

# PHARM. D (PHMD)

## PHMD 1000 Introduction to Professional Practice 1 cr

This course provides an introduction to various aspects of professional practice with a focus on patient care and safety. The course will include discussion and activities that incorporate cultural diversity, determinants of health, health literacy and Indigenous health. Registration is normally restricted to students in Year 1 of the program. Students will be graded on a pass/fail basis.

## PHMD 1002 Applied Pharmacy Practice Lab 1 4 cr

(Lab required) This course is an introduction to community pharmacy practice with a focus on communication skills that are patient centered. The course provides opportunities to apply knowledge when completing patient assessments that will ensure positive patient outcomes. The process of prescription filling includes ensuring the legal requirements are met, minimizing errors, calculations and adverse drug reactions. Students will be introduced to drug information resources, adherence aids and physical assessment. May not be held with PHRM 1110 or the former PHRM 1100. Registration is normally restricted to students in Year 1 of the program.

**Mutually Exclusive:** PHRM 1100, PHRM 1110

## PHMD 1004 Introduction to Pharmacotherapy Literature 1 cr

An introduction to the concepts of evidence-based medicine and applied medical/biostatistics in the evaluation of relevant pharmacotherapy literature. Registration is normally restricted to students in Year 1 of the program.

## PHMD 1006 Pharmacy Informatics 1 cr

This course will introduce students to the use of information and communication technologies for delivering patient care and fostering collaboration between healthcare providers. Students will also be introduced to the professional, ethical, and legal implications of using such technologies for communicating health information. Registration is normally restricted to students in Year 1 of the program.

## PHMD 1008 Medicinal Chemistry 4 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. Students will learn the fundamental relationships between the structures of drugs and the resulting activity. May not be held with PHRM 2222 or the former PHRM 2220 or PHRM 3220. Registration is normally restricted to students in Year 1 of the program.

**Mutually Exclusive:** PHRM 2220, PHRM 2222, PHRM 3220

## PHMD 1010 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 requirement 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.

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

Prerequisite: BIOL 2420.

**Mutually Exclusive:** PHRM 1430, PHRM 1440

## PHMD 1012 Extemporaneous Pharmaceutical Compounding 3 cr

(Lab required) In a classroom and laboratory setting, this course provides an introduction to the compounding of pharmaceutical products and the physicochemical 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:** PHRM 1300, PHRM 1310

## PHMD 1014 Clinical Therapeutics 1 3 cr

This course introduces principles of drug therapy for the management of both self-care conditions and ambulatory ailments, with an additional focus on health promotion. Within the conditions covered, identifying signs and symptoms to complete a differential diagnosis, development of treatment plans and follow-up monitoring will be emphasized. Treatment approaches discussed will include non-pharmacological options, non-prescription options and some prescription treatments. May not be held with PHRM 2320 or the former PHRM 2310. Registration is normally restricted to students in Year 1 of the program.

**Mutually Exclusive:** PHRM 2310, PHRM 2320

## PHMD 1016 Pharmaceutics 3 cr

(Lab required) 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. May not be held with PHRM 2270. Registration is normally restricted to students in Year 1 of the program.

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

Prerequisite: PHMD 1012.

**Mutually Exclusive:** PHRM 2270

## PHMD 1040 Service Learning / IPE 1 1 cr

The course is a service-learning experience that provides students an opportunity to work in community-based patient or client centered settings. The course will focus on developing communication skills, interprofessional collaboration with other healthcare students and patient advocacy while working with patients or clients from diverse backgrounds. The course also includes an opportunity for students to experience various pharmacy practice environments through a job shadowing experience under the supervision of practicing pharmacists and senior pharmacy students. Registration is normally restricted to students in Year 1 of the program. Students will be graded on a pass/fail basis.

## PHMD 2000 Drug Delivery 3 cr

(Lab required) This course discusses the concepts and application of various drug delivery and drug administration routes to improve therapeutic outcomes. The course is a continuation of PHMD 1012 and PHMD 1016, and is directly associated to drug dosage forms and preparations. May not be held with PHRM 3320. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisite: PHMD 1016.

**Mutually Exclusive:** PHRM 3320

## PHMD 2004 Critical Appraisal of Pharmacotherapy Literature 1 4 cr

This course develops skills in the critical appraisal of common research designs used in the pharmacotherapy literature with emphasis on the evaluation of research to inform practice. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisite: PHMD 1004.

