



Pharmacy 4 Handbook

2015

New Zealand's National
School of Pharmacy
Te Kura Mātauraka Wai-whakaora
University of Otago



UNIVERSITY
of
OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

While all reasonable efforts have been made to ensure that the information contained herein is correct at the time of going to press, matters covered by this publication are subject to change.

The School of Pharmacy reserves the right to introduce such changes (including addition, withdrawal or restructuring of papers and programmes) as it may judge to be necessary or desirable.

TABLE OF CONTENTS

2015 Calendar	5
Student Support Co-ordinators	6
Key Undergraduate Positions	7
Student Timetable	9
Textbook List	10
Standard Drug List	12
Generic Drug Profile	16
Example Drug Profile	17
Oral Examinations	18
Honours Programme	20
COURSE OUTLINES	
Generic Aims and Objectives of QUM Papers	21
PHCY 470	22
PHCY 471	24
Oncology & the Immunocompromised Patient Module (ON)	26
Reproduction Module (RP)	28
Musculoskeletal Disorders Module (MS)	29
PHCY 472	31
PHCY 473	34
Central Nervous System Disorders Module (CN)	36
Dermatology Module (DM)	38
Haematology/Coagulation Module (HM)	39
Special Populations Module (SP)	40
Medicines Management Module (MM)	42
PHCY 480	44
PHCY 481	46
PHCY 482	47
PHCY 483	48

2015 SCHOOL OF PHARMACY CALENDAR

First Semester

Semester 1 lectures begin.....	23 Feb
Good Friday (holiday).....	3 April
Mid-semester break begins	6 April
Easter Monday (holiday)	6 April
Otago Anniversary Day observed (holiday).....	7 April
First semester resumes.....	13 April
ANZAC Day observed (holiday)	27 April
First semester lectures finish.....	29 May
University mid-year exams begin	30 May
Queen's Birthday (holiday)	1 June
University mid-year exams finish.....	17 June

Second Semester

Semester 2 lectures begin (P2 & P3)	6 July
Semester 2 lectures begin (P4).....	13 July
Mid-semester break begins	24 August
Second semester resumes (P2 & P4)	31 August
Second semester resumes (P3)	7 September
Second semester lectures finish	9 October
University end-of-year exams begin	10 October
Labour Day (holiday)	26 October
University end of year exams finish.....	7 November
School graduation function (date to be confirmed)	4 December

STUDENT SUPPORT CO-ORDINATORS DETAILS

<p>Dr Shakila Rizwan Room 421, Fourth Floor, Adams Building</p> <p>Ph: 479-5410</p> <p>Fax: 479-7034 Email: shakila.rizwan@otago.ac.nz</p>	<p>Dr Allan Gamble Room 420, Fourth Floor, Adams Building</p> <p>Ph: 479-7324</p> <p>Fax: 479-7034 Email: allan.gamble@otago.ac.nz</p>
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For urgent matters please contact Pharmacy Reception.

Unless your enquiry is urgent, you should make an appointment to see Dr Rizwan or Dr Gamble so that quality time can be provided.

The Student Support Co-ordinators handle a variety of enquiries from Year 4 students each year on topics such as:

- ❖ Difficulties (academic) with the year 4 course
- ❖ Illness
- ❖ Bereavements
- ❖ Family worries
- ❖ Financial difficulties
- ❖ Workload
- ❖ Stress
- ❖ Impairment advice
- ❖ Absence from classes
- ❖ Harassment
- ❖ Timetable difficulties

In a number of instances the Student Support Co-ordinators are the best initial contact for being referred to the most appropriate person to deal with your enquiry.

If you have a complaint or concern about a particular staff member or module, you should take it up with the staff member concerned first. If you do not wish to do this, one of your class reps may be willing to do this on your behalf. Unresolved problems can be discussed with the Dean.

All enquiries are treated confidentially. Complaints or concerns about individual staff members are not dealt with by the School's Student/Staff Liaison Meetings, although matters relating to a specific paper are. The Student Support Co-ordinators can offer general advice but does not intervene regarding problems between individual staff and students.

University Study Assistance and Support Services

You should make yourself familiar with the services offered by the Student Learning Centre (located next to the Central Library in the Information Services Building). The Centre provides study assistance by way of workshops designed to help students improve their skills and strategies to become more effective and efficient learners. It is also possible to make individual appointments to discuss study related concerns or receive practical guidance in, for example, writing an essay, getting started on an assignment or improving time management. Contact details for the Student Learning Centre are: ph: 4795786; email: student-learning-centre@otago.ac.nz or web: <http://hedc.otago.ac.nz/hedc/sld.html>.

The University also has a number of other support services available. Student Health and Disability Information & Support Services provide valuable support and assistance. In addition the Māori Centre and the Pacific Islands Centre offer tutorials and excellent support services to students. Information on these Services can be found at <http://www.otago.ac.nz/studentservices/director/index.html>

KEY UNDERGRADUATE POSITIONS

Director of Undergraduate Programmes:	T.B.A
Director of Admissions:	Dr June Tordoff
Director of Examinations and Assessment:	Dr Arlene McDowell
<ul style="list-style-type: none"> • Dr McDowell is the person to see if you have any assessment or examination issues to discuss. 	
Student Support Co-ordinators:	Dr Shakila Rizwan Dr Allan Gamble
Disabilities Officer:	Dr Arlene McDowell
Kaiāwhina Māori (Māori Student Advisor):	Dr James Green
Pacific Island Student Advisor:	Professor Pauline Norris
International Student Advisor:	Dr Susan Heydon

P4 Paper Co-ordinators

Course	Title	Co-ordinator
<i>Full Year</i>		
PHCY 470	Research Elective	Mr David Schmierer
PHCY 472	Professional Pharmacy Practice C	Dr Susan Heydon
<i>First Semester</i>		
PHCY 471	Quality Use of Medicines B	Mr Hesham Al-Sallami
PHCY 471 Module	Oncology (ON)	Professor Sarah Hook
PHCY 471 Module	Reproduction (RP)	Associate Professor Rhiannon Braund
PHCY 471 Module	Musculoskeletal (MS)	Mr Hesham Al-Sallami
<i>Second Semester</i>		
PHCY 473	Quality Use of Medicines C	Dr Prasad Nishtala
PHCY 473 Module	Central Nervous System (CN)	Dr Prasad Nishtala
PHCY 473 Module	Dermatology (DM)	Mrs Anita Olivier
PHCY 473 Module	Haematology (HM)	Mr Hesham Al-Sallami
PHCY 473 Module	Special Populations (SP)	Associate Professor Natalie Medicott
PHCY 473 Module	Medicines Management (MM)	Ms Aynsley Peterson

P4 Honours Papers

Course	Title	Co-ordinator
<i>Full Year</i>		
PHCY 480	Honours Research Project	Dr Shyamal Das
PHCY 482	Professional Pharmacy Practice C for Honours	Dr Shyamal Das
<i>First Semester</i>		
PHCY 481	Quality Use of Medicines B for Honours	Dr Shyamal Das
<i>Second Semester</i>		
PHCY 483	Quality Use of Medicines C for Honours	Dr Shyamal Das

STUDENT TIMETABLE

All Pharmacy students are expected to be available 8am-6pm Monday-Friday during semester time. We arrange the Pharmacy timetable as much as possible before the start of the teaching year but due to the nature of our teaching (e.g. we use a lot of outside experts in classes) we often have to move classes.

The School of Pharmacy has developed a web-based timetable to allow all students to see the most up-to-date version of their timetable. All classes have been given session codes, which are printed in this handbook, the times for these classes are available from the web timetable. All students should check the web timetable (www.otago.ac.nz/pharmacy and select **Student Timetables** from the **Quickfind** drop-down list) each week for their timetable for the coming week.

Each class has a session code, lectures are coded by a two digit number only, laboratories are coded with an 'L' and a two digit number, e.g. L01, workshops are coded with a 'W' and a two digit number, e.g. W02, tutorials are coded with a 'T' and a two digit number, e.g. T03, CAL laboratories are coded with a 'C' and a two digit number, e.g. C04, seminars are coded with a 'S' and a two digit number, e.g. S05.

