New Course Outline

- The PharmD Approval Process for New Course Outlines document provides for more information on next steps and approval timelines.
- The Course Outline Submission Overview document provides more detailed guidelines on course learning objectives, topic outlines/scheduling requirements, and assessment methods.
- The AFPC Educational Outcomes for Professional Programs document provides complete information on roles and key competencies for Pharmacy Degree Programs.

Course Number: PHM203H1

Course Title: Infectious Diseases Pharmacotherapy

Outline Version Code:

Course Description:

This course is designed to provide students with the knowledge in pathobiology, pharmacology, pharmacotherapy, clinical pharmacokinetics and relevant pharmaceutics required to be a practitioner in infectious diseases therapeutics. The course will be taught using a variety of techniques including online lectures, case-based learning and small interactive group learning.

Semester:
☐ Fall  ☒ Winter  ☐ Summer

Course Type:
☐ Elective  ☐ Selective  ☒ Mandatory

1. Course Learning Objectives:
Upon completion of this course, students will have achieved the following level of learning objectives:
Introductory = knowledge and comprehension of concepts, definitions
Intermediate = application of concepts to simple situations
Advanced = application of concepts to more complex situations with ability to synthesize and evaluate
**Knowledge**

**Introductory Level:**

Identify the appropriate laboratory, clinical biochemistry, pathology and histology, microbiology and medical imaging findings related to the clinical findings and diagnosis.

**Intermediate Level:**

Discuss the following etiology, pathophysiology, epidemiology, clinical presentation, risk factors, and natural history.

- Compare and contrast the relevant available, investigational, complementary and alternative, and emerging classes of agents (penicillins, cephalosporins, carbapenems, aminoglycosides, macrolides, tetracyclines, fluoroquinolones, glycopeptides, lincosamides, metronidazole, cotrimoxazole, polyenes, azoles, echinocandins, antivirals, antiretrovirals) and justify their use.

- List commonly used resources and sources of evidence for drug therapy management in infectious diseases.

**Advanced Level:**

**Skills**

**Introductory Level:**

Select a preferred alternative for an empiric antimicrobial regimen for a given infectious diseases therapeutic scenario based on assessment of relevant therapeutic alternatives.

- For a given clinical situation, demonstrate application of the concepts of: concentration---dependent versus time----dependent killing; bactericidal versus bacteriostatic activity in the selection of a preferred therapeutic alternative.

- Select /apply/interpret relevant data from: review of systems (ROS), biochemistry laboratory results

- Develop a care plan with follow up monitoring for a given clinical situation.

- Describe how the proposed interventions of the care plan to meet the stated goals of therapy.

- Select, critically appraise, and apply scientific literature in the area of infectious diseases to the development of pharmacotherapy decisions, specifically application of in vitro and in vivo (animal model) analyses, observational cohort data, randomized control trials, meta---analysis, and clinical guidelines.
- Differentiate potential drug delivery systems or formulations of antimicrobial agents considered in selecting the most appropriate product for the management of the selected ID syndromes (e.g. topical versus intravenous)

Intermediate Level:

Select a preferred alternative for the targeted therapy of a given infectious diseases therapeutic scenario based on assessment of relevant therapeutic alternatives.

Advanced Level:

**Attitudes/Values:**

Introductory Level:

Intermediate Level:

The student will undertake assessment and care plan development activities in a manner respecting patient autonomy and the individual therapeutic goals.

- The student will use interprofessional patient centered care principles to reach decisions for therapeutic alternatives.

- The student will demonstrate respect and collaboration in team functioning

Advanced Level:
2. Rationale for Inclusion in the Curriculum:

Infectious diseases are common, encompass a broad spectrum of patient settings and levels of acuity of illness. The knowledge of how to optimally manage patients with a variety of infectious diseases is essential for a pharmacist irrespective of practice setting.

