60	1.5 years	2.5 years
Graduate Diploma in Herbal Medicines	36	1 year	1.5 years
Graduate Certificate in Herbal Medicines	24	0.5 year	1 year

Summary of requirements for part-time study

Program	Credit points required	Minimum time for completion	Maximum time for completion
Master of Herbal Medicines	48	2 years	4 years
Master of Herbal Medicines (honours level)*	60	2.5 years	4 years
Graduate Diploma in Herbal Medicines	36	1.5 years	3 years
Graduate Certificate in Herbal Medicines	24	1 year	2 years

** A dissertation is required for the Master of Herbal Medicine at honours level.*

Course structure

The Master of Herbal Medicines program has four core units of study and seven electives, with the core units of study offered Monday to Thursday, and the elective units of study offered Monday to Friday. Full-time candidates are required to attend classes potentially for five days (evenings) per week, depending on electives chosen, but with a minimum of four days (evenings) per week. Flexibility is allowed for electives and students also have the option of choosing one unit of study from other disciplines within the university, or from another university, subject to approval by the course coordinator.

To be eligible to apply for the dissertation required for the Master of Herbal Medicines at honours level, students need an average weighted mark of at least 65 in 24 credit points of core unit coursework in Semester 1. A weighted average mark of 70 must be maintained in Semester 2. Approved students are then required to undertake a small supervised research project in herbal medicines and complete a formal dissertation component. The offer of a dissertation is subject to availability of staff and laboratory space.

At least 50 per cent of total credit points earned should be from core units. Flexibility is allowed for electives, however there are recommended electives for each stream. An elective unit of study may not be offered if a certain enrolment number is not reached.

Graduate Certificate in Herbal Medicines

Graduate Diploma in Herbal Medicines

Master of Herbal Medicines

Master of Herbal Medicines (Honours)

These resolutions must be read in conjunction with applicable University By-laws, Rules and policies including (but not limited to) the University of Sydney (Coursework) Rule 2000 (the 'Coursework Rule'), the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended) and the Academic Board policies on Academic Dishonesty and Plagiarism.

Course resolutions

1 Course codes

Code	Course title
PG000	Graduate Certificate in Herbal Medicines
PF002	Graduate Diploma in Herbal Medicines
PC032	Master of Herbal Medicines

2 Attendance pattern

The attendance pattern for these courses is full time (all students) or part time (domestic students only) according to candidate choice.

3 Embedded courses in this sequence

(1) The embedded courses in this sequence are:
  (a) the Graduate Certificate in Herbal Medicines
  (b) the Graduate Diploma in Herbal Medicines
  (c) the Master of Herbal Medicines

(2) Providing candidates satisfy the admission requirements for each stage, a candidate may progress to the award of any of the courses in this sequence. Only the longest award completed will be conferred.

4 Admission to candidature

(1) Available places will be offered to qualified applicants in the order in which complete applications are received, according to the following admissions criteria.

(2) Admission to these courses requires a bachelor's degree in Pharmacy, Medicine, Nursing, Chinese Medicine, Complementary Medicine, Science, Veterinary Science, Agriculture or equivalent from a recognised institution.

(3) Admission to Master of Herbal Medicines (Honours) requires a minimum weighted average mark of 65 in at least 24 credit points of the Master of Herbal Medicines.

5 Requirements for award

(1) The units of study that may be taken for the courses are set out in Table 3.

(2) To qualify for the award of the Graduate Certificate in Herbal Medicines a candidate must complete 24 credit points of units of study.

(3) To qualify for the award of the Graduate Diploma in Herbal Medicines a candidate must complete 36 credit points of units of study.

(4) To qualify for the award of the Master of Herbal Medicines a candidate must complete 48 credit points of units of study.

(5) To qualify for the award of the Master of Herbal Medicines (Honours) a candidate must complete 48 credit points of units of study; successfully complete the unit of study HERB5560; and obtain a final weighted mark of at least 70 in the degree totalling 60 credit points.

6 Course transfer

A candidate for the master's degree or graduate diploma may elect to discontinue study and graduate with a shorter award from this embedded sequence, with the approval of the Dean, and provided the requirements of the shorter award have been met.

7 Transitional provisions

(1) These resolutions apply to students who commenced their candidature after 1 January, 2011 and students who commenced their candidature prior to 1 January, 2011 who elect to proceed under these resolutions.

(2) Candidates who commenced prior to 1 January, 2011 may complete the requirements in accordance with the resolutions in force at the time of their commencement, provided that requirements are completed by 1 January, 2016. The Faculty may specify a later date for completion or specify alternative requirements for completion of candidatures that extend beyond this time.

Units of study: tables

Table 3: Postgraduate coursework programs in Herbal Medicine

Unit of study	*Credit points*	*A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition*	*Session*
HERB5550 Integrative Herbal Therapeutics	6		Semester 1
HERB5551 Botany and Herbal Chemistry	6		Semester 1
HERB5552 Herbal Pharmacology	6		Semester 1
HERB5553 Herbal Regulation and Dispensing	6		Semester 1
HERB5554 Chinese Medicine and Materia Medica	6		Semester 1
HERB5555 Herbal Pharmaceutics and Analysis	6		Semester 2
HERB5556 Herbal Toxicology	6		Semester 2
HERB5557 Pharmacognosy	6		Semester 2
HERB5558 Clinical Studies and Monographs	6		Semester 2
HERB5559 Chinese Herbal Formulas and Processing	6		Semester 2
* For Master of Herbal Medicines (honours level)			
HERB5560 Dissertation	12	*Note: Department permission required for enrolment*	Semester 1 Semester 1a Semester 1b Semester 2 Semester 2a Semester 2b

Unit of study	*Credit points*	*A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition*	*Session*
HERB5561 Introduction to Herbal Medicines	6	*Note: Department permission required for enrolment*	Semester 1
* Non award course only			

Units of study: listings

HERB5550

Integrative Herbal Therapeutics

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 1
Classes: lectures 3 hrs/wk for 11 wks, practicals, tutorials, 3 hrs/wk for 2 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study is designed for the healthcare practitioners who would like to extend their understanding in clinical applications of traditional herbal medicines. 'Integration' is the essence of this unit of study, linking and combining the knowledge and practice of Western and traditional medicine in the treatment of common diseases. The unit covers some common chronic diseases, such as hypertension, hyperlipidemia, diabetes, asthma, rheumatism, prostate hypertrophy, menopausal syndrome, depression etc. The disease states based on the symptomology of Western medicines are extended towards the syndrome and holistic model of traditional medicines (Chinese, Western and Ayurvedic).

Textbooks

Quick Access, Professional Guide to Conditions, Herbs & Supplements, Integrative Medicine Communications. 2000
Braun L & Cohen M. Herbs & Natural Supplements - An Evidence-based Approach. Sydney: Elsevier-Mosby, 2004
Bumental M (Ed), Herbal Medicine. Expanded Commission E Monographs. Texas: American Botanical Council, 2000
Mills S & Bone K, Principles and Practice of Phytotherapy - Modern Herbal Medicine, London: Churchill Livingstone, 2000
Grieves M (1st pub 1931), A Modern Herbal, Surrey, Merchant Book Company, 1973

HERB5551

Botany and Herbal Chemistry

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 1
Classes: lectures 3 hrs/wk for 12 wks, practicals, tutorials, 3 hrs/wk for 4 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Medicinal botany is the study of the structure, morphology and taxonomy of medicinal plants. The objectives of the subject are to classify and identify medicinal plants, to ensure the safety and quality of herbal medicines by eliminating the confusion of herbal species, and to develop new resources of medicinal plants. Herbal chemistry comprises the study of extraction and separation, chemical properties, structure determination and biosynthesis pathways of chemical components in herbal medicines. The objective is to use both modern science and technology and traditional theory to study the relationship between chemical components and properties of herbal medicines.