The following rules have been set for the web timetable:

- Timetables are correct at 6pm each Sunday.
- The timetable for each week is posted on the 6th floor noticeboard by 8.30am each Monday morning.
- Any changes made after 6pm Sunday will be emailed to students.
- If any changes are made on the same day (e.g. lecture cancellation due to illness), a text message will be sent to all students who are listed on the eTXT system.

At the beginning of the year all cellphone numbers are downloaded from eVision. Therefore, if you wish to receive the messages regarding late timetable changes you must ensure your cellphone number is listed on eVision. If you do not want to be on the School eTXT list, please email the Undergraduate Administrator and she will remove your number from the list. Please let the Undergraduate Administrator know if your cellphone number changes during the year.

NOTE: You must stay in your assigned workshop group. In P4 you will be assigned to a temporary workshop group for the first few weeks of semester 1, before being assigned to a permanent workshop group for the rest of the year.

If you need to attend another workshop or lab other than the one you are scheduled to attend, you must follow the instructions for requesting a group swap, as outlined in the BPharm Handbook. You may not attend another Group's workshop without permission (which will be granted only if it does not make that group too big).

You will NOT normally be given permission to attend a class in a group other than your own.

TEXTBOOK LIST

Key:	H	Highly Recommended
	R	Recommended Reading

PHCY 471 and PHCY 473 QUALITY USE OF MEDICINES B & C

Lemke, T.L & Williams D.A (2013) <i>Foye's Principles of Medicinal Chemistry</i> , 7 th edition, Lippincott Williams & Wilkins.	H
Chisholm-Burns, M.A. et al (eds). <i>Pharmacotherapy Principles and Practice</i> , McGraw-Hill Companies Inc, USA, 2010 (or later).	H
Beauchamp, T. & Childress, J. (2008) <i>Principles of Biomedical Ethics</i> , 6 th edition, Oxford University Press.	H
Rutter, P and Newby, D (2012) <i>Community Pharmacy: Symptoms, Diagnosis and Treatment</i> , 2 nd edition, Elsevier	H
(2011) or later <i>The Healthcare Handbook</i> , Pharmacy Today	H

PHCY 472 PROFESSIONAL PHARMACY PRACTICE C

Required text – EITHER:

Consumer Guarantees Act 1993*
 Dietary Supplements Regulations 1985*
 Health (Needles & Syringes) Regulations 1998*
 Health Practitioners Competence Assurance Act 2003*
 Health and Disability Commissioner (Code of Health and Disability Services Consumers' Rights) Regulations 1996
 Health Information Privacy Code 1994
 Medicines Act 1981
 Medicines Regulations 1984
 Medicines (Designated Prescriber: Nurse Practitioners) Regulations 2005
 Medicines (Designated Prescriber: Optometrists) Regulations 2005*
 Medicines (Designated Pharmacist Prescribers) Regulations 2013*
 Medicines (Standing Order) Regulations 2002*
 Misuse of Drugs Act 1975
 Misuse of Drugs Regulations 1977
 Pharmacy Council Code of Ethics 2011
 *new for PHCY 472

OR:

Ram, S. & Chesney, K. (2012), 2nd Edition, *Pharmacy Law Guidebook*, Thomson Reuters, (or first edition)

You require a copy of the law to use in class, including class preparation, and for use during the semester test, and the final exam.

You have the option of purchasing the legislation listed above OR purchasing the textbook, you do not need to purchase both.

The textbook - *Pharmacy Law Guidebook* – this will be used throughout the BPharm programme and will only need to be added to should significant changes to legislation occur.

The textbook contains all the legislation and commentary on the legislation required for the law component of the BPharm programme. An amendment document will be made available on Blackboard to reflect legislation changes since 2011.

The legislation

The legislation can be accessed in a few different ways: For purchase from Whitcoulls on George St, Dunedin; electronic access on the library website via Brookers Online; or electronic access from www.legislation.govt.nz.

You will need **your own copy** of the law – either textbook or legislation – for use during class and during assessments (assessments are open book). Note also that the use of computers will not be permitted during assessments, therefore an electronic copy of the legislation will not be sufficient.

STANDARD DRUG LIST

Introduction

There are in excess of 3000 medicines available on the NZ market. It is quite literally impossible to know all aspects of all medicines/drugs. It is generally accepted that most healthcare professionals have a “short” list of drugs about which they are knowledgeable. This short list usually corresponds with those drugs that they use in practice most often. Students are not in a position to gain experience in drug usage and therefore some guidance about important drugs and important knowledge about drugs is essential.

The lists compiled in this document are similar to those that have been developed for medical students enrolled at The University of Otago.

Purpose

To provide students and staff with a list of drugs for which some expectation of knowledge is required.

The lists

The standard drug list comprises 3 categories.

Category 1

This is a short list of 43 drugs that are considered to comprise essential knowledge for students. Students are expected to complete a drug profile (see Appendix A) for each of these drugs and be able to discuss any of the relevant details in class, during placements, and for verbal and written assessments and examinations.

[It is not a requirement that staff teach to category 1 drugs.]

Category 2

This is a longer list of drugs about which students are required to have some knowledge. In some cases this may be to compare and contrast with other drugs of a class. In other cases this might be for reasons of special interest to pharmaceutical or clinical sciences or pharmacy practice.

Category 3

This is a list of drugs that the student is expected to have some awareness (e.g. what the drug is used for).

Category 1 Drugs (Generic Names)

aciclovir
alendronate
allopurinol
amitriptyline
amoxicillin
aspirin
bendrothiazide
carbamazepine
ciprofloxacin
co-trimoxazole
ciclosporin
diazepam
diclofenac
enalapril
enoxaparin
erythromycin
fluoxetine
furosemide
gentamicin
gliclazide
haloperidol
insulin
levodopa
lignocaine
lithium
metformin
methotrexate
metoclopramide
metoprolol
metronidazole
morphine
omeprazole
paracetamol
phenytoin
prednisone
ranitidine
salbutamol
simvastatin
sumatriptan
valproate
vancomycin
warfarin

Category 2 Drugs (Generic Names)

6-mercaptopurine	gabapentin	terbinafine
amiodarone	glyceryl trinitrate	tetracycline
amlodipine	Heparin (unfractionated)	theophylline
amphotericin b	hydrocortisone	thyroxine
atenolol	hydroxocobalamin	tramadol
atracurium	ibuprofen	trastuzumab
atropine	interferon	vasopressin
azathioprine	ipratropium	verapamil
beclomethasone	iron salts	vincristine
benztropine	isoniazid	zidovudine
caffeine	lactulose	zoledronate
calcitriol	lamotrigine	
carbidopa	leflunomide	
carbimazole	levonorgestrel	
cefuroxime	lisinopril	
celecoxib	mebendazole	
cetirizine	mesalazine	
chloramphenicol	methadone	
chlorothiazide	methyldopa	
chlorpromazine	methylprednisolone	
cholestyramine	misoprostol	
cilazapril	mycophenolate	
cimetidine	naloxone	
cisplatin	naproxen	
clonidine	neostigmine	
clotrimazole	nicotine	
clozapine	nifedipine	
codeine	norfloxacin	
colchicine	olanzapine	
coloxyl and senna	ondansetron	
cyclophosphamide	oxybutynin	
dexamethasone	paroxetine	
dextromethorphan	phenobarbitone	
digoxin	phenoxymethylpenicillin	
diphenhydramine	pioglitazone	
docetaxel	promethazine	
domperidone	propranolol	
doxazosin	pseudoephedrine	
doxorubicin	quetiapine	
doxycycline	quinine	
entacapone	rifampicin	
ergotamine	risperidone	
erythropoietin	ritonavir	
ethinyloestradiol	rituximab	
felodipine	salmeterol	
fentanyl	sildenafil	
flucloxacillin	spironolactone	
fluconazole	St John's wort	
fludrocortisone	streptokinase	
fluorouracil	sulphasalazine	
fluphenazine	tamoxifen	
folate	temazepam	

