

THIRD YEAR SELECTIVE AND ELECTIVE COURSE ENROLMENT 2017-18

Students entering Third Year in September must enrol in one elective course for the fall term. They must also enrol in four selective and two elective courses for the winter term. Please see pages 2 to 10 for detailed information on selective and elective course enrolment requirements.

Important Notes:

- Students may not enrol in more than the required number of selective and elective courses.
- The Faculty normally requires a minimum enrolment of **15** students for an elective course to be offered.

Course Enrolment Deadlines:

Students enrol in selective and elective courses on ACORN/ROSI. The enrolment period begins on **Wednesday, July 5 at 6:00 a.m.** and continues until **Friday, August 11.**

After August 11, changes to your initial selective and elective course selections can be made, space permitting, as follows:

- For your fall term elective course: from Thursday, September 7 to Wednesday, September 20.
- For your winter term selective and elective courses: from Thursday, September 7 to Tuesday, January 16.

Maximum Enrolment and Waiting List Information:

Some courses have maximum enrolments. For these courses, if the maximum enrolment is reached, you may request to be put on a waiting list, using the 'waitlist' feature on ACORN/ROSI. If a space then becomes available, and you are next on the waiting list, you will automatically be enrolled in the course. An e-mail message will be sent to your UofT e-mail account notifying you that you have been enrolled into a course from the waiting list.

The waiting list feature on ACORN/ROSI is available as follows:

- For your fall term elective course: from Wednesday, July 5 to Friday, September 15.
- For your winter term selective and elective courses: from Wednesday, July 5 to Thursday, January 11.

If you join the waiting list for a course where the maximum capacity has been reached, your enrolment status for that course on ACORN/ROSI will be 'WAIT'. If you change your mind and decide you no longer want to be on the waiting list, you should drop your waitlisted course.

Being on a waiting list for a course does not guarantee that you will obtain a spot in the course. Therefore, you should enrol in an alternative course as a back-up.

There will be no movement on the waiting list during the period when course adds and drops are not permitted (i.e., from August 12 to September 6).

ELECTIVE COURSES – FALL TERM

Students must enrol in ONE of the following fall term elective courses:

Course Number	Section Code	Meeting Section	Course Name	Maximum Enrolment
PHM320H1	F	L0101	Global Pharmaceutical Policy	40
PHM321H1	F	L0101	Selected Topics in the Pharmaceutical Industry	240
PHM323H1	F	L0101	Molecular Mechanisms of Drug Action	15
PHM325H1	F	L0101	Aboriginal Issues in Health and Healing	18
PHM383H1	F	L0101	Antimicrobial Stewardship	240
PHM389H1	F	L0101	Research Project	n/a

Course Descriptions

PHM320H1 Global Pharmaceutical Policy

J. Kohler

This course is designed for students who are curious to learn about pharmaceutical public policy at the global level and also to explore the interrelationship between global and domestic health public policy issues, particularly those related to political economy and the governance of the pharmaceutical system. There are no prerequisites required but students are strongly recommended to have taken at least one social science or public health course given the ample reading and research requirements. Particular emphasis will be placed on how governments in different jurisdictions manage their public health responsibilities, particularly in terms of providing access to essential medicines and human development objectives, the tension between economic and health objectives, global trade obligations and their impact on access to medicines, and how pressure from special interest groups are relevant to pharmaceutical policy. Corruption issues will also be addressed. This course encourages a large amount of student participation through group work, discussion, presentations, and debate. Accordingly, students will need to keep up with the weekly readings in order to ensure that they are prepared for the class.

PHM321H1 Selected Topics in the Pharmaceutical Industry

M. Gautam

This course is designed to expose students to the pharmaceutical and biopharmaceutical industries, its environment, inner workings, and approach to engaging customers and stakeholders. The course outlines the business model of the industry and covers both drug development and commercialization, from international and Canadian perspectives. The course is intended to broaden the students' understanding of the industry, introduce critical concepts and terminology, build confidence and prepare students who may seek a career in the industry.