Textbooks

Raven PH, Evert RF, Eichhorn SE. Biology of Plants. W.H. Freeman-Worth Publishers, 1999
Robinson L. Field Guide to the Native Plants of Sydney. Kangaroo Press, 1998
Lassak EV, McCarthy T. Australian Medicinal Plants. Reed Books, 1997
Robbers JE, Speedie JE, and Tyler VE, Pharmacognosy and Pharmabiotechnology. Williams & Wilkins, Lea & Febiger, 1996
Evans W C . Trease and Evans Pharmacognosy (14th Ed). London: WB Saunders, 1996
Harborne JB. Phytochemical Methods: a Guide to Modern Techniques of Plant Analysis (3rd Ed). Chapman & Hall, 1998

HERB5552
Herbal Pharmacology

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 1
Classes: lectures 3 hrs/wk for 12 wks, practicals, tutorials, 3 hrs/wk for 3 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Herbal pharmacology is the study of the function and mechanism of action of herbal medicines with modern scientific methods. The objectives are: to understand pharmacological principles of herbal medicines which will help health-care practitioners to understand the prescribing of herbal medicines effectively; to understand the underlying nature of traditional medical theory; to provide data on pharmacodynamics and toxicology for new herbal products development. This subject will emphasise the pharmacological study of traditional herbal medicines. The pharmacology of each class of drugs is discussed in relation to traditional theories and classification of herbs.

Textbooks
Rang HP, Dale MM, Ritter JM. Pharmacology (4th Ed). Edinburgh: Churchill Livingstone, 1999
Braun L & Cohen M, Herbs & Natural Supplements - An Evidence-based Approach. Sydney: Elsevier-Mosby, 2004
Montvale N.J. PDR for Herbal Medicines. Medical Economic, 1998
Anderson LA, and Phillipson JD. Herbal Medicines: A Guide for Health-Care Professionals. Pharmaceutical Publishing Co, 2002
Chang HM and But PPH. Pharmacology and Applications of Chinese Materia Medica Vol 1- 2.World Scientific, 1996

HERB5553
Herbal Regulation and Dispensing

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 1
Classes: lectures 3 hrs/wk for 9 wks, practicals, tutorials, 3 hrs/wk for 2 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit of study covers the government legislation concerning products and practice of complementary medicines. This unit will help industry professionals to understand TGA Legislation to ensure that medicinal preparations are of acceptable quality, safety and efficacy, and for health-care practitioners to dispense herbal medicines safely. Topics in this unit of study will include: The Australian Therapeutic Goods Administration; accreditation of complementary medicine practitioners; Registration and Listing of traditional or complementary medicines; GMP of herbal manufacturing; dispensing and quality management of herbal medicines, and quality use of medicines.

Textbooks
Guidelines for the Appropriate Use of Herbal Medicines, World Health Organisation, 1998
Botanical Medicine: Efficacy, Quality Assurance and Regulation, D Eskinazi, Mark Blumenthal, Norman Farnsworth, Chance W Riggins, Mary Ann Liebert, 1999
Complementary Medicine and the Law, Julie Stone and Joan Matthews, Oxford University Press, 1996
Therapeutic Goods Regulations, Australian Government Publishing Service, March 1995, Canberra

HERB5554
Chinese Medicine and Materia Medica

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 1
Classes: lectures 3 hrs/wk for 13 wks, practicals, tutorials, 3 hrs/wk for 3 wks
Assessment: Examinations (50%), assignments (25%), practical work (25%).
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Basic Chinese medicine includes basic theory and its application in the four diagnosis methods, pattern differentiation methods, treatment principles and methods. The unit of study provides systematic knowledge on Chinese medicine and lays a solid foundation for further study on the materia medica and formulary of Chinese medicine. This unit will study the basic theory of Chinese materia medica and the origin, collection, property, function, and clinical application of Chinese herbs in Chinese medicine context. It bridges Chinese medicine theory, formulas and clinical practice. It also provides a foundation for modern herbal monographs.

Textbooks
Maciocia G.The Foundations of Chinese Medicine. Churchill Livingstone.1989
Bensky D, Gamble A. Chinese Herbal Medicine: Materia Medica. Seattle: Eastland Press, 1993

HERB5555
Herbal Pharmaceutics and Analysis

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 2
Classes: lectures 3 hrs/wk for 11 wks, practicals, tutorials, 3 hrs/wk for 5 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Pharmaceutical technology of herbal medicines includes the study of formulation theory and manufacturing techniques, quality control and application of herbal products using methods of modern science and technology, combined with traditional medicine theory. The primary objective of pharmaceutical technology of herbal medicines is to formulate herbal medicines into dosage forms, and meet the requirements of quality, efficacy, safety and stability. Analysis of herbal medicines is the study of methods of chemical analysis, qualitative and quantitative analysis of chemical components, chemical analysis of formulations. The objectives of this course are to develop an understanding of the underlying principles of the analytical methodology used in identifying and quantifying the main chemical components of herbal medicines, as well as contaminants and impurities, and to become familiar with the concepts of method validation and stability-indicating analysis as applied to herbal substances.

Textbooks
List PH, Schmidt PC. Phytopharmaceutical Technology. Boca Raton: CRC Press Inc, 1989
Martin A N. Physical Pharmacy. Lea & Febiger, 1993
Ansel H C. Introduction to Pharmaceutical Dose Forms. Lea & Febiger, 1985
Aulton M E (ed). Pharmaceutics: The Science of Dosage Form Design. Churchill Livingstone, 1988
Watson D G. Pharmaceutical Analysis, Churchill Livingstone. London, 1999
Wagner H, Bladt S, Zgainski EM. Plant Drug Analysis. Berlin: Springer-Verlag, 1984
Quality Control Methods for Medicinal Plant Materials, Geneva :World Health Organization, 1998
Witchtl M, Herbal Drugs and Phytochemicals, translated by N Bisset. 1994

HERB5556
Herbal Toxicology

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 2
Classes: lectures 3 hrs/wk for 7 wks, practicals, tutorials, 3 hrs/wk for 4 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Herbal toxicology deals with the theory and application of toxicology and safety aspects related to the herbal medicine industry and practice. Topics in this unit of study will include: mechanisms of toxicity, toxicological testing, toxicity of plants, adverse reactions, report mechanism for adverse reactions, contraindications and interactions with pharmaceutical drugs, scheduling of pharmaceutical and herbal medicines, list of toxic herbs.

Textbooks
Klaasen CD, Amdur MO & Doull J (eds).Casarett & Doull (eds). Toxicology: the Basic Science Of Poisons, (6th edn), McGraw-Hill. 2001
McGuffin M, Hobbs C, Upton R, Goldberg A, American Herbal Products Association's Botanical Safety Handbook, (eds). Boca Raton: CRC Press, 1997
Mills, S. and Bone, K., The Essential Guide to Herbal Safety, Elsevier Churchill Livingstone, 2005
Brinker F. Herb Contraindications and Drug Interactions (2nd edn). Sandy, Oregon: Eclectic Medical Publications, 1998

HERB5557
Pharmacognosy

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 2
Classes: lectures 3 hrs/wk for 9 wks, practicals, tutorials, 3 hrs/wk for 3 wks
Assessment: examinations (50%), assignments (25%), practical work (25%)
Campus: Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Pharmacognosy is the study of natural substances, principally plants, used in medicine. The current subject, pharmacognosy-identification of herbs focuses on the study of herbal identification and quality and development of new herbal resources. It utilizes experience of traditional medicine and theory and methods of modern sciences such as botany, zoology, and chemistry. It studies the origin, characteristics, microscopic characters, chemical components, physical and chemical properties of herbal medicines to ensure the quality of herbal materials and develop new resources.

