

# PHARMACY (PHRM)

## PHRM 1000 Introduction to Pharmacy 1 cr

This course provides an orientation to Pharmacy and to the application of medicines within the context of today's dynamic medical care system. It has been designed to highlight professionalism early in the Pharmacy curriculum and will provide the opportunity for students to interact with Pharmacy professionals "at the cutting edge" of pharmacy practice.

## PHRM 1110 Pharmacy Skills Laboratory 3 cr

This is a multifaceted course using an integrated skills laboratory format to develop essential skills that students require for pharmacy practice. These skills primarily involve communication, problem solving and critical thinking that form the foundation for life-long learning. Exploring ethical principles and professionalism are also essential components of this course.

**Mutually Exclusive:** PHMD 1002

## PHRM 1300 Fundamentals of Pharmaceutics 2 cr

In a classroom and laboratory setting, this course provides an introduction to the compounding of pharmaceutical products and the physiochemical basis of product formulation. Practical aspects of formulation and an introduction to the dispensing function are also explored.

**Mutually Exclusive:** PHMD 1012, PHRM 1310

## PHRM 1310 Fundamentals of Pharmaceutics 3 cr

(Lab required) In a classroom and laboratory setting, this course provides an introduction to the compounding of pharmaceutical products and the physiochemical basis of product formulation. Practical aspects of formulation and patient counselling regarding the products is also explored. May not be held with PHRM 1300. Registration is normally restricted to students in Year 1 of the program.

**Mutually Exclusive:** PHMD 1012, PHRM 1300

## PHRM 1430 Applied Pathophysiology for Pharmacy Students 3 cr

A comprehensive theoretical foundation of the phenomena that produce alterations in human physiology function across the lifespan. Course content will prepare the student for subsequent courses related to diagnosis and management of disease processes associated with pathophysiologic dysfunction/alterations.

**Mutually Exclusive:** PHMD 1010, PHRM 1440

## PHRM 1440 Applied Pathophysiology 4 cr

A comprehensive foundation of the underlying patho-physiological mechanisms associated with various types of human disease. Course content will serve as an essential pre-requisite required to prepare students for subsequent advanced clinical courses related to diagnosis and medical management (pharmacological and non-pharmacological approaches) of the disease(s). May not be held with PHRM 1430. Registration is normally restricted to students in Year 1 of the program.

**Mutually Exclusive:** PHMD 1010, PHRM 1430

## PHRM 1700 Structured Practical Experiential Program 1 1 cr

This course is a service-learning experience, providing students the opportunity to work in community-based patient/client-centred settings. This course also includes two half day job shadowing experiential rotations in a variety of pharmacy practice settings (eg. community pharmacy practice, institutional pharmacy practice) under the supervision of pharmacist preceptors consistent with the Manitoba Pharmacy Act. It serves to familiarize students with the health care setting and the pharmacist's role. Students will be graded on a pass/fail basis.

## PHRM 2100 Pharmacy Skills Lab 2 3 cr

This course develops essential skills required for pharmacy practice. Focus is on drug distribution, pharmacy law, communication with "standardized patients" and drug information.

**Mutually Exclusive:** PHMD 2002, PHMD 2022, PHMD 2024

## PHRM 2222 Medicinal Chemistry 6 cr

This course explores the physicochemical aspects of drug structure in absorption, distribution, metabolism, and excretion and the interaction between drugs and their receptors as they relate to the biochemical, pharmacological, and therapeutic actions of medicinal compounds. Not to be held with the former PHRM 220 or PHRM 3220.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

**Prerequisites:** CHEM 2210, CHEM 2360, CHEM 2370.

**Mutually Exclusive:** PHMD 1008, PHRM 2220, PHRM 3220

## PHRM 2270 Pharmaceutics/Biopharmaceutics 6 cr

This course introduces principles of formulation and good pharmaceutical manufacturing practice, including aspects of product development and assessment, stability testing, and quality control. It also explores the application of dosage forms to clinical situations.

**Mutually Exclusive:** PHMD 1016

## PHRM 2280 Pharmacokinetics 3 cr

This course introduces principles of pharmacokinetics to predict how drugs will be absorbed, distributed, metabolized and excreted from the body. Practical application of concepts and calculations will be emphasized.

**Mutually Exclusive:** PHMD 2006

## PHRM 2320 Clinical Pharmacy 1 5 cr

This course introduces principles of drug therapy to manage self-care conditions and ambulatory ailments. There is also a component of health promotion with a focus on clinically relevant nutrition topics for pharmacists. Non-prescription and prescription treatment approaches will be covered within the course. May not be held with the former PHRM 2310.

**Mutually Exclusive:** PHMD 1014, PHRM 2310

## PHRM 2700 Structured Practical Experiential Program 2 2 cr

This course offers experiential learning in a variety of pharmacy practice settings (eg. community pharmacy practice, institutional pharmacy practice) It consists of 2 one week rotations at the end of the second year of the program. This course builds on skills learned in SPEP 1 and focuses on the practice of drug preparation and distribution, non-prescription medication counseling, and jurisprudent under the supervision of pharmacist preceptors consistent with the Manitoba Pharmacy Act. Students will be graded on a pass/fail basis.