3. Pre-requisites:

PHM242H1 – Microbiology of Infectious Diseases

4. Co-requisites:

- MTM 3
- Physical assessment – ability to perform or interpret a general review of systems

5. Course Contact Hours and Teaching Methodologies:

<table>
<thead>
<tr>
<th>Didactic (lecture)</th>
<th>Hours: 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large group problem-based/ case-based learning (group size: 60 )</td>
<td>Hours: 12</td>
</tr>
<tr>
<td>Laboratory or Simulation</td>
<td>Hours:</td>
</tr>
<tr>
<td>Tutorial/Seminar/Workshop/Small Group</td>
<td>Hours:</td>
</tr>
<tr>
<td>Experiential</td>
<td>Hours:</td>
</tr>
<tr>
<td>On-line</td>
<td>Hours:</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>Hours:</td>
</tr>
</tbody>
</table>

**Total Course Contact Hours**

**Hours: 39**

6. Estimate and description of student's weekly out-of-class preparation time excluding exam preparation:

- Review online lecture (captured as part of course hours) - 3-6 hours per week
- Review material for problem-based learning workshops - 5 hours per week

7. Topics Covered and Lecture Specific Learning Objectives

**Week 1**

**Lecture Topic:** Course Overview; ID Fundamentals; Antimicrobial Pharmacology; Antibiotic Allergies

**Lecture Learning Objectives:**

ID Fundamentals: To explain the broad principles governing use of antimicrobials (including basic microbiology testing and interpretation); To review common terminology used in infectious diseases to be able to describe the common mechanisms of activity and resistance; To be able to give an example of an antibiotic working by each mechanism to identify major strengths, weaknesses, and toxicities of the classes of antimicrobials presented.
Antimicrobial Pharmacology: To briefly review the steps of bacterial protein synthesis; To identify the MOA of representative protein synthesis inhibitors; To identify the mechanisms of resistance to these agents; To describe the steps of nucleic acid replication; To explain the MOA of fluoroquinolones; To identify the mechanisms of resistance to these agents; To briefly identify other agents from these classes.

Antibiotic Allergies: To provide an overview of the immunologic mechanisms and types of presentations involved in antibiotic reactions.

**Week 2**
**Lecture Topic:** PK/PD of Antimicrobials; Pharmaceutics of Oral Suspensions; Skin and Soft Tissue Infections (pathophysiology)

**Lecture Learning Objectives:**

PK/PD of Antimicrobials: Which PK/PD parameter best correlates with antimicrobial agent activity; What magnitude of PK/PD parameter is required for activity in vivo; What is the correlation with microbiological and clinical outcome; Determine the regimen/patient which optimizes antibiotic exposure based on drug and pathogen to improve outcome.

Pharmaceutics of Oral Suspensions: To review the basics of formulation of oral suspensions (e.g. particle size, stability) - material at the discretion of expert lecturer.

Skin and Soft Tissue Infections (pathophysiology): 1. Discuss the pathogenesis of IE. 2. Discuss the epidemiology, etiology, risk factors, clinical manifestations, diagnosis, complications and surgical indications in bacterial infective endocarditis. 3. Discuss treatment approach based on patient presentation; empiric, PV, NV, pathogen specific. 4. Recommend an appropriate regimen for a given clinical scenario.

**Week 3**
**Lecture Topic:** PK/PD of Vancomycin and Aminoglycosides

**Lecture Learning Objectives:**

To provide an overview of the pharmacokinetics and dynamics of aminoglycosides and vancomycin and their application to dosing.

**Week 4**
**Lecture Topic:** Clostridium difficile Infection; Influenza; Pneumonias (pathophysiology)

**Lecture Learning Objectives:**

Clostridium difficile: Discuss the routes of transmission of Clostridium difficile, describe the changing epidemiology of colonization and infection with Clostridium difficile, including characteristics of the epidemic NAP1 strain, describe the microbiological properties and characteristics of Clostridium difficile; discuss the definitions and pathophysiology for initial C. difficile infection (CDI), severe/complicated, and recurrent infection, identify patients at risk for C. difficile, recurrence and poor outcomes, describe the clinical course, presentation, and complications of C. difficile infection, review diagnostic methods for confirming CDI (i.e. Enzyme Immunoassay (EIA), PCR, Cytotoxin Assay), including the challenges and controversies in each detection.
method, outline appropriate hygiene and isolation precautions for infected patients, compare and contrast the available treatment options for CDI, for first, severe/complicated, and recurrent infection, discuss the role of probiotics in prevention of CDI.

