



# Pharmacy Handbook 2018

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# Welcome



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.

Students and staff at the faculty continually strive for excellence in their learning, teaching and research and the faculty actively promotes opportunities for its students to add new skills and experiences to their personal achievements.

Our commitment 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

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.

## Sydney University Pharmacy Association

The Sydney University Pharmacy Association also provides a range of academic, professional and social activities. Association 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.

## 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. Pharmacists are an integral part of the healthcare system and have the capacity to affect directly the lives and lifestyles of the people with whom they interact. Whether you decide to register as a pharmacist and work in community or hospital pharmacy, enter the pharmaceutical industry, work for government agencies or contribute to research and academia, you will have the ability and expertise to help improve the wellbeing of the nation.

Our innovative teaching style and clinical and experiential placements will provide you with a well-rounded, professionally relevant pharmacy degree that puts you in high demand with employers.

## Becoming a pharmacist

To become a registered pharmacist, graduates of the Bachelor of Pharmacy, Bachelor of Pharmacy Management or the Master of Pharmacy must complete 1824 hours (one year) of supervised practical training, followed by a registration examination. This is a requirement of the Pharmacy Board of Australia.

During the supervised training year, graduates will also need to complete an approved Intern Training Program. The University of Sydney offers an approved ITP that can lead to a postgraduate qualification, the Graduate Certificate in Pharmacy Practice.

## Research opportunities

Research at the faculty covers pharmaceutical and clinical sciences ranging from the design, synthesis, testing and mechanism of action of drugs, studies on advanced drug delivery and the fate of drugs in humans, to clinical and sociological aspects of pharmacy and health services research.

The faculty offers a Doctor of Philosophy in the area of 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.

On behalf of the faculty, I would like to wish all our students, new and continuing, every success in their chosen degrees and future careers. Enjoy your time here and above all use it well to make the most of the wonderful opportunities that studying at the Faculty of Pharmacy provides.

**Professor Iqbal Ramzan**  
*Dean of the Faculty of Pharmacy*





# Resolutions of the Senate

## 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, 2018. 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
RPPHDPHA	Doctor of Philosophy	PhD	Research
RMPHLPHA	Master of Philosophy	MPhil(Pharm)	Research
MAPHARMA	Master of Pharmacy	MPharm	96
BUPHARMA	Bachelor of Pharmacy <sup>^</sup>	BPharm	192
BUPHAMGT	Bachelor of Pharmacy and Management <sup>^</sup>	BPharmMgt	240

<sup>^</sup>may be awarded with honours in an integrated program.

### 3 Graduate certificates

Code	Course title	Abbreviation	Credit points
GCPHAPRA	Graduate Certificate in Pharmacy Practice	GradCertPharmPrac	24
GCEVBSCM	Graduate Certificate in Evidence-Based Complementary Medicines	GCCompMed(Evidence-Based)	24





# Resolutions of the Faculty

## 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 2014 (the 'Coursework Rule'), the Coursework Policy 2014, the Resolutions for the course of enrolment, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended), the Academic Honesty in Coursework Policy 2015 and the Academic Honesty Procedures 2016. Up to date versions of all such documents are available from the Policy Register: <http://sydney.edu.au/policies>.*

### Part 1: Course enrolment

#### 1 Enrolment restrictions

Except with the permission of 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 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.
- (5) All time limits include any period(s) of suspension.

#### 3 Suspension, discontinuation and lapse of candidature

- (1) 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. If the candidate has previously had two semesters of suspension the application will be considered by the Faculty.
- (2) Where a candidate has previously enrolled for the relevant semester, a suspension of enrolment may be recorded as Withdrawn (WD), Discontinued - Not to count as failure (DC) or Discontinued with failure (DF).

#### 4 Credit for previous study

For units of study offered by the Faculty of Pharmacy, credit will not usually be granted for recognised prior learning older than five years at the time of first enrolment in the unit or course for which credit is sought. For other units of study credit transfer is subject to the provisions of the Coursework Policy.

### Part 2: Unit of study enrolment

#### 5 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.

#### 6 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 or the Bachelor of Pharmacy and Management, international exchange is permitted in semester 2 of the final year.

### Part 3: Studying and Assessment

#### 7 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%.

#### 8 Late submission of work

- (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).

**9 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**

**10 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 Policy), students must pass any unit of study identified in the course resolutions as being critical to progression through the course.

**11 Award of the bachelor degree with honours**

- (1) 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 Units of Study table for the degree;
  - (b) normally be of no more than four years (Bachelor of Pharmacy) or five years (Bachelor of Pharmacy and Management) standing in the degree; and
  - (c) normally have no fail or absent fail results.
- (2) The level of honours will be determined by both the honours mark and the HWAM as indicated in the table below. If the honours mark and HWAM indicate a different level of honours, the lesser level will be awarded.

Level of honours	Honours mark	HWAM
First Class	mark >= 85	mark >= 75
Second Class, Division 1	mark >= 80	mark >= 70
Second Class, Division 2	mark >= 75	mark >= 65
Honours not awarded	mark < 75	mark < 65

A candidate for the honours program who does not meet the requirements for the award of honours shall be awarded the pass degree.

- (3) HWAM means the Honours Weighted Mark calculated from results for all 2000, 3000, 4000 and 5000 level units attempted for the degree, weighted 2, 3, 4 and 5 for their respective levels. The Honours units of study are given a weighting of 8 in this calculation.

**12 Weighted Average Mark (WAM)**

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

$WAM = \frac{\text{sum}(Wc \times Mc)}{\text{sum}(Wc)}$
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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 SR (satisfied requirement) are not counted.

**13 University Medal**

A student who is awarded Honours Class I and achieves a minimum final honours mark of 90 or greater in both honours units of study, and who also achieves a final WAM of 85 or greater over the entire degree, may be awarded a University Medal. The calculation of the final honours mark will be based on a 20 per cent weighting of the mark awarded for PHAR4815 and an 80 per cent weighting on the mark awarded for PHAR4830. 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 Policy.

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# Bachelor of Pharmacy

The Bachelor of Pharmacy 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.

## Curriculum

The major topics studied include chemical, physical, pharmaceutical and pharmacological properties of medicines and the application of these in the practice of pharmacy.

The first year is a foundation year in which you study biology and chemistry, and are introduced to pharmacy through foundation and social pharmacy studies.

The remaining three years are devoted to higher levels of biomedical and pharmaceutical sciences together with specialised clinical pharmacy studies. Practical experience in a variety of clinical settings including hospital and community pharmacy is emphasised, particularly in the third and fourth years.

Optional majors are also available: industrial or international (rural not currently offered).

## 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 the units of study table.

## 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 units of study table).





# Bachelor of Pharmacy

## Units of study table

<i>Unit of study</i>	<i>Credit points</i>	<i>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</i>	<i>Session</i>
<b>First Year</b>			
<b>BIOL1008</b> Human Biology	6	<b>A</b> HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). <b>N</b> BIOL1003 or BIOL1903 or BIOL1993 or MEDS1001 or MEDS1901 or BIOL1908 or BIOL1998	Semester 1 Summer Main
<b>CHEM1611</b> Chemistry A (Pharmacy)	6	<b>A</b> HSC Chemistry and Mathematics	Semester 1
<b>PHAR1811</b> Foundations of Pharmacy	6		Semester 1
<b>PHAR1812</b> Basic Pharmaceutical Sciences	6	<b>A</b> HSC Chemistry and 2U Mathematics. Students who have not completed HSC Chemistry (or equivalent) and HSC Mathematics (or equivalent) are strongly advised to take the Chemistry Bridging Course (offered in February) and as a distance course at other times of the year) and Mathematics Bridging Course (offered in February).	Semester 1
<b>BIOL1007</b> From Molecules to Ecosystems	6	<b>A</b> HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). <b>N</b> BIOL1907 or BIOL1997	Semester 2 Summer Main
<b>CHEM1612</b> Chemistry B (Pharmacy)	6	<b>A</b> CHEM1611	Semester 2
<b>PHAR1821</b> Pharmacy Practice 1	6		Semester 2
<b>PHAR1822</b> Physical Pharmaceutics and Formulation A	6	<b>A</b> HSC Chemistry and 2U Mathematics.	Semester 2
<b>Second Year</b>			
<b>PHAR2811</b> Drug Discovery and Design A	6	<b>P</b> (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812 and (BIOL1XX7 or MBLG1XX1).	Semester 1
<b>PHAR2812</b> Microbiology and Infection	6	<b>P</b> BIOL1XX8 or BIOL1XX3	Semester 1
<b>PHAR2813</b> Therapeutic Principles	6	<b>P</b> PHAR1811 and PHAR1812 and PHAR1822 and (BIOL1XX7 or MBLG1XX1)	Semester 1
<b>PHSI2601</b> Physiology for Pharmacy	6	<b>P</b> (12cp from junior chemistry AND 24cp from junior science excluding chemistry) OR (6cp from junior chemistry AND 30cp from junior science excluding chemistry).	Semester 1
<b>PCOL2605</b> Pharmacology for Pharmacy	6	<b>P</b> (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX3 or BIOL1XX8) and (BIOL1XX7 or MBLG1XX1). <b>C</b> PHSI2601	Semester 2
<b>PHAR2821</b> Drug Discovery and Design B	6	<b>P</b> (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812. <b>C</b> PCOL2605.	Semester 2
<b>PHAR2822</b> Pharmacy Practice	6	<b>P</b> PHAR1811 and PHAR1821. <b>C</b> PCOL2605.	Semester 2
<b>PHAR2823</b> Physical Pharmaceutics and Formulation B	6	<b>P</b> (CHEM1611 or CHEM11X1 or CHEM19X1 or CHEM1903 or CHEM1612 or CHEM11X2 or CHEM19X2 or CHEM1904) and PHAR1812 and PHAR1822.	Semester 2
<b>Third Year</b>			
<b>PHAR3100</b> Clinical Placement A		<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 <i>Note: Department permission required for enrolment</i> <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.</i>	Semester 1
<b>PHAR3815</b> Pharmaceutical Skills and Dispensing A	4	<b>P</b> (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823	Semester 1
<b>PHAR3816</b> Cardiovascular and Renal	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3100	Semester 1a



<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>PHAR3817 Respiratory</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3818 and PHAR3819 and PHAR3100	Semester 1a
<b>PHAR3818 Endocrine, Diabetes and Reproductive</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3819 and PHAR3100	Semester 1b
<b>PHAR3819 Gastrointestinal</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3100	Semester 1b
<b>PHAR3200 Clinical Placement B</b>		<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3100 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.</i>	Semester 2
<b>PHAR3825 Pharmaceutical Skills and Dispensing B</b>	4	<b>P</b> (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823 <b>C</b> PHAR3815	Semester 2
<b>PHAR3826 Musculoskeletal, Dermatological and Senses</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3827 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200	Semester 2a
<b>PHAR3827 Oncology and Anti-Infective Agents</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3826 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200	Semester 2a
<b>PHAR3820 Neurology and Mental Health</b>	10	<b>P</b> (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3825 and PHAR3826 and PHAR3827 and PHAR3100 and PHAR3200	Semester 2b
<b>Fourth Year</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4814 Pharmacy Management</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4823 and PHAR4100.	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>PHAR4813 Novel Therapeutics</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4821 and PHAR4822.	Semester 2
<b>PHAR4821 Professional Practice</b>	12	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4813 and PHAR4822.	Semester 2
<b>PHAR4822 Clinical Placement D</b>	6	<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 and PHAR4100. <b>C</b> PHAR4813. <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney prior to commencing this Unit of Study. Students who have not met verification requirements before the commencement of Semester 2 will not be eligible to attend their placement.</i>	Semester 2

<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>Fourth Year Honours</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4815 Research Methods</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and PHAR4812 and PHAR4823 and PHAR4100.	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>PHAR4830 Honours</b>	24	<b>P</b> PHAR4811 and PHAR4812 and PHAR4815 and PHAR4823 and PHAR4100	Semester 2
<b>Fourth Year International Major</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4814 Pharmacy Management</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4823 and PHAR4100.	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>PHAR4832 Pharmacy International Exchange</b>	24	<b>P</b> PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100	Semester 2
<b>Fourth Year Industrial Major</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4814 Pharmacy Management</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4823 and PHAR4100.	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>PHAR4831 Pharmacy Industrial Placement</b>	24	<b>P</b> PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100	Semester 2



# Bachelor of Pharmacy

## Unit of study descriptions

### First Year

#### BIOL1008

##### Human Biology

**Credit points:** 6 **Teacher/Coordinator:** Dr Osu Lilje **Session:** Semester 1, Summer Main **Classes:** Lectures; six 3-hour practical sessions; six workshops and tutorials; students encouraged to spend 1-2 hours per week accessing online resources **Prohibitions:** BIOL1003 or BIOL1903 or BIOL1993 or MEDS1001 or MEDS1901 or BIOL1908 or BIOL1998 **Assumed knowledge:** HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). **Assessment:** Written and oral presentation, quiz, skills-based assessment, final exam **Mode of delivery:** Normal (lecture/lab/tutorial) day

What will it mean to be human in 2100? How will we be able to control our complex bodily mechanisms to maintain health and fight disease? Advances in the human biology suggest we will age more slowly and new technologies will enhance many bodily structures and functions. This unit of study will explore maintenance of health through nutritional balance, aerobic health, defence mechanisms and human diversity. You will learn key structural features from the subcellular level to the whole organ and body, and learn about essential functional pathways that determine how the body regulates its internal environment and responds to external stimuli and disease. Together we will investigate nutrition, digestion and absorption, cardiovascular and lung function, reproduction, development, epigenetics, and regulation of function through various interventions. You will receive lectures from experts in the field of human biology and medical sciences, supported by practical classes, workshops and on-line resources that leverage off state-of-the-art technologies to develop your practical, critical thinking, communication, collaboration, digital literacy, problem solving, and enquiry-based skills in human biology. This unit of study will provide you with the breadth and depth of knowledge and skills for further studies in majors in medical sciences.

*Textbooks*  
TBA

#### CHEM1611

##### Chemistry A (Pharmacy)

**Credit points:** 6 **Teacher/Coordinator:** Dr Toby Hudson **Session:** Semester 1 **Classes:** Three 1 hour lectures and one 1 hour tutorial per week; one 3 hour practical per week for 9 weeks. **Assumed knowledge:** HSC Chemistry and Mathematics **Assessment:** Theory examination (60%), laboratory work (15%), online assignments (10%) and continuous assessment quizzes (15%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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, general acid-base theory, atomic structure, chemical bonding, introduction to organic chemistry, nomenclature, aliphatic chemistry, aromatic chemistry, heterocyclic compounds, isomerism, stereoisomerism, reaction mechanisms, biomolecules, amino acids and peptides, carbohydrates. 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

( offered in February, see <http://sydney.edu.au/science/chemistry/studying-chemistry/bridging-course.shtml>).

##### *Textbooks*

A booklist is available from the First Year Chemistry website. <http://sydney.edu.au/science/chemistry/firstyear>

#### PHAR1811

##### Foundations of Pharmacy

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Timothy Chen **Session:** Semester 1 **Classes:** 3 x lectures/wk, 1 x 2hr workshop/wk, 1 x 2hr workshop/fortnight, 1 x 2-3hr community placement, 2 x 2hr theory/practical classes **Assessment:** Exam (50%), group projects (40%) and quiz (10%) **Practical field work:** One class will be held in the dispensing laboratory and 2-3 hours of fieldwork in a community pharmacy are required **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 **Teacher/Coordinator:** Prof Jane Hanrahan **Session:** Semester 1 **Classes:** 3 x lectures/wk, 1 x 2hr tutorial/wk **Assumed knowledge:** HSC Chemistry and 2U Mathematics. Students who have not completed HSC Chemistry (or equivalent) and HSC Mathematics (or equivalent) are strongly advised to take the Chemistry Bridging Course (offered in February and as a distance course at other times of the year) and Mathematics Bridging Course (offered in February). **Assessment:** Written exam (60%), workshop reports (20%), quizzes (10%) and poster presentation (10%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Basic Pharmaceutical Sciences provides an introduction to principles underlying pharmaceutical chemistry and pharmaceuticals. This provides the foundations for a more detailed study of the chemical characteristics of drug molecules, dosage forms and pharmacokinetics in later years of the Bachelor of Pharmacy. The physicochemical properties of drugs are explored from a pharmaceutical perspective complemented by the study of chemistry. Modules provide an introduction to acid/base and solubility characteristics of drug molecules, drug discovery and development, dosage forms, and fundamental mathematics. Small group work in workshop sessions supports the learning of material introduced in lectures.

##### *Textbooks*

Basic Pharmaceutical Science Resource Book

#### BIOL1007

##### From Molecules to Ecosystems

**Credit points:** 6 **Teacher/Coordinator:** Dr Emma Thompson **Session:** Semester 2, Summer Main **Classes:** Two lectures per week and online material and 12 x 3-hour practicals **Prohibitions:** BIOL1907 or BIOL1997 **Assumed knowledge:** HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). **Assessment:** Quizzes (10%), communication assessment (40%), skills tests (10%), summative final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Paradigm shifts in biology have changed the emphasis from single biomolecule studies to complex systems of biomolecules, cells and their interrelationships in ecosystems of life. Such an integrated





understanding of cells, biomolecules and ecosystems is key to innovations in biology. Life relies on organisation, communication, responsiveness and regulation at every level. Understanding biological mechanisms, improving human health and addressing the impact of human activity are the great challenges of the 21st century. This unit will investigate life at levels ranging from cells, and biomolecule ecosystems, through to complex natural and human ecosystems. You will explore the importance of homeostasis in health and the triggers that lead to disease and death. You will learn the methods of cellular, biomolecular, microbial and ecological investigation that allow us to understand life and discover how expanding tools have improved our capacity to manage and intervene in ecosystems for our own health and organisms in the environment that surround and support us. You will participate in inquiry-led practicals that reinforce the concepts in the unit. By doing this unit you will develop knowledge and skills that will enable you to play a role in finding global solutions that will impact our lives.

#### Textbooks

Please see unit outline on LMS

### CHEM1612

#### Chemistry B (Pharmacy)

**Credit points:** 6 **Teacher/Coordinator:** Dr Toby Hudson **Session:** Semester 2 **Classes:** Three 1 hour lectures and one 1 hour tutorial per week; one 3 hour practical per week for 9 weeks. **Assumed knowledge:** CHEM1611 **Assessment:** Theory examination (70%), laboratory work (15%) and continuous assessment quizzes (15%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

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.

#### Textbooks

A booklist is available from the First Year Chemistry website. <http://sydney.edu.au/science/chemistry/firstyear>

### PHAR1821

#### Pharmacy Practice 1

**Credit points:** 6 **Teacher/Coordinator:** Prof Parisa Aslani **Session:** Semester 2 **Classes:** 3 x 1hr lectures/wk, 1 x 2hr workshop/wk **Assessment:** Exam (50%), reports (30%), Reflective Ability Clinical Assessment (15%), self-directed learning (5%) **Practical field work:** Teamwork projects **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study consists of three integrated streams: (1) Social Pharmacy, which is designed to provide a broad perspective of health and illness, and encourages a view of the patient as a whole person. Topics include self-management and patient communication. In this stream, students will be introduced to psycho-social processes that underpin patient health behaviours. (2) Quality Use of Medicines in primary care focusing on the provision of non-prescription medicines, which introduces and develops students' knowledge of Pharmacy Only and Pharmacist Only medicines. Skills will include information gathering, clinical decision making and provision of pharmaceutical care. Core areas covered include responding to minor ailments such as pain, eye, ear, nose, fever, viral infections as well as gastrointestinal complaints. (3) Academic Writing Skills, which provides instruction and support for developing skills for academic writing and critical appraisal.