PHM323H1 Molecular Mechanisms of Drug Action

S. Angers

The proteins and nucleic acids that are the targets of most prescribed drugs can be classified according to their structure and mechanism of action at the molecular level. In this course, basic concepts of enzyme action such as the mechanisms of enzyme catalysis, the Michaelis-Menten and pre-equilibrium equations, steady-state approximations, allostery and cooperativity will first be covered. Major classes of therapeutic targets will then be discussed with an emphasis on their normal biochemical roles that are exploited for therapeutic intervention. The mechanisms of action of drugs acting on enzymes (antiviral and antimicrobial agents) on nucleic acids and on the cytoskeleton (anti-cancer agents) will be of special interest. The concept of rational cancer therapy will also be covered with examples of drugs targeting growth factors signalling pathways that are dysregulated in cancers.

PHM325H1 Aboriginal Issues in Health and Healing

D. Burman

This course examines the many issues surrounding the health of aboriginal people living in Canada. During the 13 weeks of class, students will come to understand the present day health issues of aboriginal peoples from the perspective of their historical and political context and the effects of health care policy. The many highly qualified speakers from the Aboriginal community and its focus on health and healing process make this course unique in the university. Optional, but strongly recommended, field trips include a “medicine walk” on the Six Nations reserve in which students will be able to see firsthand the source of some of the herbal preparations that are used in healing, and a purification (sweat) lodge ceremony outside the city. The course is enriched by its association between students of the Leslie Dan Faculty of Pharmacy and the Aboriginal Studies program in the Faculty of Arts and Science, many of whom are of Aboriginal origin.

PHM383H1 Antimicrobial Stewardship

M. So

Antimicrobial Stewardship is an inter-disciplinary, multi-faceted approach to optimize antimicrobial use. While the ultimate goal of Antimicrobial Stewardship is to improve patient outcome, appropriate and effective use of antimicrobials is an important component to control antimicrobial resistance, minimize unintended consequences such as *C. difficile* infections, and to contain health care costs. As of 2013, presence of an active Antimicrobial Stewardship Program has been made a Required Operating Practice for acute care hospitals and long-term care facilities by Accreditation Canada. This course expands and deepens knowledge gained from the Year 2 Infectious Diseases Pharmacotherapy and Microbiology courses, with an emphasis on clinical application within the antimicrobial stewardship context. It will introduce students to the principles of antimicrobial stewardship to facilitate rational selection of antimicrobial regimens; stewardship interventions; quality improvement methods; as well as program development, implementation and evaluation. The course culminates to a team proposal presentation for an antimicrobial stewardship program based on a fictitious institution’s profile. Each team is tasked with convincing a panel of judges, who in practice are antimicrobial stewardship clinicians or program executives, to support their proposed program.

PHM389H1 Research Project

S. Cadarette and K.S. Pang

This course is designed to introduce to students the philosophy, methodology and performance of research in scientific fields offered by faculty members with graduate faculty status at the Leslie Dan Faculty of Pharmacy. The research will involve the review of pertinent scientific literature and generation of new information. Depending upon the project and the supervisor, the research may be conducted in a laboratory at the Faculty, in a hospital, community pharmacy, pharmaceutical company, etc. Fields of study include: medicinal chemistry, pharmaceuticals, pharmacokinetics, pharmacoepidemiology, pharmacy administration and pharmacoconomics, radiopharmacy, receptor biology, drug metabolism, therapeutics, and toxicology. Students are required to obtain prior written consent of the supervisor and course coordinator.

- Students considering enrolling in PHM389H1 are encouraged to initiate the process for finding a supervisor well ahead of the deadline for adding courses in whichever term they are considering taking the course.
- Written consent from a member of the Graduate Department of Pharmaceutical Sciences is required.
- Detailed course information, including information on application procedures, may be found at <http://www.pharmacy.utoronto.ca/pharmd/year-3-research-project>.
- PHM389H1 cannot be added via ACORN/ROSI. A course add form must be completed and submitted to Linda Chung, Room 424, once the necessary approvals have been received.
- Academic credit will not be granted for research/work which contributes to PHM389H1 if remuneration is received for such work.

