### Summer Student Research Program

#### Project List 2019

**List updated:** February 12, 2019

***Please keep checking the website as this list may be added to until the deadline***

**Projects:**

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRP-Lynd-01</td>
<td>The impact of a genetic diagnosis on the health outcomes of patients with suspected genetic disorders: A systematic review</td>
<td>2</td>
</tr>
<tr>
<td>SSRP-Page-01</td>
<td>Economic Evaluation of Gene Therapy Products: A Systematic Review</td>
<td>4</td>
</tr>
<tr>
<td>SSRP-Harrison-01</td>
<td>Rheumatologists' Perceptions Regarding Barriers in the Implementation of Preventative Therapies in Rheumatoid Arthritis</td>
<td>5-6</td>
</tr>
<tr>
<td>SSRP-Pachev-01</td>
<td>“Learning Scripts” in Pharmacy Education Settings</td>
<td>7-8</td>
</tr>
<tr>
<td>SSRP-Ross-01</td>
<td>Development of an in vitro model of Lipoprotein Lipase Deficiency (LPLD) to investigate the therapeutic efficacy of CRISPR/cas9 genome editing.</td>
<td>9</td>
</tr>
<tr>
<td>SSRP-Ross-02</td>
<td>Optimization of novel strategies for therapeutic genome editing using in vitro and in vivo reporter model.</td>
<td>10</td>
</tr>
<tr>
<td>SSRP-Soon-01</td>
<td>Interprofessional Medication Reconciliation (IP MedRec): Qualitative Evaluation</td>
<td>11</td>
</tr>
<tr>
<td>SSRP-Soon-02</td>
<td>Interprofessional Medication Reconciliation (IP MedRec): Quantitative Evaluation</td>
<td>12</td>
</tr>
<tr>
<td>SSRP-Leung/Min-01</td>
<td>Entry-to-Practice PharmD Interprofessional Education Program Evaluation</td>
<td>13-14</td>
</tr>
<tr>
<td>SSRP-Yeung-01</td>
<td>Assessing Pharmacy Student Performance on Practicum in the Entry-to-Practice Doctor of Pharmacy Program Using the Dreyfus Model of Skill Acquisition Framework</td>
<td>15-16</td>
</tr>
</tbody>
</table>
Summer Student Research Program Project Description
SSRP-Lynd-01

Supervisor(s): Dr. Larry Lynd (Director, Collaboration for Outcomes Research and Evaluation; Professor, Faculty of Pharmaceutical Sciences)

Project Title: The impact of a genetic diagnosis on the health outcomes of patients with suspected genetic disorders: A systematic review

Project Description: Genetic diseases affect approximately 5% of the population, and include an estimated 6,000 – 8,000 rare single-gene disorders. While some conditions have a distinctive clinical presentation and are best diagnosed with targeted testing, the majority of genetic disorders can be difficult to diagnose because many share common clinical features. For example, intellectual disability (prevalence of 1-2%) has been linked to mutations in more than 700 different genes. Broad-based genomic tests, including chromosomal microarray analysis (CMA), exome sequencing (ES), and whole-genome sequencing (WGS), which interrogate genetic variants across the whole genome, are increasingly being used to facilitate etiologic diagnosis of suspected genetic disorders. These powerful new technologies yield a much higher rate of diagnosis than alternative diagnostic tests, but are also more costly than existing tests. Moreover, the impact on health outcomes for patients who received a diagnosis is difficult to quantify due to the heterogeneity of the cohorts who receive these tests and the paucity of causal treatments for rare diseases. To inform ongoing economic evaluations of diagnostic genome-wide sequencing tests, we will conduct a systematic literature review of studies reporting on the impacts on patient care and health outcomes of receiving a genetic diagnosis via broad-based genomic tests.

Project Objectives: This systematic review will identify and evaluate all existing publications that report on the consequences for patient care and impact on health outcomes of diagnosis by CMA, ES, and WGS. The goal of the review is to summarize the evidence on health impacts, including changes in drug utilization, the rate of treatable conditions, treatment modalities, effects on mortality, morbidity, or quality of life, and other changes to patient care.