#### Textbooks

Rutter P and Newby D. Churchill Livingstone (2016) Community Pharmacy. Symptoms, diagnosis and treatment, Elsevier Publishing.  
Smith, L. (preparer) (2015) PHAR1821 Social Pharmacy, McGraw Hill

### PHAR1822

#### Physical Pharmaceutics and Formulation A

**Credit points:** 6 **Teacher/Coordinator:** Dr Nial Wheate **Session:** Semester 2 **Classes:** 3 x pharmacy lectures/week, 8 x mathematics lectures, 5 x mathematics tutorials; classes will be arranged as needed **Assumed knowledge:** HSC Chemistry and 2U Mathematics. **Assessment:** Exam (60%), Maths quiz (20%), Laboratory reports (5 x 3% = 15%), Peerwise (5%) **Practical**

**field work:** 5 x laboratory sessions **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study aims to facilitate an understanding of the basic scientific concepts behind designing and using liquid or semi-solid pharmaceutical dosage forms to deliver a drug. Carrying on from PHAR1812 where different dose forms and the importance of the route of administration was introduced, this unit looks at topics such as diffusion and dissolution of drugs, drug solubilisation, crystal polymorphism, suspension and emulsion-based dosage forms. With a grounding in these concepts the unit then goes on to explore specific methods of drug delivery, including: auricular, ocular, intranasal, lung, and intravenous and intramuscular injections, including hospital practice points for pharmacists. This unit of study also includes mathematical tools required for other units of study.

#### Textbooks

Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, 10th edition, Williams and Wilkins, 2014

## Second Year

### PHAR2811

#### Drug Discovery and Design A

**Credit points:** 6 **Teacher/Coordinator:** Dr W. Bret Church **Session:** Semester 1 **Classes:** 3 x lectures/wk and tutorials scheduled as required **Prerequisites:** (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812 and (BIOL1XX7 or MBLG1XX1). **Assessment:** 2.5 hr exam (65%), laboratories and workshops (25%), major quiz (10%) **Practical field work:** 3hr workshop/wk as required **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 consideration of the fundamental processes as replication, transcription and translation involving the macromolecules of life: proteins, DNA and RNA. The course also covers fundamental protein actions and mechanisms of the regulation of such targets, as well as fundamental molecular interactions important for understanding the action of, the detection of, and also diagnostic approaches applied to 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.

#### Textbooks

Patrick, GL. An Introduction to Medicinal Chemistry (6th ed) Oxford University Press, 2017; Nelson, DL. and Cox, MM. Lehninger: Principles of Biochemistry (7th ed), W.H. Freeman, 2017

### PHAR2812

#### Microbiology and Infection

**Credit points:** 6 **Teacher/Coordinator:** Dr Lifeng Kang **Session:** Semester 1 **Classes:** 2 x lectures/wk **Prerequisites:** BIOL1XX8 or BIOL1XX3 **Assessment:** Exam and quiz (60%), mid-term quiz (15%), and practicals including workshops (25%) **Practical field work:** 8 x laboratory classes, 2 x workshops (video demonstration) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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; infection control measures and principles underlying treatment of infectious diseases; mechanisms of action, characteristics, and types of antibiotics and chemical antimicrobial agents; antibiotic resistance; principles and methods of sterilisation, 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 preparation of pharmaceutical products; and evaluation of different chemical antimicrobial agents.

#### Textbooks

Recommended: Denyer SP, Hodges NA and Gorman SP. Hugo and Russell's Pharmaceutical Microbiology. 8th edition, Blackwell, 2011; Prescott, Harley and Kelin's Microbiology, 7th edition, McGraw-Hill, 2007

### PHAR2813

#### Therapeutic Principles

**Credit points:** 6 **Teacher/Coordinator:** Prof Andrew McLachlan **Session:** Semester 1 **Classes:** 3-5 lectures/wk and 4 x 2hr workshops scheduled over the semester. **Prerequisites:** PHAR1811 and PHAR1812 and PHAR1822 and (BIOL1XX7 or MBLG1XX1) **Assessment:** Maths quizzes (25%), Workshop participation (10%), Mid-semester Therapeutic Principles quiz (10%), Final examination (55%). All assessments are compulsory. **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 appropriate 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 influence 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 mathematical relationships to explain drug activity in patients and to guide appropriate drug dosage regimen selection. To support this, relevant mathematical and statistical 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 are an important part of this unit of study.

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 unwanted 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 **Teacher/Coordinator:** Dr Meloni Muir **Session:** Semester 1 **Classes:** Four 1-hour lectures per week **Prerequisites:** (12cp from junior chemistry AND 24cp from junior science excluding chemistry) OR (6cp from junior chemistry AND 30cp from junior science excluding chemistry). **Assessment:** One 1.5 hr final exam, two in-semester tests, four practical quizzes, one written assessment (100%). **Practical field work:** Three 3-hour practicals and one 4-hour practical per semester **Mode of delivery:** Normal (lecture/lab/tutorial) day

Physiology for Pharmacy provides a broad basic knowledge of human structure and function. Topics covered include physiology of the nervous system and special senses, muscle physiology, and movement and consciousness. It also covers human endocrine system, reproduction, blood, heart and circulation, fluid regulation and

electrolyte balance, the skin, sensory perception, gastro-intestinal function and respiration.

#### Textbooks

Dee Unglaub Silverthorn. Human Physiology: An Integrated Approach, Media Update: International Edition, 6th edition. 2012. ISBN: 9780321750075

### PCOL2605

#### Pharmacology for Pharmacy

**Credit points:** 6 **Teacher/Coordinator:** Prof Peter Carroll **Session:** Semester 2 **Classes:** 3 lect/wk, 12 hours prac/workshop/tutorial **Prerequisites:** (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX3 or BIOL1XX8) and (BIOL1XX7 or MBLG1XX1). **Corequisites:** PHSI2601 **Assessment:** Mid-semester quiz (15%), final examination (55%), continuous assessment (lab reports or assignments) (30%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study provides a basic understanding of drug actions related to physiological and pathological functions. It covers areas of pharmacodynamics, pharmacokinetics, the autonomic nervous system, pain management, complementary medicines, adverse drug reactions, drug interactions, and the pharmacological treatment of various disease states affecting the central nervous system, the cardiovascular system, the respiratory system, the gastrointestinal system and the renal system.

#### Textbooks

Rang and Dale's Pharmacology, 8th edition; (Elsevier, Churchill Livingstone). Basic and Clinical Pharmacology, Katzung and Trevor, 13th edition (Lange, McGraw Hill)

### PHAR2821

#### Drug Discovery and Design B

**Credit points:** 6 **Teacher/Coordinator:** Prof Paul Groundwater **Session:** Semester 2 **Classes:** 3 x lectures/wk **Prerequisites:** (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812. **Corequisites:** PCOL2605. **Assessment:** 2hr exam (50%), workshops and quizzes (50%) **Practical field work:** 23hrs of tutorials and workshops **Mode of delivery:** Normal (lecture/lab/tutorial) day

Drug Discovery and Design B goes beyond the basics to help students develop a deeper understanding of how drugs work, and how to discover and design new drugs. How drugs are transformed by metabolism is explored, with a particular focus on the factors which influence metabolism and pharmacogenetics. A problem-based learning approach will be used for the prediction of drug metabolite structures from physical, chemical, biochemical and spectroscopic data. Elements of statistics, stereochemistry, drug design, drug metabolism, and drug mechanism of action are integrated to explore the pathway from drug discovery and design to clinical application.

#### Textbooks

G L Patrick (2013) An Introduction to Medicinal Chemistry, 5th Edition, Oxford University Press

### PHAR2822

#### Pharmacy Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Carl Schneider **Session:** Semester 2 **Classes:** 3 x lectures/wk, 1.5hr tutorial/wk **Prerequisites:** PHAR1811 and PHAR1821. **Corequisites:** PCOL2605. **Assessment:** Written exam (50%), oral assessment (30%), complementary medicines group presentation (10%) and Reflective Ability Clinical Assessment (10%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study explores the role of the pharmacist as a primary care provider for disease states and the provision of management options, including non-pharmacological recommendations. It focuses on methods of delivering patient care both at an individual level and also to the wider community. This course is fundamental to clinical pharmacy in all areas of practice. Core areas covered include responding to minor ailments such as pain, eye, ear, nose, fever, infection and infestations as well as gastrointestinal complaints. Screening in chronic disease including diabetes, respiratory and cardiovascular disease. Other areas covered are providing healthy living support including nutrition and exercise as well as the role of the pharmacist in the provision of complementary medicines.

#### Textbooks

Community Pharmacy. Symptoms, diagnosis and treatment. (ANZ Edition) 3rd Edition, Rutter P and Newby D. Churchill Livingstone Elsevier Publishing, 2016.

### PHAR2823

#### Physical Pharmaceutics and Formulation B

**Credit points:** 6 **Teacher/Coordinator:** Dr Wojciech Chrzanoski **Session:** Semester 2 **Classes:** 3 x lectures/wk **Prerequisites:** (CHEM1611 or CHEM11X1 or CHEM19X1 or CHEM1903 or CHEM1612 or CHEM11X2 or CHEM19X2 or CHEM1904) and PHAR1812 and PHAR1822. **Assessment:** Final exam (65%), mid-semester exam (10%) practical classes (25%) **Practical field work:** Laboratory work of 4hrs/week for 2 consecutive weeks **Mode of delivery:** Normal (lecture/lab/tutorial) day

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; 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; biomaterials; and material characterisation techniques. 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 (tablet) dosage form.

#### Textbooks

Aulton M.E. Pharmaceutics: The Science of Dosage Form Design, (7th edn) Churchill Livingstone, A.T. Florence and D Attwood Physicochemical Principles of Pharmacy, MacMillan 1988, Pharmaceutical Press 4th Edition 2006

## Third Year

### PHAR3100

#### Clinical Placement A

**Teacher/Coordinator:** Dr Shweta Kumar **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.*

Clinical Placements A is the first of a series of four Units of Study where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR3815

#### Pharmaceutical Skills and Dispensing A

**Credit points:** 4 **Teacher/Coordinator:** Dr Jonathan Penm, Dr George Li **Session:** Semester 1 **Classes:** Up to 10 lectures/semester **Prerequisites:** (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823 **Assessment:** The final mark for both PHAR3815 and PHAR3825 will be calculated at the end of semester 2 with a breakdown of Dispensing 60%, Drug Profile 30% and Herbal Workshops 10%. **Practical field work:** 5 x 4hr practicals for Pharmaceutical skills and 5 x

3hr practicals for Dispensing and 5 x 1hr Workshops. **Mode of delivery:** Normal (lecture/lab/tutorial) day

The Pharmaceutical Skills component consists of Drug Profile Practical. Students will gain a deeper understanding of the physicochemical properties of drugs, methods of analysing drugs and how the physicochemical properties determine the pharmacology.

The Dispensing component gives an introduction to dispensing practice and to the extemporaneous preparation of pharmaceutical formulations. Students will develop attitudes, knowledge and skills through practise in interpreting the prescription, accuracy in dispensing, methodical approaches to preparing and dispensing prescribed products including preparing, selecting or using appropriate materials, equipment, labels and containers, documentation of dispensing procedures, effect of ingredients and methods used on the quality of pharmaceutical products, quality control and quality assurance procedures including those to minimise errors in all aspects of the dispensing process to ensure patient safety.

#### Textbooks

Australian Pharmaceutical Formulary APF23

### PHAR3816

#### Cardiovascular and Renal

**Credit points:** 5 **Teacher/Coordinator:** Dr Ingrid Gelissen **Session:** Semester 1a **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

### PHAR3817

#### Respiratory

**Credit points:** 5 **Teacher/Coordinator:** Dr Ingrid Gelissen **Session:** Semester 1a **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week for 6 weeks. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3818 and PHAR3819 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

### PHAR3818

#### Endocrine, Diabetes and Reproductive

**Credit points:** 5 **Teacher/Coordinator:** Dr Philip Kwok **Session:** Semester 1b **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3819 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

### PHAR3819

#### Gastrointestinal

**Credit points:** 5 **Teacher/Coordinator:** Dr Philip Kwok **Session:** Semester 1b **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of gastrointestinal and hepatic disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of gastrointestinal and hepatic 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 and hepatic 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).

### PHAR3200

#### Clinical Placement B

**Teacher/Coordinator:** Dr Shweta Kumar **Session:** Semester 2 **Classes:** Practical experience **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3100 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.*

Clinical Placements B is a continuation of Clinical Placement A where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR3825

#### Pharmaceutical Skills and Dispensing B

**Credit points:** 4 **Teacher/Coordinator:** Dr Jonathan Penm, Dr George Li **Session:** Semester 2 **Classes:** Up to 10hrs of lectures/semester **Prerequisites:** (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823 **Corequisites:** PHAR3815 **Assessment:** The final mark for both PHAR3815 and PHAR3825 will be calculated at the end of semester 2 with a breakdown of Dispensing 60%, Drug Profile 30% and Herbal Workshops 10%. **Practical field work:** 5 x 3hr practicals for Dispensing, 2 x 4hr for herbal workshop **Mode of delivery:** Normal (lecture/lab/tutorial) day

The Pharmaceutical Skills component consists of Herbal Medicine workshops. Students will gain a deeper understanding of the chemical properties of herbal medicines, methods of analysing herbal medicines and how the chemical properties determine the pharmacology, efficacy and safety.

The Dispensing component gives an introduction to Dispensing practice and to the extemporaneous preparation of pharmaceutical formulations. Students will develop attitudes, knowledge and skills through practise in interpreting the prescription, accuracy in dispensing, methodical approaches to preparing and dispensing prescribed products including preparing, selecting or using appropriate materials, equipment, labels and containers, documentation of dispensing procedures, effect of ingredients and methods used on the quality of pharmaceutical products, quality control and quality assurance procedures including those to minimise errors in all aspects of the dispensing process to ensure patient safety.

#### Textbooks

APF23

### PHAR3826

#### Musculoskeletal, Dermatological and Senses

**Credit points:** 5 **Teacher/Coordinator:** Prof Alan Boddy **Session:** Semester 2a **Classes:** An average of 6 hrs of lectures and 2 hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601

**Corequisites:** PHAR3827 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of musculoskeletal, dermatological and special senses including the pharmaceutical sciences that underpin the pharmacological 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 pharmacological and non-pharmacological 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 interactions between pharmacists and their clients (patients, consumers, public, carers) and health care professionals (physicians, dentists, allied health professionals).

#### Textbooks

References: Therapeutic Guidelines, AMH, MIMS, Clinical Pharmacy and Therapeutics, recommended resources and reading material from lectures and tutorials.

### PHAR3827

#### Oncology and Anti-Infective Agents

**Credit points:** 5 **Teacher/Coordinator:** Prof Alan Boddy **Session:** Semester 2a **Classes:** An average of 6 hrs of lectures and 2 hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3826 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

#### Textbooks

Australian Medicines Handbook, Pharmaceutical Society of Australia, 2016

### PHAR3820

#### Neurology and Mental Health

**Credit points:** 10 **Teacher/Coordinator:** Prof Mary Collins **Session:** Semester 2b **Classes:** an average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and

PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3825 and PHAR3826 and PHAR3827 and PHAR3100 and PHAR3200 **Assessment:** tutorial participation and presentations (10%), osce (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of neurological and mental health 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).

## Fourth Year

### PHAR4100

#### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR4811

#### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

#### Textbooks

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

### PHAR4812

#### Integrated Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

#### Textbooks

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

### PHAR4814

#### Pharmacy Management

**Credit points:** 6 **Teacher/Coordinator:** Andrew Bartlett **Session:** Semester 1 **Classes:** 42hrs of lectures, 1 x 2hr tutorial/wk, group work **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4823 and PHAR4100. **Assessment:** Group Assignment and Peer Review (30%), mid-semester and final exams (60%), class discussion and participation (10%). Each assessment task must be passed to pass this unit of study. **Mode of delivery:** Normal (lecture/lab/tutorial) day

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.

#### Textbooks

Pharmacy Management Custom Textbook 3rd Edition, Compiled by B Saini, PEARSON, 2016

### PHAR4823

#### Pharmacy Services and Public Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

#### Textbooks

Population Health: concepts and method

### PHAR4813

#### Novel Therapeutics

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Thomas Grewal **Session:** Semester 2 **Classes:** Up to 6 hours of lectures, eight 3 hour workshops and up to 60 hours of self-directed learning and group work. **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4821 and PHAR4822. **Assessment:** Workshops (20%), written assignment (40%), and final exam (40%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study expands on second and third year pharmaceutical science (Medicinal Chemistry, Pharmaceutics, Pharmacology, Biology and Biochemistry) by exposing students to drug development and developing biotechnologies, new drug targets and therapies as well as clinical trials. Students will be introduced to emerging biotechnologies and biological devices including drug delivery systems, new drug targets and therapies in order to be aware of the up and coming biotechnologies and how they will impact on pharmaceutical care. Such knowledge will help students to decide their future career direction and give more understanding of practical problems encountered in design and use of biotechnology derived drugs. In addition, this unit of study promotes integration and application of prior knowledge in pharmaceutical science to solving problems in tasks encountered in research and development. This unit will help to understand pharmaceutical drug development as a possible career path and prepares students for professional accreditation. Students will develop knowledge related to biotechnology derived drugs and develop skills in obtaining and critically assessing peer-reviewed publications, as well as people skills from group work, conflict management and written and oral communication skills.

#### Textbooks

Foye W.O et. al. Principles of Medicinal Chemistry (5th Ed), Williams and Wilkins (2002) Shargel L and Yu ABC Applied Biopharmaceutics and Pharmacokinetics (1999) Burton, Evans.

### PHAR4821

#### Professional Practice

**Credit points:** 12 **Teacher/Coordinator:** A/Prof Rebekah Moles **Session:** Semester 2 **Classes:** 24hrs of lectures, 20hrs of workshops, 55hrs of simulated learning tutorials and up to 40hrs of self-directed learning. **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4813 and PHAR4822. **Assessment:** Tutorial marks and communication (40%), MCQ exam (20%), Medication review (30%), Health Care Collaboration (10%) and satisfactory performance in the forensic exam. **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study consolidates 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 has a focus on knowledge application in a simulated pharmacy workplace and includes professional services including disease state management. The unit consists of lectures, on-line learning and simulated case-based competency assessment and learning.

#### Textbooks

Pharmacy and Poisons legislation is required but is made available in a specific format for the unit. Therapeutic Guidelines, AMH and texts from previous practice units will be utilised.

## PHAR4822

### Clinical Placement D

**Credit points:** 6 **Teacher/Coordinator:** Prof Jo-anne Brien **Session:** Semester 2 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 and PHAR4100. **Corequisites:** PHAR4813. **Assessment:** Preceptor assessment (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Up to 80hrs of clinical placement. **Mode of delivery:** Clinical experience

*Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney prior to commencing this Unit of Study. Students who have not met verification requirements before the commencement of Semester 2 will not be eligible to attend their placement.*

Clinical Placement D is the final Clinical Placements Unit of Study and is a continuation of Clinical Placements A, B, and C. Students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

## Fourth Year Honours

## PHAR4100

### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

## PHAR4811

### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100

**Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

#### Textbooks

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

## PHAR4812

### Integrated Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

#### Textbooks

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

## PHAR4815

### Research Methods

**Credit points:** 6 **Teacher/Coordinator:** Prof Lisa Bero **Session:** Semester 1 **Classes:** Data management (approx 16hrs); literature searching and appraisal, and scientific presentations (approx 9hrs); research methods (approx 40hrs); journal club and seminars (approx 16hrs) and research project. **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and PHAR4812 and PHAR4823 and PHAR4100. **Assessment:** Data management assignment (10%), literature review search strategy and outline (5%), oral scientific presentation (5%), seminar report (5%), literature review manuscript (55%), and literature review presentation (20%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 commence in Semester 1 and will be

completed in Semester 2 under the direct supervision of an academic staff member or supervisory team.