Influenza: 1. Describe the general morbidity and mortality of influenza in different patient groups. 2. List complications of influenza infection. 3. Describe the life cycle of the influenza virus. 4. Identify the influenza type that is in current circulation in Canada. 5. Differentiate between antigenic drift and antigenic shift. 6. List the signs and symptoms of influenza illness. 7. Compare and contrast influenza with the common cold. 8. List the signs and symptoms of influenza illness. 9. Compare and contrast influenza with the common cold. 10. List the appropriate treatment options for CDI. 11. Differentiate between antigenic drift and antigenic shift. 12. Compare and contrast influenza with the common cold. 13. Recommend an appropriate treatment regimen for influenza based on patient-specific data.

Pneumonias: List the diagnostic tests, sign and symptoms which is used to diagnosis a patient with pneumonia. Contrast the differences between Acute Bronchitis and Pneumonia. Describe the pathophysiology of community-acquired pneumonia (CAP). List the pathogens which are commonly associated with CAP and HAP. Define why hospital acquired pneumonia is challenging to diagnosis. Identify the site management of this patient with CAP by using the pneumonia scoring systems, Pneumonia severity index and CURB-65.

**Week 5**
**Lecture Topic:** TB/Global Health

**Lecture Learning Objectives:**

State the magnitude of the global tuberculosis problem in terms of disease morbidity, mortality and distribution; Identify the major risk factors for TB infection and disease; Describe the immune response and pathophysiology from time of infection to expression of active disease; Explain the diagnostic methods used to diagnose latent and active TB (i.e. Direct and indirect susceptibility testing, mantoux test, chest x-ray, sputum for AFB); Describe a typical clinical presentation of active disease, stating the major diagnostic findings; Identify the different effective treatment regimens using the first-line anti-TB drugs.; Explain the rationale for the use of combination versus monotherapy; Describe the side effects of the first-line anti-TB drugs, and identify relevant monitoring parameters; Discuss the implications of adherence for development of MDR and XDR-TB.

**Week 6**
**Lecture Topic:** Pharmacology of Antifungal Agents; Multi-Drug Resistant Organisms; Urinary Tract infections (pathophysiology)

**Lecture Learning Objectives:**

Pharmacology of Antifungal Agents: provide an overview of the mechanism of action, spectrum and side effects of the most commonly-used antifungal agents (polyenes, azoles, echinocandins).

Multi-Drug Resistant Organisms: describe the epidemiology, mechanisms of, risk factors for, clinical outcomes of and management of the most commonly-encountered resistant organisms (MRSA, VRE, beta-lactamase producers)
UTIs: 1. Differentiate between lower and upper urinary tract infections, defining asymptomatic bacteriuria, cystitis, pyelonephritis, and prostatitis. 2. Outline the differences between uncomplicated and complicated urinary tract infections. 3. Identify the most common organisms which cause urinary tract infections. 4. Describe the antimicrobial resistance patterns of UTI pathogens within Toronto/Ontario. 5. Describe the various routes in which bacteria enter the urinary tract and cause infection. 6. List the risk factors for acquiring a urinary tract infection. 7. Discuss the pathogenesis of urinary tract infections and how host defense mechanisms and bacterial virulence factors play a role in their development. 8. Describe the signs and symptoms that are consistent with the clinical presentation of both lower and upper urinary tract infections. 9. List the infectious and non-infectious differential diagnoses of urinary tract infections. 10. Evaluate the various laboratory tests utilized in the diagnosis of urinary tract infections, including urinalysis and urine culture. 11. Describe the potential sequelae of both lower and upper urinary tract infections. 12. Describe patients who would be candidates for chronic suppressive therapy.

**Week 7**

**Lecture Topic: Antiviral Agents**

**Lecture Learning Objectives:**

To describe the indication, mechanism of action, pharmacokinetics, dosing, and adverse effect profile for the most commonly-used antiviral agents (acyclovir, valacyclovir, famciclovir, ganciclovir, valanciclovir, foscarnet); 2. To describe the life cycle of HIV and drug target of antiretrovirals. 3. To describe the indication, mechanism of action, pharmacokinetics, dosing, and adverse effect profile of all the past and currently available antiretrovirals.