SELECTIVE COURSES – WINTER TERM

Students must enroll in ONE of the following three selective courses:

Course Number	Section Code	Meeting Section	Course Name	Maximum Enrolment
PHM350H1	S	L0101	Pharmacotherapy in Ambulatory Care	240
PHM351H1	S	L0101	Pharmacotherapy in Institutional Care	240
PHM353H1	S	L0101	Pharmacotherapy in Critical Care	240

Course Descriptions

PHM350H1 Pharmacotherapy in Ambulatory Care

J. Hunchuck

Ambulatory care pharmacists are accountable for addressing drug therapy needs and developing sustained partnerships with patients in an outpatient environment. They practice in primary care, family health teams, community pharmacies and specialty clinics. This practice can be independent or in a collaboration with other health care providers. Ambulatory care pharmacists require the knowledge and skills to triage, prescribe, administer and monitor medication therapies. They provide pharmaceutical care to patients with a variety of medical conditions and levels of acuity. This course will provide students with the knowledge, skills, and values to be a contemporary ambulatory care practitioner with an emphasis on ambulatory care sensitive conditions and the evolving scope of pharmacy practice.

PHM351H1 Pharmacotherapy in Institutional Care

V. Teo

Institutional pharmacists are accountable for addressing drug therapy needs with patients in an inpatient environment. Students will learn to apply therapeutics that are commonly seen when caring for a hospitalized patient. Some of the topics included are: IV therapeutics (fluid and electrolytes), acute pain management, VTE prophylaxis, diabetic ketoacidosis and in-hospital management of diabetes, perioperative medication management. Topics may include a brief introduction to critical care and some aspects of emergency medicine. Aspects of patient and medication safety will be integrated into the course.

PHM353H1 Pharmacotherapy in Critical Care

C. Chant and N. Dewhurst

This course is designed to expose students to hospital-based clinical pharmacy practice, with a focus on the Intensive Care Unit (ICU). Various topics that encompass commonly encountered clinical conditions of patients in the ICU will be discussed, with an emphasis on the role of pharmacotherapy. Students will also be introduced to the role of multidisciplinary team members integral to the ICU including the respiratory therapist, nurse, ethicist and intensivist (pending availability). The course will be taught using traditional classroom lectures, case-based discussions, small-group learning projects, and self-directed learning. Student participation both within the classroom and online, and in group work assignments is expected.

Students must enroll in ONE of the following three selective courses:

Course Number	Section Code	Meeting Section	Course Name	Maximum Enrolment
PHM352H1	S	L0101	Pharmacotherapy in Older Adults	240
PHM354H1	S	L0101	Pharmacotherapy in Pediatrics	240
PHM355H1	S	L0101	Pharmacotherapy in Women's Health	240

Course Descriptions

PHM352H1 Pharmacotherapy in Older Adults

TBD

Growth in the proportion of the population over age 65 is expected to place significant demands on the Canadian health care system. Pharmacists must be prepared to effectively manage the pharmacotherapy in older patients in order to achieve optimal individual and health system outcomes. This selective course will prepare students for their future roles in geriatric practice through the development of specific competencies in the knowledge and application of pharmaceutical care for older adults. This course will cover demographics, biology of aging, socioeconomic, ethical issues, informed consent, elder abuse, and beliefs and barriers regarding health care and medication use in older individuals. Communication issues, unique needs of caring for seniors, and barriers to medication taking will also be addressed. Specific pharmacotherapy of conditions prevalent in the elderly, including movement disorders, dementia, Parkinson's disease, urinary incontinence, and specific drug-induced illnesses will be covered. This course will rely on case-based discussions to enable students to develop skills integral to patient assessment and optimizing drug therapy in the older adult with complicated disease and medication history.