#### Textbooks

Those recommended by individual lecturers and research project supervisors.

### PHAR4823

#### Pharmacy Services and Public Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

#### Textbooks

Population Health: concepts and method

### PHAR4830

#### Honours

**Credit points:** 24 **Teacher/Coordinator:** Dr Danijela Gnjidic **Session:** Semester 2 **Classes:** Journal club and seminars (approx 15 hours in total) and research project (approx 35-40 hours per week) and monthly meeting (approx 3hrs). In addition, students are required to attend several sessions of the Faculty Postgraduate conference. Forensic: 8hrs **Prerequisites:** PHAR4811 and PHAR4812 and PHAR4815 and PHAR4823 and PHAR4100 **Assessment:** Research paper manuscript (55%), oral presentation of research project (25%) and supervisor mark for overall research performance (20%). Satisfactory performance is required in the forensics examination. **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 journal club/seminar/postgraduate conference component of the course will assist in the development of advanced research and presentation 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.

#### Textbooks

Those recommended by individual lecturers and research project supervisors. Pharmacy and Poisons legislation is required but is made available in a specific format for the unit.

## Fourth Year International Major

### PHAR4100

#### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification*

*requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR4811

#### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

#### Textbooks

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

### PHAR4812

#### Integrated Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

*Textbooks*

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

#### PHAR4814

##### Pharmacy Management

**Credit points:** 6 **Teacher/Coordinator:** Andrew Bartlett **Session:** Semester 1 **Classes:** 42hrs of lectures, 1 x 2hr tutorial/wk, group work **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4823 and PHAR4100. **Assessment:** Group Assignment and Peer Review (30%), mid-semester and final exams (60%), class discussion and participation (10%). Each assessment task must be passed to pass this unit of study. **Mode of delivery:** Normal (lecture/lab/tutorial) day

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.

*Textbooks*

Pharmacy Management Custom Textbook 3rd Edition, Compiled by B Saini, PEARSON, 2016

#### PHAR4823

##### Pharmacy Services and Public Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

*Textbooks*

Population Health: concepts and method

#### PHAR4832

##### Pharmacy International Exchange

**Credit points:** 24 **Teacher/Coordinator:** Dr Hien Duong **Session:** Semester 2 **Classes:** The numbers of practical classes, tutorials/workshops and lectures in each of the units of study taken will be the same as for the full-time students at the host institution. Forensic: Lectures 8hrs, Workshop 3hrs by distance learning. **Prerequisites:** PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** The students will be assessed in the coursework and examination components agreed by the Faculty and the international host institution in the same weighting as the full-time students at the host institution. This unit of study is Pass/Fail. Satisfactory performance in the forensic examination. **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will provide students with the opportunity to experience other healthcare systems through undertaking 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.

*Textbooks*

Those recommended by the units of study at the host institution. Pharmacy and Poisons legislation is required but is made available in a specific format for the unit.

## Fourth Year Industrial Major

#### PHAR4100

##### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

*Textbooks*

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

#### PHAR4811

##### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

*Textbooks*

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

#### PHAR4812

##### Integrated Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819

and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

#### Textbooks

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

### PHAR4814

#### Pharmacy Management

**Credit points:** 6 **Teacher/Coordinator:** Andrew Bartlett **Session:** Semester 1 **Classes:** 42hrs of lectures, 1 x 2hr tutorial/wk, group work **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4823 and PHAR4100. **Assessment:** Group Assignment and Peer Review (30%), mid-semester and final exams (60%), class discussion and participation (10%). Each assessment task must be passed to pass this unit of study. **Mode of delivery:** Normal (lecture/lab/tutorial) day

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.

#### Textbooks

Pharmacy Management Custom Textbook 3rd Edition, Compiled by B Saini, PEARSON, 2016

### PHAR4823

#### Pharmacy Services and Public Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

#### Textbooks

Population Health: concepts and method

### PHAR4831

#### Pharmacy Industrial Placement

**Credit points:** 24 **Teacher/Coordinator:** Prof Hak-Kim Chan and Dr Wojciech Chrzanowski **Session:** Semester 2 **Classes:** Students will be allocated a full-time workload in the host organization. Forensic: 8hrs of lectures and 3hrs

of workshops. **Prerequisites:** PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students will be assessed through the submission of two reports, detailing their activities and the activities they have contributed to. The initial report will provide a background about the industrial host (including information about the company and department(s) in which you have been based), their area of pharmaceutical activity, and an introduction to the activities to be performed on the placement. The final report will give a detailed description of the work performed, its relevance and how the work translates to health practitioners, patients, policy makers, the host organisation or other stakeholders. The industrial host will also be asked to provide a brief assessment of the student's performance on their placement and will be assessed as Pass/Fail. Satisfactory performance is required in the forensic examination. **Mode of delivery:** Professional practice

This unit of study will provide students with the opportunity to experience the practice of pharmacy in one of a range of industrial 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 (full-time for 13 weeks) will be agreed individually in consultation with the host and will be commensurate with 24 credit points.

#### Textbooks

Those recommended by the host institution. Pharmacy and Poisons legislation is required but is made available in a specific format for the unit.



# Bachelor of Pharmacy

## 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 2014 (the 'Coursework Rule'), the Coursework Policy 2014, the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended), the Academic Honesty in Coursework Policy 2015 and the Academic Honesty Procedures 2016. Up to date versions of all such documents are available from the Policy Register: <http://sydney.edu.au/policies>.

#### Course resolutions

##### 1 Course codes

Code	Course title
BUPHARMA	Bachelor of Pharmacy

##### 2 Attendance pattern

The attendance pattern for this course is full time only.

##### 3 Admission to candidature

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) or equivalent (and subject to special admissions provisions as set out in the Coursework Policy) or on the basis of Flexible Entry Admission as set out in Admissions section of the Coursework Policy.

##### 4 Requirements for award

- (1) The units of study that may be taken for the course are set out in the Units of Study table for the Bachelor of Pharmacy.
- (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 the Units of Study table.
- (2) Candidates who fail only one first year unit of study and have no previous record of failure in the degree, who have an annual average mark (AAM) of >60 for first year, may apply to the Dean for a prerequisite waiver which would allow enrolment in the full complement of second year units of study, together with the failed unit of study.
- (3) Candidates may not take a third year unit of study until they have successfully completed all the first year units of study, and successfully completed the second year units of study, prescribed by the Faculty as qualifying or prerequisite units of study for the third year, as set out in the Units of Study table.
- (4) Candidates may not take a fourth year unit of study until they have successfully completed all the third year units of study, as set out in the Units of Study table except as permitted by 6(5).
- (5) Candidates who fail only one third year unit of study, who have an annual average mark (AAM) of >60 for third year, and who have no previous record of failure in the degree, may apply to the Dean 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. This condition applies only to a fail in a single unit of study, not to the OSCE (Objective Structures Clinical Examination), which is a barrier examination and a component of all units of study (except Pharmaceutical Skills and Dispensing A and B). Candidates who fail the OSCE will not be entitled to apply for a prerequisite waiver and will be required to satisfactorily repeat ALL third year units of study (with the exception of Pharmaceutical Skills and Dispensing A and B if these Units of Study have already been passed.)

##### 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 that may be available are:
  - (a) Rural
  - (b) Industrial



(c) International

## 8 Requirements for the Honours degree

- (1) The Dean may admit a student to the integrated Honours program if:
  - (a) a student is of no more than three years standing, and has no fail or absent fail results; and
  - (b) has a WAM of at least 65 in second and third year units of study; and
  - (c) an academic staff member has agreed to supervise the student's Honours research project.
- (2) 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.

## 9 Award of the degree

- (1) The Bachelor of Pharmacy is awarded in the grades of either Pass or Honours. The honours degree is awarded in classes according to the conditions specified in the Resolutions for the Faculty of Pharmacy.
- (2) Candidates for the award of the Honours degree who do not meet the requirements, but who have otherwise satisfied the course requirements, will be awarded the Pass degree.

## 10 Transitional provisions

- (1) These resolutions apply to all students enrolled in all years of the Bachelor of Pharmacy from 1 January 2018.

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# Bachelor of Pharmacy and Management

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

## Curriculum

This degree focuses on the pharmacy as a business. Graduates will combine the knowledge required to become a registered pharmacist with the skills to integrate sound business practice with sustainable health care.

The first year is a foundation year in which students study biology, chemistry and introductory pharmacy and business subjects, with a progressive emphasis on pharmaceutical science and the professional practice of pharmacy.

Business subjects are incorporated into the first three years and the final year of the program. Practical pharmacy experience is emphasised, particularly in the third and fourth years.

In the fifth year students complete an additional business unit of study with a flexible final semester allowing students to choose an optional major such as an industry placement or an international exchange.

## 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 the units of study table.

## Prerequisites and corequisites

To be eligible to enrol in second-year, third-year, fourth-year and fifth-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 units of study table).





# Bachelor of Pharmacy and Management

## Units of study table

<i>Unit of study</i>	<i>Credit points</i>	<i>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</i>	<i>Session</i>
<b>First Year</b>			
<b>BIOL1008</b> Human Biology	6	<b>A</b> HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). <b>N</b> BIOL1003 or BIOL1903 or BIOL1993 or MEDS1001 or MEDS1901 or BIOL1908 or BIOL1998	Semester 1 Summer Main
<b>BUSS1040</b> Economics for Business Decision Making	6	<b>N</b> ECON1001 OR ECON1040	Semester 1 Semester 2
<b>CHEM1611</b> Chemistry A (Pharmacy)	6	<b>A</b> HSC Chemistry and Mathematics	Semester 1
<b>PHAR1811</b> Foundations of Pharmacy	6		Semester 1
<b>BIOL1007</b> From Molecules to Ecosystems	6	<b>A</b> HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). <b>N</b> BIOL1907 or BIOL1997	Semester 2 Summer Main
<b>BUSS1030</b> Accounting, Business and Society	6	<b>N</b> ACCT1001 or ACCT1002 or ACCT1003 or ACCT1004 or ACCT1005	Semester 1 Semester 2
<b>CHEM1612</b> Chemistry B (Pharmacy)	6	<b>A</b> CHEM1611	Semester 2
<b>PHAR1821</b> Pharmacy Practice 1	6		Semester 2
<b>Second Year</b>			
<b>PHAR1812</b> Basic Pharmaceutical Sciences	6	<b>A</b> HSC Chemistry and 2U Mathematics. Students who have not completed HSC Chemistry (or equivalent) and HSC Mathematics (or equivalent) are strongly advised to take the Chemistry Bridging Course (offered in February and as a distance course at other times of the year) and Mathematics Bridging Course (offered in February).	Semester 1
<b>PHAR2812</b> Microbiology and Infection	6	<b>P</b> BIOL1XX8 or BIOL1XX3	Semester 1
<b>PHSI2601</b> Physiology for Pharmacy	6	<b>P</b> (12cp from junior chemistry AND 24cp from junior science excluding chemistry) OR (6cp from junior chemistry AND 30cp from junior science excluding chemistry).	Semester 1
<b>WORK1003</b> Foundations of Work and Employment	6		Semester 1
<b>CLAW1001</b> Foundations of Business Law	6	<b>N</b> CLAW2214	Semester 1 Semester 2
<b>PCOL2605</b> Pharmacology for Pharmacy	6	<b>P</b> (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX3 or BIOL1XX8) and (BIOL1XX7 or MBLG1XX1). <b>C</b> PHSI2601	Semester 2 Semester 2
<b>PHAR1822</b> Physical Pharmaceutics and Formulation A	6	<b>A</b> HSC Chemistry and 2U Mathematics.	Semester 2
<b>PHAR2822</b> Pharmacy Practice	6	<b>P</b> PHAR1811 and PHAR1821. <b>C</b> PCOL2605.	Semester 2
<b>Third Year</b>			
<b>INFS1000</b> Digital Business Innovation	6	<b>A</b> INFO1000; INFO1003; INFO1903 <b>N</b> ISYS1003 or INFO1000	Intensive January Intensive July Semester 1 Semester 2
<b>MKTG1001</b> Marketing Principles	6		Semester 1 Semester 2
<b>PHAR2811</b> Drug Discovery and Design A	6	<b>P</b> (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812 and (BIOL1XX7 or MBLG1XX1).	Semester 1
<b>PHAR2813</b> Therapeutic Principles	6	<b>P</b> PHAR1811 and PHAR1812 and PHAR1822 and (BIOL1XX7 or MBLG1XX1)	Semester 1
<b>PHAR2821</b> Drug Discovery and Design B	6	<b>P</b> (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812. <b>C</b> PCOL2605.	Semester 2
<b>PHAR2823</b> Physical Pharmaceutics and Formulation B	6	<b>P</b> (CHEM1611 or CHEM11X1 or CHEM19X1 or CHEM1903 or CHEM1612 or CHEM11X2 or CHEM19X2 or CHEM1904) and PHAR1812 and PHAR1822.	Semester 2
<b>WORK1004</b> Foundations of Management	6	<b>N</b> WORK2201	Semester 2





<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>WORK2205</b> <b>HR Strategies and Processes</b>	6	P 24 credit points of Junior units of study including (WORK1003 or WORK1002)	Semester 2
<b>Fourth Year</b>			
<b>PHAR3100</b> <b>Clinical Placement A</b>		<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 <i>Note: Department permission required for enrolment</i> <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.</i>	Semester 1
<b>PHAR3815</b> <b>Pharmaceutical Skills and Dispensing A</b>	4	<b>P</b> (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823	Semester 1
<b>PHAR3816</b> <b>Cardiovascular and Renal</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3100	Semester 1a
<b>PHAR3817</b> <b>Respiratory</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3818 and PHAR3819 and PHAR3100	Semester 1a
<b>PHAR3818</b> <b>Endocrine, Diabetes and Reproductive</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3819 and PHAR3100	Semester 1b
<b>PHAR3819</b> <b>Gastrointestinal</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3100	Semester 1b
<b>PHAR3200</b> <b>Clinical Placement B</b>		<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3100 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <i>Note: Department permission required for enrolment</i> <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.</i>	Semester 2
<b>PHAR3825</b> <b>Pharmaceutical Skills and Dispensing B</b>	4	<b>P</b> (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823 <b>C</b> PHAR3815	Semester 2
<b>PHAR3826</b> <b>Musculoskeletal, Dermatological and Senses</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3827 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200	Semester 2a
<b>PHAR3827</b> <b>Oncology and Anti-Infective Agents</b>	5	<b>P</b> (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3826 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200	Semester 2a
<b>PHAR3820</b> <b>Neurology and Mental Health</b>	10	<b>P</b> (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 <b>C</b> PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3825 and PHAR3826 and PHAR3827 and PHAR3100 and PHAR3200	Semester 2b
<b>Fifth Year</b>			
<b>PHAR4100</b> <b>Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment</i> <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1

<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>WORK3202 Leadership</b>	6	<b>N</b> WORK2222	Semester 1
<b>PHAR4813 Novel Therapeutics</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4821 and PHAR4822.	Semester 2
<b>PHAR4821 Professional Practice</b>	12	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4813 and PHAR4822.	Semester 2
<b>PHAR4822 Clinical Placement D</b>	6	<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 and PHAR4100. <b>C</b> PHAR4813. <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney prior to commencing this Unit of Study. Students who have not met verification requirements before the commencement of Semester 2 will not be eligible to attend their placement.</i>	Semester 2
<b>Fifth Year Honours</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4815 Research Methods</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and PHAR4812 and PHAR4823 and PHAR4100.	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>PHAR4830 Honours</b>	24	<b>P</b> PHAR4811 and PHAR4812 and PHAR4815 and PHAR4823 and PHAR4100	Semester 2
<b>Fifth Year International Major</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>WORK3202 Leadership</b>	6	<b>N</b> WORK2222	Semester 1
<b>PHAR4832 Pharmacy International Exchange</b>	24	<b>P</b> PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100	Semester 2
<b>Fifth Year Industrial Major</b>			
<b>PHAR4100 Clinical Placement C</b>		<b>P</b> PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 <i>Note: Department permission required for enrolment Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.</i>	Semester 1

<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>PHAR4811 Pharmacotherapeutics</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4812 Integrated Dispensing Practice</b>	6	<b>P</b> PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100	Semester 1
<b>PHAR4823 Pharmacy Services and Public Health</b>	6	<b>P</b> PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 <b>C</b> (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100	Semester 1
<b>WORK3202 Leadership</b>	6	<b>N</b> WORK2222	Semester 1
<b>PHAR4831 Pharmacy Industrial Placement</b>	24	<b>P</b> PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100	Semester 2

# Bachelor of Pharmacy and Management

## Unit of study descriptions

### First Year

#### BIOL1008

##### Human Biology

**Credit points:** 6 **Teacher/Coordinator:** Dr Osu Lilje **Session:** Semester 1, Summer Main **Classes:** Lectures; six 3-hour practical sessions; six workshops and tutorials; students encouraged to spend 1-2 hours per week accessing online resources **Prohibitions:** BIOL1003 or BIOL1903 or BIOL1993 or MEDS1001 or MEDS1901 or BIOL1908 or BIOL1998 **Assumed knowledge:** HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). **Assessment:** Written and oral presentation, quiz, skills-based assessment, final exam **Mode of delivery:** Normal (lecture/lab/tutorial) day

What will it mean to be human in 2100? How will we be able to control our complex bodily mechanisms to maintain health and fight disease? Advances in the human biology suggest we will age more slowly and new technologies will enhance many bodily structures and functions. This unit of study will explore maintenance of health through nutritional balance, aerobic health, defence mechanisms and human diversity. You will learn key structural features from the subcellular level to the whole organ and body, and learn about essential functional pathways that determine how the body regulates its internal environment and responds to external stimuli and disease. Together we will investigate nutrition, digestion and absorption, cardiovascular and lung function, reproduction, development, epigenetics, and regulation of function through various interventions. You will receive lectures from experts in the field of human biology and medical sciences, supported by practical classes, workshops and on-line resources that leverage off state-of-the-art technologies to develop your practical, critical thinking, communication, collaboration, digital literacy, problem solving, and enquiry-based skills in human biology. This unit of study will provide you with the breadth and depth of knowledge and skills for further studies in majors in medical sciences.

*Textbooks*  
TBA

#### BUSS1040

##### Economics for Business Decision Making

**Credit points:** 6 **Session:** Semester 1, Semester 2 **Classes:** 1x 2hr lecture and 1x 1hr tutorial per week **Prohibitions:** ECON1001 OR ECON1040 **Assessment:** written assignment (15%), on-line quizzes (10%), mid-semester exam (20%), and final exam (55%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Economics underlies all business decisions, from pricing to product development, to negotiations, to understanding the general economic environment. This unit provides an introduction to economic analysis with a particular focus on concepts and applications relevant to business. This unit addresses how individual consumers and firms make decisions and how they interact in markets. It also introduces a framework for understanding and analysing the broader economic and public policy environment in which a business competes. This unit provides a rigorous platform for further study and a major in economics as well as providing valuable tools of analysis that complement a student's general business training, regardless of their area of specialisation.

#### CHEM1611

##### Chemistry A (Pharmacy)

**Credit points:** 6 **Teacher/Coordinator:** Dr Toby Hudson **Session:** Semester 1 **Classes:** Three 1 hour lectures and one 1 hour tutorial per week; one 3 hour practical per week for 9 weeks. **Assumed knowledge:** HSC Chemistry and Mathematics **Assessment:** Theory examination (60%), laboratory work (15%),

online assignments (10%) and continuous assessment quizzes (15%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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, general acid-base theory, atomic structure, chemical bonding, introduction to organic chemistry, nomenclature, aliphatic chemistry, aromatic chemistry, heterocyclic compounds, isomerism, stereoisomerism, reaction mechanisms, biomolecules, amino acids and peptides, carbohydrates. 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 (offered in February, see <http://sydney.edu.au/science/chemistry/studying-chemistry/bridging-course.shtml>).