**Week 8**

**Lecture Topic: Pharmacogenomics/Drug Interactions; Injectable Solutions (Pharmaceutics); Intra-abdominal Infections**

**Lecture Learning Objectives:**

Pharmacogenomics/Drug Interactions: to provide a brief overview of the most current research of and clinical consequences of pharmacogenomics (material left up to the discretion of expert lecturer)

Injectable Solutions: to provide a basic overview of the considerations for the formulation and development of injectable solutions (e.g. stability, sterility) - material left up to the discretion of expert lecturer.

Intra-abdominal Infections (pathophysiology): 1. Describe the basic anatomy of the abdomen. 2. Describe the changes in diversity and volume of microorganisms found along the GI tract, and their implications in determining empiric treatment of IAI. 3. Understand the differences between primary, secondary and tertiary peritonitis, in terms of patient demographic, clinical manifestation, and management. 4. Understand the pathogenesis of abscess formation and management. 5. Understand the role of antimicrobial therapy in management of IAI. 6. Describe factors determining duration of antimicrobial therapy in secondary peritonitis. 7. Discuss factors determining antimicrobial therapy in peritonitis.
Week 9
Lecture Topic: Osteomyelitis

Lecture Learning Objectives:

1. Describe the pathophysiology of osteomyelitis.
2. Compare and contrast the 3 different etiologies of osteomyelitis (contiguous, hematogenous, vascular insufficiency) with respect to:
3. Differentiate acute from chronic osteomyelitis.
4. List the complications of osteomyelitis.
5. Describe the main diagnostic strategies and tests used for osteomyelitis evaluation.
7. Describe and rationalize antibiotic selection for an appropriate treatment regimen based on type of osteomyelitis and patient-specific data.
8. Discuss the impact that resistance factors have on antimicrobial regimen selection.
9. Discuss the implications that prosthetic devices have on the management of osteomyelitis.
10. List the criteria for use for oral antimicrobial therapy for treatment of osteomyelitis.
11. Discuss the preferred duration of therapy for patients with osteomyelitis.
12. Outline non-pharmacological treatment options for osteomyelitis.

Week 10
Lecture Topic: Tropical Infections/Malaria; Meningitis/Encephalitis (pathophysiology); Sexually Transmitted Infections

Lecture Learning Objectives:

Tropical Infections/Malaria: 1. Define travel medicine and the relevant infectious diseases to consider in the traveller. 2. Identify the burden of travel related infectious diseases. 3. Discuss the pre-travel assessment requirements including the relevant questions to probe and the key sources of information to determine travel-related risk. 4. Identify the pre-travel prophylaxis needs for a given clinical scenario; appropriate vaccinations, other chemoprophylaxis and potential non-pharmacological measures. 5. Describe post-travel assessment and the concept of fever in the returned traveller.6. Describe the etiology of malaria, including the life cycle of the malaria parasite. 8. Discuss the pathophysiology of malaria and how the parasite causes disease.9. Describe the epidemiology of malaria, including P. falciparum, P. vivax, P. malariae, and P. ovale.10. Identify transmission vectors of malaria infection. 11. List common risk factors for malaria infection.12. List the presenting signs and symptoms of malaria. 13. List the common and serious sequelae of malaria.14. Discuss both the tests and criteria for diagnosis of malaria.15. List non-pharmacological options for prevention of malaria infection.16. Describe chemoprophylactic treatment strategies of malaria.17. Describe treatment principles for active infection.18. Compare and contrast treatment options as chemoprophylactic and treatment agent