Textbooks

Evans WC, Saunders WB. Trease and Evans Pharmacognosy (14th Ed). London: 1996

Montvale, N J. PDR for Herbal Medicines. Medical Economic, 1998

HERB5558

Clinical Studies and Monographs

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 2 **Classes:** 3 hrs/wk for 11 wks, practicals, tutorials, 3 hrs/wk for 4 wks **Assessment:** examinations (50%), assignments (25%), practical work (25%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

This unit has two modules with Module 1 covering the evaluation of clinical studies which refers to the amount of scientific and clinical literature on herbal medicines which is rapidly expanding. This subject will cover the quantitative aspects of study design, the extent and type of use of herbal medicines in world communities, evaluation of methodology of clinical trials, recent developments in clinical trials of herbal medicines in Australia and overseas and literature search training. Module 2 covers herbal monographs which is the information and application of common herbs and herbal preparations available in Australia. Topics will cover botanic description, traditional usage, chemical composition, pharmacology, therapeutic application, toxicity, clinical trial data, TGA regulatory status, and products in the market.

Textbooks

National Statement on Ethical Conduct in Research Involving Humans, National Health and Medical Research Council, 1999

Lewith G, Jonas WB, Walach H. Clinical Research in Complementary Therapies, Principles, Problems and Solutions. Churchill Livingstone, 2002

DeAngelis C. An Introduction to Clinical Research. Oxford University Press

Iber FL, Riley WA, Murray PJ. Conducting Clinical Trials. Plenum Medical Book Company, 1989

Montvale NJ, PDR for Herbal Medicines. Medical Economic, 1998

Braun L & Cohen M. Herbs & Natural Supplements - An Evidence-based Approach. Sydney: Elsevier-Mosby, 2004

Anderson LA & Phillipson JD. Herbal Medicines: A Guide for Health-Care Professionals. Pharmaceutical Publishing Co, 2002

Monographs on the Medicinal Uses of Plant Drugs, European Scientific Cooperative on Phytotherapy

Zhu Y. Chinese Materia Medica, Chemistry, Pharmacology, and Applications

HERB5559

Chinese Herbal Formulas and Processing

Credit points: 6 **Teacher/Coordinator:** Dr George Li **Session:** Semester 2 **Classes:** lectures 3 hrs/wk for 11 wks, practicals, tutorials, 3 hrs/wk for 3 wks **Assessment:** examinations (50%), assignments (25%), practical work (25%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

A formula of Chinese medicine is a preparation of a number of herbs for clinical use according to certain guidelines, on the basis of pattern differentiation and treatment methods. Formulary of Chinese medicine is based on the study of theory and application of formulae of Chinese medicine. Processing of Chinese medicine is a subject dealing with the theory, history and techniques of processing of Chinese materia medica, and the quality standard of processed herbs and the principles of processing. The objective of processing of Chinese herbal medicines is to maintain the quality of processed herbs, and ensure the safety and clinical efficacy of herbal medicines.

Textbooks

Barolet R & Bensky D. Chinese Herbal Medicine Formulae and Strategies. Eastland Press 1990

Sionneav P. Pao Zhi: An Introduction to the Use of Processed Chinese Medicinals. Blue Poppy Press, 1995

Whitten G. Herbal Harvest-Commercial Production of Quality Dried Herbs in Australia. Agmedia, 1997

* For Master of Herbal Medicines (honours level)

HERB5560

Dissertation

Credit points: 12 **Teacher/Coordinator:** Dr George Li **Session:** Semester 1, Semester 1a, Semester 1b, Semester 2, Semester 2a, Semester 2b **Classes:** Weekly meetings with coordinator and supervisor. Students are required to spend approx 24 hrs/wk on their project for one semester on a part-time basis **Assessment:** Research and dissertation of up to 20,000 words, or as a manuscript (approx. 3500 words). The manuscript should match the style and content of a nominated journal. The dissertation or manuscript should be bound and will be sent to two examiners. **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Note: Department permission required for enrolment.

To be eligible to apply for the Dissertation students need an average weighted mark of at least 65 in 24 credit points of core unit coursework in Semester 1. A weighted average mark of at least 70 must be maintained in Semester 2. Approved students are then required to undertake a small supervised research project in herbal medicines and complete a formal Dissertation component. The offer of Dissertation is subject to availability of staff and laboratory space. Students enrolled in the Master of Herbal Medicines (Honours) will undertake a research project over half (full-time) to one semester (part-time students).This research project will involve a literature review, the development of a research proposal and protocol, obtaining ethics approval, and collection of data, and then preparation of a minor treatise under the supervision of a faculty staff member. Supervision will normally involve a 1hr/week meeting with the student's supervisor. Facilities and equipment appropriate to the research will be arranged within the faculty as needed. Students will be required to write a major treatise up to 20,000 words documenting an original research endeavour in the area of herbal medicines. Students will be expected to attend the Postgraduate Research Symposium and to present their research proposal and their ongoing work to peer review.

HERB5561

Introduction to Herbal Medicines

Credit points: 6 **Teacher/Coordinator:** Dr G Li **Session:** Semester 1 **Classes:** Lectures 2 hrs/wk for 15 wks; tutorials and assignments, 2 hrs/wk for 1 wk **Assessment:** Examinations (50%), assignments (50%) **Campus:** Camperdown/Darlington **Mode of delivery:** Normal (lecture/lab/tutorial) Day

Note: Department permission required for enrolment.

This unit of study is designed as a course for general practitioners to gain a fundamental understanding of the nature of traditional medicine and the evidence base for the application of Western herbal medicine to health management in the Australian context. The key focus is on the fundamental knowledge and literature evaluation skills in the management of common chronic conditions with common herbs, applying an integrative and evidence based approach. The topics to be covered are: 1. Introduction to herbal medicine: traditional medicine concepts, regulation, information sources, legal issues; 2. Quality assurance: identification, chemistry, manufacturing, quality control, standardisation, bioavailability between preparations and manufacturers, interpretation of the label; 3. Herbal science: pharmacology, clinical evaluation; 4. Toxicology and drug-herb interactions; 5. Herbal therapeutics: scientific and clinical evidence for the use of common herbs for chronic diseases.

Textbooks

Braun L. & Cohen M. Herbs & Natural Supplements: An Evidence Based Approach. Elsevier, Australia. 2010.

Barnes J, Anderson LA, and Phillipson JD. Herbal Medicines. Third Edition. Pharmaceutical Press. London, UK. 2007.

Mills S & Bone K, Principles and Practice of Phytotherapy - Modern Herbal Medicine, London: Churchill Livingstone, 2000.

Quick Access, Professional Guide to Conditions, Herbs & Supplements, Integrative Medicine Communications. 2000.

* Non award course only

Research degree requirements

This chapter sets out requirements for postgraduate research programs offered in the Faculty of Pharmacy and includes a brief description of the research degrees and notes on the presentation of theses. An overview of research activities at the Faculty is also given in this chapter.

The information in this chapter is in summary form and is subordinate to the provisions of the relevant degree resolutions.

Another valuable resource for intending and current postgraduate students is the *Postgraduate Studies Handbook* published by the University of Sydney. See: sydney.edu.au/handbooks/handbooks_admin/postgraduate.shtml

Also relevant is *The Thesis Guide* and the *Survival Manual* published by the Sydney University Postgraduate Representative Association.

Research degrees

Research degrees offered by the faculty are:

- Doctor of Philosophy
- Master of Philosophy

Doctor of Philosophy (PhD)

Course code: PB000

Doctor of Philosophy degree resolutions

Part 1 – Preliminary

1. **Citation and commencement**
   - 1.1 *Citation*
     - 1.1.1 This Rule is made by the Senate of the University of Sydney pursuant to section 37(1) of the University of Sydney Act 1989 for the purposes of the University of Sydney By-law 1999.
   - 1.2 *Commencement*
     - 1.2.1 This Rule commences on the day after it is made in accordance with Chapter 2 of the University of Sydney By-law 1999.
2. **Purpose**
   - 2.1 This Rule:
     - 2.1.1 repeals and replaces Part 10, Division 4 of the University of Sydney (Amendment Act) Rule 1999 in its entirety; and
     - 2.1.2 deals with matters relating to the degree of Doctor of Philosophy.

