New Course Outline

- The PharmD Approval Process for New Course Outlines document provides 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: PHM389H1

Course Title: Research Project

Outline Version Code:

Course Description:

This elective course is designed to introduce students to the philosophy, methodology and performance of research in scientific fields offered by faculty members with graduate appointments in the Department of Pharmaceutical Sciences, Leslie Dan Faculty of Pharmacy. The research will involve the review of pertinent scientific literature and the generation of new information. Depending upon the project and the supervisor, the research may be conducted in a number of settings, e.g., laboratory at the Faculty, in a hospital, community pharmacy, pharmaceutical company, or in an office. Fields of study are wide ranging, e.g., drug delivery, drug metabolism, medicinal chemistry, pharmaceutics, pharmacokinetics, pharmacoepidemiology, pharmacy administration and pharmacoconomics, radiopharmacy, receptor biology, therapeutics, and toxicology. Students are expected to spend a minimum of 78 hours on the course. This includes working in the laboratory/office, reading, searching for literature, performance of research and writing of the research report.

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:

- Research methodology (variable and depend on specific research project)

Intermediate Level:

Advanced Level:

**Skills**

Introductory Level:

- Research methods (variable and depend on specific research project)

Intermediate Level:

- Written communication in the form of a research report, and oral communication in the form of PowerPoint oral presentation

Advanced Level:

**Attitudes/Values:**

Introductory Level:

- Research ethics and value of research to inform pharmacy practice and research
Intermediate Level:

Advanced Level:

2. Rationale for Inclusion in the Curriculum:

Under the guidance of their supervisor, the student should:

• develop a clear understanding of the research problem through a review of the literature,
• formulate a proposal that is novel and feasible and fulfill the purpose of an original investigation
• acquire the necessary skills to obtain and interpret data, and summarize the findings; and
• critically comment on study findings, limitations and how results fit within the context of existing literature.

3. Pre-requisites:

3rd year students; successful in 1st and 2nd year courses

4. Co-requisites:

5. Course Contact Hours and Teaching Methodologies:

<table>
<thead>
<tr>
<th>Didactic (lecture)</th>
<th>Hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large group problem-based/ case-based learning (group size: )</td>
<td>Hours:</td>
</tr>
<tr>
<td>Laboratory or Simulation</td>
<td>Hours: 3</td>
</tr>
<tr>
<td>Tutorial/Seminar/Workshop/Small Group (group size: )</td>
<td>Hours: 0.75</td>
</tr>
<tr>
<td>Experiential</td>
<td>Hours: 78</td>
</tr>
<tr>
<td>On-line</td>
<td>Hours:</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>Hours:</td>
</tr>
<tr>
<td><strong>Total Course Contact Hours</strong></td>
<td><strong>Hours: 81.5</strong></td>
</tr>
</tbody>
</table>
6. Estimate and description of student’s weekly out-of-class preparation time excluding exam preparation:

The student is expected to devote no less than 78 hours to the project. This will involve, for example, working in the laboratory (or other relevant setting), searching and reading literature, and writing up the project. The actual time distribution will be flexible and determined by the nature of the research conditions and timetable conflicts.

7. Topics Covered and Lecture Specific Learning Objectives

**Week 1**
**Lecture Topic:** Self-study on reading up on literature to understand and define research goals, with supervisor input

**Lecture Learning Objectives:**

- Secure background information on project and formulate strategies to approach research problem

**Week 2**
**Lecture Topic:** Self-study on reading up on literature to understand and define research goals, with supervisor input

**Lecture Learning Objectives:**

- Secure background information on project and formulate strategies to approach research problem; commence on research if feasible

**Week 3**
**Lecture Topic:** Submit 3-page proposal

**Lecture Learning Objectives:**

- Develop good comprehension and a clear understanding of the research problem through review of the literature, by succinctly outlining the research proposed and anticipating any underlying problems

**Week 4**
**Lecture Topic:** Interview with course coordinators

**Lecture Learning Objectives:**

- Clearly articulate research problem and potential challenges through an interview with course coordinators
- Refine research methods to help ensure success in the course
Week 5  
Lecture Topic: Commence on research

Lecture Learning Objectives:

• Apply developed strategies to research problem; organize time to cope with research and course work

Week 6  
Lecture Topic: Mid-term evaluation (no grades)

Lecture Learning Objectives:

• Continue to apply develop strategies to research problem; organize time to cope with research and course work
• Identify challenges and develop solutions to any relevant research problems that may impact successful completion of the course

Week 7  
Lecture Topic: Apply developed strategies to research problem; organize time to cope with research and course work