Meningitis/Encephalitis (pathophysiology): 1. Describe the composition and function of the blood brain barrier, the anatomy and physiology of CSF and meninges and their role in pathogenesis of meningitis. 2. Identify the signs (i.e. Brudzinski, Kernig) and symptoms (CSF: WBC, pH, protein, sugar) that are consistent with the clinical presentation of meningitis, bacterial or viral.3. Describe the potential sequelae of meningitis in adults and children.4. Discuss the appropriate diagnostic procedures (i.e. Lumbar Puncture, Gram Staining (blood/CSF), WBC (serum/CSF), Glucose (CSF), CSF protein, PCR, Breakpoints (serum/CSF),to make a diagnosis of meningitis or encephalitis. 5. Differentiate CSF findings in bacterial versus viral meningitis. 6. Compare and contrast meningitis from encephalitis. 7. Differentiate viral meningitis and viral encephalitis.
Sexually Transmitted Infections (pathophysiology): For each of Gonorrhea, Syphilis, Herpes & Chlamydia - 1. Briefly describe that epidemiology of the disease state. 2. Describe the infecting organisms and pathophysiology and life cycle/phases. 3. Describe transmission routes. 4. List both common and serious associated sequelae. 5. Compare and contrast common diagnostic modalities. 6. Describe the signs and symptoms of infection.

**Week 11**
**Lecture Topic:** HIV; Opportunistic Infections/Infections in the Immunocompromised Host

**Lecture Learning Objectives:**

HIV: 1. Describe the epidemiology and transmission of HIV. 2. Describe the pathophysiology, natural progression of HIV disease from the time of infection through active disease and major clinical manifestations in absence of treatment. 3. Identify the appropriate laboratory tests and surrogate markers (immunological and virological) used to diagnose and monitor disease progression. 4. List the indications for initiation of antiretroviral therapy, and discuss the potential risks and benefits of early initiation of antiretroviral therapy in asymptomatic patients. 5. Discuss the therapeutic options available for initiation of therapy in treatment-naïve patients, and factors to consider in selecting an antiretroviral regimen. 6. Describe the significant adverse effects of antiretroviral agents and monitoring parameters.

Opportunistic Infections:
1. Application of the Information from the Pathophysiology material
   a. Describe the changes in pathophysiology in neutropenic patients which makes them more a risk for infections. List the reasons why the immunocompromised patient has a different response to infection.
   b. Be able to identify the neutropenic patient who is considered to be at high risk versus low risk of infection

2. Fungal infections and Antifungal therapy in febrile neutropenic patients:
   a. Discuss the role of empiric antifungal therapy in febrile neutropenic patients.
   b. Describe who should receive antifungal prophylaxis in oncology patients, and evaluate the role Fluconazole and Posaconazole for heamapoietic stem cell transplant (HSCT) patients.

3. Define the role of Antiviral Prophylaxis and What Virus and discuss which Infections require Antiviral therapy
   a. Require Antiviral therapy
   b. Describe the Population of oncology patients which benefits from Herpes simplex virus disease prophylaxis therapy.

**Week 12**
**Lecture Topic:** Infective Endocarditis

**Lecture Learning Objectives:**

1. Discuss the pathogenesis of IE.
2. Discuss the epidemiology, etiology, risk factors, clinical manifestations, diagnosis, complications and surgical indications in bacterial infective endocarditis.
3. Discuss treatment approach based on patient presentation; empiric, PV, NV, pathogen specific.
4. Recommend an appropriate regimen for a given clinical scenario.
8. Assessment Methodologies Used:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Course Learning Objectives Addressed</th>
<th>Assessment Method Used</th>
<th>Percent of Course Grade</th>
<th>For Group Work: Individualized or same mark for all group members</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Assignment ☐ Presentation ☐ Participation ☒ Mid-term ☐ Final Exam</td>
<td>Various depending on topics covered</td>
<td>Multiple choice questions</td>
<td>40%</td>
<td></td>
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<tr>
<td>☐ Assignment ☐ Presentation ☐ Participation ☐ Mid-term ☒ Final Exam</td>
<td>Various depending on topics covered</td>
<td>Multiple choice questions</td>
<td>50%</td>
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<tr>
<td>☒ Assignment ☐ Presentation ☐ Participation ☐ Mid-term ☐ Final Exam</td>
<td>Relevant knowledge and skills</td>
<td>Case Session Performance. Assessed on 2 randomly selected workshops and 2 written care plans</td>
<td>10%</td>
<td>-Verbal –5% (2 x 2.5%) -Written Care Plans: 5% (2 x 2.5%)</td>
</tr>
</tbody>
</table>

Expectation for pass grades for all Pharmacy courses is 60%

9. Policy and procedure regarding late assignments/examinations/laboratories:

N/A - any deferred assessment must be petitioned as outlined below.