*Textbooks*

A booklist is available from the First Year Chemistry website. <http://sydney.edu.au/science/chemistry/firstyear>

#### PHAR1811

##### Foundations of Pharmacy

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Timothy Chen **Session:** Semester 1 **Classes:** 3 x lectures/wk, 1 x 2hr workshop/wk, 1 x 2hr workshop/fortnight, 1 x 2-3hr community placement, 2 x 2hr theory/practical classes **Assessment:** Exam (50%), group projects (40%) and quiz (10%) **Practical field work:** One class will be held in the dispensing laboratory and 2-3 hours of fieldwork in a community pharmacy are required **Mode of delivery:** Normal (lecture/lab/tutorial) day

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.

#### BIOL1007

##### From Molecules to Ecosystems

**Credit points:** 6 **Teacher/Coordinator:** Dr Emma Thompson **Session:** Semester 2, Summer Main **Classes:** Two lectures per week and online material and 12 x 3-hour practicals **Prohibitions:** BIOL1907 or BIOL1997 **Assumed knowledge:** HSC Biology. Students who have not completed HSC Biology (or equivalent) are strongly advised to take the Biology Bridging Course (offered in February). **Assessment:** Quizzes (10%), communication assessment (40%), skills tests (10%), summative final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Paradigm shifts in biology have changed the emphasis from single biomolecule studies to complex systems of biomolecules, cells and their interrelationships in ecosystems of life. Such an integrated understanding of cells, biomolecules and ecosystems is key to innovations in biology. Life relies on organisation, communication, responsiveness and regulation at every level. Understanding biological mechanisms, improving human health and addressing the impact of human activity are the great challenges of the 21st century. This unit will investigate life at levels ranging from cells, and biomolecule



ecosystems, through to complex natural and human ecosystems. You will explore the importance of homeostasis in health and the triggers that lead to disease and death. You will learn the methods of cellular, biomolecular, microbial and ecological investigation that allow us to understand life and discover how expanding tools have improved our capacity to manage and intervene in ecosystems for our own health and organisms in the environment that surround and support us. You will participate in inquiry-led practicals that reinforce the concepts in the unit. By doing this unit you will develop knowledge and skills that will enable you to play a role in finding global solutions that will impact our lives.

*Textbooks*

Please see unit outline on LMS

**BUSS1030**

**Accounting, Business and Society**

**Credit points:** 6 **Session:** Semester 1, Semester 2 **Classes:** 1x 1.5hr lecture and 1x 1.5hr tutorial per week **Prohibitions:** ACCT1001 or ACCT1002 or ACCT1003 or ACCT1004 or ACCT1005 **Assessment:** tutorial contribution (10%), assignment (15%), mid-semester examination (25%), final examination (50%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit investigates the fundamentals of accounting and aims to provide a broad understanding of the role of accounting in the context of business and society. The format of the unit is designed to show that there are many uses of accounting data. The focus moves from accountability to decision making; both functions are explained through examples such as the 'double entry equation', and from an output (financial statements) perspective. Some more technical aspects of accounting are outlined, including the elements of assets, liabilities, revenues and expenses within simple, familiar scenarios. Besides developing an understanding of the role of accounting via conventional financial reports, recent developments including the discharge of accountability by companies through the release of corporate social and environmental reports and the global financial crisis, are explored through an accounting lens.

**CHEM1612**

**Chemistry B (Pharmacy)**

**Credit points:** 6 **Teacher/Coordinator:** Dr Toby Hudson **Session:** Semester 2 **Classes:** Three 1 hour lectures and one 1 hour tutorial per week; one 3 hour practical per week for 9 weeks. **Assumed knowledge:** CHEM1611 **Assessment:** Theory examination (70%), laboratory work (15%) and continuous assessment quizzes (15%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

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.

*Textbooks*

A booklist is available from the First Year Chemistry website. <http://sydney.edu.au/science/chemistry/firstyear>

**PHAR1821**

**Pharmacy Practice 1**

**Credit points:** 6 **Teacher/Coordinator:** Prof Parisa Aslani **Session:** Semester 2 **Classes:** 3 x 1hr lectures/wk, 1 x 2hr workshop/wk **Assessment:** Exam (50%), reports (30%), Reflective Ability Clinical Assessment (15%), self-directed learning (5%) **Practical field work:** Teamwork projects **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study consists of three integrated streams: (1) Social Pharmacy, which is designed to provide a broad perspective of health and illness, and encourages a view of the patient as a whole person. Topics include self-management and patient communication. In this stream, students will be introduced to psycho-social processes that underpin patient health behaviours. (2) Quality Use of Medicines in primary care focusing on the provision of non-prescription medicines, which introduces and develops students' knowledge of Pharmacy Only and Pharmacist Only medicines. Skills will include information

gathering, clinical decision making and provision of pharmaceutical care. Core areas covered include responding to minor ailments such as pain, eye, ear, nose, fever, viral infections as well as gastrointestinal complaints. (3) Academic Writing Skills, which provides instruction and support for developing skills for academic writing and critical appraisal.

*Textbooks*

Rutter P and Newby D. Churchill Livingstone (2016) Community Pharmacy. Symptoms, diagnosis and treatment, Elsevier Publishing.  
Smith, L. (preparer) (2015) PHAR1821 Social Pharmacy, McGraw Hill

**Second Year**

**PHAR1812**

**Basic Pharmaceutical Sciences**

**Credit points:** 6 **Teacher/Coordinator:** Prof Jane Hanrahan **Session:** Semester 1 **Classes:** 3 x lectures/wk, 1 x 2hr tutorial/wk **Assumed knowledge:** HSC Chemistry and 2U Mathematics. Students who have not completed HSC Chemistry (or equivalent) and HSC Mathematics (or equivalent) are strongly advised to take the Chemistry Bridging Course (offered in February and as a distance course at other times of the year) and Mathematics Bridging Course (offered in February). **Assessment:** Written exam (60%), workshop reports (20%), quizzes (10%) and poster presentation (10%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Basic Pharmaceutical Sciences provides an introduction to principles underlying pharmaceutical chemistry and pharmaceuticals. This provides the foundations for a more detailed study of the chemical characteristics of drug molecules, dosage forms and pharmacokinetics in later years of the Bachelor of Pharmacy. The physicochemical properties of drugs are explored from a pharmaceutical perspective complemented by the study of chemistry. Modules provide an introduction to acid/base and solubility characteristics of drug molecules, drug discovery and development, dosage forms, and fundamental mathematics. Small group work in workshop sessions supports the learning of material introduced in lectures.

*Textbooks*

Basic Pharmaceutical Science Resource Book

**PHAR2812**

**Microbiology and Infection**

**Credit points:** 6 **Teacher/Coordinator:** Dr Lifeng Kang **Session:** Semester 1 **Classes:** 2 x lectures/wk **Prerequisites:** BIOL1XX8 or BIOL1XX3 **Assessment:** Exam and quiz (60%), mid-term quiz (15%), and practicals including workshops (25%) **Practical field work:** 8 x laboratory classes, 2 x workshops (video demonstration) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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; infection control measures and principles underlying treatment of infectious diseases; mechanisms of action, characteristics, and types of antibiotics and chemical antimicrobial agents; antibiotic resistance; principles and methods of sterilisation, 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 preparation of pharmaceutical products; and evaluation of different chemical antimicrobial agents.

*Textbooks*

Recommended: Denyer SP, Hodges NA and Gorman SP. Hugo and Russell's Pharmaceutical Microbiology. 8th edition, Blackwell, 2011; Prescott, Harley and Kelen's Microbiology, 7th edition, McGraw-Hill, 2007

**PHSI2601****Physiology for Pharmacy**

**Credit points:** 6 **Teacher/Coordinator:** Dr Meloni Muir **Session:** Semester 1 **Classes:** Four 1-hour lectures per week **Prerequisites:** (12cp from junior chemistry AND 24cp from junior science excluding chemistry) OR (6cp from junior chemistry AND 30cp from junior science excluding chemistry). **Assessment:** One 1.5 hr final exam, two in-semester tests, four practical quizzes, one written assessment (100%). **Practical field work:** Three 3-hour practicals and one 4-hour practical per semester **Mode of delivery:** Normal (lecture/lab/tutorial) day

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

*Textbooks*

Dee Unglaub Silverthorn. Human Physiology: An Integrated Approach, Media Update: International Edition, 6th edition. 2012. ISBN: 9780321750075

**WORK1003****Foundations of Work and Employment**

**Credit points:** 6 **Session:** Semester 1 **Classes:** Online modules, 1x 1 hour lecture and 1x 1 hour tutorial hour per week **Assessment:** in class test (15%), essay (30%), tutorial participation (10%), tutorial leadership (15%), final exam (30%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit draws on concepts from industrial relations and human resource management to examine the interests and strategies of workers, unions, managers, employers and the state. It explores the relationships between these parties as they seek to manage their environments and workplaces and to exercise control over each other. The unit enables students to understand how and why the organisation, regulation and management of work are changing in Australia and globally. As well as providing an introduction to all aspects of the study of the employment relationship, this is the foundation unit for a major in industrial relations and human resource management.

**CLAW1001****Foundations of Business Law**

**Credit points:** 6 **Session:** Semester 1, Semester 2 **Classes:** Two hours of lectures and a one hour tutorial per week **Prohibitions:** CLAW2214 **Assessment:** tutorial assessment (10%), mid-semester exam (15%), assignment (25%), final exam (50%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

The entire fabric of commerce is woven from a complex legal regime, judicial and statutory, which regulates all commercial activity. Every decision in business, and every transaction and relationship is made in the context of this legal regime. The aim of Foundations of Business Law is to introduce the students to the legal framework and regulatory systems which underlie all business activity and to expose them to the legal implications of commercial conduct. This unit of study introduces the Australian legal system and key areas of substantive business law including contracts, torts (in particular negligence and privacy), property and securities, white collar crime, intellectual property, competition and consumer law (in particular advertising, product liability and unfair contracts), business structures and operations, misleading and unconscionable conduct and dispute resolution.

**PCOL2605****Pharmacology for Pharmacy**

**Credit points:** 6 **Teacher/Coordinator:** Prof Peter Carroll **Session:** Semester 2 **Classes:** 3 lect/wk, 12 hours prac/workshop/tutorial **Prerequisites:** (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX3 or BIOL1XX8) and (BIOL1XX7 or MBLG1XX1). **Corequisites:** PHSI2601 **Assessment:** Mid-semester quiz (15%), final examination (55%), continuous assessment (lab reports or assignments) (30%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study provides a basic understanding of drug actions related to physiological and pathological functions. It covers areas of

pharmacodynamics, pharmacokinetics, the autonomic nervous system, pain management, complementary medicines, adverse drug reactions, drug interactions, and the pharmacological treatment of various disease states affecting the central nervous system, the cardiovascular system, the respiratory system, the gastrointestinal system and the renal system.

*Textbooks*

Rang and Dale's Pharmacology, 8th edition; (Elsevier, Churchill Livingstone). Basic and Clinical Pharmacology, Katzung and Trevor, 13th edition (Lange, McGraw Hill)

**PHAR1822****Physical Pharmaceutics and Formulation A**

**Credit points:** 6 **Teacher/Coordinator:** Dr Niall Wheate **Session:** Semester 2 **Classes:** 3 x pharmacy lectures/week, 8 x mathematics lectures, 5 x mathematics tutorials; classes will be arranged as needed **Assumed knowledge:** HSC Chemistry and 2U Mathematics. **Assessment:** Exam (60%), Maths quiz (20%), Laboratory reports (5 x 3% = 15%), Peerwise (5%) **Practical field work:** 5 x laboratory sessions **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study aims to facilitate an understanding of the basic scientific concepts behind designing and using liquid or semi-solid pharmaceutical dosage forms to deliver a drug. Carrying on from PHAR1812 where different dose forms and the importance of the route of administration was introduced, this unit looks at topics such as diffusion and dissolution of drugs, drug solubilisation, crystal polymorphism, suspension and emulsion-based dosage forms. With a grounding in these concepts the unit then goes on to explore specific methods of drug delivery, including: auricular, ocular, intranasal, lung, and intravenous and intramuscular injections, including hospital practice points for pharmacists. This unit of study also includes mathematical tools required for other units of study.

*Textbooks*

Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, 10th edition, Williams and Wilkins, 2014

**PHAR2822****Pharmacy Practice**

**Credit points:** 6 **Teacher/Coordinator:** Dr Carl Schneider **Session:** Semester 2 **Classes:** 3 x lectures/wk, 1.5hr tutorial/wk **Prerequisites:** PHAR1811 and PHAR1821. **Corequisites:** PCOL2605. **Assessment:** Written exam (50%), oral assessment (30%), complementary medicines group presentation (10%) and Reflective Ability Clinical Assessment (10%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study explores the role of the pharmacist as a primary care provider for disease states and the provision of management options, including non-pharmacological recommendations. It focuses on methods of delivering patient care both at an individual level and also to the wider community. This course is fundamental to clinical pharmacy in all areas of practice. Core areas covered include responding to minor ailments such as pain, eye, ear, nose, fever, infection and infestations as well as gastrointestinal complaints. Screening in chronic disease including diabetes, respiratory and cardiovascular disease. Other areas covered are providing healthy living support including nutrition and exercise as well as the role of the pharmacist in the provision of complementary medicines.

*Textbooks*

Community Pharmacy. Symptoms, diagnosis and treatment. (ANZ Edition) 3rd Edition, Rutter P and Newby D. Churchill Livingstone Elsevier Publishing, 2016.

**Third Year****INFS1000****Digital Business Innovation**

**Credit points:** 6 **Session:** Intensive January, Intensive July, Semester 1, Semester 2 **Classes:** 1x 2hr lecture and 1x 1hr lab workshop per week **Prohibitions:** ISYS1003 or INFO1000 **Assumed knowledge:** INFO1000; INFO1003; INFO1903 **Assessment:** group work (10%), group project (25%), mid-semester test (25%), and final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day, Block mode

The Digital Economy, with its focus on information as a key business resource, has changed the way Business Information Systems (BIS) are viewed in organisations. BIS are now seen as enablers of

innovation in which people, supported by powerful technology, are considered to be the most important component. This is because problem-solving, innovation and critical thinking skills cannot be outsourced or easily acquired by competitors. This unit is designed to develop your understanding of how businesses operate. It shows how information systems support business operations and management through integration of people, business processes and systems. You will be provided with an introduction to state-of-the-art business analysis techniques, frameworks and models to assist in understanding the nature and contribution of BIS in a range of business contexts. With its emphasis on business rather than IT, this unit does not require prior IT-related experience. In this unit you will learn about the increasingly important role of IT in business and acquire valuable business analysis and problem-solving skills.

### MKTG1001

#### Marketing Principles

**Credit points:** 6 **Session:** Semester 1, Semester 2 **Classes:** 1x 2hr lecture and 1x 1hr tutorial per week **Assessment:** project (20%), presentation (15%), participation (7%), mid-semester exam (28%), final exam (30%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit examines the relationships among marketing organisations and final consumers in terms of production-distribution channels or value chains. It focuses on consumer responses to various marketing decisions (product mixes, price levels, distribution channels, promotions, etc.) made by private and public organisations to create, develop, defend, and sometimes eliminate, product markets. Emphasis is placed on identifying new ways of satisfying the needs and wants, and creating value for consumers. While this unit is heavily based on theory, practical application of the concepts to "real world" situations is also essential. Specific topics of study include: market segmentation strategies; market planning; product decisions; new product development; branding strategies; channels of distribution; promotion and advertising; pricing strategies; and customer database management.

### PHAR2811

#### Drug Discovery and Design A

**Credit points:** 6 **Teacher/Coordinator:** Dr W. Bret Church **Session:** Semester 1 **Classes:** 3 x lectures/wk and tutorials scheduled as required **Prerequisites:** (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812 and (BIOL1XX7 or MBLG1XX1). **Assessment:** 2.5 hr exam (65%), laboratories and workshops (25%), major quiz (10%) **Practical field work:** 3hr workshop/wk as required **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 consideration of the fundamental processes as replication, transcription and translation involving the macromolecules of life: proteins, DNA and RNA. The course also covers fundamental protein actions and mechanisms of the regulation of such targets, as well as fundamental molecular interactions important for understanding the action of, the detection of, and also diagnostic approaches applied to 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.

#### Textbooks

Patrick, GL. An Introduction to Medicinal Chemistry (6th ed) Oxford University Press, 2017; Nelson, DL. and Cox, MM. Lehninger: Principles of Biochemistry (7th ed), W.H. Freeman, 2017

### PHAR2813

#### Therapeutic Principles

**Credit points:** 6 **Teacher/Coordinator:** Prof Andrew McLachlan **Session:** Semester 1 **Classes:** 3-5 lectures/wk and 4 x 2hr workshops scheduled over the semester. **Prerequisites:** PHAR1811 and PHAR1812 and PHAR1822 and (BIOL1XX7 or MBLG1XX1) **Assessment:** Maths quizzes (25%), Workshop participation (10%), Mid-semester Therapeutic Principles quiz (10%), Final examination (55%). All assessments are compulsory. **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 appropriate 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 influence 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 mathematical relationships to explain drug activity in patients and to guide appropriate drug dosage regimen selection. To support this, relevant mathematical and statistical 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 are an important part of this unit of study.

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 unwanted 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.

### PHAR2821

#### Drug Discovery and Design B

**Credit points:** 6 **Teacher/Coordinator:** Prof Paul Groundwater **Session:** Semester 2 **Classes:** 3 x lectures/wk **Prerequisites:** (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and PHAR1812. **Corequisites:** PCOL2605. **Assessment:** 2hr exam (50%), workshops and quizzes (50%) **Practical field work:** 23hrs of tutorials and workshops **Mode of delivery:** Normal (lecture/lab/tutorial) day

Drug Discovery and Design B goes beyond the basics to help students develop a deeper understanding of how drugs work, and how to discover and design new drugs. How drugs are transformed by metabolism is explored, with a particular focus on the factors which influence metabolism and pharmacogenetics. A problem-based learning approach will be used for the prediction of drug metabolite structures from physical, chemical, biochemical and spectroscopic data. Elements of statistics, stereochemistry, drug design, drug metabolism, and drug mechanism of action are integrated to explore the pathway from drug discovery and design to clinical application.

#### Textbooks

G L Patrick (2013) An Introduction to Medicinal Chemistry, 5th Edition, Oxford University Press

### PHAR2823

#### Physical Pharmaceutics and Formulation B

**Credit points:** 6 **Teacher/Coordinator:** Dr Wojciech Chrzanowski **Session:** Semester 2 **Classes:** 3 x lectures/wk **Prerequisites:** (CHEM1611 or CHEM11X1 or CHEM19X1 or CHEM1903 or CHEM1612 or CHEM11X2 or CHEM19X2 or CHEM1904) and PHAR1812 and PHAR1822. **Assessment:** Final exam (65%), mid-semester exam (10%) practical classes (25%) **Practical field work:** Laboratory work of 4hrs/week for 2 consecutive weeks **Mode of delivery:** Normal (lecture/lab/tutorial) day

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; 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; biomaterials; and material characterisation techniques. 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 (tablet) dosage form.

#### Textbooks

Aulton M.E. *Pharmaceutics: The Science of Dosage Form Design*, (7th edn) Churchill Livingstone, A.T. Florence and D Attwood *Physicochemical Principles of Pharmacy*, MacMillan 1988, *Pharmaceutical Press 4th Edition* 2006

### WORK1004

#### Foundations of Management

**Credit points:** 6 **Session:** Semester 2 **Classes:** 1 x 2 hour lecture and 1 x 1 hour tutorial per week **Prohibitions:** WORK2201 **Assessment:** practice quiz (5%), main quiz (15%), group presentation and facilitation (15%), individual analysis and reflection (15%), tutorial participation (10%), final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This is a foundational unit in the Management and IRandHRM subject areas. An introductory overview of management methods and approaches is provided which forms the basis of study for an advanced specialisation in management. The unit examines management as a process of planning, organising, leading and controlling the efforts of organisational members and discusses how recent trends such as globalisation, economic change and the effects of new technology have led to profound changes in how organisations are managed. The unit explores these issues with respect to both large and small, public and private, and domestic and foreign organisations.