**PHMD 2006 Applied Biopharmaceutics and Pharmacokinetics 3 cr**

This course introduces the principles of Biopharmaceutics and Pharmacokinetics to understand and predict how drugs are absorbed, distributed, metabolized and eliminated from the body. Students will apply these principles to the practical application of dosage calculations using various scenarios. May not be held with PHRM 2280. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisite: PHMD 1016.

**Mutually Exclusive:** PHRM 2280

**PHMD 2008 Pharmacy Law 1 cr**

In this course Federal and Provincial Legislation as well as the ethical and professional standards that govern the profession of pharmacy and how they apply to practice will be discussed. Successful completion of this course meets the Jurisprudence Examination requirement for licensure. Registration is normally restricted to students in Year 2 of the program.

**PHMD 2010 Principles of Biotechnology 2 cr**

Introduction to biotechnology in pharmaceutical science and pharmacy. Students will learn the concepts and technologies used in production of biologics and will understand pharmaceutical considerations of biotech products. May not be held with PHRM 3640. Registration is normally restricted to students in Year 2 of the program.

**Mutually Exclusive:** PHRM 3640

**PHMD 2012 Pharmacogenetics 2 cr**

This course examines the influence of genetic variation in the population on the pharmacodynamics and pharmacokinetics of drugs. A general introduction to pharmacogenetics will cover basic genetics necessary to understand the course material. Selected drugs will be examined in depth showing how genetic variation alters an individual's pharmacodynamic and pharmacokinetic response. Based on the individual's genetic variation, dose adjustments or alternative therapies will be recommended. Registration is normally restricted to students in Year 2 of the program.

**PHMD 2016 Clinical Pharmacokinetics - Pharmacodynamics 3 cr**

This course is designed to develop and integrate the advanced knowledge and skills required to apply pharmacokinetics-pharmacodynamics (PK-PD) to therapeutic drug management and patient care. Emphasis is on (1) demonstrating the value of PK-PD in selecting and monitoring drug therapies that maximize efficacy and minimize toxicity, and (2) appropriately using PK-PD formulae and models that account for factors such as patient demographics, organ function, disease states and drug interactions. May not be held with PHRM 3550 or the former PHRM 3500. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisite: PHMD 2006.

**Mutually Exclusive:** PHRM 3500, PHRM 3550

**PHMD 2020 Introductory Pharmacy Practice Experience - Community 4 cr**

This four week introductory rotation provides pharmacy students with an opportunity to contribute to patient care in a community pharmacy setting. Pharmacy students will build upon the knowledge, skills and abilities they have developed during the first year and a half of the Pharm.D. program. Opportunity will be provided to help pharmacy students cultivate their patient care skills and begin to gain personal clinical experiences working with a variety of patients and other members of the healthcare team encountered in a community pharmacy. Students will begin to make health care decisions with the help and guidance of a pharmacist preceptor. Pharmaceutical care, pharmacy law and ethics, the operation of a community pharmacy, formal presentations, drug information, patient safety and interprofessional practice are key areas of this rotation. Registration is normally restricted to students in Year 2 of the program. Students will be graded on a pass/fail basis.

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

Prerequisite: PHMD 2008, PHMD 2022 and PHMD 2026.

**PHMD 2022 Applied Pharmacy Practice Lab 2-1 2 cr**

This course develops essential skills required for the community pharmacy practice. Focus is on prescription triage and counselling, patient assessment and education, effective communication, care plan development and documentation, working with in a health care team, use of home medical devices, immunization, lab ordering and interpretation. May not be held with PHRM 2100. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisites: PHMD 1002 and PHMD 1014.

**Mutually Exclusive:** PHRM 2100

**PHMD 2024 Applied Pharmacy Practice Lab 2-2 2 cr**

This course develops essential skills required for institutional pharmacy practice. Focus is on hospital prescription triage, medication distribution, patient assessment and education, discharge counselling, effective communication, care plan development and documentation, and working within a health care team. May not be held with PHRM 2100. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisites: PHMD 2022 and PHMD 2026.

**Mutually Exclusive:** PHRM 2100

**PHMD 2026 Clinical Therapeutics 2-1 4 cr**

Aspects of providing direct patient care are covered to identify, solve and prevent actual or potential drug-related problems. Emphasis is placed on the evaluation, selection and monitoring of drug therapy as it applies to patient care. May not be held with PHRM 3310. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisite: PHMD 1014.