Category 3 Drugs (Generic Names)

abacavir	flutamide	pyrantel pamoate
abciximab	fusidic acid	reteplase
acarbose	ganciclovir	ribavirin
acetazolamide	gaviscon	risedronate
acitretin	gemcitabine	saquinavir
adalimumab	glucagon	selegiline
adapalene	goserelin	stanazolol
alprostadil	hyaluronic acid	stavudine
amiloride	hydroxyurea	tadalafil
anastrozole	hyoscine	terlipressin
atorvastatin	hydroxychloroquine	thioguanine
baclofen	ifosfamide	thioridazine
benzoyl peroxide	imatinib	tirofiban
betamethasone	imipenem	tolcapone
bezafibrate	indinavir	tolterodine
bromocriptine	infliximab	tranexamic acid
buspirone	isosorbide mononitrate	tretinoin
calcipotriol	isotretinoin	triamcinolone
calcium carbonate	lamivudine	trimethoprim
calcium resonium	leuporelin	venlafaxine
cannabis	loperamide	vinblastin
capsaicin	loratadine	vinorelbine
carboplatin	lorazepam	voriconazole
caspofungin	losartan	zopiclone
cefaclor	mefloquine	
cefepime	melphalan	
ceftazadime	meropenem	
ceftriaxone	methylphenidate	
chloroquine	miconazole	
citalopram	mitomycin	
clindamycin	mitoxantrone	
clobetasol	moclobemide	
clopidogril	mupirocin	
cyclizine	nandrolone decanoate	
cyproterone	nelfinavir	
cytarabine	nevirapine	
daunorubicin	nitrofurantoin	
desogestrel	norfluoxetine	
dextropropoxyphene	nystatin	
didanosine	octreotide	
diltiazem	oxycodone	
dipyridamole	paclitaxel	
dithranol	pamidronate	
dopamine	pancuronium	
efalizumab	pholcodine	
efavirenz	piperacillin	
etidronate	piroxicam	
etoposide	pizotifen	
filgastrim	plasmalyte	
flecainide	pravastatin	
flucytosine	prazosin	
flumazenil	propofol	

Generic Drug Profile

To be completed by student for all category 1 drugs

Generic name		
Class	Chemical	
	Therapeutic	
Main structure activity		
Physicochemical properties	A/B/N	
	pKa	
	logP	
Formulation/administration		
Storage		
Indications		
Mechanism of action	Micro	
	Macro	
Pharmacokinetics	F	
	Prodrug?	
	Vd	
	CL	
	fe	
	CYP	
	Active Metabolites	
Side effects	Type A	
	Type B	
Interactions	Drugs	
	Food	
Contraindications	Absolute	
	Relative	
Pregnancy	Classification	
Lactation	% Wt Adj Mat dose	
Evidence base		

Example Drug Profile

Generic name	gentamicin	
Class	Chemical	3 linked amino-sugar units (produced from Actinomycetes spp) – is a mixture of 3 components
	Therapeutic	aminoglycoside antibiotic
Main structure activity	Activity differences between aminoglycosides conferred by the structure of the aminosugars. For gentamicin substitution of CH ₃ - or H- at R1 & R2 confer little change in activity.	
Physicochemical properties	A/B/N pKa logP	B 8.2 (approx) -1.9
Formulation/administration	Injection, to be administered by intermittent intravenous infusion over 30 minutes. Also available as eyedrops.	
Storage	Room temperature	
Indications	Mod-severe infections with sensitive organisms – usually aerobic gram-negative. Infections incl. febrile neutropenia, hosp acq pneumonia, complicated pyelonephritis...	
Mechanism of action	Micro	Binds to ribosome 30S and 50S subunits – interferes with protein synthesis
	Macro	Concentration-dependent bactericidal activity
Pharmacokinetics	F Prodrug? Vd CL fe CYP Active Metabolites	0% (not absorbed orally) No 18 L/70 kg (same as extracellular fluid vol) 4 L/h/70kg (depends on GFR) 95% Nil Nil
Side effects	Type A	nephrotoxicity (5-10%), ototoxicity (vestibular and sensory hearing), muscle relaxant
	Type B	Rash (v rare), blood dyscrasias (v rare)
Interactions	Drugs	No PK interactions of note. May enhance nephrotoxicity of other nephrotoxic drugs
	Food	Nil
Contraindications	Absolute	allergy to gentamicin
	Relative	-
Pregnancy	Classification	D – rare reports of ototoxicity in neonates, possibility also of nephrotoxicity in neonates
Lactation	% Wt Adj Mat dose	Irrelevant as not absorbed orally by baby
Evidence base	Strong evidence in favour of once daily dosing with TDM	

ORAL EXAMINATIONS

The three QUM papers each have an oral examination as one of the final exams for the paper.

The aim of the oral examination is to assess your ability to ‘think on your feet’.

You will be assessed on your ability to:

- Communicate effectively in English at appropriate levels (e.g. to patients, doctors, pharmacists or other colleagues) on matters relating to health and medications.
- Demonstrate an understanding of:
 - diseases and conditions studied in this QUM including: the pathophysiology, effects of the disease on the patient and first and second-line drug treatment options;
 - monitoring of drug treatment effectiveness;
 - ways to minimise potential adverse effects of drug therapies; and
 - provide information to the patient to optimise the use of prescribed medicines.
- Provide comprehensive pharmaceutical advice for OTC medicines (including providing advice on general lifestyle and health promotion issues).
- Demonstrate a working knowledge of the legal requirements relating to the supply of medicines in New Zealand and the New Zealand Pharmaceutical Schedule.
- Use the computer-based Toniq system to produce quality labels for two items on a prescription.

At the oral examination you will be required to work through a series of THREE stations in 30 minutes. *You are allocated approximately EIGHT minutes per station and time to move between stations (not necessarily in this order). The timetable will be available prior to the day of the oral examination.*

Station 1: Process a Prescription

Station 2: Patient Assessment Role-play

Station 3: Therapeutics

Station 1: Process a Prescription

- You will be assigned your computer and given your prescription containing two items.
- You will have to annotate your prescription, satisfying all legal requirements.
- Show all calculations of quantities to dispense.
- Print the two labels.
- Stick your labels and any extra CALs in the blank space provided on the prescription form.
- If you are having computer problems, ask for assistance as soon as possible.
- You DO NOT lose marks for computer/software malfunctions that are beyond your control.

Station 2: Patient Assessment Role-play

Assessment includes differential diagnosis and OTC treatments.

- The examiner will show you the range of products and Self Care cards available.
- The products available are products we have looked at in class.
- There will be people acting as patients.
- You will greet the patient and take the role-play activity on from there. (It will be like the role-plays done in class).
- You will be assessed on communication skills (verbal and non-verbal), how you gathered the information, your knowledge of the condition and its management.
- At the end, the examiner may quiz you briefly, to clarify aspects of your role-play if it was not clear why you did/did not do or say something.

Station 3: Therapeutics

You will be given **TWO** case scenarios and approximately **FOUR** minutes to discuss each one, in turn.

Each scenario will contain a “prescription”.

You will be asked about the condition(s) being managed and the treatment used (e.g. about side effects, interactions, monitoring, alternative treatments, and/or patient counselling).

The scenarios have been written to test your understanding of issues that have been raised during the semester in Therapeutics workshops. However some drugs may be included which are either category 1 drugs or from workshops in earlier semesters if relevant.

BPHARM HONOURS PROGRAMME

The BPharm (Hons.) is a four year programme in which the fourth year presents a new challenge. As an Honours candidate, you have taken all papers in the accredited BPharm course in your First, Second and Third Years. In the Fourth year, you will take four papers among which a major change occurs in PHCY 480 (Honours Research Project), which starts during the summer holiday period after your Third year. The primary aim of this paper is to carry out an independent research project (dissertation) under the supervision of a staff member of the School of Pharmacy. The paper is designed to allow you to develop your research and presentation skills. It is expected that your research will generate new knowledge to inform Pharmaceutical Science and/or Pharmacy practice.

The main objectives of the Bachelor of Pharmacy Honours degree are:

- To provide additional learning opportunities for our outstanding students who have interest in research careers.
- To facilitate access for our Pharmacy graduates into the PhD programme of Otago University.
- To provide an avenue for increasing the number of research students.

Entry to eligible students is offered in the third year of the BPharm programme. **1 July to 31 July:** eligible P3 students who wish to be considered for the Honours programme will be asked to submit their application to the Postgraduate and Research Administrator. The BPharm Honours programme is a prerequisite entry to the PhD programme giving students opportunity to experience research.