### WORK2205

#### HR Strategies and Processes

**Credit points:** 6 **Session:** Semester 2 **Classes:** 1 x 2 hour lecture and 1 x 1 hour tutorial per week **Prerequisites:** 24 credit points of Junior units of study including (WORK1003 or WORK1002) **Assessment:** multiple choice exam (10%), tutorial activities (20%), research essay (30%), final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Building on the foundational coverage of Human Resource Management (HRM) issues and concepts provided in WORK1003, this unit provides a more focused understanding of key HRM concepts, processes, strategies and practices. The unit covers the way HR concepts, such as the employee psychological contract, might shape HR strategies and practices and highlights the interplay between the strategic approaches to HR and the practices of HR including talent attraction and selection; talent retention and development; managing performance and rewards; diversity and inclusion strategies, workplace health and well being to name a few. It concludes with an investigation of how the HRM system can be effectively evaluated to capture the long term sustainability of the HR processes and strategies adopted.

## Fourth Year

### PHAR3100

#### Clinical Placement A

**Teacher/Coordinator:** Dr Shweta Kumar **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.*

Clinical Placements A is the first of a series of four Units of Study where students are provided opportunities to observe and participate

in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR3815

#### Pharmaceutical Skills and Dispensing A

**Credit points:** 4 **Teacher/Coordinator:** Dr Jonathan Penm, Dr George Li **Session:** Semester 1 **Classes:** Up to 10 lectures/semester **Prerequisites:** (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823 **Assessment:** The final mark for both PHAR3815 and PHAR3825 will be calculated at the end of semester 2 with a breakdown of Dispensing 60%, Drug Profile 30% and Herbal Workshops 10%. **Practical field work:** 5 x 4hr practicals for Pharmaceutical skills and 5 x 3hr practicals for Dispensing and 5 x 1hr Workshops. **Mode of delivery:** Normal (lecture/lab/tutorial) day

The Pharmaceutical Skills component consists of Drug Profile Practical. Students will gain a deeper understanding of the physicochemical properties of drugs, methods of analysing drugs and how the physicochemical properties determine the pharmacology.

The Dispensing component gives an introduction to dispensing practice and to the extemporaneous preparation of pharmaceutical formulations. Students will develop attitudes, knowledge and skills through practise in interpreting the prescription, accuracy in dispensing, methodical approaches to preparing and dispensing prescribed products including preparing, selecting or using appropriate materials, equipment, labels and containers, documentation of dispensing procedures, effect of ingredients and methods used on the quality of pharmaceutical products, quality control and quality assurance procedures including those to minimise errors in all aspects of the dispensing process to ensure patient safety.

#### Textbooks

Australian Pharmaceutical Formulary APF23

### PHAR3816

#### Cardiovascular and Renal

**Credit points:** 5 **Teacher/Coordinator:** Dr Ingrid Gelissen **Session:** Semester 1a **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

### PHAR3817

#### Respiratory

**Credit points:** 5 **Teacher/Coordinator:** Dr Ingrid Gelissen **Session:** Semester 1a **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week for 6 weeks. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3818 and PHAR3819 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

### PHAR3818

#### Endocrine, Diabetes and Reproductive

**Credit points:** 5 **Teacher/Coordinator:** Dr Philip Kwok **Session:** Semester 1b **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3819 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

### PHAR3819

#### Gastrointestinal

**Credit points:** 5 **Teacher/Coordinator:** Dr Philip Kwok **Session:** Semester 1b **Classes:** An average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812

and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3100 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of gastrointestinal and hepatic disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of gastrointestinal and hepatic 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 and hepatic 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).

### PHAR3200

#### Clinical Placement B

**Teacher/Coordinator:** Dr Shweta Kumar **Session:** Semester 2 **Classes:** Practical experience **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3100 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.*

Clinical Placements B is a continuation of Clinical Placement A where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR3825

#### Pharmaceutical Skills and Dispensing B

**Credit points:** 4 **Teacher/Coordinator:** Dr Jonathan Penm, Dr George Li **Session:** Semester 2 **Classes:** Up to 10hrs of lectures/semester **Prerequisites:** (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM1102) and (CHEM1612 or CHEM1101) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PHAR2811 and PHAR2821 and PHAR2823 **Corequisites:** PHAR3815 **Assessment:** The final mark for both PHAR3815 and PHAR3825 will be calculated at the end of semester 2 with a breakdown of Dispensing 60%, Drug Profile 30% and Herbal Workshops 10%. **Practical field work:** 5 x 3hr practicals for Dispensing, 2 x 4hr for herbal workshop **Mode of delivery:** Normal (lecture/lab/tutorial) day

The Pharmaceutical Skills component consists of Herbal Medicine workshops. Students will gain a deeper understanding of the chemical properties of herbal medicines, methods of analysing herbal medicines

and how the chemical properties determine the pharmacology, efficacy and safety.

The Dispensing component gives an introduction to Dispensing practice and to the extemporaneous preparation of pharmaceutical formulations. Students will develop attitudes, knowledge and skills through practise in interpreting the prescription, accuracy in dispensing, methodical approaches to preparing and dispensing prescribed products including preparing, selecting or using appropriate materials, equipment, labels and containers, documentation of dispensing procedures, effect of ingredients and methods used on the quality of pharmaceutical products, quality control and quality assurance procedures including those to minimise errors in all aspects of the dispensing process to ensure patient safety.

*Textbooks*  
APF23

### PHAR3826

#### Musculoskeletal, Dermatological and Senses

**Credit points:** 5 **Teacher/Coordinator:** Prof Alan Boddy **Session:** Semester 2a **Classes:** An average of 6 hrs of lectures and 2 hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3827 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of musculoskeletal, dermatological and special senses including the pharmaceutical sciences that underpin the pharmacological 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 pharmacological and non-pharmacological 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 interactions between pharmacists and their clients (patients, consumers, public, carers) and health care professionals (physicians, dentists, allied health professionals).

*Textbooks*

References: Therapeutic Guidelines, AMH, MIMS, Clinical Pharmacy and Therapeutics, recommended resources and reading material from lectures and tutorials.

### PHAR3827

#### Oncology and Anti-Infective Agents

**Credit points:** 5 **Teacher/Coordinator:** Prof Alan Boddy **Session:** Semester 2a **Classes:** An average of 6 hrs of lectures and 2 hrs of tutorials/week. **Prerequisites:** (BIOL1XX8 or BIOL1XX3) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (BIOL1XX7 or MBLG1XX1) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3826 and PHAR3828 and PHAR3829 and PHAR3825 and PHAR3200 **Assessment:** Tutorial participation and presentations (10%), OSCE (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

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).

*Textbooks*

Australian Medicines Handbook, Pharmaceutical Society of Australia, 2016

### PHAR3820

#### Neurology and Mental Health

**Credit points:** 10 **Teacher/Coordinator:** Prof Mary Collins **Session:** Semester 2b **Classes:** an average of 6hrs of lectures and 2hrs of tutorials/week. **Prerequisites:** (BIOL1XX3 or BIOL1XX8) and (CHEM1611 or CHEM11X2 or CHEM19X2 or CHEM1904) and (CHEM1612 or CHEM11X1 or CHEM19X1 or CHEM1903) and (MBLG1001 or MBLG1901 or BIOL1007 or BIOL1907 or BIOL1997) and PHAR1811 and PHAR1812 and PHAR1821 and PHAR1822 and PCOL2605 and PHAR2811 and PHAR2812 and PHAR2813 and PHAR2821 and PHAR2822 and PHAR2823 and PHSI2601 **Corequisites:** PHAR3815 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3825 and PHAR3826 and PHAR3827 and PHAR3100 and PHAR3200 **Assessment:** tutorial participation and presentations (10%), osce (20%) and final exam (70%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of neurological and mental health 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).

## Fifth Year

### PHAR4100

#### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

*Textbooks*

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR4811

#### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

*Textbooks*

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

### PHAR4812

#### Integrated Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

*Textbooks*

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

### PHAR4823

#### Pharmacy Services and Public Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

*Textbooks*

Population Health: concepts and method

### WORK3202

#### Leadership

**Credit points:** 6 **Session:** Semester 1 **Classes:** 1 x 2 hour lecture and 1 x 1 hour tutorial per week **Prohibitions:** WORK2222 **Assessment:** group assessment (30%), reflective essays (30%), final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Leadership is increasingly seen to be a key factor affecting the performance of contemporary organisations and is an important area of study in the fields of management and organisational behaviour. While leadership principles are often associated with the work of senior management, they also have potential application to all members of organisations. This unit explores conventional and alternative perspectives on leadership and also examines the practice of leadership in diverse organisational contexts. Practitioner perspectives, experiences and case studies of business leaders are also presented.

### PHAR4813

#### Novel Therapeutics

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Thomas Grewal **Session:** Semester 2 **Classes:** Up to 6 hours of lectures, eight 3 hour workshops and up to 60 hours of self-directed learning and group work. **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4821 and PHAR4822. **Assessment:** Workshops (20%), written assignment (40%), and final exam (40%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study expands on second and third year pharmaceutical science (Medicinal Chemistry, Pharmaceutics, Pharmacology, Biology and Biochemistry) by exposing students to drug development and developing biotechnologies, new drug targets and therapies as well as clinical trials. Students will be introduced to emerging biotechnologies and biological devices including drug delivery systems, new drug targets and therapies in order to be aware of  $\Delta$ up and coming  $\Delta$  biotechnologies and how they will impact on pharmaceutical care. Such knowledge will help students to decide their future career direction and give more understanding of practical problems encountered in design and use of biotechnology derived drugs. In addition, this unit of study promotes integration and application of prior knowledge in pharmaceutical science to solving problems in tasks encountered in research and development. This unit will help to understand pharmaceutical drug development as a possible career path and prepares students for professional accreditation. Students will develop knowledge related to biotechnology derived drugs and develop skills in obtaining and critically assessing peer-reviewed publications, as well as people skills from group work, conflict management and written and oral communication skills.

*Textbooks*

Foye W.O et. al. Principles of Medicinal Chemistry (5th Ed), Williams and Wilkins (2002) Shargel L and Yu ABC Applied Biopharmaceutics and Pharmacokinetics (1999) Burton, Evans.

### PHAR4821

#### Professional Practice

**Credit points:** 12 **Teacher/Coordinator:** A/Prof Rebekah Moles **Session:** Semester 2 **Classes:** 24hrs of lectures, 20hrs of workshops, 55hrs of simulated learning tutorials and up to 40hrs of self-directed learning. **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4813 and PHAR4822. **Assessment:** Tutorial marks and communication (40%), MCQ exam (20%), Medication review (30%), Health Care Collaboration (10%) and satisfactory performance in the forensic exam. **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study consolidates 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 has a focus on knowledge application in a simulated pharmacy workplace and includes professional services including disease state management. The unit consists of lectures, on-line learning and simulated case-based competency assessment and learning.

#### Textbooks

Pharmacy and Poisons legislation is required but is made available in a specific format for the unit. Therapeutic Guidelines, AMH and texts from previous practice units will be utilised.

### PHAR4822

#### Clinical Placement D

**Credit points:** 6 **Teacher/Coordinator:** Prof Jo-anne Brien **Session:** Semester 2 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 and PHAR4100. **Corequisites:** PHAR4813. **Assessment:** Preceptor assessment (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Up to 80hrs of clinical placement. **Mode of delivery:** Clinical experience

*Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney prior to commencing this Unit of Study. Students who have not met verification requirements before the commencement of Semester 2 will not be eligible to attend their placement.*

Clinical Placement D is the final Clinical Placements Unit of Study and is a continuation of Clinical Placements A, B, and C. Students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

## Fifth Year Honours

### PHAR4100

#### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR4811

#### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

#### Textbooks

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

### PHAR4812

#### Integrated Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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.

This unit of study emphasises the importance of patient safety and quality use of medicines.

#### Textbooks

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

### PHAR4815

#### Research Methods

**Credit points:** 6 **Teacher/Coordinator:** Prof Lisa Bero **Session:** Semester 1 **Classes:** Data management (approx 16hrs); literature searching and appraisal, and scientific presentations (approx 9hrs); research methods (approx 40hrs); journal club and seminars (approx 16hrs) and research project. **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and PHAR4812 and PHAR4823 and PHAR4100. **Assessment:** Data management assignment (10%), literature review search strategy and outline (5%), oral scientific presentation (5%), seminar report (5%), literature review manuscript (55%), and literature review presentation (20%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 commence in Semester 1 and will be completed in Semester 2 under the direct supervision of an academic staff member or supervisory team.

#### Textbooks

Those recommended by individual lecturers and research project supervisors.

### PHAR4823

#### Pharmacy Services and Public Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

#### Textbooks

Population Health: concepts and method

### PHAR4830

#### Honours

**Credit points:** 24 **Teacher/Coordinator:** Dr Danijela Gnjidic **Session:** Semester 2 **Classes:** Journal club and seminars (approx 15 hours in total) and research project (approx 35-40 hours per week) and monthly meeting (approx 3hrs). In addition, students are required to attend several sessions of the Faculty Postgraduate conference. Forensic: 8hrs **Prerequisites:** PHAR4811 and PHAR4812 and PHAR4815 and PHAR4823 and PHAR4100 **Assessment:** Research paper manuscript (55%), oral presentation of research project (25%) and supervisor mark for overall research performance (20%). Satisfactory performance is required in the forensics examination. **Mode of delivery:** Normal (lecture/lab/tutorial) day

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 journal club/seminar/postgraduate conference component of the course will assist in the development of advanced research and presentation 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.

#### Textbooks

Those recommended by individual lecturers and research project supervisors. Pharmacy and Poisons legislation is required but is made available in a specific format for the unit.

## Fifth Year International Major

### PHAR4100

#### Clinical Placement C

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR4811

#### Pharmacotherapeutics

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

#### Textbooks

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

**PHAR4812****Integrated Dispensing Practice**

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

*Textbooks*

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

**PHAR4823****Pharmacy Services and Public Health**

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

*Textbooks*

Population Health: concepts and method

**WORK3202****Leadership**

**Credit points:** 6 **Session:** Semester 1 **Classes:** 1 x 2 hour lecture and 1 x 1 hour tutorial per week **Prohibitions:** WORK2222 **Assessment:** group assessment (30%), reflective essays (30%), final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Leadership is increasingly seen to be a key factor affecting the performance of contemporary organisations and is an important area of study in the fields of management and organisational behaviour. While leadership principles are often associated with the work of senior management, they also have potential application to all members of organisations. This unit explores conventional and alternative perspectives on leadership and also examines the practice of leadership in diverse organisational contexts. Practitioner perspectives, experiences and case studies of business leaders are also presented.

**PHAR4832****Pharmacy International Exchange**

**Credit points:** 24 **Teacher/Coordinator:** Dr Hien Duong **Session:** Semester 2 **Classes:** The numbers of practical classes, tutorials/workshops and lectures in each of the units of study taken will be the same as for the full-time students at the host institution. Forensic: Lectures 8hrs, Workshop 3hrs by distance learning. **Prerequisites:** PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** The students will be assessed in the coursework and examination components agreed by the Faculty and the international host institution in the same weighting as the full-time students at the host institution. This unit of study is Pass/Fail. Satisfactory performance in the forensic examination. **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will provide students with the opportunity to experience other healthcare systems through undertaking 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.

*Textbooks*

Those recommended by the units of study at the host institution. Pharmacy and Poisons legislation is required but is made available in a specific format for the unit.

**Fifth Year Industrial Major****PHAR4100****Clinical Placement C**

**Teacher/Coordinator:** Tina Xu **Session:** Semester 1 **Classes:** Practical experience **Prerequisites:** PHAR3816 and PHAR3817 and or PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this Unit of Study is required. **Practical field work:** Approximately 80 hours of clinical placements. **Mode of delivery:** Clinical experience

*Note: Department permission required for enrolment. Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study.*

Clinical Placement C is a continuation of Clinical Placements A and B, where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Clinical Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Clinical Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

*Textbooks*

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

**PHAR4811****Pharmacotherapeutics**

**Credit points:** 6 **Teacher/Coordinator:** Dr Janet Cheung **Session:** Semester 1 **Classes:** 32 x 1hr lectures, 8 x 3hr small group learning and up to 18hrs of self directed learning **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4812 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Final exam (40%), quiz (10%), group portfolios (15%), workshop participation (35%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the use of medicines and related appropriate health measures in special patient populations (paediatrics, geriatrics, pregnancy, disability

and others). The unit of study will draw upon concepts in clinical pharmacy, pharmacokinetics and clinical practice.

Through a series of workshops, students will undertake activities including case-study analysis, role-plays, problem solving and case presentations. These activities will help students 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. Students 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.

#### *Textbooks*

Standard Reference Texts for Medications (AMH, APF, eMIMS). In addition, current research articles provided via workshop outlines will inform the reference base for this Unit of Study.

### **PHAR4812**

#### **Integrated Dispensing Practice**

**Credit points:** 6 **Teacher/Coordinator:** Dr Stephen Carter **Session:** Semester 1 **Classes:** 1 x 2hr lec/wk (total approx 8hrs); 1 x 2hr workshop/wk and (total approx 16hrs/sem), approx 16hrs on-line activities **Prerequisites:** PHAR3815 and PHAR3825 and PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** PHAR4811 and (PHAR4814 or PHAR4815 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students must prove competency in each component of this unit of study (practical exams, continuous weekly assessments, pharmaceutical calculations assignment, portfolio presentation). This unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory class /wk (total approx 16hrs/sem) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Integrated Dispensing Practice links together the skills and knowledge that students have developed in dispensing and pharmacy practice. 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. This unit of study emphasises the importance of patient safety and quality use of medicines.

#### *Textbooks*

Australian Medicines Handbook (2016 or later) and Australian Pharmaceutical Formulary (Ed 23).

### **PHAR4823**

#### **Pharmacy Services and Public Health**

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 1 **Classes:** 34 x 1hr lectures, 10 x 3hr workshops and up to 25hrs of self directed learning **Prerequisites:** PHAR3816 and PHAR3817 and PHAR3818 and PHAR3819 and PHAR3826 and PHAR3827 and PHAR3828 and PHAR3829 **Corequisites:** (PHAR4814 or PHAR4815 or WORK3202) and PHAR4100 **Assessment:** Final exam (50%), group assignment/presentation (40%), workshop participation (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Australian Health Care System, health policy and regulation affecting health in Australia and internationally and the role of pharmacy in public health/ health promotion. We will develop students' skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including, epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

#### *Textbooks*

Population Health: concepts and method

### **WORK3202**

#### **Leadership**

**Credit points:** 6 **Session:** Semester 1 **Classes:** 1 x 2 hour lecture and 1 x 1 hour tutorial per week **Prohibitions:** WORK2222 **Assessment:** group assessment (30%), reflective essays (30%), final exam (40%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

Leadership is increasingly seen to be a key factor affecting the performance of contemporary organisations and is an important area of study in the fields of management and organisational behaviour. While leadership principles are often associated with the work of senior management, they also have potential application to all members of organisations. This unit explores conventional and alternative perspectives on leadership and also examines the practice of leadership in diverse organisational contexts. Practitioner perspectives, experiences and case studies of business leaders are also presented.