**Mutually Exclusive:** PHRM 3310

**PHMD 2028 Clinical Therapeutics 2-2 4 cr**

Aspects of providing direct patient care are covered to identify, solve and prevent actual or potential drug-related problems. Emphasis is placed on the evaluation, selection and monitoring of drug therapy as it applies to patient care. May not be held with PHRM 3310. Registration is normally restricted to students in Year 2 of the program.

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

Prerequisite: PHMD 2026.

**Mutually Exclusive:** PHRM 3310

**PHMD 2030 Introductory Pharmacy Practice Experience - Hospital 4 cr**

This four week introductory rotation provides students with an opportunity to actively participate in patient care within a hospital pharmacy practice setting. Pharmacy students will build upon the knowledge, skills and abilities they have developed during the first two years of the Pharm.D. program. Opportunity will be provided to allow pharmacy students to continue to cultivate their patient care skills and gain personal clinical experiences working with a variety of patients and other members of the healthcare team within a hospital setting. Students will begin to make healthcare decisions with the help and guidance of a pharmacist preceptor. Area of focus include: the role of the hospital pharmacist as part of the healthcare team; understanding the patient chart; documentation of patient care; pharmaceutical care; ordering and interpreting lab values as required for the management of drug therapy; case presentations; drug information; patient/medication safety; and interprofessional practice. Registration is normally restricted to students in Year 2 of the program. Students will be graded on a pass/fail basis.  
**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisites: PHMD 2008, PHMD 2016, PHMD 2024 and PHMD 2028.

**PHMD 2040 Service Learning / IPE 2 1 cr**

This course is a continuation of PHMD 1040 and is an opportunity for students to further develop skills related to communication with a focus on patient advocacy and interprofessional collaboration. Registration is normally restricted to students in Year 2 of the program. Prerequisite: PHMD 1040. Students will be graded on a pass/fail basis.

**PHMD 3002 Applied Pharmacy Practice Lab 3 4 cr**

The course develops advanced skills required for pharmacy practice in all settings (i.e. community, hospital, and primary care). The focus is on interaction with patients and other health care professionals and the application of advanced knowledge, skills and values required for the provision of exemplary pharmaceutical care. May not be held with PHRM 3110 or the former PHRM 3100. Registration is normally restricted to students in Year 3 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisites: PHMD 2024 and PHMD 2028.

**PHMD 3004 Critical Appraisal of Pharmacotherapy Literature 2 cr**

This course develops skills in the critical appraisal of research in the fields of pharmacoepidemiology and pharmacoeconomics with emphasis on how this research may inform decisions regarding medication safety, drug approval, and drug evaluation. May not be held with PHRM 3520 or the former PHRM 3510. Registration is normally restricted to students in Year 3 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisite: PHMD 2004

**Mutually Exclusive:** PHRM 3510, PHRM 3520

**PHMD 3006 Advanced Clinical Therapeutics 6 cr**

A problem-based clinical therapeutics course that builds on PHMD 1014, PHMD 2026 and PHMD 2028. The emphasis is on the provision of pharmaceutical care to enhance students' ability to identify, resolve and prevent drug-related problems in advanced clinical scenarios. Registration is normally restricted to students in Year 3 of the program.  
**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisite: PHMD 2028.

**PHMD 3008 Concepts of Integrative Medicine 2 cr**

Introduction to the integrative medicine paradigm of health care. Systems of complementary and alternative medicine as well as utilization of natural health products are emphasized. May not be held with PHRM 3430. Registration is normally restricted to students in Year 3 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisite: PHMD 2028.

**PHMD 3010 Pharmacy Management 4 cr**

The course introduces basic business management concepts with a focus on pharmacy practice. The course will provide an introduction to strategic planning, marketing principles, human resource management and operational and financial management of different pharmacy practice areas. May not be held with PHRM 4230. Registration is normally restricted to students in Year 3 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisites: PHMD 2020 and PHMD 2030  
**Mutually Exclusive:** PHRM 4230

**PHMD 3012 Applied Professional Practice 3 cr**

This course offers the opportunity to explore professionalism, ethics and contemporary issues of the health care system. May not be held with PHRM 3230 or the former PHRM 3210. Registration is normally restricted to students in Year 3 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisite: PHMD 1000

**Mutually Exclusive:** PHRM 3210, PHRM 3230

**PHMD 3014 Clinical Therapeutics 3 8 cr**

A case-based therapeutics course that builds on PHMD 2028. The course will integrate knowledge from previous pharmacy courses with newly acquired therapeutic knowledge, incorporating critical evaluation skills and clinical judgment into clinical case topic discussions in order to enhance students' ability to identify, resolve and prevent drug-related problems for individual patients. Not to be held with PHRM 4310.