Part 2 – Admission to candidature

3. **Heads of department**
   - 3.1 A head of department may delegate to a specified member of the academic staff his or her responsibilities under these Rules by countersigning a specific recommendation in respect of a particular candidature or by making, and forwarding to the Registrar, a written statement of delegation of those powers.
4. **Admission to candidature**
   - 4.1 An applicant for admission as a candidate for the degree shall, except as provided in 4.2 and 4.3 below, hold or have fulfilled all the requirements for:
     - 4.1.1 the degree of master, or
     - 4.1.2 the degree of bachelor with first or second class honours.
   - 4.2 A faculty may admit as a candidate for the degree an applicant holding the degree of bachelor without first or second class honours after the applicant has passed a qualifying examination at a standard equivalent to the bachelor's degree with first or second class honours, provided that a faculty may exempt an applicant from the qualifying examination if the applicant has obtained a high distinction or distinction in the highest course available in the subject or subjects relevant to the proposed course of advanced study and research.
   - 4.3 The Academic Board has endorsed an interpretation of the qualifying examination as including completion of a period of relevant full-time or part-time advanced study and research towards a master's degree in the University of Sydney, at such a standard as would demonstrate to the satisfaction of the faculty that the candidate is suitably prepared in the particular field of study to undertake candidature for the degree of Doctor of Philosophy.
   - 4.4 The Academic Board may, in accordance with this Rule, admit as a candidate for the degree an applicant holding qualifications which, in the opinion of the faculty concerned and of the Academic Board, are equivalent to those prescribed in 4.1 or 4.2 above and such candidate shall proceed to the degree under such conditions as the Academic Board may prescribe.
   - 4.5 An applicant for admission to candidature shall submit to the faculty concerned:

4.5.1 a proposed course of advanced study and research, approved by the head of the department in which the work is to be carried out, to be undertaken by the applicant in a department of the University, and

4.5.2 satisfactory evidence of adequate training and ability to pursue the proposed course.

4.6 The faculty may require a candidate, as part of the evidence of the candidate's training and ability to pursue the proposed course, to pass a special examination.

4.7 A reference in this section to a department includes a reference to one or more departments, one or more schools, an interdepartmental committee and an interschool committee.

5. **Probationary acceptance**

5.1 A candidate may be accepted by a faculty on a probationary basis for a period not exceeding one year and upon completion of this probationary period, the faculty shall review the candidate's work and shall either confirm the candidate's status or terminate the candidature.

5.2 In the case of a candidate accepted on a probationary period under 5.1 above, the candidature shall be deemed to have commenced from the date of such acceptance.

6. **Control of candidature**

6.1 Each candidate shall pursue his or her course of advanced study and research wholly under the control of the University.

6.2 Where a candidate is employed by an institution other than the University, the faculty or college board may require a statement by that employer acknowledging that the candidature will be under the control of the University.

7. **Other studies during the candidature**

7.1 A candidate may be required by the head of department or the supervisor to attend lectures, seminar courses or practical work courses or to undertake courses and, if required, the assessment for such courses, subject to the approval of any other head of department concerned.

8. **Credit for previous studies**

8.1 A candidate who, at the date of admission to candidature, has completed not less than six months as a candidate for the degree of master in any faculty or board of studies of the University of Sydney, may be permitted by the faculty concerned to be credited for the whole or any part of the period of candidature completed for the degree of master as a period of candidature completed for the degree of Doctor of Philosophy, provided that the period of candidature for the degree of master for which credit is sought shall have been a course of full-time or part-time advanced study and research under a supervisor appointed by the faculty or board of studies concerned and directly related to the candidate's proposed course of advanced study and research for the degree of Doctor of Philosophy.

8.2 A candidate who, at the date of admission has completed not less than six months as a candidate for a higher degree in another university or institution may be permitted by the Academic Board, on the recommendation of the faculty concerned, to be credited for the whole or any part of the period of candidature completed as a period completed for the degree of Doctor of Philosophy of the University of Sydney, provided that:

8.2.1 at the date of admission to candidature for the higher degree of the other university or institution concerned the candidate shall have fulfilled the requirements of admission to candidature set out in section 3 above;

8.2.2 the period of candidature for the higher degree of the other university or institution concerned for which credit is sought shall have been a course of full-time or part-time advanced study and research under a supervisor appointed by the other university or institution concerned and directly related to the candidate's proposed course of advanced study and research in the University of Sydney;

8.2.3 the candidate shall have abandoned candidature for the higher degree of the other university or institution concerned for which credit is sought;

8.2.4 the amount of credit which may be so granted shall not exceed one year; and

8.2.5 no candidate who has been granted credit shall present a thesis for examination for the degree earlier than the end of the second year after acceptance.

8.3 The Faculty of Medicine may grant credit not exceeding one year to a candidate for the degree of Doctor of Philosophy in that Faculty who has submitted documented evidence of having previously completed supervised study towards the degree of Doctor of Medicine of the University of Sydney.

Part 3 – Supervision

9. **Appointment and qualifications of supervisors and associate supervisors**

9.1 The faculty or college board, on the recommendation of the head of department concerned, shall appoint a suitably qualified supervisor and associate supervisors for each candidate to take primary responsibility for the conduct of the candidature and to be responsible for the progress of the candidature to the head of department and the faculty or college board concerned in accordance with policy established by the Academic Board.

Part 4 – Candidature

10. **Location**

10.1.1 Subject to the annual approval of the supervisor, head of department and faculty or college board, the candidate shall pursue the course of advanced study and research either:

10.1.1.1 within the University including its research stations and teaching hospitals;

10.1.1.2 on fieldwork either in the field or in libraries, museums or other repositories;

10.1.1.3 within industrial laboratories or research institutions or other institutions considered by the faculty or college board concerned to provide adequate facilities for that candidature; or

10.1.1.4 within a professional working environment;

10.1.2 and shall attend at the University for such consultation with the supervisor and shall participate in such departmental and faculty or college seminars as shall annually be specified.

10.2.1 A candidate pursuing candidature outside Australia must also complete a minimum of two semesters of candidature within the University [but not necessarily immediately before submission, not necessarily as a continuous two-semester period] before submission of the thesis.

10.2.2 The corresponding period for candidates for whom the minimum length of candidature is four semesters is a minimum of one semester.

10.3 When recommending the detailed annual conditions for each candidate's particular course of advanced study and research the supervisor and head of department must indicate whether they are satisfied that the proposed supervision arrangements will be satisfactory.

11. **Progress**

11.1 At the end of each year each candidate shall provide evidence of progress and attend a progress review interview to the satisfaction of the supervisor and head of department concerned and any Departmental or Faculty Postgraduate Review Committee.

11.2 On the basis of evidence provided and the interview, the head of department shall recommend the conditions of candidature to apply for the following year and may require the candidate to provide further evidence of progress at the end of one semester or such other period as the head of department considers appropriate.

11.3 If a candidate fails to submit evidence of progress or if the head of department concerned considers that the evidence submitted does not indicate satisfactory progress, the faculty or college board may, on the head's recommendation, call upon that candidate to show cause why that candidature should not be terminated by reason of unsatisfactory progress towards completion of the degree and where, in the opinion of the faculty or college board, the candidate does not show good cause the faculty or college board may terminate that candidature or may impose conditions on the continuation of that candidature.

Part 5 – Submission of thesis

12. **The thesis**

12.1.1 On completing the course of advanced study and research, a candidate shall present a thesis embodying the results of the work undertaken, which shall be a substantially original contribution to the subject concerned.

12.1.2 The candidate shall state, generally in the preface and specifically in notes, the sources from which the information is derived, the animal and human ethical approvals obtained, the extent to which the work of others has been made use of, and the portion of the work the candidate claims as original.

12.2 A candidate may also submit in support of the candidature any publication of which the candidate is the sole or joint author. In such a case the candidate must produce evidence to identify satisfactorily the sections of the work for which the candidate is responsible.

12.3 Except where the candidature has been governed by an approved cotutelle agreement, a candidate may not present as the thesis any work which has been presented for a degree or diploma at this or another university, but the candidate will not be precluded from incorporating such in the thesis, provided that, in presenting the thesis, the candidate indicates the part of the work which has been so incorporated.