10. Policy and procedure regarding missed assignments/examinations/laboratories:

Missed exam/quiz policy: Students who miss an examination or a quiz and who have a valid petition filed with the Registrar’s office will be eligible to complete a make-up examination or test. The format of this examination or test will be at the discretion of the course coordinator, and may include, for example, an oral examination.
Missed tutorial/small group session Policy: Students who miss a scheduled tutorial/small group session and who have a valid petition filed with the Registrar’s office will be eligible to:

• Attend a subsequent regularly scheduled small group session/tutorial (if space is available)
• Complete assignment
*Note: this applies only for laboratories or tutorials where summative assessment occurs.

11. AFPC Education Outcomes addressed (check all those that apply):
- Refer to AFPC Educational Outcomes for Professional Programs for further information about the role and key competencies.

As Care Providers, pharmacy graduates:

**CP1 – Practice within the pharmacist scope of practice and expertise**

☒ CP1.1 Apply knowledge from the foundational sciences to make decisions relevant to the contemporary and evolving scope of pharmacist practice;

☒ CP1.2 Integrate AFPC Communicator, Collaborator, Leader-Manager, Health Advocate, Scholar, and Professional roles in their practice of pharmacy;

☒ CP1.3 Recognize and respond to the complexity, uncertainty and ambiguity inherent in pharmacy practice;

☐ CP1.4 Explain the benefits, risks and rationale associated with pharmacist-provided care as an important step in obtaining and documenting consent to pharmacist care;

☐ CP1.5 Recognize and take appropriate action when signs, symptoms and risk factors that relate to medical or health problems that fall into the scope of practice of other health professionals are encountered.

**CP2 – Provide patient-centred care**

☐ CP2.1 Collect, interpret, and assess relevant, necessary information about a patient’s health-related care needs;

☐ CP2.2 Formulate assessments of actual and potential issues and in collaboration with the patient and other health team members as appropriate, prioritize issues to be addressed in a given patient encounter;

☐ CP2.3 Create and document plans in collaboration with the patient and other health team members as appropriate, and make recommendations to prevent, improve or resolve issues;
Implement plans in collaboration with the patient and other health team members as appropriate, including:

- CP2.4.1 obtaining consent
- CP2.4.2 making a referral or consulting others
- CP2.4.3 adapting, initiating, renewing/continuing, discontinuing or administering medication as authorized
- CP2.4.4a dispensing and/or
- CP2.4.4b compounding and/or
- CP2.4.4c delegating/authorizing such tasks to others appropriately
- CP2.4.5 engaging the patient or care-giver through education, empowerment and self-management, and
- CP2.4.6 negotiating the role of pharmacy and non-pharmacy team members in continuity and transitions of care.

Follow-up by monitoring, evaluating progress toward achievement of the patient’s goals of therapy, adjusting plans in collaboration with the patient and health team members across the care continuum.

CP3 – Actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety

- CP3.1 Recognize and respond to harm and potential harm from health care delivery, including patient safety incidents;
- CP3.2 Adopt strategies that promote patient safety and address human and system factors;

As Communicators, pharmacy graduates:

CM1 – Communicate in a responsible and responsive manner that encourages trust and confidence

- CM1.1 Select and use oral, non-verbal and written communication strategies (tools, techniques, technologies, etc.) effectively so that the patient’s best interests are foremost;
- CM1.2 Provide timely, clear responses that are tailored to the context and audience;
- CM1.3 Express facts, evidence, opinions and positions accurately and effectively, with clarity and confidence;
- CM1.4 Listen, actively solicit and respond appropriately to ideas, opinions and feedback from others;
- CM1.5 Use language, pace, tone, and non-verbal communication that is suitable for:
  a) the intended outcomes of the communication, and
  b) the complexity, ambiguity, urgency and/or difficulty of a situation, conversation or conflict
CM1 – Seek and synthesize relevant information from others in a manner that ensures common understanding and where applicable, clarifies and secures agreement and/or consent;

CM1.6 Seek and synthesize relevant information from others in a manner that ensures common understanding and where applicable, clarifies and secures agreement and/or consent;

CM1.7 Compose and share oral, written, and electronic information in a manner that optimizes patient safety, dignity, confidentiality, and privacy.