Honours Co-ordinator:

Dr Shyamal Das
Email: shyamal.das@otago.ac.nz
Telephone: 479-4262

COURSE OUTLINES

Generic Aims and Objectives of QUM Papers

Generic

Students undertaking this paper will develop skills that will enable them to:

- Identify and solve problems.
- Develop a reflective attitude.
- Assess, integrate and use information from a wide variety of sources.
- Communicate easily with patients, other health professionals and the general public.
- Take initiatives and be more self-directive.
- Work effectively in teams as well as individually.
- Adapt easily to change/cope with ambiguity.
- Make decisions and accept responsibility for them.

Knowledge-based skills

Students undertaking this paper will develop skills that will enable them to:

- Describe the structure and function of body systems.
- Describe several pathological conditions of body systems.
- Discuss the drugs and formulations used to treat these conditions from pharmacological, pharmacokinetic, structure activity, formulation, economic and behavioural perspectives.
- Recommend the most appropriate medicine for an individual patient to achieve defined a therapeutic objective, recognising risk factors for individual patients and populations.
- Describe the pharmaceutical and legal requirements for appropriate quality assurance, storage, control, dispensing and distribution of particular medicines.
- Describe the counselling and pharmaceutical care of the patient to maximise the quality use of the treatment selected.

PHCY 470 ELECTIVE STUDY

Duration: Full Year
Points: 12

Paper Co-ordinator: Mr David Schmierer

A. Prescription:

An introduction to the principles of research and critical literature evaluation, which may be followed by structured research in social pharmacy, clinical pharmacy or pharmaceutical sciences selected from a range of topics.

B. Learning Aims and Objectives:

Generic

This paper provides an introduction to the principles of research and critical literature evaluation, which may be followed by structured research in social pharmacy, clinical pharmacy or pharmaceutical sciences.

Projects will generally take one of the following forms:

Review: Focus on literature survey/review only.

Research: A study of the literature, followed by structured research in social pharmacy, clinical pharmacy or pharmaceutical sciences.

Specific

This paper will:

- introduce students to scientific research and research methods;
- develop students' skills in literature retrieval, critical evaluation, the construction of research proposals, data collection, data analysis, and research report writing and presentation;
- increase students' understanding of ethical issues and health and safety issues pertaining to research;
- allow students to undertake structured research activities or in-depth study in an individual area of interest relevant to pharmacy.

C. Workload Expectations:

(i) Contact Hours

	Hours	Details
Lectures and workshops	9.5	Research methods course
Seminar	8	Symposium
Meetings with supervisor(s) as required	10-20	These will be arranged between students and supervisors

(ii) **Non-Contact Hours
(for average student)**

Project	Hours	Details
Review	120-130	Review
Research	20-30 100	Review Research (Social/Clinical/Science)

(iii) **Total Number of Hours**

150

D. Assessment Procedures and Submission Dates:

(i) **In-course Assessment**

Type of Task	Percentage Contribution to Final Grade	Deadline/ Date of Test
Research methods test	10%	Tuesday 19 May
Abstract submission	Nil	Monday 7 September
Final report	65%	Monday 28 September
Posters for printing	Nil	Wednesday 30 September
Symposium (poster or presentation)	15%	Friday 2 October
Supervisor assessment	10%	N/A

(ii) **A pass grade will be achieved by:**
obtaining an overall mark of 50% or greater.

E. Further Information:

Students will receive information outlining many procedures for this paper at the start of the year. Because of the independent nature of this course, most information from the Paper Co-ordinator will be via Blackboard and email. Students must check their email and Blackboard regularly for information.

PHCY 471 QUALITY USE OF MEDICINES B

Duration: Semester 1
Points: 46

Paper Co-ordinator: Mr Hesham Al-Sallami

A. Prescription:

Drug, disease and patient factors involved in the pharmacotherapeutic management of oncology and reproductive and musculoskeletal disorders.

B. Introduction:

The overriding aim of the School of Pharmacy is to produce graduates who are able to acquire, integrate and use all of the information they will need to care for the patients they will encounter in their professional environments. This integrated paper, Quality Use of Medicines (QUM) B, consists of a series of three disease based modules that will focus on either the treatment of disorders of specific body systems or on an integrating, holistic approach to certain problems. The modules are: *Oncology and the Immunocompromised Patient* (Module 1), *Reproduction* (Module 2) and *Musculoskeletal Disorders & Pain* (Module 3).

In each module, the emphasis will be on the integration of all aspects of the problem or disease state and its drug (and non-drug) treatments, in the context of the individual patient and, where appropriate, the population as a whole. In this way, the QUMs will integrate the pharmaceutical, clinical and social sciences relevant to each case and enable students to develop the skills that they will need identify and solve problems in a range of different health-related situations.

C. Intended Learning Outcome:

To formulate the components of a care plan.

Pharmaceutical Care Plans are individualised/patient-focused treatment strategies developed by Clinical Pharmacists.

A care plan involves the following processes:

- Assessment of the patient
- Formulation of a treatment option
- Enacting this treatment option
- Monitoring the patient's outcomes
- Reflection on outcomes

Return to "assessment of the patient" and continue the cycle.

D. Structure of Paper:

QUM B consists of THREE modules:

1. Oncology (ON)
2. Reproductive Disorders (RP)
3. Musculoskeletal Disorders & Pain (MS)

E. Staffing of Paper:

Each module is co-ordinated by a different member of the School of Pharmacy academic staff and is taught by a team of people from Pharmacy and other departments within the Division of Health Sciences.

F. Timetable of Paper:

Details of dates, times, locations etc of all lectures, workshops, laboratories and other activities are summarised in each Module course-book and are available on the School of Pharmacy website: www.otago.ac.nz/pharmacy in the Quickfind menu under Student Timetables. Please be aware that, while your individual timetable may appear to have relatively few contact teaching hours (usually about one third of the total expected workload for each module), you will be expected (required!) to undertake a lot of work on your own, in the non-contact hours. You will not be able to cope with the expectations of the paper as a whole if you do not put in this time.

G. Assessment of Paper:

Type of Assessment	Description	Percentage Contribution
In-course assessment	See individual module outlines	40%
Examination (30 min)	Oral	10%
Examination A (2 hr)	MCQ/short answer	20%
Examination B (3 hr)	Expanded questions	30%

To pass this QUM you must achieve passes in **ALL FOUR** assessments:

In-course: $\geq 20\%$ (out of a possible 40%)

Examinations:

Oral $\geq 5\%$ (out of a possible 10%)

Examination A $\geq 10\%$ (out of a possible 20%)

Examination B $\geq 15\%$ (out of a possible 30%)

A pass grade will be achieved by: passing the in-course assessment with a mark of 50% or greater **AND** each of the final exams with a mark of 50% or greater.

Assignment details are included in this Student Handbook and in the course-books provided for each Module.

Please note that a calendar of due dates for assignments and other activities will be posted on Blackboard, along with other information as it becomes available. You will all be expected to have access to this programme and to have informed the University of your contact details, including an email address that you check regularly.