12.4 Theses shall be written in English, except that:

12.4.1 in the case of a candidature governed by an approved cotutelle agreement, the thesis may be written in English or in another language; and

12.4.2.1 in the Faculty of Arts, in the case of language departments, theses may be written either in English or in their target language as determined by the department, unless a department has specified by means of a Faculty resolution that it will consider applications to submit the thesis in a language other than:

12.4.2.1.1 English; or

12.4.2.1.2 a target language of the department.

12.4.2.2 Such applications should be made in writing; and approved by the head of department concerned and the Dean of the Faculty, before the commencement of candidature.

12.4.2.3 In considering applications a head of department shall take into account arrangements for supervision and examination.

12.5 A candidate shall submit to the Registrar four copies of the thesis in a form prescribed by resolution of the Academic Board and four copies of a summary of about 300 words in length.

12.6 The thesis shall be accompanied by a certificate from the supervisor stating whether, in the supervisor's opinion, the form of presentation of the thesis is satisfactory.

13. **Earliest date for submission**

13.1 Except as provided below, a candidate may not submit a thesis for examination earlier than the end of the sixth semester of candidature.

13.2 A faculty or college board may permit a candidate holding any of the following qualifications of the University of Sydney or from such other institution as the faculty or college board may approve, to submit a thesis for examination not earlier than the end of the fourth semester of candidature:

13.2.1 a degree of master completed primarily by research;

13.2.2 both the degrees of Bachelor of Dental Surgery with honours and Bachelor of Science (Dental) with honours;

13.2.3 both the degrees of Bachelor of Medicine with honours and Bachelor of Science (Medical) with honours; or

13.2.4 both the degrees of Bachelor of Veterinary Science with honours and Bachelor of Science (Veterinary) with honours.

13.3 Notwithstanding 13.1 and 13.2 above, a faculty may, on the recommendation of the head of department and supervisor concerned, permit a candidate to submit a thesis for examination up to one semester earlier than prescribed if, in the opinion of the faculty, evidence has been produced that the candidate has made exceptional progress in his or her candidature.

13.4.1 Notwithstanding 13.1, 13.2 and 13.3 above, the Chair of the Academic Board may, on the recommendation of the dean of the faculty in which the candidate is enrolled, permit a candidate to submit a thesis for examination earlier than prescribed if, in the opinion of the Chair of the Academic Board, evidence has been produced that the candidate has made exceptional progress in his or her candidature.

13.4.2 The Chair of the Academic Board may take advice from the Chair of the Graduate Studies Committee and shall report any applications under this provision and the action taken to the next meeting of the Academic Board.

14. **Latest date for submission**

14.1 Except as provided in 14.1 to 14.3 below, a candidate shall submit the thesis for examination not later than the end of the eighth semester of candidature.

14.2 A candidate whose candidature has been part-time throughout shall submit the thesis for examination not later than the end of the 16th semester of candidature.

14.3 The time limits set out in 14.1 to 14.2 above, apply to candidates who commence candidature after 31 December 2000. Candidates who commenced candidature prior to this date may choose to proceed in accordance with the Rules in force at the time when they commenced candidature.

14.4 The relevant dean may permit a candidate to submit the thesis for examination after a period of time greater than the maximum periods specified.

15. **Examination**

15.1 The procedures for examination shall be prescribed by the Academic Board.

Master of Philosophy degree resolutions

Master of Philosophy

1 Course Codes

Code	Course title
PC082	Master of Philosophy

2 Admission

(1) Except as provided in Part 9, section 47 of the University of Sydney (Amendment Act) Rule 1999, the Faculty of Pharmacy may, admit to candidature for the degree of Master of Philosophy:
  (a) an applicant who holds the degree of bachelor with first or second class honours, or
  (b) an applicant who holds the degree of bachelor of the University of Sydney or other approved institution without first or second class honours after the applicant has passed a qualifying examination at a standard equivalent to the bachelor's degree with first or second class honours, provided that a faculty may exempt an applicant from the qualifying examination if the applicant has obtained at least a credit in the highest course available in the subject or subjects relevant to the proposed course of advanced study and research.

(2) The qualifying exam may include completion of a period of relevant full-time or part-time advanced study and/or research towards a postgraduate award course in the University of Sydney, at such a standard as would demonstrate to the satisfaction of the faculty that the candidate is suitably prepared in the particular field of study to undertake candidature for the degree of Master of Philosophy.

(3) The faculty may admit as a candidate for the degree an applicant holding qualifications which, in the opinion of the faculty concerned, are equivalent to those prescribed in 2(1) above and such candidate shall proceed to the degree under such conditions as the Faculty may prescribe.

(4) The faculty may require a candidate, as part of the evidence of the candidate's training and ability to pursue the proposed course, to pass a special examination or assessment.

(5) An applicant, for admission to candidature, shall submit to the Faculty a research proposal as part of the application. This proposal will detail a course of advanced study and research, in which the work is to be carried out to be undertaken by the applicant in a discipline of the Faculty of Pharmacy.

(6) Admission to candidature will be conditional upon the appointment of an appropriate supervisor and associate supervisor as stipulated in the Academic Board Policy entitled "Postgraduate Research Higher Degree Training Supervision at the University of Sydney".

3 Method of Progression

(1) A candidate for the Master of Philosophy shall proceed by completing a 6 credit point unit of study on research methods and by research and thesis.

(2) A full-time candidate shall not keep the normal academic year but shall pursue candidature for the degree continuously throughout the year except for a period of 4 weeks recreation leave and shall dedicate a minimum of 35 hours per week to their candidature.

(3) A candidate who does not comply with section 3(2) should be enrolled as a part-time candidate.

4 Requirements

(1) A Master of Philosophy candidate proceeding by research shall:
  (a) complete a 6 credit point unit of study on research methods during the probationary period;
  (b) complete such other assessments or units of study, if any, as may be prescribed by the head of the discipline concerned;
  (c) carry out supervised research on a topic approved by the Faculty on the recommendation of the Dean;
  (d) write a thesis embodying the results of this research; and
  (e) lodge with the Registrar three copies of this thesis, typewritten and bound.

(2) The candidate shall state in the thesis:
  (a) the sources from which the information was derived;
  (b) the extent to which the work of others has been used; and
  (c) the portion of the work claimed as original.

(3) The candidate may include in the thesis published papers of which the candidate is sole or joint author, provided that:
  (a) the papers are based on work undertaken during the candidature for the degree;
  (b) the papers are identified as published work;
  (c) the papers are compatible with the overall coherence and organisation of the text of the thesis; and
  (d) the candidate provides evidence to identify satisfactorily the sections of work for which the candidate is responsible, such as assigned, written statements from all authors attesting to the contribution of the candidate.

(4) Any other papers of which the candidate is sole or joint author may be lodged in support of the thesis.

(5) The thesis contains original contributions to the knowledge of the subject concerned;
  (a) the thesis affords evidence of originality by the exercising of independent critical ability;
  (b) the thesis is a satisfactory literary presentation; and
  (c) material in the thesis is suitable for publication.

(6) The thesis shall be accompanied by a statement from the supervisor stating whether, in the supervisor's opinion, the form of presentation of the thesis is satisfactory.

(7) A candidate may not present as the thesis a work which has been presented for a degree in this or another university, but will not be precluded from incorporating such in the thesis provided that in presenting the thesis the candidate indicates the part of the work which has been so incorporated.

(8) Satisfy the requirements of all other relevant By-Laws, Rules and Resolutions of the University.

5 Probation

(1) A candidate will normally be accepted by the Faculty on a probationary basis for a period not exceeding twelve months.

(2) The provision to waive probationary acceptance would only be exercised in exceptional circumstances. All requests to waive probation will need to be approved by the Chair of the Board of Postgraduate Studies.

(3) A Probation Review Report must be completed by the candidate's supervisor in consultation with the Postgraduate Coordinator and submitted to the Faculty at least four weeks before the end of probation.