## PHRM 3110 Pharmacy Skills Laboratory III 3 cr

This course develops essential skills required for pharmacy practice. The focus is on interaction with patients and other health care professionals and the application of essential knowledge, skills and values required for the provision of pharmaceutical care. May not be held with PHRM 3100.

**Mutually Exclusive:** PHRM 3100

## PHRM 3230 Principles of Professional Practice 2 cr

This course offers the opportunity to explore professionalism, ethics and socio-economic aspects of the health care system. May not be held with PHRM 3210.

**Mutually Exclusive:** PHMD 3012, PHRM 3210

**PHRM 3310 Clinical Pharmacy 2 10 cr**

This course builds on principles of drug therapy introduced in Clinical Pharmacy 1. Aspects of providing direct patient care are emphasized to identify, solve and prevent actual or potential drug-related problems. The course also expands knowledge of "Over the Counter (OTC)" medications as therapeutic alternatives and introduces home diagnostic testing  
**Mutually Exclusive:** PHMD 2014, PHMD 2026, PHMD 2028

**PHRM 3320 Pharmaceutical Analysis Lab 3 cr**

This course offers the opportunity to prepare pharmaceutical dosage forms and perform analytical testing on the products. Qualitative and quantitative instrumental assay techniques are introduced.  
**Mutually Exclusive:** PHMD 2000

**PHRM 3430 Natural Products 3 cr**

Medicinal products of natural origin; introduction to systems of complementary medicine. Therapeutic aspects and products are emphasized

**PHRM 3520 Principles of Scientific Literature Evaluation 4 cr**

Primary literature is critically analyzed. Discussion of how study results impact on treatment strategies are emphasized. May not be held with PHRM 3510.

**Mutually Exclusive:** PHMD 3004, PHRM 3510

**PHRM 3550 Clinical Pharmacokinetics 3 cr**

This course explores the practical application of pharmacokinetic concepts, calculations, and patient factors which effect pharmacokinetics in the clinical setting. Emphasis is on selected medications that require closer monitoring to ensure efficacy and patient safety. May not be held with PHRM 3500 or 046.350.

**Mutually Exclusive:** PHMD 2016, PHRM 3500

**PHRM 3640 Principles of Biotechnology 3 cr**

Introduction of biotechnology in pharmaceutical science and pharmacy. Students will be introduced to concepts from molecular biology, immunology, biotechnology and pharmacogenomics.

**Mutually Exclusive:** PHMD 2010

**PHRM 3700 Structural Practical Experiential Program 3 4 cr**

This course offers experiential learning in a variety of pharmacy practice settings (e.g. community pharmacy practice, institutional pharmacy practice) It consists of 2 two week rotations at the end of the third year of the program. This course builds on skills learned in SPEP 1 and SPEP 2 and focuses on the introduction of applying pharmaceutical care to patients under the supervision of pharmacist preceptors consistent with the Manitoba Pharmacy Act. Students will be graded on a pass/fail basis.

**PHRM 4230 Pharmacy Practice Management 4 cr**

An Introduction to administrative and behavioural sciences as they relate to planning, organization and operation of pharmacy practice and to the control of human and financial resources.

**Mutually Exclusive:** PHMD 3010

**PHRM 4310 Clinical Pharmacy 3 4 cr**

A problem-based therapeutics course that builds on PHRM 3310. The emphasis is on the provision of pharmaceutical care to enhance students' ability to identify, resolve and prevent drug-related problems in given clinical scenarios.

**PHRM 4450 Toxicology 3 cr**

Toxicology of prescription and non-prescription medications and drugs of abuse. The emphasis is on the study of emergency treatments of the overdosed patient. Forensic aspects of common poisonings and drug overdoses are also discussed

**PHRM 4470 Current Topics 3 cr**

A discussion of topics of immediate interest to the profession. Subject to satisfactory completion of required projects and presentations. Attendance of 80% is mandatory. Students will be graded pass/fail.

**PHRM 4700 Structural Practical Experiential Program 4 10 cr**

This course offers experiential learning in a variety of pharmacy practice settings (e.g. community pharmacy practice, institutional pharmacy practice) It consists of 2 six week rotations. This course builds on skills learned in SPEP 1, SPEP 2 and SPEP 3 and focuses on practicing advanced pharmaceutical care and further developing therapeutic and disease knowledge under the supervision of pharmacist preceptors consistent with the Manitoba Pharmacy Act. Students will be graded on a pass/fail basis.

**PHRM 4800 PHARM ELECTIVES 10 cr**

This program offers students the opportunity to explore areas in research and professional practice that are not part of the required undergraduate courses. Students have the option of applying to conduct projects at sites pre-approved by the College or to propose alternative avenues for self-directed learning. All project proposals need to obtain final approval from the College of Pharmacy which facilitates students' placement. Assessment will be based on written reports submitted by individual students to the College of Pharmacy. Students will be graded on a pass/fail basis.