PHCY 471 MODULE 1: ONCOLOGY & THE IMMUNOCOMPROMISED PATIENT (ON)

Module Co-ordinator: Professor Sarah Hook
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A. Learning Objectives:

- understand the biological basis of cancer and AIDS and to communicate this in both scientific and lay language.
- understand, analyse and communicate the issues concerning population based cancer screening tests.
- understand, analyse and communicate the issues concerning at-home cancer tests.
- understand the biological basis of common cancer therapies and to communicate this in both scientific and lay language.
- explain the mechanism of action of selected classes of cytotoxic drugs based on structure and reactivity.
- use knowledge and understanding of the structure and mechanism of action of selected classes of cytotoxic drugs to predict activity in drugs with related structures.
- explain some of the unwanted side effects of selected classes of cytotoxic drugs and discuss approaches to minimise these based on structure/chemistry/biochemistry.
- understand mechanisms by which delivery systems can target cytotoxic drugs to tumors.
- evaluate and interpret literature on novel or experimental cancer therapeutics and to communicate this in both scientific and lay language.
- explain the mechanism of action of antiretroviral drugs based on structure.
- evaluate oral opioid products, interpret and analyse opioid pharmacokinetic data.
- predict analgesic potency and antagonist properties of opioids based on structure.
- critically evaluate pharmacokinetic literature for tumor targeted cytotoxic drug formulations.
- understand the differences between commercial sterile pharmaceutical products and products produced via aseptic dispensing in a laminar airflow (LAF) cabinet.
- understand the principles behind the aseptic preparation of both total parental nutrition (TPN) and intravenous cancer chemotherapeutic agents.
- be familiar with basic aseptic manipulations, including making additions to a large volume parenteral (LVP) bag and the filling of an elastomeric pump.
- be competent at calculating individual doses of specific cancer chemotherapeutic agents and how these doses are to be given.
- outline the clinical presentation and investigation of selected solid and haematological tumours and discuss the treatment of these tumours with chemotherapeutic agents.
- outline what conditions and diseases can lead to patients becoming immunocompromised and discuss the treatment of opportunistic infections that may occur. As part of this be able to discuss HIV infection and the development of AIDS.
- identify symptoms of simple constipation and recognise warning signs of a more serious condition in cancer patients.
- offer advice and recommend appropriate OTC product/s for prevention and treatment of constipation, vomiting, diarrhoea, mouth ulcers, dry mouth and oral thrush in cancer patients.
- recognise the legal requirements and procedures for dispensing controlled drugs.
- understand the role of the pharmacist in providing palliative care.
- understand the importance of people's beliefs and practices surrounding death and dying and to be able to respond with sensitivity and respect to people whose beliefs and practices may differ from their own.

B. Self-Directed Learning Workload (for assignments):

Assignment	Length	Content
Case Study	40 hr	Cancer case study
Oral Presentations	25 hr	Critical evaluation of paper (new cancer therapy)
Total	65 hr	

C. Total Student Workload:

Contact time (Lectures 30 hr, workshops 24 hr, laboratories 9 hr)	63 hr
Preparation for workshops/labs	98 hr
Case Study	40 hr
Preparation for oral presentations	25 hr
Preparation for examination	60 hr
Total	286 hr

D. Assessment (as percentage of whole paper):

Assignment	Due Date	Percentage Worth
Case Study	TBC	10%
Oral presentations	TBC	6%
Total		16%

PHCY 471 MODULE 2: REPRODUCTION (RP)

Module Co-ordinator:

Associate Professor Rhiannon Braund

A. Learning Aims and Objectives:

By the end of this module, students will be able to:

- Explain the pathophysiology, aetiology, epidemiology and clinical presentation of conditions of the male and female reproductive system.
- Apply principles of structure activity and pharmacology to the safe, effective and rational choice of medications for management of the reproductive system.
- Integrate formulation and mechanisms for medication delivery involved in the treatment of male and female reproductive system.
- Advise on the appropriate choice and dosing of medications in pregnancy and lactation.
- Describe appropriate outcome measures and monitoring parameters for resolution or control of reproductive conditions.
- Communicate treatment recommendations to the patient and/or prescriber as appropriate.

B. Self-Directed Learning Workload (for assignment):

Assignment	Length	Content
Assignment 1	25 hr	Small group work (5 people) on PowerPoint presentations
Total	25 hr	

C. Student Workload:

Contact time (lectures 13 hr, workshops 17 hr, laboratories 2 hr)	32 hr
Preparation for workshops	42 hr
Assignment	25 hr
Preparation for exam	24 hr
Total	123 hr

D. Assessment:

Assignment	Due Date	Percentage Worth
PowerPoint presentations	Thursday 30 April and Friday 1 May	8%

PHCY 471 MODULE 3:

MUSCULOSKELETAL DISORDERS & PAIN (MS)

Module Co-ordinator:	Mr Hesham Al-Sallami
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A. Learning Objectives:

By the end of this module you will be able to:

- Recognise the normal structure and function of the skeletal and muscular systems,
- Explain the pathophysiology and presentation of common conditions of the musculoskeletal system, (osteoarthritis, rheumatoid arthritis, osteoporosis and other bone diseases, gout, inflammation, sprains and strains, pain associated with headache),
- Explain the treatment goals and appropriateness of drug and non-drug treatments,
- Distinguish the nature of pain associated with disease of, or injury to, the skeletal and muscular systems,
- Explain the pharmacological, chemical, physicochemical and pharmacokinetic properties and evaluate the mechanisms for medication delivery of specific prescription, non-prescription and complimentary medicines used in the treatment of musculoskeletal disorders and the management of side-effects that may arise from their use,
- Make therapeutic and dosage recommendations for patients with musculoskeletal disorders,
- Assess the patient's need for appropriate over-the-counter (OTC) products or referral to a doctor,
- Communicate treatment recommendations to the patients and/or prescriber as appropriate,
- Recommend appropriate outcome measures and monitoring parameters for resolution or control of these conditions,
- Advise on self-care measures in patient management,
- Develop a treatment guideline of a relevant condition.

B. Self-Directed Learning Workload:

Assignment	Topic	Length	Protocol
1	To be advised	25 hr	Treatment guidelines

C. Student Workload:

Average expected commitment for average student to achieve average grade:

Contact time (15 x 1 hr & 1 x 2 hr lectures, 8 workshops (3 x 2 hr, 5 x 3 hr), 1 x 1 hr lab	39 hr
Preparation for workshops, seminars, lectures and revision	60 hr
Assignment	25 hr
Preparation for practical lab and report	3 hr
Preparation for examination	36 hr
Total	163 hr

D. Assessment:

Please pay attention to the full instructions supplied by the lecturer.
Marks will be deducted according to the late assessment policy.

Assessment	Due Date	Marks
Assignment 1	TBA	8%
MCQ test	Friday 29 May	8%
Total		16%

Note: Assignments posted in the assignment slot at room 619 will be date stamped. Assignments and reports will be welcomed before the due date.

PHCY 472 PROFESSIONAL PHARMACY PRACTICE C

Duration: Full Year
Points: 16

Paper Co-ordinator: Dr Susan Heydon
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A. Learning Aims and Objectives:

Aims

The overall aim of this paper is to develop still further the concept of professionalism in pharmacy practice, both at the individual and organisational level, through classroom discussions and experiential learning in both community and hospital workplaces.

Objectives (general)

After successfully completing this paper, students will be able to:

- recognise the various elements that comprise professional behaviour, including self-presentation and interactions with others, both lay and professional;
- liaise effectively with others, patients and peers, in the healthcare environment;
- evaluate the current place of the pharmacy profession in the health care system and its possible future, including levels of competence and specialisation.

Objectives (specific)

(i) Professional behaviour (semester one and placement weeks)

By the end of this semester, students should be able to:

- prepare an acceptable curriculum vitae and understand the importance of professional presentation and other non-verbal forms of communication so that they may present themselves effectively.
- be confident in themselves and their knowledge and thus be comfortable about their place in a (future) healthcare team;
- understand the importance of acting in a culturally competent manner;
- compare and contrast the professional expectations and requirements of pharmacists working in hospital and community pharmacy practice.

(ii) Pharmacy ethics (semester one)

By the end of this semester, students should be able to:

- Have an understanding of the ethical issues which confront pharmacists in their day to day practice and be able to use ethical reasoning in planning a course of action. There will be emphasis on the ethical issues of confidentiality, privacy, truth telling and informed consent.

(iii) **Pharmacy law (semester two)**

Specifically by the end of this paper, students will be able to understand the application to pharmacy practice of:

- Consumer Guarantees Act 1993
- Dietary Supplements Regulations 1985/208
- Health (Needles & Syringes) Regulations 1998/254
- Health and Disability Commissioner (Code of Health and Disability Services Consumers' Rights) Regulations 1996 (also introduced in year 2)
- Health Information Privacy Code 1994 (also introduced in year 2)
- Health Practitioners Competence Assurance Act 2003
- Medicines Act 1981 (also introduced in year 2)
- Medicines Regulations 1984/143 (also introduced in year 2)
- Medicines (Designated Prescriber: Nurse Practitioners) Regulations 2005 (also introduced in year 3)
- Medicines (Designated Prescriber: Optometrists) Regulations 2005
- Medicines (Designated Pharmacist Prescribers) Regulations 2013
- Medicines (Standing Order) Regulations 2002
- Misuse of Drugs Act 1975 (also introduced in year 3)
- Misuse of Drugs Regulations 1977/37 (also introduced in year 3)
- Pharmacy Council Code of Ethics 2011 (also introduced in year 2)

B. Course Content:

1. Professionalism Component – Dr Susan Heydon

2. Hospital Placement – Ms Aynsley Peterson

This placement consists of:

- Attendance at an approved **New Zealand** hospital with an established clinical pharmacy programme for a minimum of 37.5 hours.
- Preparation and presentation of a portfolio as a record of student learning for marking.
- Attendance at a 1.5 hour debriefing workshop.