(4) The Faculty will write to the candidate to advise of the outcome of the probation review, either confirming the candidate's status, extending the probationary period or terminating the candidature.

(5) In the case of a candidate accepted on a probationary basis under section 5(1), the candidature shall be deemed to have commenced from the date of such acceptance.

6 Enrolment

(1) A student must be enrolled in each semester in which he or she is actively pursuing the requirements for the award course.

(2) The candidature of a student who has not re-enrolled and who has not obtained approval from the Faculty for a suspension of candidature for the relevant semester will be deemed to have lapsed.

7 Restrictions on enrolment

(1) Admission to candidature may be limited by a quota. In determining the quota the Faculty will take into account:
  (a) availability of resources;
  (b) availability of adequate and appropriate supervision.
(2) In considering an application for admission the Dean will take into account the quota.
(3) Entry will be based on applicants who are most meritorious in terms of Section (2) above.

8 Discontinuation of enrolment

(1) A candidate who wishes to discontinue enrolment from the Master of Philosophy must notify the Faculty in writing and will be presumed to have discontinued enrolment from the date of that notification, unless evidence is produced showing:
  (a) that the discontinuation occurred at an earlier date; and
  (b) that there was good reason the notification could not be made at the earlier time.

9 Suspension of candidature

(1) A candidate who wishes to suspend their candidature must apply, in writing, to the Faculty.
(2) The application must be received by the Faculty prior to the commencement of the relevant semester.
(3) A candidate may only apply for a period of suspension for one semester at any one time. Should a candidate wish to suspend their candidature for more than one semester another application must be made to the Faculty for each subsequent semester, prior to the commencement of the relevant semester.
(4) Late applications may be considered at the Faculty's discretion.
(5) Where the candidate has previously had two semesters of suspension the application will be considered by the Board of Postgraduate Studies for the Faculty.

10 Re-enrolment after an absence

(1) A student must enrol in the semester following a period of approved suspension.
(2) A student whose candidature has lapsed must apply for re-admission in accordance with procedures determined by the Faculty.

11 Satisfactory progress

(1) At the end of each year each candidate shall complete an Annual Progress Report providing evidence of progress to the satisfaction of the supervisor, Dean, any postgraduate review committee and the Board of Postgraduate Studies.
(2) On the basis of evidence provided, the Dean or the Chair of the Board of Postgraduate Studies shall recommend the conditions of candidature to apply for the following year and may require the candidate to provide further evidence of progress at the end of one semester or such other period as the Dean or the Chair of the Board of Postgraduate Studies considers appropriate.
(3) If a candidate fails to submit evidence of progress or if the Dean considers that the evidence submitted does not indicate satisfactory progress, the Board of Postgraduate Studies may, on the Dean's recommendation, call upon that candidate to show cause why that candidature should not be terminated by reason of unsatisfactory progress towards completion of the degree and where, in the opinion of the Board of Postgraduate Studies, the candidate does not show good cause, the Board of Postgraduate Studies may terminate that candidature or may impose conditions on the continuation of that candidature.

12 Credit

A candidate who, before admission to candidature, has spent time in advanced study in the University of Sydney, or in another university, or in another institution whose courses are deemed by the Faculty to be equivalent, may be deemed by the Faculty to have spent such time after admission to candidature.

13 Time limits

(1) Except with the permission of the Faculty on the recommendation of the Dean, a full-time research candidate shall complete the requirements for the degree not earlier than the end of the second semester of candidature and not later than the end of the fourth semester of candidature.
(2) Except with the permission of the Faculty on the recommendation of the Dean, a part-time research candidate shall complete the requirements for either degree not earlier than the end of the fourth semester of candidature and not later than the end of the eighth semester of candidature.

14 Location

(1) Subject to approval of the supervisor, Dean and Board of Postgraduate Studies, the candidate may request a period of time away to pursue the course of advanced study and research within industrial laboratories or research institutions or other institutions considered by the Board of Postgraduate Studies on the recommendation of the Dean to provide adequate facilities and appropriate supervision for that candidature.
(2) A candidate pursuing candidature outside Australia must also complete a minimum of one semester of candidature within the University before submission [but not necessarily immediately before submission] of the thesis.

15 Examination of thesis

(1) The examination of a thesis for the degree of Master of Philosophy shall follow closely the examination process as stipulated by the Resolutions of the Academic Board for the degree of Doctor of Philosophy (with any reference to the PhD Award Subcommittee being substituted by the Board of Postgraduate Studies) except for the following variations:
  (a) The Dean shall recommend the appointment of two examiners of the thesis of whom at least one shall be an external to the Faculty, not being a member of staff or a clinical academic title holder of the Faculty. Approval of the examiners is the responsibility of the Board of Postgraduate Studies.
  (b) The supervisor and Dean shall take all possible steps to ensure that examiners are appointed within four weeks of the submission of the thesis and where this does not occur, shall report the circumstances to the Board of Postgraduate Studies.

Presentation of theses

The following information is presented for the guidance of candidates. It should be regarded as a summary only. Candidates should also consult the *Postgraduate Studies Handbook* for the most current and detailed advice. See:
sydney.edu.au/handbooks/handbooks_admin/postgraduate.shtml

Formal requirements for Doctor of Philosophy

- Four copies of the candidate's thesis should be submitted for examination for the degree of Doctor of Philosophy. These may be bound in either a temporary or a permanent form.
- Theses submitted in temporary binding should be strong enough to withstand ordinary handling and postage.
- The degree shall not be awarded until the candidate has submitted a permanently bound copy of the thesis (containing any corrections or amendments that may be required), printed on acid-free or permanent paper.
- The thesis shall be accompanied by a certificate from the supervisor stating whether in the supervisor's opinion the form of presentation of the thesis is satisfactory.
- Thesis in permanent form shall normally be on International Standard A4 size paper sewn and bound in boards covered with book cloth or buckram or other binding fabric.
- The title of the thesis, the candidate's initials and surname, the title of the degree, the year of submission and the name of the University of Sydney should appear in lettering on the front cover or on the title page. The lettering on the spine, reading from top to bottom, should conform as far as possible to the above except that the name of the University of Sydney may be omitted and the thesis title abbreviated.
- Supporting material should be bound in the back of the thesis as an appendix or in a separate sheet of covers.

Formal requirements for Master of Philosophy

- Similar formal requirements to those above exist for the presentation of masters theses.
- Three copies must be submitted.

Research in the Faculty of Pharmacy

We place special emphasis on research at the Faculty of Pharmacy which is structured around the following therapeutic areas and disease states; Respiratory Diseases, Cardiovascular and Diabetes, Cancer, Mental Health and Healthy Ageing. The research themes closely reflect the Australian Government's national health priorities. Research at the Faculty covers a broad spectrum of pharmaceutical and clinical sciences, including:

- the design, synthesis, testing and mechanism of action of drugs
- studies on advanced drug delivery
- investigation of the fate of drugs in humans including pharmacogenomics and other aspects of drug disposition, and
- research on the clinical and sociological aspects of pharmacy and health services research

Within the pharmacy profession, the Faculty of Pharmacy at the University of Sydney is established as a leader in research and innovation. We are experiencing a sustained period of significant growth as we continue to attract outstanding researchers to the faculty through the provision of facilities that promote world class research.

Research income has increased from approximately $0.5 million in 1999 to approximately $5m in 2010. Research in the faculty is supported through nationally competitive grant funding from professional bodies, such as the Pharmacy Guild of Australia, National Health and Medical Research Council, Australian Research Council, among others.

Research projects are also conducted as collaborative ventures and contracts with the pharmaceutical industry or with State or Commonwealth Departments of Health.

Respiratory Disease

The Respiratory research group is committed to bridging the gap between respiratory treatment and research by developing;

- clinical services
- specific clinical interventions
- effective patient/health education, and
- self management techniques

In addition, the team is exploring systems-related organisational approaches to facilitate clinical uptake of new approaches to treatment and prevention.