CM2 – Communicate in a manner that supports a team approach to health promotion and health care

CM2.1 Engage in respectful, empathetic, compassionate, non-judgmental, culturally safe, tactful conversations with patients, communities, populations, and health team members; Engage in respectful, empathetic, compassionate, non-judgmental, culturally safe, tactful conversations with patients, communities, populations, and health team members;

CM2.2 Demonstrate awareness of the impact of one’s own experience level, professional culture, biases and power and hierarchy within the health team on effective working relationships, communication and conflict resolution with health team members and adapt the approach to the situation appropriately; Demonstrate awareness of the impact of one’s own experience level, professional culture, biases and power and hierarchy within the health team on effective working relationships, communication and conflict resolution with health team members and adapt the approach to the situation appropriately;

CM2.3 Demonstrate accuracy and appropriateness of communication as well as respect for the role of other health team members when disclosing information about harmful or potentially harmful situations; Demonstrate accuracy and appropriateness of communication as well as respect for the role of other health team members when disclosing information about harmful or potentially harmful situations;

CM2.4 In word and in action, convey the importance of teamwork in patient-centred care, patient safety, health care quality improvement and health program delivery. In word and in action, convey the importance of teamwork in patient-centred care, patient safety, health care quality improvement and health program delivery.

As Collaborators, pharmacy graduates:

CL1 – Work effectively with members of the health team including patients, pharmacy colleagues and individuals from other professions

CL1.1 Establish and maintain positive relationships; Establish and maintain positive relationships;

CL1.2 Recognize, respect and negotiate the roles and shared/overlapping responsibilities of team members; Recognize, respect and negotiate the roles and shared/overlapping responsibilities of team members;

CL1.3 Join with others in respectful, effective shared decision-making. Join with others in respectful, effective shared decision-making.

CL2 – Hand over the care of the patient to other pharmacy team members and non-pharmacy team members to facilitate continuity of safe patient care

CL2.1 Determine when and how care should be handed over to another team member; Determine when and how care should be handed over to another team member;

CL2.2 Recognize, respect and honour the negotiate shared and overlapping responsibilities of patients, pharmacy team members and other health members when handovers occur; Recognize, respect and honour the negotiate shared and overlapping responsibilities of patients, pharmacy team members and other health members when handovers occur;

CL2.3 Demonstrate safe handover of care, using oral, written, and electronic communication, during a patient transition to a different care provider or setting. Demonstrate safe handover of care, using oral, written, and electronic communication, during a patient transition to a different care provider or setting.

As Leader-Managers, pharmacy graduates:
LM1 – Contribute to optimizing health care delivery and pharmacy services

☐LM1.1 Work with others to apply quality improvement strategies and techniques to optimize pharmacy care;

☐LM1.2 Contribute to a culture of patient safety;

☐LM1.3 Confirm the quality, safety, and integrity of products;

☐LM1.4 Use health informatics to improve the quality of care, manage resources and optimize patient safety.

LM2 – Contribute to the stewardship of resources in health care systems

☐LM2.1 Apply evidence and management processes to achieve cost appropriate care;

☐LM2.2 Allocate health care resources for optimal patient care;

☐LM2.3 Contribute to the management of finances and health human resources in pharmacy practice settings;

LM3 – Demonstrate leadership skills

☐LM3.1 Demonstrate leadership skills to enhance pharmacy practice and health care.

LM4 – Demonstrate management skills

☐LM4.1 Work with others to apply the principles of effective management and supervision of health human resources and medication use systems;

☐LM4.2 Use effective strategies to manage and improve their own practice of pharmacy.

As Health Advocates, pharmacy graduates:

HA1 – Respond to an individual patient’s health needs by advocating with the patient within and beyond the patient care environment

☒HA1.1 Work with patients to address determinants of health that affect them and their access to needed health services or resources;

☒HA1.2 Work with patients to increase opportunities to adopt healthy behaviours;

☒HA1.3 Incorporate disease prevention, health promotion and health surveillance into interactions with individual patients.