For administrative matters, please liaise with the Undergraduate Administrator. All other concerns should be directed to the Hospital Placement Co-ordinator (Ms Aynsley Peterson). Please do not make travel bookings until your placement has been finalised by the school.

3. Community Placement – Mr James Windle

This placement consists of:

- Attendance at a **New Zealand** community pharmacy for a minimum of 37.5 hours.
- Preparation and presentation of a portfolio as a record of student learning for marking.
- Attendance at a 2 hour debriefing workshop.

This placement takes place during the inter-semester break.

You are expected to make the arrangements with a community pharmacy for this placement. Your workbook details the requirements for this placement.

4. Ethics – Mrs Sandy Elkin

5. Law – Miss Kate Chesney

C. Workload Expectations:

	Hours
Lectures and Test	15
Workshops	29.5
Placement	75
Subtotal	119.5

**Non-Contact Hours
(for average student)**

80.5

Total Number of Hours

200

D. Assessment Procedures and Submission Dates:

(i) In-course Assessment

Type of Task	No. of Tasks	Due Date	Percentage Contribution to Final Grade
Ethics assignment	1	Wednesday 15 July	15%
Hospital pharmacy placement logbook: Summer break placements June/July placements Tairāwhiti (if selected)	1	Monday 2 March Monday 20 July T.B.A	15%
Community pharmacy placement	1	Tuesday 28 July	15%
Pharmacy Law assignment	1	First semester – TBC	5%
Pharmacy Law test	1	Tuesday 15 September	10%

(ii) Final Examination

Content	Duration	Percentage Contribution to Final Grade
Pharmacy law	2 hr	40%

(iii) A pass grade will be achieved by:

- Satisfactory completion of the placement components to this paper.
- Passing the final exam with a mark of 50% or greater **AND** an overall mark of 50% or greater.

PHCY 473 QUALITY USE OF MEDICINES C

Duration: Semester 2

Points: 46

Paper Co-ordinator: Dr Prasad Nishtala

A. Prescription:

Drug, disease and patient factors involved in the pharmacotherapeutic management of neurological, psychiatric and skin disorders; special populations and medicines management modules.

B. Introduction:

Graduates in pharmacy are expected to acquire, integrate and use information from the various disciplines that contribute to the Pharmacy curriculum in the care of patients they will encounter in their professional environments. In this paper, work is divided into disease and population-based Modules. The disease-based Modules include central nervous system (Module 1); dermatological (Module 2); haematological (Module 3); and special populations (Module 4): renal, hepatic, paediatric and elderly patients.

Emphasis in this paper is again to integrate all aspects of the problem or disease state and its drug (and non-drug) treatments, in the context of the individual patient and, where appropriate, the population as a whole. Information from pharmaceutical, clinical and social sciences relevant to each case is presented to or researched by students. Students are expected to continue their development of skills to identify and solve problems in a range of different health-related situations. Individual Modules vary according to the nature of the condition(s) under investigation and learning aims and objectives of the Module. Consulting the Module learning objectives and outcomes will guide students in their study of material in each Module. The final Module is Medicines Management (Module 5), where students use knowledge and skills acquired in their pharmacy study to gain practice assessing appropriateness of drug therapies in case studies and develop strategies for improving health outcomes by optimising medicines use and preventing medicines related problems.

C. Intended Learning Outcome:

To produce a care plan.

Pharmaceutical Care Plans are individualised/patient-focused treatment strategies developed by Clinical Pharmacists.

A care plan involves the following processes:

- Assessment of the patient
- Formulation of a treatment option
- Enacting this treatment option
- Monitoring the patient's outcomes
- Reflection on outcomes

Return to "assessment of the patient" and continue the cycle.

D. Structure of Paper:

QUM C consists of FIVE modules:

1. Central Nervous System (CN)
2. Dermatology (DM)
3. Haematology/Coagulation (HM)
4. Special Populations (SP)
5. Medicines Management (MM)

E. Staffing of Paper:

Each module is co-ordinated by a different member of the School of Pharmacy academic staff and is taught by a team of people from Pharmacy and other departments within the Division of Health Sciences.

F. Timetable of Paper:

Details of dates, times, locations etc of all lectures, workshops, laboratories and other activities are available on the School of Pharmacy website: www.otago.ac.nz/pharmacy in the Quickfind menu under Student Timetables. Please be aware that, while your individual timetable may appear to have relatively few contact teaching hours (usually about one third of the total expected workload for each Module), you will be expected (required!) to undertake a lot of work on your own, in the non-contact hours. You will not be able to cope with the expectations of the paper as a whole if you do not put in this time.

G. Assessment Procedures:

Type of Assessment	Description	Percentage Contribution
In-course Assessments	See individual Module outlines	40%
Examination (30 min)	Oral	10%
Examination A (2 hr)	MCQ/Short Answer	20%
Examination B (3 hr)	Long Answer Questions	30%

To pass this QUM paper you must achieve passes in **ALL FOUR** assessments:

In-course: $\geq 20\%$ (out of a possible 40%)

Examinations:

Oral $\geq 5\%$ (out of a possible 10%)

Examination A $\geq 10\%$ (out of a possible 20%)

Examination B $\geq 15\%$ (out of a possible 30%)

A pass grade will be achieved by: passing the in-course assessment with a mark of 50% or greater **AND** each of the final exams with a mark of 50% or greater.

Assignment details are included in this Student Handbook (brief description) and in the course books (full description) provided for each Module.

PHCY 473 MODULE 1: CENTRAL NERVOUS SYSTEM DISORDERS (CN)

Module Co-ordinator: Dr Prasad Nishtala

A. Learning Aims and Objectives:

By the end of this module, students will be able to:

- Describe the role of neurotransmitters in the central nervous system function and the mechanisms by which drugs and other chemicals may influence brain function. This includes drugs for the diseases outlined below and other drugs/chemicals which may be present naturally or have been developed and are used for their psychotropic effects.
- Be aware of the pathophysiology and presentation of abnormal conditions of the CNS, including epilepsy, anxiety and sleep disorders, migraine, Parkinson's disease, Alzheimer's disease, bipolar disorder, depressive illness and schizophrenia.
- Describe, where relevant, the pharmacological (both pharmacodynamic and pharmacokinetic), chemical and physio-chemical properties of prescription, non-prescription and complementary treatment options for the above conditions.
- Describe formulation approaches which may be used to optimise drug dosing; identify factors which determine compliance (adherence).
- Apply knowledge about epilepsy, psychiatric disorders, migraine and Parkinson's disease medicines and different dosage forms in order to make therapeutic and dosage recommendations for individual patients. This includes dose adjustment from a monitored drug concentration and recommendations where potential drug interactions between the CNS medicines for other conditions are recognised.
- Discuss the implications of the use of psychotropic chemicals/drugs and other treatment options that may be used to overcome addiction.
- Discuss the challenges of delivering drugs at therapeutic levels to the brain. Discuss current drug delivery strategies for psychotic drugs to cross the blood-brain barrier.
- Be aware of pharmacy practice aspects of dispensing prescriptions that are for anticonvulsants and other psychiatric medicines including potential drug/food/herbal interactions; accuracy of dosing; multi-source/interchangeable medicine issues and patient counselling.
- Prepare and present a short presentation, based on an allocated research paper.
- Prepare a well referenced written assignment after appropriate database searching.

B. Assignment Workload:

Assignment	Hours	Description
1	4	Small group presentation of an allocated research paper related to pharmacokinetics and/or pharmaceuticals of anticonvulsant drugs.
2	36	Individual assignment on a topic related to CNS; report (correctly referenced) submitted.