The group's clinical focus covers a wide range of conditions such as asthma, chronic obstructive lung disease, allergic rhinitis, tuberculosis, and apnea and spans population groups such as children and the elderly. The group has a diverse range of skills and possesses a multidisciplinary outlook through having psychologists, clinical pharmacists, asthma educators, pharmacy academics and management and organisational behaviour experts.

The work of the Respiratory research group increases our understanding of what happens inside and outside the cells in diseases like asthma and chronic obstructive pulmonary disease (COPD) and aims to identify novel targets which may lead to improved therapeutic strategies to reduce the inflammation and manage these chronic respiratory diseases.

Research on advanced drug delivery is focused on understanding physical properties of materials used in pharmaceutical sciences and relating those to in-vitro and subsequent in-vivo performance, and in the respiratory group, focuses on drug delivery science.

The advanced drug delivery research facilities are state of the art, and cover all aspects of physical-chemical characterisation, computational and in-vitro characterisation. In addition, the group has formed an Australasian 'inhalation' consortium with the Victorian

College of Pharmacy (Melbourne), greatly enhancing total infrastructure and research output.

Cancer

Cancer is a common major health issue in Australia today. The Cancer Council of Australia expects that (at current rates) by the age of 85 one in two men, and one in three women will be diagnosed with cancer. Faculty research projects are tackling this disease from many angles, from personalised anti-cancer therapy to drug resistance to using honey-bee propolis and herbal medicines to design new therapies.

Up to 50% of cancer patients are either under-dosed or experience toxicity at standard doses of oncology drugs. These problems are due largely to different rates of drug elimination, which are controlled by liver enzymes and transporters. One of the current research projects being undertaken by the group evaluates how inter-individual variation in the genes encoding these proteins influence the outcomes of therapy. This pharmacogenomic information may help to tailor therapy to individual cancer patients.

Research Strengths

- Human pharmacogenetics and personalised anticancer drug therapy
- Drug resistance in cancer
- UV induced skin damage treatment
- Regulation of Epidermal Growth Factor Receptors (EGFR)/Ras pathway in breast cancer
- Molecular mechanisms of the tumour microenvironment.

Cardiovascular and Diabetes

Faculty research covers a range of cardiovascular diseases and problems from atherosclerosis and thromboembolism, to cardiac infarction and stroke. Researchers are looking at several key aspects of diabetes: management, treatment, and prevention using computational modelling, herbal medicines in metabolic syndrome management, and have developed a new pharmacy diabetes management model.

The Faculty has secured funding for improving cardiovascular medication adherence and is developing an evidence-based training package to educate and up-skill health professionals, GPs, pharmacists and nurses, in understanding current issues with adherence to medications and how they can implement strategies to improve management of patients with cardiovascular disease.

Research Strengths

- Ras signalling and stimulation of cholesterol efflux in atherosclerosis
- Design, synthesis and pharmacology of new diabetic drugs
- Optimisation of anti-thrombotic therapy for stroke prevention
- Herbal medicines for the management of metabolic syndrome: hyperlipidemia and diabetes.

Mental Health

Mental illness is a national health priority in Australia with one in five adults in Australia having an episode of mental illness in any one-year period. Drugs play a major part in the treatment of mental illness, giving pharmacists the potential to play a significant role in delivering treatment and services to mental health patients. Many therapies to date are not optimal and thus increasing the diversity of agents for treating neurological diseases and to investigate these at their targets is also an important aspect of mental health research.

The research group has expertise in the development of specific agents for specific receptors and evaluate the behavioural aspects of these on anxiety, and memory and learning and plans to focus further research into the mechanism of action of sedatives, hypnotics, stimulants and drugs of abuse. Other areas of research include inter-professional collaboration between pharmacists and medical practitioners in medication review and mental health services.

Research Strengths

- Dementia
- Schizophrenia
- Anxiety and Depression

Healthy Ageing

Research at the Faculty aims to support healthy ageing of Australians and to promote their quality of life. Many patients in an ageing population are taking complex medication regimens, and medication adherence and the quality use of medicines are important aspects of their management. The complexity of healthcare and reforms to the health system provide opportunities through collaborative research to maximise the potential benefits and to minimise potential harm from medicines.

Understanding the causes and consequences of variability in response to medicines and how this informs their quality use is another key focus of healthy ageing research in special patient populations such as older people, very young and critically ill.

The team is also exploring associated issues such as information required about medicines; ways of optimising care delivery through a more collaborative approach; decreased mobility with age and the need to access services and information through the internet; a public health approach to obesity in the general public; over the counter pharmacy services; as well as ethics of professional services in community pharmacy.

Research Strengths

The researchers who operate within this theme have experience and expertise in methodologies that span investigations at the molecular, cellular, organ, species and population levels. Their interests range from drug discovery and design through to evaluating the impact of health policy and models of care on health outcomes. Their techniques are experimental and observational. Some specific current research programs involve:

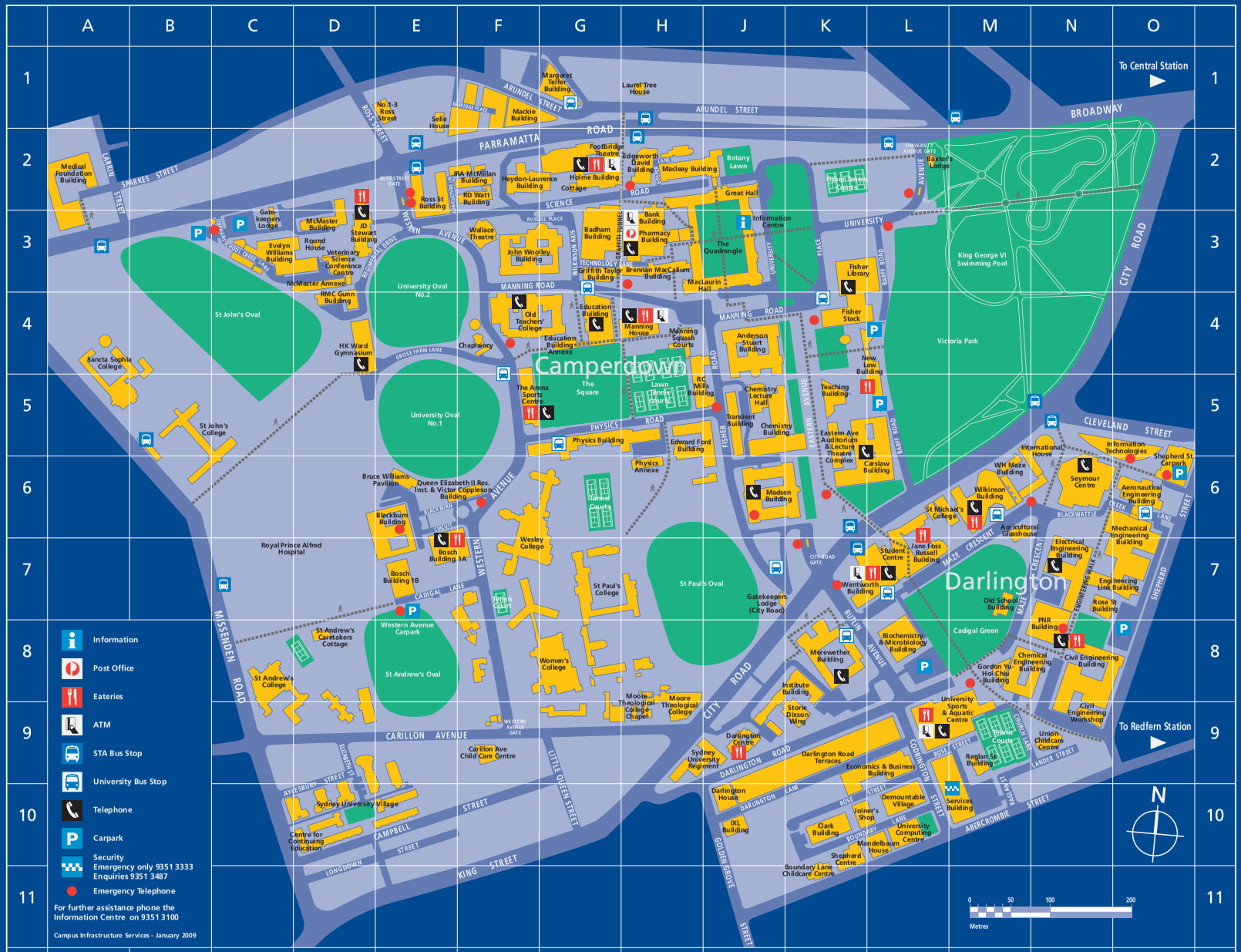
- Quality Use of Medicines (QUM) and medication safety
- adherence to therapy
- enhancing pharmacist and pharmacy services for an ageing population
- impact of ageing on drug disposition and response to medicines
- ethnic and genetic determinants of drug response
- quantitative structure-toxicity relationships and mechanisms
- issues in paediatric pharmacotherapeutics
- medicine access, health records and health policy
- drug delivery
- drug formulation design
- collaborations in primary health care.