PHM354H1 Pharmacotherapy in Pediatrics

S. Boodhan and J. Chen

This course builds on general knowledge and skills gained in the first three years of pharmacotherapy courses. It allows students to gain the fundamental pharmacotherapeutic knowledge and practice skills to care for patients from the neonatal period to the adolescent years. In addition to covering evidence based pharmacotherapy of several pediatric conditions, the course integrates relevant normal development and physiology (fetal, neonatal, infant, child and adolescent), pathophysiology, clinical pharmacokinetics, medication safety, poison prevention, and patient (through the ages) and caregiver education. Each week the course will consist of two hours of didactic lectures and group case discussions primarily presented by clinical pharmacy staff from Sickkids Hospital. The course allows students to effectively manage pediatric patients' medication therapy in selected pediatric conditions, prepares the student for pediatric direct patient care (DPC) and non-direct patient care (NDPC) rotations, and encourages a career in pediatric pharmacy practice.

PHM355H1 Pharmacotherapy in Women's Health

T. Brown

Medications used in the care of Canadian women are amongst the most commonly prescribed pharmaceuticals. This course is designed to allow the student to obtain fundamental pharmacotherapeutic knowledge of medications used from menarche to menopause. This course will encourage students to develop a practice that provides quality care to women.

Students must enroll in ONE of the following two selective courses:

Course Number	Section Code	Meeting Section	Course Name	Maximum Enrolment
PHM360H1	S	L0101	Personalized Medicine	240
PHM361H1	S	L0101	Latest Developments in Drugs and Biologics	96

Course Descriptions

PHM360H1 Personalized Medicine

M. Erlik and M. Piquette-Miller

This course builds upon fundamental pharmacokinetic concepts taught in the first and second years in order to understand, describe and predict the sources of intra- and inter-individual variability in drug disposition and response in different patient population groups. The course is designed for students to understand the underlying basic principles used to individualize drug and dosage regimens for patients based on genetic, physiological and environmental factors. Critical evaluation of evidence and review of current guidelines or recommendations for dose or drug adjustments based on genetic factors and the potential for drug-diet, drug-drug or drug-disease interactions will be covered. The format of the course to address these issues will be student presentations and in-class discussion of specific questions that are designed to illustrate these points.

PHM361H1 Latest Developments in Drugs and Biologics

L. Kotra

This course will cover all aspects of new drugs and biologics approved in the preceding 12 month period, together with those that entered phase III clinical trials during the same period. This is a unique course in the curriculum that will discuss the latest on new drugs and biologics. Approximately 50% of the lectures will be delivered using traditional methods, covering new drugs and for the remainder of the classes, pre-selected pharmacy student groups will present their projects in new drugs and biologics. Instruction materials and reference materials will be drawn from Health Canada, FDA, scientific literature and drug information files.

Students must enroll in ONE of the following two selective course:

Course Number	Section Code	Meeting Section	Course Name	Maximum Enrolment
PHM370H1	S	L0101	Community Pharmacy Management	240
PHM371H1	S	L0101	Institutional Pharmacy Practice Management	240

Course Descriptions

PHM370H1 Community Pharmacy Management

J. Ahmad

A comprehensive program outlining the issues and topics which are critical in the successful operation of a community pharmacy practice including: selection of organizational structures, demographic review, financial analysis, business plan development, purchasing and financing a community pharmacy, operational workflow, financial management, risk management and insurance, inventory purchasing procedures and inventory management, pricing decisions, marketing strategy, advertising, sales promotion and salesmanship, ethics, security and general business policies. Building on the basic principles taught in PHM215H1, this course expands into a case based learning application of business administration which offer students exposure to Finance, Operations, Organizational Behaviour, Innovation and General Management as applied to the field of Pharmacy and Healthcare. The cases will provide students with the opportunity to develop skills for effective analysis, evaluation and problem-solving. To do this, students will learn about basic analytical tools (e.g., projections, break-evens, communication, organization theory) and will then be required to apply these tools using case methodology. Students will be given the opportunity to practice decision-making with imperfect information under time constraints and develop business writing skills. Preparation of a detailed business plan will also be a mandatory component for this course.