C. Total Student Workload:

Contact time (lectures 22 hr, workshops 19 hr)	41 hr
Assignments	45 hr
Preparation and other private study	59 hr
Total	145 hr

D. Assessment:

Task	Percentage	Due Date
Presentation	4%	During CNW02 21 – 22 July
Written assignment	8%	Monday 10 August
Total	12%	

PHCY 473 MODULE 2: DERMATOLOGY (DM)

Module Co-ordinator: Mrs Anita Olivier

A. Learning Aims and Objectives:

By the end of this module, students will be able to:

- Describe the aetiology, pathophysiology, epidemiology and clinical presentation of skin ailments, such as athlete's foot, contact dermatitis, insect bites, acne, psoriasis, eczema and cellulitis.
- Explain the types and presentation of adverse drug reactions on the skin and apply this knowledge to make therapeutic recommendations for a particular patient.
- Explain how the formulation influences the effectiveness of topical medicines and apply this knowledge to make recommendations of choice of product for a particular patient.
- Explain where relevant the pharmacological and physiochemical properties of drugs used to treat skin conditions.
- Apply knowledge of skin conditions, drugs and dosage forms to make therapeutic and dosage recommendations for a particular patient.

B. Total Student Workload:

Contact time (lectures 10 hr, workshops 15 hr)	25 hr
Preparation and other private study	71 hr
Total	96 hr

C. Assessment:

Task	Date	Percentage
End of Module Test	Friday 14 August	8%
Total		8%

PHCY 473 MODULE 3: HAEMATOLOGY/COAGULATION (HM)

Module Co-ordinator:	Mr Hesham Al-Sallami
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A. Learning Aims and Objectives:

Aims

By the end of this module, students will be able to:

- understand the pathophysiology and presentation of iron, vitamin B₁₂ and folate deficiency anaemias;
- understand the pathophysiology and presentation of disorders of coagulation, and in particular, venous thromboembolism;
- describe, where relevant, the pharmacological, chemical and physicochemical properties of prescription, non-prescription and complementary treatment options for these conditions;
- apply knowledge about these conditions and their treatment to make therapeutic and dosage recommendations for a particular patient.

Learning objectives

By the end of this module, students will be able to:

- understand and interpret laboratory tests used to identify and monitor anaemias due to iron, folate and vitamin B₁₂ deficiencies;
- describe the characteristics, aetiology, clinical presentation and diagnosis of these anaemias;
- discuss the treatment of these conditions (including choice of agent, dosage, formulation, adverse effects, interactions, monitoring, and counselling);
- discuss drug-induced blood disorders, the drugs frequently implicated, and the management of the disorders;
- understand the coagulation cascade and the aetiology of some disorders of coagulation;
- discuss the appropriate use of thrombolytic and antiplatelet therapies, (including choice of agent, dosage, formulation, adverse effects, interactions, monitoring and counselling);
- understand the aetiology, pathophysiology and clinical presentation of deep vein thrombosis;
- discuss the appropriate use of anticoagulation therapy (including choice of agent, dosage, formulation, adverse effects, interactions, monitoring, and counselling).

B Total Student Workload:

Contact time (lectures 6.5 hrs, workshops 6 hr, MCQ test 1 hr)	13.5 hr
Preparation and other private study	34.5 hr
Total	48 hr

C. Assessment:

Task	Date	Percentage
MCQ test	Friday 21 August	4%
Total		4%

PHCY 473 MODULE 4: SPECIAL POPULATIONS (SP)

Module Co-ordinator:	Associate Professor Natalie Medicott
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A. Learning Aims and Objectives:

Aims

By the end of this module, students will be able to:

- understand the pathophysiology and presentation of conditions of the renal and hepatic system;
- describe, where relevant, the pharmacological, chemical and physicochemical properties of prescription, non-prescription and complementary treatment options for renal and hepatic disorders;
- understand the alterations in pharmacokinetic properties of commonly used drugs in patients with renal and hepatic disorders;
- describe the role of renal dialysis in the treatment of renal failure and the alterations in drug treatment necessary for patients receiving dialysis;
- understand the role of transplantation in the treatment of renal and hepatic disorders and the drug treatment used to prevent organ rejection;
- understand the pathophysiology and presentation of common diseases of childhood and in the elderly and the drug treatments used for the treatment of these conditions;
- describe the changes in drug absorption, distribution, metabolism and excretion at the extremes of age;
- understand the limitations age places on dosage form choices for medicines and how proprietary medicines can be altered to meet the drug administration needs of individual patients;
- discuss the problems of multiple pathology and subsequent poly-pharmacy in the elderly;
- understand the needs of the paediatric population with respect to formulation of medicines and information about the medicines used.

Objectives

By the end of this module, students will be able to:

- describe appropriate outcome measures and monitoring parameters for resolution or control of renal and hepatic disorders;
- apply knowledge of altered drug pharmacokinetics in special populations to modify dosage regimens to achieve desired therapeutic outcomes for individual patients and groups of patients;
- apply knowledge about physicochemical properties of medicines and dosage forms available in order to make therapeutic and dosage recommendations for individual patients and groups of patients;
- communicate these recommendations to the patient and/or prescriber, as appropriate;
- advise on self-care measures in patient management;
- advise on stability, storage, toxicological and social issues relating to the use of medicines for the treatment of the conditions covered in this Module.

B. Total Student Workload:

Contact time (lectures 19 hr, workshops 30.5 hr, test 1 hr)	50.5 hr
Clinical case study report	20 hr
Preparation for workshops and other private study	121.5 hr
Total	192 hr

C. Assessment:

Assignment	Due Date	Percentage Worth
Case studies report	Monday 14 September	8%
End of module test	Friday 25 September	8%
Total		16%

PHCY 473 MODULE 5: MEDICINES MANAGEMENT (MM)

Module Co-ordinator:

Ms Aynsley Peterson

The concept of medicines management will not be foreign to you. Every time you consider “is medicine A or medicine B the most appropriate choice of medicine for this patient, given their case history?” you are already working towards optimising medicines choices for patients. This is an integral part of medicines management.

In 2006, the Pharmacy Council of New Zealand described medicines management as part of the pharmacist Scope of Practice. The Council defines medicines management as “a range of patient-centred services that improve medicines-related health outcomes”. There are a number of other definitions in use, all emphasising the focus on the patient and their health outcomes. However, medicines management is not new as a concept. In 1990, Hepler & Strand defined pharmaceutical care as “the responsible provision of drug therapy to achieve definite outcomes that are intended to improve a patient’s quality of life”. This paper heralded the beginning of change in the international world of pharmacy. Since then, medicines management practices have continued to develop and evolve.

During the year you will have become familiar with many more illnesses, effective medicines for them and the potential for at least some of these medicines to cause problems, especially when they are being taken in combination with others. This module will give you the opportunity to practise the skills you have developed in identifying such problems and suggesting appropriate solutions that are acceptable to both the patient and their medical practitioners. During the two weeks of this module, you will progress from discussing paper-based cases, through ‘simulated’ patients (actors) to interviewing actual patients (not actors). You will have the opportunity to practise your interviewing techniques and then will share the information you have gathered about your patient via a short presentation to the group.

No additional readings are provided for this module. You should be able to work through all the cases provided using the skills learned and materials given to you previously, and from additional information available in texts, journals and online.

A. Learning Aims and Objectives:

Aim

To provide a systematic approach to assessing and monitoring drug therapy in order to identify and solve drug-related problems and to ensure that all therapeutic objectives are being achieved.

Objectives

By the end of this module, students will be able to:

- Describe the six common components of medicines management services.
- Define the differences between the levels of medicines management services.
- Use the Problems, Options, Plans (POP) approach to identify and resolve medication-related problems
 - Describe desired therapeutic outcomes
 - List all therapeutic alternatives that might produce the desired outcomes
 - Select the drug recommendation(s) that most likely will result in the desired outcomes
 - Establish a plan for therapeutic monitoring that documents that desired effects occur and undesired effects are minimised.
- Communicate drug therapy problems and solutions to their peers and a panel of practising pharmacists.