Index by alpha code

Index by name

Map Code: 0102_MAIN

Camperdown and Darlington Campuses



Directory

University buildings

O6 Aeronautical Engineering Building
J4 Anderson Stuart Building

G3 Badham Building
H3 Bank Building
L2 Baxter's Lodge
L8 Biochemistry and Microbiology Building
E6 Blackburn Building
E7 Bosch Building 1A
E7 Bosch Building 1B
H3 Brennan MacCallum Building
E6 Bruce Williams Pavilion

L6 Carslaw Building
F4 Chaplaincy
M8 Chemical Engineering Building
J5 Chemistry Building
N8 Civil Engineering Building
N9 Civil Engineering Workshop
K10 Clark Building

J9 Darlington Centre
J10 Darlington House
K9 Darlington Road Terraces
L10 Demountable Village

K5 Eastern Avenue Auditorium & Lecture Theatre Complex
L9 Economics and Business Building
H2 Edgeworth David Geology Building
G4 Education Building
G4 Education Building Annexe
H5 Edward Ford Building
N7 Electrical Engineering Building
N7 Engineering Link Building
C3 Evelyn Williams Building

K3 Fisher Library
K4 Fisher Library Stack
G2 Footbridge Theatre

C3 Gatekeeper's Lodge
J7 Gatekeeper's Lodge (City Road)
M8 Gordon Yu-Hoi Chui Building
J2 Great Hall
G3 Griffith Taylor Building

D4 HK Ward Gymnasium
F2 Heydon-Laurence Building
G2 Holme Building

N5 Information Technologies
K8 Institute Building
N5 International House
J10 IXL Building

D3 JD Stewart Building
F2 JRA McMillan Building
L7 Jane Foss Russell Building
F3 John Woolley Building

L4 Law School

F1 Mackie Building
H3 MacLaurin Hall
H2 Macleay Building
G1 Margaret Telfer Building
J6 Madsen Building
H4 Manning House
H4 Manning Squash Courts
D3 McMaster Annexe
D3 McMaster Building
O6 Mechanical Engineering Building
A2 Medical Foundation Building
K8 Merewether Building

L4 New Law Building
E1 No. 1-3 Ross Street

M7 Old School Building
F4 Old Teachers' College

H3 Pharmacy Building
H6 Physics Annexe
G5 Physics Building
N8 PNR Building

E6 Queen Elizabeth II Research Institute

H5 RC Mills Building
F2 RD Watt Building
D4 RMC Gunn Building
M9 Raglan Street Building
N7 Rose Street Building
E2 Ross Street Building

G2 Science Road Cottage
E1 Selle House
M10 Services Building
N6 Seymour Centre
K10 Shepherd Centre
O6 Shepherd Street Carpark
K9 Storie Dixson Wing
L4 Sydney Law School

K5 Teaching Building
F5 The Arena Sports Centre
J3 The Quadrangle
J5 Transient Building

L10 University Computing Centre
M9 University Sports & Aquatic Centre

D3 Veterinary Science Conference Centre
E6 Victor Coppleson Building

F3 Wallace Theatre
K7 Wentworth Building
E7 Western Avenue Carpark
M6 WH Maze Building
M6 Wilkinson Building

Childcare centres

K11 Boundary Lane
F9 Carillon Avenue
N9 KU Union
H1 Laurel Tree House

Colleges & residential accommodation

J10 Darlington House
K9 Darlington Road Terraces
N5 International House
L10 Mandelbaum House
A4 Sancta Sophia College
C8 St Andrew's College
B5 St John's College
L6 St Michael's College
G7 St Paul's College
E1 Selle House
D10 Sydney University Village
F7 Wesley College
G8 Women's College

Computer Access Centres

H3 Brennan
G4 Education
K3 Fisher
N7 Link
L6 McGrath (Carslaw)
H3 Pharmacy

Cultural venues

H2 Macleay Museum
J3 Nicholson Museum
N6 Seymour Centre
K7 Sir Hermann Black Gallery
M6 Tin Sheds Gallery
J2 University Art Gallery

Faculties (offices)

F2 Agriculture, Food and Natural Resources
M6 Architecture
H3 Arts
K8 Economics & Business
G4 Education and Social Work
N7 Engineering
L4 Law
H5 Medicine
H3 Pharmacy
L6 Science
D3 Veterinary Science

Libraries

G3 Badham
H5 Burkitt-Ford
K3 Fisher
L4 Freehills Law Library
E7 Medical
H5 Schaeffer Fine Arts
L7 SciTech

Retail

H3 Australia Post Office
J9 Darlington Centre
G2 Holme Building
L7 Jane Foss Russell Building
H4 Manning House
F5 The Arena Sports Centre
M9 University Copy Centre
K7 University Health Service
M9 University Sports & Aquatic Centre
M9 University Co-op Bookshop
C3 Valentine Charlton Cat Centre
C3 Veterinary Hospital & Clinic
K7 Wentworth Building

Security

M10 Emergency Services
M10 Lost Property
M10 Traffic & Parking

Sports & recreational venues

K2 Fisher Tennis Courts
D4 HK Ward Gymnasium
H5 Lawn Tennis Courts
H4 Manning Squash Courts
F5 The Arena Sports Centre
G5 The Square
E5 University Oval No. 1
E3 University Oval No. 2
M9 University Sports & Aquatic Centre

Unions & associations (offices)

K7 Students' Representative Council (SRC)
M9 Sydney University Postgraduate Representative Association (SUPRA)
M9 Sydney Uni Sport & Fitness
G2 University of Sydney Union

University administration, centres & services

L7 Accommodation Service
H3 Alumni Relations Office

L7 Careers Centre
L7 Cashier
D10 Centre for Continuing Education
K7 Centre for English Teaching
H3 Chancellor
L7 Counselling Service

L7 Disability Services

L7 Equity Support Services
H2 Executive Offices

L7 Financial Assistance Office
G1 Financial Services

J3 Information Centre
L10 Information and Communications Technology Services
L7 International Office
L7 International Student Support Unit

G4 Learning Centre

L6 Mathematics Learning Centre
H2 Media Office

G1 Office of General Counsel

L7 Research Office

L7 Scholarships and Prizes Office
L7 Student Centre
L7 Student Support Services
K8 Summer School
K8 Support Sydney
M10 SydneyPeople – HR Service Centre
D9 SydneyPeople – Learning Solutions
E1 SydneyPeople – Unistaff
L7 Sydney Talent
O5 Sydnovate

F3 United States Studies Centre
G2 University of Sydney Venue Collection

C3 Veterinary Hospital & Clinic
H2 Vice-Chancellor

Course planner

Year	Semester	Unit of study 1 & credit points		Unit of study 2 & credit points		Unit of study 3 & credit points		Unit of study 4 & credit points		Total credit points
1	1									
	2									
2	summer									
	1									
	winter									
	2									
3	summer									
	1									
	winter									
	2									
4	summer									
	1									
	winter									
	2									
5	summer									
	1									
	winter									
	2									
								Total credit points		