PHM371H1 Institutional Pharmacy Practice Management

TBD

This course builds on the administrative, managerial and human resource principles presented in the prerequisite course, PHM215H1, with specific application to managing a pharmacy practice in an institutional setting. By means of lectures and assigned readings, students will explore institutional responses to health system changes and the “managed care environment”, the re-engineering of pharmacy practice, strategies for outcome and process improvement, workload management systems and professional accountability. Other topics will include the role of Pharmacy within the larger hospital environment including the interdisciplinary team and the importance of Family and Patient Centered Care.

ELECTIVE COURSES – WINTER TERM

Students must enroll in TWO of the following winter term elective courses:

Course Number	Section Code	Meeting Section	Course Name	Maximum Enrolment
PHM322H1	S	L0101	Patient/Medication Safety	50
PHM381H1	S	L0101	Medical Imaging for Pharmacists	50
PHM382H1	S	L0101	Nanomedicines in Oncology	24
PHM384H1	S	L0101	Teaching and Learning	30
PHM385H1	S	L0101	Diabetes Care	240
PHM386H1	S	L0101	Mental Health and Addiction	240
PHM387H1	S	L0101	Global Health	50
PHM388H1	S	L0101	Minor Ailments	240
PHM389H1	S	L0101	Research Project	n/a
PHM391H1	S	L0101	Current Compounding Topics and Practice Issues	25

Course Descriptions

PHM322H1 Patient/Medication Safety

C. Ho

This course will look at patient safety and the potential for medication incidents from two aspects: (1) the medication-use system (e.g., prescribing, order entry, dispensing, administration, and monitoring of drug therapy); and (2) professional practice (e.g., preventable adverse drug events). It will build on topics previously covered in the curriculum, as well as additional materials related to the Institute for Safe Medication Practices Canada, the Canadian Patient Safety Institute, and the concept of continuous quality improvement in pharmacy practice.

PHM381H1 Medical Imaging for Pharmacists

R. Reilly

This course will discuss the principles and applications of medical imaging in patient care. There will be an emphasis on radiopharmaceuticals and nuclear medicine imaging (SPECT and PET) but other imaging technologies will be discussed including MRI, ultrasound, X-ray, mammography and CT. These technologies are applied in diagnosing infectious disease, cancer, cardiovascular disease, hepatobiliary and renal dysfunction, and neurological disorders. The emerging role of molecular imaging using PET and SPECT in selecting patients for personalized medicines for cancer as well as monitoring response to these new therapies will be introduced.

PHM382H1 Nanomedicines in Oncology*C.J. Allen*

This course covers a range of topics that pertain to the development and application of nanomedicines in oncology. Students will gain an understanding of the biological barriers to drug delivery in oncology as well as the tremendous heterogeneity in cancer and the challenges this presents for treatment. The concepts of passive and active targeting of nanomedicines will be covered with critical assessment of the enhanced permeability and retention effect. A detailed overview of the most advanced nanotechnology-platforms for drug delivery (i.e., liposomes, block copolymer micelles and polymer-drug conjugates) will be provided with additional discussion of new emerging platforms. The integration of imaging in drug development and development of theranostics and therapeutic-diagnostic pairs will also be discussed. Special emphasis on critical evaluation of scientific literature and pre-clinical/clinical studies will be made throughout the course.

PHM384H1 Teaching and Learning*E. Haddadi*

The educator role for pharmacists is broad and involves diverse roles, including teaching patients, designing and delivering continuing education, mentoring/precepting students, and educating other care professionals in small and large group settings. In order to provide students with the knowledge, skills, and abilities necessary to fulfill this mandate, a course in educational theories and methods is important. Material from this course will be applied in a practical sense to pharmacy practice courses and experiential learning activities. Specific topics to be covered in the course will include: development of behavioural learning objectives, learning theories, teaching techniques for various audiences, assessment tools, methods, and techniques and educational practice as a professional.

PHM385H1 Diabetes Care*H. Halapy*

This course provides many of the theoretical and practical aspects of diabetes management needed in providing comprehensive diabetes care. The goals and objectives of the course are modeled on the requirements for the Certified Diabetes Educator Exam and will provide much of background needed in preparation for writing this exam. Topics covered in the course include (but are not limited to): review of the diabetes disease processes, nutrition and exercise management of diabetes, self-care strategies and strategies to reduce the risk of complications due to diabetes, management of hypo- and hyperglycemia, appropriate blood glucose monitoring, management of diabetes in special situations such as diabetes in pregnancy, in children, adolescents and the elderly, and management of complex patients.