Lecture Learning Objectives:

• Continue to apply develop strategies to research problem; organize time to cope with research and course work
• Identify challenges and develop solutions to any relevant research problems that may impact successful completion of the course

Week 8  
Lecture Topic: Apply developed strategies to research problem; organize time to cope with research and course work

Lecture Learning Objectives:

• Continue to apply develop strategies to research problem; organize time to cope with research and course work
• Identify challenges and develop solutions to any relevant research problems that may impact successful completion of the course

Week 9  
Lecture Topic: Apply developed strategies to research problem; organize time to cope with research and course work

Lecture Learning Objectives:
**Week 10**
**Lecture Topic:** Apply developed strategies to research problem; organize time to cope with research and course work

**Lecture Learning Objectives:**

- Continue to apply develop strategies to research problem; organize time to cope with research and course work
- Identify challenges and develop solutions to any relevant research problems that may impact successful completion of the course

**Week 11**
**Lecture Topic:** Integrate and interpret data; apply time to organize work accomplished with proper statistical interpretation

**Lecture Learning Objectives:**

- Organize data in graphical or tabular forms with proper statistical analyses, within the designated space for reporting

**Week 12**
**Lecture Topic:** Submit final research report

**Lecture Learning Objectives:**

- Written communication skills in the form of a 15-page report.
- Acquire the necessary skills to obtain and interpret data, and summarize the findings;
- Critically comment on study findings, limitations and how results fit within the context of existing literature

**Week 13**
**Lecture Topic:** Final presentations

**Lecture Learning Objectives:**

- Present research project in clear and concise oral format e.g. PowerPoint
- Develop oral communication skills
- Effectively respond to questions about the research
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>
</table>
| ☒ Assignment        | • clearly articulate research problem and potential challenges through an interview with course coordinators  
 |                     | • refine research methods to help ensure success in the course                                    | 3-page written proposal and interview with course coordinators                        | 10%                   | n/a                                                          |
| □ Presentation      |                                                                                                     |                                                                                        |                         |                                                               |
| □ Participation     |                                                                                                     |                                                                                        |                         |                                                               |
| □ Mid-term          |                                                                                                     |                                                                                        |                         |                                                               |
| □ Final Exam        |                                                                                                     |                                                                                        |                         |                                                               |
| ☒ Assignment        | • identify challenges and develop solutions to any relevant research problems that may impact successful completion of the course | mid-term evaluation form, comments by student and supervisor re: success to date, challenges when encounter and | 0%                     | n/a                                                          |
| □ Presentation      |                                                                                                     |                                                                                        |                         |                                                               |
| □ Participation     |                                                                                                     |                                                                                        |                         |                                                               |
| □ Mid-term          |                                                                                                     |                                                                                        |                         |                                                               |
| □ Final Exam        |                                                                                                     |                                                                                        |                         |                                                               |
| ☒ Assignment        | • present research project in clear and concise oral format                                         | oral presentation                                                                     | 10%                     | n/a                                                          |
| □ Presentation      |                                                                                                     |                                                                                        |                         |                                                               |
| □ Participation     |                                                                                                     |                                                                                        |                         |                                                               |
| □ Mid-term          |                                                                                                     |                                                                                        |                         |                                                               |
| □ Final Exam        |                                                                                                     |                                                                                        |                         |                                                               |
| ☒ Assignment        | • written communication skills in the form of a 15-page report.                                     | max 15 page written final report; graded by supervisor (54%) and secondary reviewer (26%) | 80%                     | n/a                                                          |
| □ Presentation      |                                                                                                     |                                                                                        |                         |                                                               |
| □ Participation     |                                                                                                     |                                                                                        |                         |                                                               |
| □ Mid-term          |                                                                                                     |                                                                                        |                         |                                                               |
| □ Final Exam        |                                                                                                     |                                                                                        |                         |                                                               |

Expectation for pass grades for all Pharmacy courses is 60%

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

Students who fail to submit written reports (3-page proposal, final report) by the specified due date will receive a deduction of 5% for each day beyond the due date of the total grade for that assignment (including weekends/holidays).

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

Students unable to present during final presentation will be offered an alternate date to present with the course coordinators.
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;

- **CP2.4** 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
  - CP2.4.4 dispensing and/or compounding and/or 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.

☐ CP2.5 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
☐ CM1.6 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;
☒ 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;

☐ 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;

☒ 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.

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;

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

☒ CL1.3 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;

☒ CL2.2 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.

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;
PR1 – Proficiency in professional judgment and practice

☐ 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.