Registration is normally restricted to students in Year 3 of the program.  
**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisite: PHMD 2028.

**PHMD 3016 Toxicology of Medications and Drugs of Abuse 2 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. May not be held with PHRM 4450. Registration is normally restricted to students in Year 3 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisites: PHMD 2016 and PHMD 2028.

**PHMD 4010 Pharmacy Research Methods 6 cr**

This course is designed to give students a foundation in the principles of developing a research plan. Students will acquire the skills and knowledge to develop a Pharmacy related research plan. Registration is normally restricted to students in Year 4 of the program.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**  
 Prerequisite: PHMD 3004. Students will be graded on a pass/fail basis.

**PHMD 4020 Advanced Pharmacy Practice Experience- Community 8 cr**

This eight week rotation focuses on the provision of patient focused pharmacy care in a community pharmacy practice setting. Pharmacy students will complete rotations at community pharmacy practice sites offering an expanded scope of pharmacy practice. Pharmacy students will build upon the knowledge, skills and abilities they have developed during the first three years of the PharmD curriculum to further refine their clinical skills in preparation to enter independent practice. As Pharmacy Interns students will serve as an active member of the healthcare team and provide safe and effective care under the indirect supervision of a pharmacist preceptor to a variety of patients presenting with chronic and acute conditions. Registration is normally restricted to students in Year 4 of the program.

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

Prerequisites: PHMD 2020 and PHMD 3006 and PHMD 3014. Students will be graded on a pass/fail basis.

**PHMD 4030 Advanced Pharmacy Practice Experience- Hospital 8 cr**

This eight week clinical rotation focuses on the provision of patient focused pharmacy care in a collaborative healthcare practice setting e.g. hospital, long-term care, and ambulatory. Pharmacy students will apply the knowledge, skills and abilities they have developed during the previous three years of the PharmD program to further refine their clinical skills in preparation to enter independent practice. Students will serve as an active member of the healthcare team incorporating professional, legal and ethical principles; identifying and resolving drug therapy problems; providing drug information and patient education. As Pharmacy Interns students will gain clinical experience providing safe and effective, patient focused and evidence-informed care to a variety of patients (under the indirect supervision of a pharmacist preceptor) with acute and chronic conditions and across all levels of care offered within the institution as well as for patients in the transitions between levels of care. Registration is normally restricted to students in Year 4 of the program.

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

Prerequisites: PHMD 2030 and PHMD 3006 and PHMD 3014. Students will be graded on a pass/fail basis.

**PHMD 4040 Advanced Pharmacy Practice Experience-Primary Care 8 cr**

This eight week clinical rotation focuses on the provision of patient focused pharmacy care in a primary care site. Pharmacy students will apply the knowledge, skills and abilities they have developed during the previous three years of the PharmD program to further refine their clinical skills in preparation to enter independent practice. Students will serve as an active member of the interprofessional healthcare team incorporating professional, legal and ethical principles; identifying and resolving drug therapy problems; providing drug information and patient education. As Pharmacy Interns students will gain clinical experience providing safe and effective, patient focused and evidence-informed care to a variety of patients collaboratively with the interprofessional team under the indirect supervision of a pharmacist preceptor. Registration is normally restricted to students in Year 4 of the program.

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

Prerequisites: PHMD 2020 and PHMD 3006 and PHMD 3014. Students will be graded on a pass/fail basis.

**PHMD 4060 Advanced Pharmacy Practice Experience- Elective 8 cr**

Project-based course offering students opportunities for experiential learning in specialty areas of professional practice, in advocacy activities, and in health-related community service. 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 and evaluations by preceptors. Registration is normally restricted to students in Year 4 of the program.

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

Prerequisites: PHMD 3006 and PHMD 3014. Students will be graded on a pass/fail basis.