### **PHAR4831**

#### **Pharmacy Industrial Placement**

**Credit points:** 24 **Teacher/Coordinator:** Prof Hak-Kim Chan and Dr Wojciech Chrzanowski **Session:** Semester 2 **Classes:** Students will be allocated a full-time workload in the host organization. Forensic: 8hrs of lectures and 3hrs of workshops. **Prerequisites:** PHAR4811 and PHAR4812 and (PHAR4814 or WORK3202) and PHAR4823 and PHAR4100 **Assessment:** Students will be assessed through the submission of two reports, detailing their activities and the activities they have contributed to. The initial report will provide a background about the industrial host (including information about the company and department(s) in which you have been based), their area of pharmaceutical activity, and an introduction to the activities to be performed on the placement. The final report will give a detailed description of the work performed, its relevance and how the work translates to health practitioners, patients, policy makers, the host organisation or other stakeholders. The industrial host will also be asked to provide a brief assessment of the student's performance on their placement and will be assessed as Pass/Fail. Satisfactory performance is required in the forensic examination. **Mode of delivery:** Professional practice

This unit of study will provide students with the opportunity to experience the practice of pharmacy in one of a range of industrial 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 (full-time for 13 weeks) will be agreed individually in consultation with the host and will be commensurate with 24 credit points.

#### *Textbooks*

Those recommended by the host institution. Pharmacy and Poisons legislation is required but is made available in a specific format for the unit.

# Bachelor of Pharmacy and Management

## Bachelor of Pharmacy and Management

### Bachelor of Pharmacy and Management (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 2014 (the 'Coursework Rule'), the Coursework Policy 2014, the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended), the Academic Honesty in Coursework Policy 2015 and the Academic Honesty Procedures 2016. Up to date versions of all such documents are available from the Policy Register: <http://sydney.edu.au/policies>.

#### Course resolutions

##### 1 Course codes

Code	Course title
BUPHAMGT1000	Bachelor of Pharmacy and Management

##### 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) or equivalent (and subject to the special admissions provisions as set out in the Coursework Policy).

##### 4 Requirements for award

- (1) The units of study that may be taken for the course are set out in the Units of Study table for the Bachelor of Pharmacy and Management.
- (2) To qualify for the award of the pass degree, a candidate must complete 240 credit points, comprising:
- (a) 192 credit points of core units of study in the first four 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 elective 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 or third year unit of study until they have:
- (a) gained credit for at least 24 credit points in units of study of the previous year; and
- (b) successfully completed the units of study prescribed by the Faculty as qualifying or prerequisite units of study, as set out in the Units of Study table.
- (2) Candidates who fail only one first year unit of study and have no previous record of failure in the degree, who have an annual average mark (AAM) of >60 for that year, may apply to the Dean for a prerequisite waiver which would allow enrolment in the full complement of units of study in the following year, together with the failed unit of study.
- (3) Candidates may not take a fourth year unit of study until they have successfully completed all first and second year units of study, and successfully completed 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 the Units of Study table.
- (4) Candidates may not take a fifth year unit of study until they have successfully completed all the fourth year units of study as set out in the Units of Study table except as permitted in 6(5).
- (5) Candidates who fail only one fourth year unit of study, who have an annual average mark (AAM) of >60 for fourth year, and who have no previous record of failure in the degree, may apply to the Dean 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. This condition applies only to a fail in a single unit of study, not to the OSCE (Objective Structures Clinical Examination), which is a barrier examination and a component of all units of study (except Pharmaceutical Skills and Dispensing A and B). Candidates who fail the OSCE will not be entitled to apply for a prerequisite waiver and will be required to satisfactorily repeat ALL fourth year units of study (with the exception of Pharmaceutical Skills and Dispensing A and B if these Units of Study have already been passed.)

##### 7 Requirements for the Honours degree

- (1) The Dean may admit a student to the integrated Honours program if:
- (a) a student is of no more than four years standing, and has no fail or absent fail results; and
- (b) has a WAM of at least 65 in second, third and fourth year units of study; and
- (c) an academic staff member has agreed to supervise the student's Honours research project





- (2) 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, fifth year second semester.

8 **Award of the degree**

- (1) The Bachelor of Pharmacy and Management is awarded in the grades of either Pass or Honours. The honours degree is awarded in classes according to the conditions specified in the Resolutions for the Faculty of Pharmacy.
- (2) Candidates for the award of the Honours degree who do not meet the requirements, but who have otherwise satisfied the course requirements, will be awarded the pass degree.

# Master of Pharmacy

The Master of Pharmacy is a two-year postgraduate degree by coursework with a full-time study load. If you already hold a university degree, this course provides you with the academic qualification needed to begin the registration process to become a pharmacist.

With a strong practical focus, the Master of Pharmacy is designed to deliver graduates advanced clinical skills, ready for prominent roles in all aspects of the profession and for leadership in the use of innovative evidence-based practice.

The course offers a mix of lectures, tutorials, labs, small group work, problem-based learning and clinical placements which develop valuable practical skills and experience.





# Master of Pharmacy

## Units of study table

<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>Year 1</b>			
<b>PHAR5711 Introductory Professional Practice</b>	3	<b>A</b> 3 credit points of Statistics, 6 credit points of Human Biology, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year.	Semester 1
<b>PHAR5712 Pharmaceutical Microbiology</b>	3	<b>A</b> 6 credit points of Human Biology, 6 credit points of Biochemistry, 12 credit points of Chemistry, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year.	Semester 1
<b>PHAR5713 Medicinal and Pharmaceutical Chemistry</b>	6	<b>A</b> 6 credit points of Biochemistry, 12 credit points of Chemistry, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year.	Semester 1
<b>PHAR5714 Pharmaceutics and Formulations</b>	6	<b>A</b> 6 credit points of Biochemistry, 12 credit points of Chemistry, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year.	Semester 1
<b>PHAR5715 Metabolism and Pharmacokinetics</b>	6	<b>A</b> 3 credit points of Calculus, 6 credit points of Biochemistry, 12 credit points of Chemistry. Students who have not completed up to 12 credit points of prerequisite subjects are strongly advised to take the corresponding Bridging Course (offered in February, July and as a distance course at other times of the year).	Semester 2a
<b>PHAR5716 Integrated Primary Healthcare 1</b>	6	<b>A</b> 3 credit points of Calculus, 6 credit points of Biochemistry, 12 credit points of Chemistry. Students who have not completed up to 12 credit points of prerequisite subjects are strongly advised to take the corresponding Bridging Course (offered in February, July and as a distance course at other times of the year).	Semester 2b
<b>PHAR5717 Integrated Primary Healthcare 2</b>	6	<b>A</b> 3 credit points of Calculus, 6 credit points of Biochemistry, 12 credit points of Chemistry. Students who have not completed up to 12 credit points of prerequisite subjects are strongly advised to take the corresponding Bridging Course (offered in February, July and as a distance course at other times of the year).	Semester 2b
<b>PHAR5718 Experiential Placement 1A</b>	3	<i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the Faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study. Students must have successfully passed the Readiness to Practice quiz (scheduled during semester 1) to be eligible to attend placements.</i>	Intensive July
<b>PHAR5719 Experiential Placement 1B</b>	9	<b>P</b> PHAR5718 <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the Faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.</i>	Intensive December
<b>Year 2</b>			
<b>PHAR5721 Neurology and Mental Health</b>	6	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718 <b>C</b> PHAR5722, PHAR5723	Semester 1
<b>PHAR5722 Endocrine, Renal and Cardiovascular</b>	6	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718 <b>C</b> PHAR5721, PHAR5723	Semester 1
<b>PHAR5723 Immunology and Cancer</b>	6	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718 <b>C</b> PHAR5721, PHAR5722	Semester 1
<b>PHAR5724 Experiential Placement 2</b>	9	<b>P</b> PHAR5718, PHAR5719 <i>Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the Faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be permitted to undertake the Unit of Study.</i>	Intensive July
<b>PHAR5725 Public Health and Pharmaceutical Policy</b>	6	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717 <b>C</b> PHAR5726, PHAR5727, PHAR5728	Semester 2
<b>PHAR5726 Dispensing Practice</b>	6	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717 <b>C</b> PHAR5725, PHAR5727, PHAR5728	Semester 2
<b>PHAR5727 Professional Practice</b>	6	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717 <b>C</b> PHAR5725, PHAR5726, PHAR5728	Semester 2
<b>PHAR5728 Pharmacy Capstone</b>	3	<b>P</b> PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718, PHAR5719 <b>C</b> PHAR5725, PHAR5726, PHAR5727	Semester 2





# Master of Pharmacy

## Unit of study descriptions

### Year 1

#### PHAR5711

##### Introductory Professional Practice

**Credit points:** 3 **Teacher/Coordinator:** Dr Betty Chaar **Session:** Semester 1 **Classes:** 2 x lecs/week, 1 x 2hr tutorial/week **Assumed knowledge:** 3 credit points of Statistics, 6 credit points of Human Biology, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year. **Assessment:** MASUS Assignment (Satisfactory(S)/Unsatisfactory(U)), tutorial and workshop participation (15%), group presentation (15%), Hand hygiene certificate (S/U), Interprofessional Workshop Reflective Piece (5%), Final Practical Exam (35%), Final Written Exam (30%). Satisfactory performance in the Readiness to Practice quiz for Experiential Placement. **Mode of delivery:** Normal (lecture/lab/tutorial) day

Introductory Professional Practice is a broad introduction to the discipline of pharmacy, the roles that pharmacists play in health care and ideas, issues, skills and knowledge base required of a professional pharmacist.

This unit of study introduces students to concepts that underpin disease states management, including those which are managed directly by the pharmacist as a primary care provider, together with foundational skills and knowledge which equip students for clinical decision-making and problem-solving. The place of pharmacy within the Australian health care system is explored, and basic principles of management are also included. In addition, students will be introduced to technical skills used in pharmacy such as dispensing and compounding. Lectures are supported by online material, tutorial and laboratory classes, which allow students to practice and apply skills and knowledge. Themes of evidence based practice, drug information, ethics, clinical reasoning and intervention and communication skills run throughout. Learning gained in this unit prepares students for clinical placements and later units of study, which will build on both the skills and clinical topics covered in this unit.

##### Textbooks

Australian Pharmaceutical Formulary and Handbook: The everyday guide to pharmacy practice - Edition 23 (or the latest edition) and Australian Medicines Handbook (latest edition)

#### PHAR5712

##### Pharmaceutical Microbiology

**Credit points:** 3 **Teacher/Coordinator:** Dr Hien Duong **Session:** Semester 1 **Classes:** 2hrs/week **Assumed knowledge:** 6 credit points of Human Biology, 6 credit points of Biochemistry, 12 credit points of Chemistry, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year. **Assessment:** Final exam (60%), Microbiology Lab Report (5%), Online quizzes (10%), Antibiotic Resistance workshop presentation (15%), Antibiotic Stewardship workshop assignment (10%) **Practical field work:** 3hrs/week **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study aims to provide knowledge on the role of micro-organisms in pharmacy and the pharmaceutical sciences. It applies basic microbiological principles to the production of clean and sterile pharmaceutical products in both community and hospital pharmacy, and in industrial manufacture, and antimicrobial therapies. Topics include the structure, function and importance of the major groups of micro-organisms; host defence mechanisms; pathogenicity and epidemiology of infectious diseases; disinfectants; preservatives; antiseptics; antibiotics, antibiotic resistance, and antimicrobial stewardship; principles and methods of sterilisation, aseptic preparation

and techniques; cleanroom technology and good manufacturing practice (GMP).

#### PHAR5713

##### Medicinal and Pharmaceutical Chemistry

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Thomas Balle **Session:** Semester 1 **Classes:** 2hrs/week **Assumed knowledge:** 6 credit points of Biochemistry, 12 credit points of Chemistry, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year. **Assessment:** Final exam (60%); Laboratory report and presentation (20%); Molecular Modeling Reports (5% + 15%) **Practical field work:** 11hrs tutorials, 20hrs lab/workshops and self-directed learning **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit will explore the early phases of the drug discovery process from identification of a biological target molecule (enzyme or receptor) to identification of lead molecules and how chemical synthesis and biological screening is applied to develop lead molecules into drugs with desired molecular properties. Topics include drug discovery, protein structure and function, protein structure determination, drug synthesis, spectroscopic analysis, functional groups, molecular properties, molecular modelling, structure based drug design, drug screening. 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 (5th ed). Oxford University Press, 2013

#### PHAR5714

##### Pharmaceutics and Formulations

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Veysel Kayser **Session:** Semester 1 **Classes:** 3 x lecs/week, 1 x tutorial/week **Assumed knowledge:** 6 credit points of Biochemistry, 12 credit points of Chemistry, 12 credit points of Pharmacology, 12 credit points of Physiology. Students who have not completed up to 12 credit points of pre-requisite subjects are strongly advised to take the corresponding Bridging Course offered in February or July and as a distance course at other times of the year. **Assessment:** Final exam (55%), minor exam (10%), laboratory practicals (35%) **Practical field work:** Laboratory work: (1) tableting - 4hrs/week for two consecutive weeks, (2) physical chemistry - 3hrs/week for five weeks, (3) dispensing - 1.5hrs/week for nine weeks **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 biomaterials; solid dose forms and particle science that comprise tableting and capsule technology; rheology, freezing point depression, osmosis, dispersion dose forms including suspensions, colloidal dispersions, and emulsions; topical dose forms and semisolids; inhalation pharmaceutical aerosols; biopharmaceuticals including protein and peptide drugs, vaccines and their 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 (7th edn) Churchill Livingstone and  
A.T. Florence and D. Attwood Physicochemical Principles of Pharmacy, Pharmaceutical Press 6th Edition, 2015.



**PHAR5715****Metabolism and Pharmacokinetics**

**Credit points:** 6 **Teacher/Coordinator:** Dr Fanfan Zhou **Session:** Semester 2a **Classes:** Lectures, workshops, and online learning activities. **Assumed knowledge:** 3 credit points of Calculus, 6 credit points of Biochemistry, 12 credit points of Chemistry. Students who have not completed up to 12 credit points of prerequisite subjects are strongly advised to take the corresponding Bridging Course (offered in February, July and as a distance course at other times of the year). **Assessment:** Metabolism workshop assignment (20%), In-class pharmacokinetics quizzes (10%), formal quiz (10%), and final exam (60%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study is intended to provide an understanding of drug metabolism, pharmacokinetics, pharmacodynamics and pharmacogenetics, and the clinical application of these concepts to support the safe and effective use of medicines. Lecture topics will include metabolic enzymes and pathways, identification of metabolites, pharmacokinetics, drug absorption and distribution, protein binding and bioavailability.

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 effect of the body on drugs (metabolism), 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 the factors affecting drug efficacy and 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.

*Textbooks*

Applied Biopharmaceutics and Pharmacokinetics. Shargel, Wu-Pong and Yu (2012); Pharmacokinetics Made Easy, DJ Birkett 2nd edition (2010); Pharmacogenomics: The search for Individualised Therapies, Licinio and Wong.

**PHAR5716****Integrated Primary Healthcare 1**

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Bandana Saini **Session:** Semester 2b **Classes:** Lectures, workshops and online learning activities. **Assumed knowledge:** 3 credit points of Calculus, 6 credit points of Biochemistry, 12 credit points of Chemistry. Students who have not completed up to 12 credit points of prerequisite subjects are strongly advised to take the corresponding Bridging Course (offered in February, July and as a distance course at other times of the year). **Assessment:** Participation in workshops (10%), dispensing activities (20%), oral exam (20%), and final written exam (50%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of respiratory and gastrointestinal disorders, including the pharmaceutical sciences that underpin such drug therapies, with a focus on OTC medications. This unit will also include the epidemiology, pathophysiology and clinical features of respiratory and gastrointestinal diseases. Through the use of case-based learning, students will participate in the interpretation, application and dissemination of pharmaceutical and pharmacotherapeutic concepts and knowledge. These cases will also exemplify the population diversity at the pharmacy interface and will help students gain skills in counselling or making therapeutic decisions for a range of diverse population scenarios. 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 and gastrointestinal disorders. This unit will also explore interprofessional communication and the application of specialist knowledge required to implement pharmacist cognitive services such as clinical interventions and/or medication management review. Students will become familiar with drug information software and computerised drug information databases. Role-plays will help students to develop the language and non-verbal skills pharmacists need to communicate effectively with patients, doctors, and other health care professionals.

*Textbooks*

Clinical Pharmacy and Therapeutics. R. Walker and C. Whittlesea 5th Edition (2012); Australian Medicines Handbook (2017). eTG Complete [electronic resource]; Foye's Principles of Medicinal Chemistry. TL Lemke and DA Williams 7th Edition (2013). Rang and Dale's Pharmacology H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower, G. Henderson 8th Edition (2016).

**PHAR5717****Integrated Primary Healthcare 2**

**Credit points:** 6 **Teacher/Coordinator:** Prof David Hibbs **Session:** Semester 2b **Classes:** Lectures, workshops and online learning activities. **Assumed knowledge:** 3 credit points of Calculus, 6 credit points of Biochemistry, 12 credit points of Chemistry. Students who have not completed up to 12 credit points of prerequisite subjects are strongly advised to take the corresponding Bridging Course (offered in February, July and as a distance course at other times of the year). **Assessment:** Participation in workshops (10%), dispensing activities (20%), oral exam (20%), and final written exam (50%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on medicines available over the counter (OTC), or prescribed, for therapeutic use in a number of common disorders affecting the musculoskeletal, dermatological, special senses, cardiovascular, and endocrine systems. The pharmaceutical sciences that underpin such drug therapies will be covered. This unit will also include the epidemiology, pathophysiology and clinical features of these 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 these 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 multitude of computerised drug information databases. Role-plays will help students to develop the language and non-verbal skills pharmacists need to communicate effectively with patients, doctors, and other health care professionals. This unit of study complements the practical experiences undertaken during experiential placements.

*Textbooks*

Clinical Pharmacy and Therapeutics. R. Walker and C. Whittlesea 5th Edition (2012); Australian Medicines Handbook (2017). eTG Complete [electronic resource]; Foye's Principles of Medicinal Chemistry. TL Lemke and DA Williams 7th Edition (2013). Rang and Dale's Pharmacology H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower, G. Henderson 8th Edition (2016).

**PHAR5718****Experiential Placement 1A**

**Credit points:** 3 **Teacher/Coordinator:** Dr Jennifer Ong **Session:** Intensive July **Classes:** Practical experience **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of Study is required. **Practical field work:** Approximately 80 hours of experiential placements. **Mode of delivery:** Clinical experience

*Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the Faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend placements or participate in this Unit of Study. Students must have successfully passed the Readiness to Practice quiz (scheduled during semester 1) to be eligible to attend placements.*

Experiential Placement 1A is the first of a series of three Units of Study where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Experiential Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Experiential Placements Program of their placement experiences, and attend on-campus debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

*Textbooks*

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR5719

#### Experiential Placement 1B

**Credit points:** 9 **Teacher/Coordinator:** Dr Jennifer Ong **Session:** Intensive December **Classes:** Briefing sessions, practical experience and debrief session. **Prerequisites:** PHAR5718 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** approximately 160 hours of Experiential placements. **Mode of delivery:** Clinical experience

*Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the Faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be eligible to attend their placement.*

Experiential Placement 1B is a continuation of Experiential Placement 1A where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings.

The overall objectives of the Experiential Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours.

Students will be required to maintain an e-portfolio across the Experiential Placements Program of their placement experiences, and attend on-campus briefing and debriefing sessions. Students will also be evaluated by their preceptors on their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

## Year 2

### PHAR5721

#### Neurology and Mental Health

**Credit points:** 6 **Teacher/Coordinator:** Dr Claire O'Reilly **Session:** Semester 1 **Classes:** 3 x lectures/wk, 3hr workshop/wk **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718 **Corequisites:** PHAR5722, PHAR5723 **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of neurology and mental health including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of neurology and mental health. 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 neurology and 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).