B. Student Contact Hours:

Week.	Lectures	Workshops	Total
1	3 x 1 hr	1 x 1.5 hr; 1 x 3 hr	7.5 hr
2		2 x 3 hr	6 hr
Total	3	10.5	13.5

C. Self-directed Learning Workload (for assignments):

Assignment	Length	Content
Medicines review	20 hr	Oral presentation of individual patients' medication management
Total	20 hr	

D. Total Student Workload During Module:

Contact time	13.5 hr
Assignment	20 hr
Preparation for workshops and other private study	62.5 hr
Total	96 hr

E. Assessment (as percentage of whole paper):

Task	Due Date	Nature of Assessment
Presentation of patient case	During MMW04 Wednesday 7 / Thursday 8 / Friday 9 October	Pass/fail

PHCY 480 HONOURS RESEARCH PROJECT

Duration: Full Year

Points: 36

Paper Co-ordinator: Dr Shyamal Das

A. Introduction:

The core component of this paper is the development, implementation and reporting of an original individual research project (maximum 15 000 word dissertation excluding references), supervised by a Dunedin-based PBRF-eligible School of Pharmacy staff member who has been approved by the Dean of the School of Pharmacy.

Learning in this paper is driven by the student; with the supervisor(s) guiding the student through the process. This paper will start in the summer break, prior to the start of the 4th year, and will continue until the end of semester 2.

B. Learning Aims and Objectives:

- Formulate research questions based on an in-depth knowledge of their chosen area of research
- Implement research including the ability to generate a hypothesis, design experiments to test the hypothesis, and to carry out experimental work
- Critically evaluate their own work and literature relevant to their research project
- Understand and apply knowledge of research methodologies, ethical issues and health and safety issues relevant to research
- Communicate in depth their research (information, arguments and analyses)

C. Workload Expectations:

(i) Contact Hours

	Hours	Expected deadline
Meetings with supervisor(s)	10	
Lectures	8	6 in semester 1 and 2 in semester 2
Workshop	1.5	Semester 1
Oral presentations	2.5	Semester 2

(ii) Non-Contact Hours

	Hours	Expected deadline
Literature review	30	Prior to semester 1 and in final year
Research	318	Prior to semester 1 and in final year
Preparation (dissertation)	65	
Preparation (presentation)	10	Semester 2
Preparation (test)	5	Semester 2

(iii) Total Number of Hours

450

D. Assessment Procedures and Submission Dates:

Approximate timeline:

You should use the following as a guide to ensure that you work consistently over the year.

By 10th October: You should organise a meeting with your supervisor to agree on the timeline you will be working during summer.

Summer break before semester 1: You should work for 10 weeks on your project.

Semester 2: Your supervisor may set dates with you for submitting drafts.

4th September: You should be aiming to have a first draft of all sections of your report.

8th September: Submit your abstract for PHCY 480 Symposium.

28th September: Reports due.

October: PHCY 480 Symposium (present results as presentation). Date and venue will be informed later.

The dissertation will contribute 70% to the final grade. Supervisors will also assess candidates on their research skills against standard criteria. This will contribute 10% to the final grade. Candidates will also be assessed on an oral research presentation (15%) given at a School research symposium and through a research methods test (5%).

PHCY 481 QUALITY USE OF MEDICINES B FOR HONOURS

Duration: Semester 1

Points: 46

Paper Co-ordinator: Dr Shaymal Das

Course content and assessment procedures are the same as PHCY 471.

PHCY 482 PROFESSIONAL PHARMACY PRACTICE C FOR HONOURS

Duration: Full Year

Points: 46

Paper Co-ordinator: Dr Shyamal Das

Course content and assessment procedures are the same as PHCY 472.

PHCY 483 QUALITY USE OF MEDICINES C FOR HONOURS

Duration: Semester 2

Points: 46

Paper Co-ordinator: Dr Shymal Das

A. Introduction:

This paper includes advanced study into drug, disease and patient factors involved in the pharmacotherapeutic management of neurological, psychiatric and skin disorders; special populations, and medicines management.

It will include material taught in PHCY 473 which has the modules on the central nervous system, dermatology, haematology and special populations (which covers renal, hepatic, paediatric and elderly patients). The final Module is Medicines Management, where students use knowledge and skills acquired throughout the entirety of their pharmacy studies to evaluate the appropriateness of drug therapies in case studies and to develop strategies for improving health outcomes by optimising medicines use and preventing medicines related problems. Learning activities for the modules vary but are a mix of lectures, workshops and self-directed learning.

Additional content in PHCY 483 will cover advanced, contemporary research techniques relevant to pharmacy research and will prepare the students for a PhD in Pharmacy. This will be taught in tutorials to the honours cohort.

B. Learning Aims and Objectives:

- Understand and communicate the pathophysiology, epidemiology, microbiology and clinical presentation of specified abnormal conditions of skin, the CNS, the renal system, the hepatic system, and of children and the elderly.
- Understand and communicate the chemical and physicochemical properties, mechanism of action, pharmacokinetics and pharmacodynamics of prescription, non-prescription drugs and complementary treatment options for the above conditions. This will include any relevant formulation approaches which may be used to optimise drug dosing.
- Understand, synthesise and apply knowledge of medicines, medicine formulations and disease pathology to optimise and evaluate/monitor therapy for individual patients, including paediatric and elderly patients and those with multiple pathologies.
- Understand the implications for the individual and society of the use of the recommended chemicals/drugs and other treatment options that may be used to treat these conditions.
- Understand, communicate and apply knowledge of pharmacy practice aspects of dispensing prescriptions including potential drug/food/herbal interactions; accuracy of dosing; multi-source/interchangeable medicine issues and patient counselling.
- Identify medication-related problem(s), devise an integrated approach to resolve the problem(s) and to monitor and evaluate outcome(s), and communicate such information to healthcare professionals.
- Understand a number of advanced contemporary research methods and communicate how they can be applied to pharmacy research; critically evaluate relevant literature utilising these methods.

C. Workload Expectations:

PHCY 483 - 46 points = 575 hours activities

		Hours	Derivation
Contact hours	Content of individual modules varies as regards mix of lectures, workshops and tutorials. Hours provided are for the paper as a whole		
Lectures		47	47 x 1 hr
Tutorials		6	6 x 1 hr
Workshops		71	21 x 3 hr, 4 x 2 hr
Tests		2	2 x 1 hr
Oral Exam	1		
Sub Total	127		
Non-contact hours			
Lecture preparation		70.5	1.5 hr/hr lecture
Tutorial preparation		18	3 hr/hr tutorial
Workshop preparation		104.5	1.5 hr/hr workshop
Written assignments		37.5	12.5 hr x 3 assignments (5% each)
Oral presentation		25	5 hr for 2% & 20 hours for 8% assessment
Test preparation		37.5	12.5 hr x 3 assessments (5% each)
Oral exam preparation		25	25 hr for 10% assessment
Final Exam preparation		125	50 hr for 20% exam, 75 hours for 30% exam
Final written exams		5	1 x 2 hr, 1 x 3 hr
Sub total	448		
Total time	575		

D. Assessment:

(i) Internal Assessment (40%)

Type of task	Tasks and (Percent Contribution to Final Grade)	Specific contribution by topic for PHCY 483	Comparison with PHCY 473
Written reports	3 (15%)	Central Nervous System (5%)	Assessment at a higher level for PHCY 483
		Special population (5%)	Assessment at a higher level for PHCY 483
		Assignment on tutorials (5%).	PHCY483 only
Oral group presentation	1 (2%)	Central Nervous System (2%)	Same as PHCY 473
MCQ & short answer tests	3 (15%)	Dermatology (5%)	Same as PHCY 473
		Heamatology (2.5%)	Same as PHCY 473
		Special population (5%)	Same as PHCY 473
		On tutorials (2.5%)	PHCY483 only
Medicines Management presentation	1 (8%)	Oral presentation (8%)	Assessment at a higher level for PHCY 483

(ii) **Final Examination (60%):** The composition of the final exams are identical to those previously approved for PHCY 473. An oral exam (40 min, 10%) and two written final exams (2 hour MCQ/short answer exam, 20% and 3 hour long answer exam, 30%) are required to examine the breadth of material covered in this 46 point paper.