HA2 – Respond to needs of communities or populations they serve by advocating with them for system-level change in a socially accountable manner

☐HA2.1 Work with community or population to identify the determinants of health that affect them;
HA2.2 Participate in health promotion and disease prevention programs.

As Scholars, pharmacy graduates:

SC1 – Apply medication therapy expertise to optimize pharmacy care, pharmacy services and health care delivery

☐ SC1.1 Use knowledge and problem-solving to arrive at recommendations and decisions that are appropriate, accurate, and practical;
☐ SC1.2 Use professional experience to solve routine, previously encountered problems;
☒ SC1.3 Use established decision-making frameworks and apply learning required to manage new situations and problems.

SC2 – Integrate best available evidence into pharmacy practice

☒ SC2.1 Generate focused questions related to needs for information, recommendations and decisions in practice;
☒ SC2.2 Use systematic approaches in the search for best available evidence;
☒ SC2.3 Critically appraise health-related research and literature;
☒ SC2.4 Incorporate best available evidence in the decision-making process.

SC3 – Contribute to the creation of knowledge or practices in the field of pharmacy

☐ SC3.1 Apply scientific principles of research and scholarly inquiry;
☐ SC3.2 Apply ethical principles that underlie research and scholarly inquiry.

SC4 – Teach other pharmacy team members, the public and other health care professionals including students

☐ SC4.1 Provide effective education to others;
☐ SC4.2 Employ appropriate teaching roles when teaching others;
☐ SC4.3 Deliver effective feedback in teaching and learning situations;
☐ SC4.4 Use appropriate learning assessment and evaluation strategies when working with patients, team members, students and teachers.

As Professionals, pharmacy graduates:
PR1 – Committed to apply best practices and adhere to high ethical standards in the delivery of pharmacy care

☐ PR1.1 Exhibit professional behaviour whether face-to-face, in writing, or via technology-enabled communication. Professional behaviour includes, but is not limited to:
   a) demonstrating honesty, integrity, humility, commitment, altruism, compassion, respect for diversity and patient autonomy;
   b) being accessible, diligent, timely and reliable in service to others;
   c) abiding by the principle of non-abandonment;
   d) maintaining appropriate interpersonal boundaries;
   e) maintaining professional composure, demeanor, and language even in difficult situations, and;
   f) maintaining privacy and confidentiality;

☐ PR1.2 Use ethical frameworks as one component of professional judgment;

☐ PR1.3 Recognize and respond to situations presenting ethical dilemmas, including conflicts of interest;

☐ PR1.4 Engage in activities that:
   a) protect the public, and;
   b) advance the practice of pharmacy.

PR2 – Able to recognize and respond to societal expectations of regulated health care professionals

☐ PR2.1 Take responsibility and accountability for actions and inactions;

☐ PR2.2 Demonstrate a commitment to patient safety and quality improvement;

☐ PR2.3 Honour the laws, ethical codes, and regulatory requirements (by-laws, standards, policies) that govern the self-regulated profession of pharmacy;

☐ PR2.4 Demonstrate an understanding of federal, provincial/territorial, and municipal laws, policies and standards that apply to pharmacy workplaces;

☐ PR2.5 Demonstrate an ability to maintain competence to practice through evaluating areas for improvement and planning, undertaking learning activities to address limitations in competence and/or performance and incorporating learning into practice;

☐ PR2.6 Identify and respond to unprofessional, unethical, and illegal behaviours in pharmacists, other pharmacy team members, and other health professionals.

PR3 – Committed to self-awareness in the management of personal and professional well being

☐ PR3.1 Set professional and personal goals, priorities, and manage their time to balance patient care, workflow, and practice requirements;
PR3.2 Examine, reflect upon, and manage personal attributes (knowledge, skills, beliefs, biases, motivations, emotions, etc.) that could influence self-development and professional performance;

PR3.3 Adapt their practice of pharmacy to fulfill evolving professional roles;

PR3.4 Recognize and respond to self and colleagues in need.