#### Textbooks

Clinical Pharmacy and Therapeutics. R. Walker and C. Whittlesea (5th Edition, 2012); Australian Medicines Handbook. Current edition eTG complete [electronic resource]. 2007-to present; Foye's Principles of Medicinal Chemistry TL Lemke and DA Williams (Williams and Wilkins, 7th Edition, 2013). Rang and Dale's Pharmacology H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower, G. Henderson (8th Edition, 2016)

### PHAR5722

#### Endocrine, Renal and Cardiovascular

**Credit points:** 6 **Teacher/Coordinator:** Dr Betty Chaar **Session:** Semester 1 **Classes:** 3 x lectures/wk, 3hr workshop/wk **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717,

PHAR5718 **Corequisites:** PHAR5721, PHAR5723 **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of endocrine, renal and cardiovascular disorders including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of endocrine, renal and cardiovascular 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, renal and cardiovascular 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).

#### Textbooks

Clinical Pharmacy and Therapeutics. R. Walker and C. Whittlesea (5th Edition, 2012); Australian Medicines Handbook. Current edition eTG complete [electronic resource]. 2007-to present; Foye's Principles of Medicinal Chemistry TL Lemke and DA Williams (Williams and Wilkins, 7th Edition, 2013). Rang and Dale's Pharmacology H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower, G. Henderson (8th Edition, 2016)

### PHAR5723

#### Immunology and Cancer

**Credit points:** 6 **Teacher/Coordinator:** Dr Rebecca Roubin **Session:** Semester 1 **Classes:** 3 x lectures/wk, 3hr workshop/wk **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718 **Corequisites:** PHAR5721, PHAR5722 **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will cover the therapeutics of immunology and cancer including the pharmaceutical sciences that underpin such drug therapies. This unit will also include the epidemiology, pathophysiology and clinical features of immunology and cancer. 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 cancer and immunological 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).

#### Textbooks

Clinical Pharmacy and Therapeutics. R. Walker and C. Whittlesea (5th Edition, 2012); Australian Medicines Handbook. Current edition eTG complete [electronic resource]. 2007-to present; Foye's Principles of Medicinal Chemistry TL Lemke and DA Williams (Williams and Wilkins, 7th Edition, 2013). Rang and Dale's Pharmacology H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower, G. Henderson (8th Edition, 2016)

### PHAR5724

#### Experiential Placement 2

**Credit points:** 9 **Teacher/Coordinator:** Prof Jo-anne Brien **Session:** Intensive July **Classes:** Briefing sessions, practical experience and debrief session/s. **Prerequisites:** PHAR5718, PHAR5719 **Assessment:** Preceptor Evaluation (50%), Portfolio (50%). All assessment tasks must be completed. Satisfactory performance in all areas of this unit of study is required. **Practical field work:** Approximately 140 hours of experiential placements. **Mode of delivery:** Clinical experience

*Note: Students must meet all checks and clearances as required and verified by the Office of Clinical Education at The University of Sydney and as set by the Faculty prior to commencing this Unit of Study. Students who have not met verification requirements will not be permitted to undertake the Unit of Study.*



Experiential Placement 2 is a continuation of Experiential Placement 1A and 1B where students are provided opportunities to observe and participate in real-life application of theory and skills learned during on-campus course work. Students will have the opportunity to gain experience in practice and knowledge of a variety of professional settings. The overall objectives of the Experiential Placements Program are to familiarise students with their future professional roles and working environments, and to develop professional skills and behaviours. Students will be required to maintain an e-portfolio across the Experiential Placements Program of their placement experiences, and attend on-campus briefing and debriefing sessions. Students will also be evaluated by their preceptors and their professional performance during placement.

#### Textbooks

Australian Pharmaceutical Formulary (newest edition); Australian Medicines Handbook (newest edition).

### PHAR5725

#### Public Health and Pharmaceutical Policy

**Credit points:** 6 **Teacher/Coordinator:** Dr Barbara Mintzes **Session:** Semester 2 **Classes:** 2 x lecs/wk, 4hr workshop/wk and up to 25hrs of self directed learning **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717 **Corequisites:** PHAR5726, PHAR5727, PHAR5728 **Assessment:** Final exam (50%), group assignment/presentation (35%), workshop participation (15%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study will focus on developing students' understanding of the Public Health System, the role of pharmacy, health policy and regulation affecting health in Australia and internationally. Students will develop skills in identifying, accessing and interpreting relevant policy, regulation and literature. Topics which underpin understanding of public health including epidemiology/pharmacoepidemiology and pharmacoconomics will also be addressed. Through workshops and assignments, students will be given the opportunity to integrate their learning and apply this knowledge to address population health care problems with a special emphasis on achieving the quality, safety and judicious use of medicines in health care.

### PHAR5726

#### Dispensing Practice

**Credit points:** 6 **Teacher/Coordinator:** Dr Irene Um **Session:** Semester 2 **Classes:** 1 x 2hr lec/wk, 1 x 2hr tutorial/wk and up to 3hrs/wk self-directed learning **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717 **Corequisites:** PHAR5725, PHAR5727, PHAR5728 **Assessment:** Students must achieve satisfactory performance in each component of this unit of study (practical exams, continuous weekly assessments, forensic exam). The unit of study is Pass/Fail. **Practical field work:** 1 x 2hr laboratory/wk **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study consolidates and brings together the skills and knowledge that students have developed in previous units from year one to semester 1 of year two of the curriculum. The emphasis is on clinical practice and develops the theme that dispensing is not a single event but a process. Students will dispense prescription medicines including extemporaneously prepared products, but will engage in the whole process, including undertaking initial assessment, ensuring appropriate forensic and administrative requirements, considering appropriateness and promoting optimal medicines use, liaising with prescribers to recommend changes or discuss therapeutic management, and communicating with the consumer, providing advice and ensuring consumer understanding. This is achieved using a simulated practice environment.

#### Textbooks

Current Australian Medicines Handbook, current Australian Pharmaceutical Formulary Handbook, various Poisons legislation resources will be made available in a specific format for the unit.

### PHAR5727

#### Professional Practice

**Credit points:** 6 **Session:** Semester 2 **Classes:** 2 x lecs/wk, 4hr workshop/wk **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717 **Corequisites:** PHAR5725, PHAR5726, PHAR5728 **Assessment:** Written exam (50%), Oral exam (20%), Medication Review (20%),

Workshop Participation (10%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study consolidates previous units from the entire Master of Pharmacy curriculum through the presentation and solving of clinical and ethical problems. It has a focus on knowledge application in a simulated pharmacy workplace and includes professional services such as disease state management eg. asthma and diabetes, medication reviews, CYP screening, smoking cessation therapy and opioid replacement therapy. Role-plays will be used to develop students' communication skills for interaction between pharmacists and their clients (patients, doctors, other health professionals). The unit consists of lectures, on-line learning and simulated case-based competency assessment and learning.

### PHAR5728

#### Pharmacy Capstone

**Credit points:** 3 **Teacher/Coordinator:** Prof David Hibbs **Session:** Semester 2 **Classes:** 1 x lec/wk **Prerequisites:** PHAR5711, PHAR5712, PHAR5713, PHAR5714, PHAR5715, PHAR5716, PHAR5717, PHAR5718, PHAR5719 **Corequisites:** PHAR5725, PHAR5726, PHAR5727 **Assessment:** Oral presentation (40%), Critical reflection (25%), Peer assessment of presentation (20%), Peer assessment of participation and contribution to project (15%) **Mode of delivery:** Normal (lecture/lab/tutorial) day

This unit of study provides students with an opportunity to draw together learning from across the entire MPharm degree and synthesise this with their prior knowledge and experience, developing ideas for further studies and intellectual and/or professional growth in their practice. Students will work in teams to undertake a project that reflects the interests of the team members. Projects can range from mini-research projects to undertaking a series of medication management reviews or developing an educational program for use in pharmacy. This unit will offer students an opportunity to critically evaluate their existing practice and provision, and gain skills to promote change, improve services and affect outcomes in their patients. Outcomes will be assessed by presentations at a student seminar day at the end of semester.

# Master of Pharmacy

## 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 2014 (the 'Coursework Rule'), the Coursework Policy 2014, the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended), the Academic Honesty in Coursework Policy 2015 and the Academic Honesty Procedures 2016. Up to date versions of all such documents are available from the Policy Register: <http://sydney.edu.au/policies>.

### Course resolutions

#### 1 Course codes

Code	Course title
MAPHARMA	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 Policy.

#### 4 Admission to candidature

- (1) Available places may be offered to qualified applicants based on merit, according to the following admissions criteria.
- (2) To be eligible for admission to the degree, an applicant must:
  - (a) have a prior bachelor's degree
  - (b) meet the minimum requirement for Grade Point Average (GPA) OR the Graduate Australian Medical Admissions Test (GAMSAT) OR the Medical College Admission Test (MCAT)
  - (c) meet a minimum of 42 out of 54 credit points, or equivalent, in seven prerequisite subjects (chemistry, pharmacology, physiology, human biology, biochemistry, calculus, statistics) at university level
  - (d) have English language proficiency (if relevant).

#### 5 Requirements for award

- (1) The units of study that may be taken for the course are set out in the Units of Study table for the Master of Pharmacy.
- (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

- (1) Candidates can enrol in the course with 12 credit points of prerequisite subjects outstanding as long as these units of study are completed by the start of semester 2 of the first year of the Master of Pharmacy.
- (2) Except with the permission of the Dean, 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.
- (3) Candidates who fail only one unit of study in the first year and who have an annual average mark (AAM) >60 for first year, may apply to the Dean for a prerequisite waiver which would allow enrolment in the full complement of second year units of study in addition to the failed unit of study.

#### 8 Transitional provisions

- (1) These resolutions apply to students who commenced their candidature after 1 January, 2018 and students who commenced their candidature prior to 1 January, 2018 who elect to proceed under these resolutions.
- (2) Candidates who commenced prior to 1 January, 2018 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, 2021. The Faculty may specify a later date for completion or specify alternative requirements for completion of candidatures that extend beyond this time.





# Graduate Certificate in Evidence-Based Complementary Medicines

The Graduate Certificate in Evidence-Based Complementary Medicines is a part-time postgraduate course that will expand pharmacists' knowledge of complementary medicines and cultivate the research and skills to deliver high-quality, evidence-based patient centred care.

This course has been specifically developed to equip pharmacists with the knowledge and skills required to provide evidence-based information about the efficacy and safety of complementary medicines including drug-herb and drug-nutrient interactions.

The course will cover how to identify reliable and reputable information on the efficacy and safety of complementary medicines commonly used in the management of health and disease and how this evidence can be communicated in day to day practice.





# Graduate Certificate in Evidence-Based Complementary Medicines

## Units of study table

<i>Unit of study</i>	<i>Credit points</i>	<i>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</i>	<i>Session</i>
Graduate Certificate in Evidence-Based Complementary Medicines			
PHAR7811 Evidence-based Complementary Medicines 1	6		Semester 1 Semester 2
PHAR7812 Evidence-based Complementary Medicines 2	6	C PHAR7811	Semester 1
PHAR7821 Evidence-based Complementary Medicines 3	6	P PHAR7811	Semester 2
PHAR7822 Evidence-based Complementary Medicines 4	6	P PHAR7811, PHAR7812 C PHAR7821	Semester 2





# Graduate Certificate in Evidence-Based Complementary Medicines

## Units of study descriptions

### Graduate Certificate in Evidence-Based Complementary Medicines

#### PHAR7811

##### Evidence-based Complementary Medicines 1

**Credit points:** 6 **Teacher/Coordinator:** Dr Joanna Harnett **Session:** Semester 1, Semester 2 **Classes:** 12 hours of online lectures, 4 hours of journal entries and 18 hours of essential reading and independent study **Assessment:** Online questionnaires following lectures, professional practice journaling **Mode of delivery:** Online

This unit of study will provide an introduction to the background, regulation and quality of complementary medicine products and practices. In addition, the ethical and legal considerations surrounding the provision of complementary medicine advice and supply of products by pharmacists will be covered. Students will be familiarised with reputable and reliable resources of complementary medicine information. These foundational topics will be followed by a series of system-based lectures discussing the current evidence for the efficacy and safety of common complementary medicines used in the management of cardiovascular, respiratory and gastrointestinal health and disease. A combination of lectures, essential reading, professional practice journal entries and online questionnaires will ensure students have a broad understanding of the topics covered.

*Textbooks*

Access to The University of Sydney Library database on enrolment

#### PHAR7812

##### Evidence-based Complementary Medicines 2

**Credit points:** 6 **Teacher/Coordinator:** Dr Joanna Harnett **Session:** Semester 1 **Classes:** 12 hours of online lectures, 4 hours of journal entries and 18 hours of essential reading and independent study **Corequisites:** PHAR7811 **Assessment:** Online questionnaires following lectures, professional practice journaling **Mode of delivery:** Online

This unit of study will provide a series of online lectures and activities that explore the evidence for the efficacy and safety of complementary medicines commonly used in the management of disorders of the reproductive, endocrine, nervous, integumentary, musculoskeletal and nervous system. A combination of lectures, essential reading, professional practice journal entries and online questionnaires will ensure students have a broad understanding of the topics covered.

*Textbooks*

Access to The University of Sydney Library database on enrolment

#### PHAR7821

##### Evidence-based Complementary Medicines 3

**Credit points:** 6 **Teacher/Coordinator:** Dr Joanna Harnett **Session:** Semester 2 **Classes:** 12 hours of online lectures, 4 hours of journal entries and 18 hours of essential reading and independent study **Prerequisites:** PHAR7811 **Assessment:** Online questionnaires following lectures **Mode of delivery:** Online

This unit of study will provide a series of online lectures and activities that explore the evidence for the efficacy and safety of complementary medicines commonly used by specific groups including paediatrics, pregnancy and breastfeeding, pre- and post-operative care and oncology. A special focus on drug-herb, drug-nutrient and disease-herb/nutrient interactions will be covered in this unit of study. A combination of lectures, essential reading, professional practice journal entries and online questionnaires will ensure students have an understanding of the topics covered.

*Textbooks*

Access to The University of Sydney Library database on enrolment

#### PHAR7822

##### Evidence-based Complementary Medicines 4

**Credit points:** 6 **Teacher/Coordinator:** Dr Joanna Harnett **Session:** Semester 2 **Classes:** 2 x 1 day face to face workshops (held in August and November) and 6 hours per week of literature research. **Prerequisites:** PHAR7811, PHAR7812 **Corequisites:** PHAR7821 **Assessment:** Literature review and consumer medicine information sheet **Mode of delivery:** Distance education/intensive on campus

This unit consists of two workshops. The workshops are two milestone classroom activities where students come together in the classroom to learn and consolidate knowledge and experiences facilitated in the online learning environment. This capstone project will involve conducting a literature review that informs the development of a consumer medicine information sheet of a complementary medicine. Students will be guided in the systematic process of conducting and writing a literature review. Students will acquire the skills required to produce up-to-date written information for consumers of complementary medicines and their peers.

*Textbooks*

Access to The University of Sydney Library database on enrolment







# Graduate Certificate in Evidence-Based Complementary Medicines

## Graduate Certificate in Evidence-Based Complementary Medicines

*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 2014 (the 'Coursework Rule'), the Coursework Policy 2014, the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended), the Academic Honesty in Coursework Policy 2015 and the Academic Honesty Procedures 2016. Up to date versions of all such documents are available from the Policy Register: <http://sydney.edu.au/policies>.*

### Course Resolutions

#### 1 Course codes

Code	Course title
GCEVBSCM	Graduate Certificate in Evidence-Based Complementary Medicines

#### 2 Attendance pattern

The attendance pattern for this course is part time.

#### 3 Admission to candidature

- (1) Available places may be offered to qualified applicants based on merit, according to the following admissions criteria.
- (2) Admission to candidature requires a Bachelor degree or higher award in Pharmacy from the University of Sydney, or qualifications deemed by the Faculty to be equivalent.

#### 4 Requirements for award

- (1) The units of study that may be taken for the course are set out in the Units of Study table for the Graduate Certificate in Evidence-Based Complementary Medicines.
- (2) To qualify for the award of the Graduate Certificate in Evidence-Based Complementary Medicines a candidate must complete 24 credit points.





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# Graduate Certificate in Pharmacy Practice

The Graduate Certificate in Pharmacy Practice is a part-time postgraduate course with two study pathways designed for either pharmacy interns or registered pharmacists.

For Pharmacy interns, this course provides graduates with the training, experience and education required for professional registration as a pharmacist. It incorporates an Intern Training Program into the first year to allow pharmacy graduates to meet the legislative requirements to register as a pharmacist in Australia then complete a formal, postgraduate qualification by undertaking an (optional) additional year of study. This provides a clear extension and continuation of the cross-disciplinary, integrated approach to learning and teaching undertaken at the University of Sydney.

This course is also recommended for registered pharmacists who wish to develop exceptional clinical skills relevant to contemporary pharmacy practice in Australia. Registered pharmacists have the option of completing the course in one year by choosing four other units of study in place of the units relating to the Intern Training Program.





# Graduate Certificate in Pharmacy Practice

## Units of study table

<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
<b>Pharmacy Intern Training Program</b>			
<b>PHAR7111 Pharmacy Intern Training A</b>	6	<i>Current provisional pharmacist registration is a requirement of the unit, together with employment in a workplace approved by the Pharmacy Board of Australia.</i>	Semester 1
<b>PHAR7121 Pharmacy Intern Training B</b>	6	<i>Current provisional pharmacist registration is a requirement of the unit, together with employment in a workplace approved by the Pharmacy Board of Australia.</i>	Semester 2
<b>Elective Units</b>			
<b>PHAR7110 Fundamentals of Contemporary Practice</b>	6	<b>N</b> PHAR7111 or PHAR7121	Semester 1
<b>PHAR7112 Medications Management</b>	6	<i>PHAR7112: Medications Management is accredited for Stage One (preparatory) Training with the Australian Association of Consultant Pharmacy. On satisfactory completion of this unit of study, students will be able to proceed to Stage 2 Accreditation Assessment Process for the delivery of medication management reviews to community-based individuals and residents of aged care facilities. See <a href="https://www.aacp.com.au">https://www.aacp.com.au</a> for details.</i>	Semester 1
<b>PHAR7123 Diabetes Mellitus</b>	6		Semester 1
<b>PHAR7811 Evidence-based Complementary Medicines 1</b>	6		Semester 1 Semester 2
<b>PHAR7122 Mental Health</b>	6		Semester 2
<b>PHAR7113 Cardiovascular and Renal</b>	6		Semester 2





# Graduate Certificate in Pharmacy Practice

## Units of study descriptions

### Pharmacy Intern Training Program

#### PHAR7111

##### Pharmacy Intern Training A

**Credit points:** 6 **Teacher/Coordinator:** Dr Irene Um **Session:** Semester 1  
**Classes:** Two 2-day seminar series for face-to-face teaching and learning, four moderated online discussion blocks, and continuous self-directed learning.  
**Assessment:** Satisfactory completion of learning portfolio activities, intern competencies assessments and continuing professional development requirements. Satisfactory contribution to online discussion groups. Satisfactory mark in multiple choice quiz. Attendance and satisfactory participation during small group tutorials and other seminar activities (100%). **Mode of delivery:** Distance education/intensive on campus

*Note: Current provisional pharmacist registration is a requirement of the unit, together with employment in a workplace approved by the Pharmacy Board of Australia.*

Pharmacy Intern Training A is designed to be undertaken by pharmacy interns undertaking supervised professional practice while working towards general registration as a pharmacist, and is intended to complement the learning which occurs in the workplace. It further develops the technical, clinical, personal and professional skills gained during the completion of an initial Pharmacy degree 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; developing professional communication skills with patients, employees and other health care practitioners. This unit of study comprises monthly case problems related to specific practice issues which explore relevant professional issues for pharmacy practitioners. Moderated discussion forums in small groups explore the relevant issues around the case problem each month. Face to face seminars offer opportunities to refine expertise in evidence based practice, professional competencies, communication and counselling and specific aspects of ethical, legal and clinical pharmacy. Emphasis is given to problem-solving, communication and responding to symptoms. Scenarios where legal, social and workplace issues come into play are included. The syllabus is orientated to issues that arise in the day-to-day practice of pharmacy and to the requirements for general registration as a pharmacist in Australia. Bachelor/Master of Pharmacy graduates undertaking their intern 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

##### Pharmacy Intern Training B

**Credit points:** 6 **Teacher/Coordinator:** Dr Irene Um **Session:** Semester 2  
**Classes:** Two 2-day seminars series for face-to-face teaching and learning, three moderated online discussion blocks, and continuous self-directed learning.  
**Assessment:** Satisfactory completion of learning portfolio activities, intern competencies assessments and continuing professional development requirements. Satisfactory contribution to online discussion groups. Completion

of forensic quiz. Attendance and satisfactory participation during small group tutorials and other seminars activities. (100%). **Practical field work:** Some activities to be completed in the workplace. **Mode of delivery:** Distance education/intensive on campus

*Note: Current provisional pharmacist registration is a requirement of the unit, together with employment in a workplace approved by the Pharmacy Board of Australia.*

Pharmacy Intern Training B is designed to be undertaken by pharmacy interns undertaking supervised professional practice while working towards general registration as a pharmacist, and is intended to complement the learning which occurs in the workplace. It further develops the technical, clinical, personal and professional skills gained during the completion of an initial Pharmacy degree 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; developing professional communication skills with patients, employees and other health care practitioners. This unit of study comprises monthly case problems related to specific practice issues which explore relevant professional issues for pharmacy practitioners. Moderated discussion forums in small groups explore the relevant issues around the case problem each month. Face to face seminars offer opportunities to refine expertise in evidence based practice, professional competencies, communication and counselling and specific aspects of ethical, legal and clinical pharmacy. Emphasis is given to problem-solving, communication and responding to symptoms. Scenarios where legal, social and workplace issues come into play are included. The syllabus is orientated to issues that arise in the day-to-day practice of pharmacy and to the requirements for general registration as a pharmacist in Australia. Bachelor/Master of Pharmacy graduates undertaking their intern 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.