PHM386H1 Mental Health and Addiction*M. Zhang*

This course is designed to build on the psychiatry components of the curriculum core courses. The course will focus on the pharmacotherapy of mental health and addiction disorders not covered in previous courses including personality disorders, attention deficit hyperactivity disorder (ADHD) and chronic pain with opioid addiction. In addition, it will provide the opportunity to examine mental health and addiction disorders in more depth. This will include strengthening the understanding of psychiatric diagnoses, comorbid mental health and addiction disorders and the role of stigma. The course will also explore the relationship between the mental health system and the legal system, the role of non-pharmacologic treatments, including electroconvulsive therapy and psychotherapy. This course will contribute to developing specialized skills required to provide effective care in this population, for example, communication skills, outcome measurement training (e.g., drug induced movement disorder scales, psychiatric symptom scales) and therapeutic drug monitoring.

PHM387H1 Global Health*D. Cheng*

Global Health is defined as an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide by reducing avoidable diseases, disabilities, and deaths. This elective will introduce students to selected foundational competencies in global health education such as the global burden of disease, social and economic determinants of health, the globalization of health and healthcare, global health governance, human rights and equity. Students will discuss practical and ethical challenges in delivering care in low-resource settings, describe tools and strategies to address the needs of specific vulnerable populations and examine cultural awareness and its importance in caring for diverse vulnerable populations.

PHM388H1 Minor Ailments*N. Nakhla*

The management of minor, self-limiting and self-diagnosed ailments such as rashes, cold sores and hay fever is within the scope of practice for pharmacists. This course is designed to build and enhance students' knowledge and skills necessary for contemporary and future pharmacy practice in the area of self-care and minor ailments. This course will cover the management of conditions not covered in other courses and will provide the students' with a comprehensive understanding of non-prescription and prescription therapeutics as they relate to patient self-medication and minor ailments. Emphasis will be placed on the role and responsibility of the pharmacist in accurately assessing and triaging patients, determining the appropriate use of non-prescription and prescription drugs, by determining when to follow-up, refer, and how to document the patient's care. The student will be equipped with the clinical skills, confidence, and tools needed to gather and convey reliable minor ailment information to patients and healthcare providers in an effort to effectively and confidently assess and treat patients. With this knowledge and a structured framework for conducting a minor ailments assessment, students will be able to help patients make appropriate decisions and achieve optimal outcomes from their selected, evidence-based therapy. The main course material will be presented as case-based didactic lectures; student participation in class discussions and interactive classroom activities will be expected. There will be an opportunity for application of the concepts discussed in lectures via simulated patient counselling activities, case-based group learning, and self-directed activities.

PHM389H1 Research Project

Please refer to the course description on page 3.

PHM391H1 Current Compounding Topics and Practice Issues*V. Riss*

Pharmacists are expected to understand and comply with Health Canada's directives (policies) regarding the distinction between manufacturing and compounding of medications, and with relevant federal and provincial/territorial legislation. Pharmacy graduates should be able to interpret literature, comply with current compounding guidelines and regulations, assess formulation risks, and make appropriate decisions on how to safely compound, label, and choose the correct administration route for compounded products. This course builds upon knowledge and skills gained in PHM141H1 Pharmaceutics, PHM212H1 Research Methods in Pharmacy and PHM241H1 Topics in Pharmaceutical Quality and Clinical Laboratory Medicine, and will explore core principles of sterile and non-sterile compounding in pharmacy. The course will cover a broad range of hazardous and non-hazardous parenteral and oral products with respect to compounding and safety aspects whenever such preparations and products are intended for human use. Students will develop foundational knowledge in compounding methods, safe use of parenteral and oral compounded products, parenteral routes of administration, stability and solubility, and managing product shortages.