## Elective Units

#### PHAR7110

##### Fundamentals of Contemporary Practice

**Credit points:** 6 **Teacher/Coordinator:** Prof Ines Krass **Session:** Semester 1  
**Classes:** Classes will be delivered through on-line discussions, case studies and role plays. **Prohibitions:** PHAR7111 or PHAR7121 **Assessment:** On-line quizzes, satisfactory participation in on-line discussions, assignments (100%).  
**Mode of delivery:** Online

This unit of study covers the principles of evidence-based medicine; quantitative and qualitative interpretation of research evidence; the application of pharmacokinetics and pharmacogenomics in medication and dose selection and regimens; essential communication skills required to provide contemporary pharmacy services. This unit of study is a core unit for participants who are ineligible to enrol in PHAR7111 and PHAR7121.





## PHAR7112

### Medications Management

**Credit points:** 6 **Teacher/Coordinator:** Prof Ines Krass, Dr Lisa Kouladjian O'Donnell **Session:** Semester 1 **Classes:** Classes will be delivered through on-line reading and discussions, webinars, case studies and practice based experiences. **Assessment:** On-line webinar participation (12%), learning module activities (42%), and medication review assignments (46%). **Mode of delivery:** Online

*Note: PHAR7112: Medications Management is accredited for Stage One (preparatory) Training with the Australian Association of Consultant Pharmacy. On satisfactory completion of this unit of study, students will be able to proceed to Stage 2 Accreditation Assessment Process for the delivery of medication management reviews to community-based individuals and residents of aged care facilities. See <https://www.aacp.com.au> for details.*

This unit of study aims to develop an in-depth understanding and advanced skills in fulfilling the role of pharmacists in medication management for older people. The course readings cover the following content areas: Epidemiology of common health problems affecting older people; physiological changes associated with ageing and their implications for therapeutic response and medicines management; health promotion and disease prevention (with emphasis on pharmacological interventions designed to reduce mortality and chronic disease); management of common chronic diseases of older people; and medication management in hospitals and the community. Skills development will focus on communication with patients; pharmacist, physician, and allied-health inter-professional communication; preparation of medication reviews; and home/residential aged-care facility visits.

#### Textbooks

Current versions of AMH and AMH Aged-Care Companion, Therapeutic Guidelines

## PHAR7123

### Diabetes Mellitus

**Credit points:** 6 **Teacher/Coordinator:** Prof Ines Krass **Session:** Semester 1 **Classes:** Self-directed learning modules, workplace based assessment tasks, and online webinars. **Assessment:** Participation in online webinars (12%), learning module activities (48%), diabetes devices assignment (10%), documentation of advanced diabetes patient care (15%), and reflective diary (15%). **Mode of delivery:** Online

This Unit of Study is intended to develop a clear understanding of the role of pharmacists in the care of patients with diabetes mellitus and the knowledge and skills needed to provide comprehensive pharmaceutical care to this growing section of the Australian population. More specifically, the unit seeks to provide an in-depth understanding of the physiology and pathophysiology of the regulation of glucose metabolism; aetiology, treatment and monitoring of patients with type 1 and type 2 diabetes. Pharmacological and non-pharmacological management; psychosocial issues in diabetes; management and prevention of co-morbidities and complications and public health approaches to the prevention of diabetes. It aims to develop pharmacists' skills in interpretation of relevant clinical and laboratory tests and patterns of blood glucose; supporting patient self-management through advice on appropriate use of blood glucose meters, insulin pens, self-monitoring of blood glucose (SMBG), medication regimen adherence and review, lifestyle changes, management of hypoglycaemia, and sick days. Appropriate pharmacist/patient and inter-professional communication skills will be fostered.

## PHAR7811

### Evidence-based Complementary Medicines 1

**Credit points:** 6 **Teacher/Coordinator:** Dr Joanna Harnett **Session:** Semester 1, Semester 2 **Classes:** 12 hours of online lectures, 4 hours of journal entries and 18 hours of essential reading and independent study **Assessment:** Online questionnaires following lectures, professional practice journaling **Mode of delivery:** Online

This unit of study will provide an introduction to the background, regulation and quality of complementary medicine products and practices. In addition, the ethical and legal considerations surrounding the provision of complementary medicine advice and supply of products by pharmacists will be covered. Students will be familiarised with reputable and reliable resources of complementary medicine

information. These foundational topics will be followed by a series of system-based lectures discussing the current evidence for the efficacy and safety of common complementary medicines used in the management of cardiovascular, respiratory and gastrointestinal health and disease. A combination of lectures, essential reading, professional practice journal entries and online questionnaires will ensure students have a broad understanding of the topics covered.

#### Textbooks

Access to The University of Sydney Library database on enrolment

## PHAR7122

### Mental Health

**Credit points:** 6 **Teacher/Coordinator:** A/Prof Timothy Chen **Session:** Semester 2 **Classes:** Discussion forums, assignments and readings. **Assessment:** On-line webinar participation (5%), online learning module activities (40%), and assignments (55%). **Mode of delivery:** Online

This unit of study will cover the aetiology, pathophysiology, diagnosis, treatment and monitoring of the following common mental health problems: anxiety and obsessional disorders, depression, substance abuse, schizophrenia, bipolar disorders amongst other conditions. This unit of study will focus particularly on medication management issues in consumers with these conditions and the pharmacist's role in managing these consumers. It will also focus on the role of the pharmacist within the broader mental health care system in Australia.

#### Textbooks

The Maudsley Prescribing Guidelines in Psychiatry, 12th Edition (Wiley Blackwell).

## PHAR7113

### Cardiovascular and Renal

**Credit points:** 6 **Teacher/Coordinator:** Dr Carl Schneider **Session:** Semester 2 **Classes:** Classes will be delivered through on-line discussions, webinars, case studies and role plays. **Assessment:** Participation in online webinars (5%), learning module activities (30%), assignments (40%), and reflective diary (25%). **Mode of delivery:** Online

This unit of study aims to develop an in-depth understanding of the physiology and pathophysiology of the cardiovascular and renal systems; aetiology, treatment, management and monitoring of patients with renal (including acute and chronic renal failure) and cardiovascular disease (including hypertension, heart failure, coronary heart disease, lipid disorders); It will also explore the role of the specialist cardiovascular/renal pharmacist in management and education of patients and other health care practitioners; public health approaches to the prevention of cardiovascular and renal disease; management and prevention of co-morbidities. Skills development will focus on application of this knowledge to the medication management of patient with cardiovascular and renal disease including interpretation of relevant clinical and laboratory tests, medication review and formulation of appropriate pharmacological and non-pharmacological care plans for these patients.

# Graduate Certificate 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 2014 (the 'Coursework Rule'), the Coursework Policy 2014, the Resolutions of the Faculty, the University of Sydney (Student Appeals against Academic Decisions) Rule 2006 (as amended), the Academic Honesty in Coursework Policy 2015 and the Academic Honesty Procedures 2016. Up to date versions of all such documents are available from the Policy Register: <http://sydney.edu.au/policies>.*

### Course Resolutions

#### 1 Course codes

Code	Course title
GCPHAPRA	Graduate Certificate in Pharmacy Practice

#### 2 Attendance pattern

The attendance pattern for this course is part time.

#### 3 Admission to candidature

- (1) Available places may 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 apply for, obtain, and maintain provisional (intern) pharmacist registration with the Pharmacy Board of Australia prior to commencing the Intern Training Program component of the course.
- (4) Applicants with general (non-intern) pharmacist registration with the Pharmacy Board of Australia are also eligible to enrol in the course (excluding the Intern Training Program component).

#### 4 Requirements for award

- (1) The units of study that may be taken for the course are set out in the Units of Study 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 core units and electives as specified below:
  - (a) Applicants who hold current pharmacist practitioner registration upon admission must complete four elective units, which must not include PHAR7111 or PHAR7121 (Intern Training Program).
  - (b) Applicants who are eligible to undertake the Intern Training Program upon admission must complete PHAR7111 and PHAR7121 plus two elective units, which must not include PHAR7110.
- (3) Upon completion of PHAR7111 and PHAR7121 (the Intern Training Program) candidates are issued an ITP Certificate of Completion to enable their application for pharmacist practitioner registration with the Pharmacy Board of Australia.





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# Master of Philosophy

The degree may be taken on either a full-time or part-time basis. The minimum period of candidature will be one year with a maximum of two years for students enrolled on a full-time basis. For students enrolled on a part-time basis, the minimum period of candidature is two years, and four years maximum.

Candidates complete a 6 credit point unit of study on research methods plus courses or units of study which may be prescribed by the head of the discipline. You will carry out supervised research on a topic approved by the faculty on the recommendation of the postgraduate coordinator and write a thesis embodying the results of this research that passes examination. The degree is awarded on the successful examination of a thesis based on original research.





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# Master of Philosophy

## Units of study table

<b>Unit of study</b>	<b>Credit points</b>	<b>A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition</b>	<b>Session</b>
PHAR6000 Research Methods	6	<i>Email and Internet access is strongly recommended. Students will be required to access materials online via eLearning.</i>	Semester 1





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# Master of Philosophy

## Unit of study descriptions

### PHAR6000

#### Research Methods

**Credit points:** 6 **Teacher/Coordinator:** Prof Lisa Bero **Session:** Semester 1 **Classes:** Lectures, workshops, and tutorials. **Assessment:** Oral presentation - Critical appraisal of journal article (10%), progress reports on meeting with advisor (10%), faculty seminar attendance (5%), research project protocol - oral presentation (15%), research project protocol - written report (40%), data management - statistics (10%), and supervisor's feedback (10%). **Mode of delivery:** Normal (lecture/lab/tutorial) day

*Note: Email and Internet access is strongly recommended. Students will be required to access materials online via eLearning.*

The Research Methods unit of study prepares students for postgraduate studies. Generic research skills are developed through coursework, assignments, reports and presentations. The Unit of Study covers topics such as framing a research question, conducting systematic reviews, critical appraisal of research studies, study design and protocol development, data management, scientific writing and publication, presentations, basic statistics and other topics necessary for candidates to successfully complete the Master of Philosophy.

#### *Textbooks*

Recommended readings will be provided during each lecture.







# Master of Philosophy

## Master of Philosophy

*These resolutions must be read in conjunction with applicable University By-laws, Rules and policies including (but not limited to) the Resolutions of the Faculty of Pharmacy, The University of Sydney (Higher Degree by Research) Rule 2011 and the Research Code of Conduct 2013. The latest versions of all such documents are available from the Policy Register: [sydney.edu.au/policies](http://sydney.edu.au/policies).*

### Course resolutions

#### Part 1: Preliminary

##### 1 Course codes

Code	Course and stream title
RMPHPLHA	Master of Philosophy

#### Part 2: Admission requirements

##### 2 Eligibility for admission to candidature

- (1) To be eligible to be admitted to candidature by the Dean or Associate Dean, an applicant must hold or have completed the requirements for a bachelor's degree from the University of Sydney or other approved institution, in a subject area related to the proposed course of advanced study and research, with:
- first or second class honours; or
  - a result of at least a Credit grade in the highest relevant unit of study.
- (2) The Dean or Associate Dean may admit to candidature an applicant who does not meet the requirements of sub-clause (1), provided that the applicant holds a qualification or qualifications that, in the opinion of the Board of Postgraduate Studies are equivalent to those prescribed in sub-clause (1).

##### 3 Application for admission to candidature

- (1) An applicant for admission to candidature must submit to the Faculty:
- satisfactory evidence of the applicant's eligibility for admission;
  - a proposed course of research and advanced study, approved by the Postgraduate Coordinator in which the work is to be undertaken; and
  - a statement certifying the applicant's understanding that, subject to the HDR Rule, if the candidature is successful, his or her thesis will be lodged with the University Librarian and made available for immediate public use.
- (2) In addition, an applicant for admission to part-time candidature must submit a statement that he or she will have sufficient time available to complete the requirements of the degree in accordance with these resolutions.

##### 4 Credit transfer

The HDR Rule specifies the conditions for the granting of credit for previous studies, including the effect on completion times.

#### Part 3: Candidature

##### 5 Appointment of supervisor

The Chair of the Board of Postgraduate Studies, on the recommendation of the Postgraduate Coordinator, will appoint a supervisor and associate supervisor for each candidate in accordance with the HDR Rule and Academic Board policies for postgraduate research higher degree supervision.

##### 6 Control of candidature

The HDR Rule specifies the conditions for the control of candidature by the University.

##### 7 Location of candidature and attendance

The HDR Rule specifies the conditions for the location of candidature and attendance by candidates at the University.

#### Part 4: Requirements

##### 8 Degree requirements

- (1) To satisfy the requirements of the degree candidates must:
- successfully complete any specified probationary requirements and conditions of candidature;
  - successfully complete prescribed units of study;
  - conduct research on the approved topic; and
  - write a thesis embodying the results of the research that passes the examination.

##### 9 The thesis

- (1) A candidate shall produce a thesis that meets the requirements specified in the HDR Rule.
- (2) The thesis will be no more than 60,000 words, except with the permission of the postgraduate coordinator.

#### Part 5: Enrolment and progression

##### 10 Probation

- (1) A candidate is normally accepted for candidature on a probationary basis for a period not exceeding one year according to the provisions of the HDR Rule.



- (2) In the probationary period each candidate must:
- (a) complete a 6 credit point research methods unit of study as required by the postgraduate coordinator;
  - (b) develop and present a refined research proposal to the satisfaction of the supervisor and postgraduate coordinator;
  - (c) demonstrate adequate English language competency for the completion of the degree; and
  - (d) meet any conditions set by the Board of Postgraduate Studies and the Faculty.

**11 Time limits, earliest and latest submission dates**

The HDR Rule specifies the allowable completion times and submission dates available for full- and part-time candidates in this course.

**12 Mode of attendance**

The attendance pattern for this course is full-time or part-time according to candidate choice but is subject to approval by the Board of Postgraduate Studies.

**13 Discontinuation of candidature**

A candidate may discontinue enrolment in a unit of study or the degree subject to the conditions specified by the HDR Rule.

**14 Suspension of candidature**

A candidate may suspend enrolment from the degree subject to the conditions specified by the HDR Rule.

**15 Leave of absence**

A candidate may take leave of absence from the degree subject to the conditions specified by the HDR Rule.

**16 Progress**

A candidate is required to maintain satisfactory progress towards the timely completion of the degree. Progress will be reviewed annually according to the provisions of the HDR Rule.

**Part 6: Examination**

**17 Form of the thesis**

A candidate must ensure that the thesis prepared for examination is typewritten and bound according to the Academic Board resolutions of the Degree of Doctor of Philosophy.

**18 Examination of the thesis**

- (1) Examination of the thesis will be conducted in general accordance with standards prescribed by Academic Board for the Doctor of Philosophy, except that:
- (a) three copies of the thesis shall be submitted by the candidate;
  - (b) two examiners will be appointed by the Faculty, at least one of whom shall be external to the University and not a clinical academic title-holder of the Faculty; and
  - (c) the Board of Postgraduate Studies will act in place of the PhD Award Sub-Committee.

**19 Award of the degree**

The thesis will be graded by the examiners and the thesis grade will be recorded on the academic transcript.

**Part 7: Other**

**20 Transitional provisions**

- (1) These course resolutions apply to students who commenced their candidature after 1 January 2017.
- (2) Candidates who commenced prior to 1 January, 2017 shall complete the requirements in accordance with the resolutions in force at the time of their commencement, provided that requirements are completed within the time limits specified in those resolutions. The Dean or Associate Dean may specify a later date for completion or specify alternative requirements for completion of candidatures that extend beyond this time.

# Doctor of Philosophy

Course code: RPPHDPHA

The degree of Doctor of Philosophy is a University degree governed by Resolutions set down by the Academic Board. Candidates should be familiar with the Academic Board documents Thesis and Examination of Higher Degree by Research Policy 2015 and University of Sydney (Higher Degree by Research) Rule 2011.

See the Policy Register at [sydney.edu.au/policies](http://sydney.edu.au/policies) for the most up-to-date versions of these resolutions.





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# Research themes

Research at the Faculty of Pharmacy is structured around themes that closely reflect the Australian government's health priorities:

- cancer
- cardiovascular disease and diabetes
- health services and patient safety
- mental health, and
- respiratory disease.

The research 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.

## **Cancer**

Cancer is a major health issue in Australia today. At current rates, the Cancer Council of Australia expects that by the age of 85 one in two men and one in three women will be diagnosed with cancer. Research projects include personalised anti-cancer therapy, drug resistance, the use of herbal medicines and design of new therapies.

## **Cardiovascular disease and diabetes**

Australians are getting older, heavier and less active, putting themselves at greater risk of cardiovascular disease and diabetes. It is the number one cause of death in Australia, according to the Heart Foundation, and diabetes is the country's fastest growing chronic disease and the sixth leading cause of death. Faculty research covers a range of cardiovascular diseases and problems from atherosclerosis and thromboembolism to cardiac infarction and stroke.

## **Health services and patient safety**

Health services and patient safety research in the Faculty of Pharmacy focuses on research that informs health policy and influences practice. This theme takes a system-wide view to ensure that research and innovation is able to improve health outcomes for consumers and improve the safety and effectiveness of the health system.

## **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. The aim of research at the Faculty of Pharmacy under this theme is to develop treatment for neurological diseases and increase the diversity of agents to investigate potential receptors and targets in treatment.

## **Respiratory disease**

With more than 2 million people having asthma, Australia has one of the largest populations of asthma patients in the world. Research into respiratory diseases in the faculty has yielded crucial findings for improving asthma treatment alongside other respiratory conditions such as cystic fibrosis and chronic obstructive pulmonary disease.





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