Project Activities: The project will involve: 1) conducting background research to identify appropriate literature and data sources; 2) developing a search strategy; 3) designing the search terms used in queries; 4) screening individual studies for inclusion; 5) summarizing and abstracting included studies; 5) evaluating the quality of included studies; 6) documenting the methodology used to conduct the reviews; and 7) outlining a manuscript reporting on the systematic review. The student will provide input at all stages of the project, and will work closely with the study team to design a search and evaluation strategy. Once the methodological approach for the reviews is established, the student should be able to work with minimal direct supervision under these guidelines while exercising sound judgment on when to refer problems to the supervisor. The student will be offered co-authorship on the publication that reports the results of the systematic review.
Summer Student Research Program Project Description

SSRP-Lynd-02

Supervisor: Dr. Larry Lynd (Director, Collaboration for Outcomes Research and Evaluation; Professor, Faculty of Pharmaceutical Sciences)

Project Title: Economic Evaluation of Gene Therapy Products: A Systematic Review

Project Description: Gene therapies use a diverse range of methods to modify gene expression or repair pathogenic genes in an individual patient. To date, at least 13 gene therapies have received marketing authorization worldwide, including five in the United States and one in Canada. They include treatments for ultra-rare single-gene disorders like adenosine deaminase deficiency–severe combined immunodeficiency (ADA-SCID) as well as oncolytic virus and chimeric antigen receptor T-cell (CAR-T) therapies for advanced cancers. A large number of additional gene therapies are being developed, including gene therapies for common diseases (e.g., age-related macular degeneration). While the cost of gene therapies is high (more than $1,000,000 per patient in some cases), leading to concerns about the budgetary impact of gene therapies for Canadian health systems, proponents of gene therapies have argued that a high-cost one-time treatment may be more cost-effective than existing drug therapies (e.g., enzyme replacement) that require ongoing treatment for life. However, economic evaluation of gene therapy products poses distinct challenges, such as small clinical trial sample size, uncertainty about the durability of the gene therapy’s effect, and costing the ancillary healthcare services required for the safe delivery of genetically modified cell-based therapies. To inform the rigorous evaluation of gene therapies in a Canadian context, we will be conducting a systematic literature review of existing economic evaluations of gene therapy products.

Project Objectives: This systematic review will identify and evaluate all existing publications that report on the cost-effectiveness and budgetary impact of gene therapy products. The goal of the review is to summarize the evidence on the cost-effectiveness of gene therapies as well as to identify common methodological weaknesses and challenges encountered when evaluating gene therapy products.

Project Activities: The project will involve: 1) conducting background research to identify appropriate literature and data sources; 2) developing a search strategy; 3) designing the search terms used in queries; 4) screening individual studies for inclusion; 5) summarizing and abstracting included studies; 6) evaluating the quality of included studies; 6) documenting the methodology used to conduct the reviews; and 7) outlining a manuscript reporting on the systematic review. The student will provide input at all stages of the project, and will work closely with the study team to design a search and evaluation strategy. Once the methodological approach for the reviews is established, the student should be able to work with minimal direct supervision under these guidelines while exercising sound judgment on when to refer problems to the supervisor. The student will be offered co-authorship on the publication that reports the results of the systematic review.
Supervisor: Brent Page

Project Title: Developing new anti-cancer therapies using state of the art chemical biology techniques

Project Description: Two projects are available that are focused on the design, synthesis and preliminary testing of novel chemical compounds to target dysfunctional signaling networks in cancer cells. Both projects have evolved from high-throughput screening campaigns and have employed state of the art chemical biology techniques including cellular thermal shift assays (CETSA), thermal proteome profiling (TPP), fluorescence tagging and others. Compounds that are synthesized within this project will be analyzed for their ability to bind specific targets in cancer cells and for their ability to halt the growth and proliferation of cancer cells using the latest models and technologies.

Summer students will gain exposure to a breadth of topics in drug discovery and development within these projects and will learn the basics of medicinal and organic chemistry (including synthesis and characterization of new compounds), chemical and cell biology techniques (including CETSA and cell proliferation assays), and will interact with a network of collaborators who will further assess the anti-cancer activity of newly synthesized compounds.

*Up to 2 positions are available.*
Summer Student Research Program Project Description

SSRP-Harrison-01

**Project Title:** Rheumatologists' Perceptions Regarding Barriers in the Implementation of Preventative Therapies in Rheumatoid Arthritis

**Supervisor:** Dr. Mark Harrison

**Background:** Rheumatoid arthritis (RA) is thought to develop through a process of “multiple hits”, involving genetic and environmental risk factors, followed by antibodies such as rheumatoid factor (RF) and anti-citrullinated protein antibodies (ACPA), that accumulate during an “at-risk” pre-clinical phase. Increasingly, it is thought that the pre-clinical phases of the disease might offer a window of opportunity to identify those at risk and to offer potential preventive treatment. It is unclear whether rheumatologists would offer preventative treatment to asymptomatic patients highlighting a need to understand physicians’ perceptions of particular barriers in the implementation of preventative therapies in RA, that would need to be overcome before such therapies could be implemented.

**Project Overview:** The proposed SSRP project is part of a research program on acceptability and preferences of preventative treatment for RA in patients and rheumatologists. The objective of this project is to examine rheumatologists’ perceptions of barriers in the implementation of preventive therapies for RA. Prior work on this topic conducted a quantitative assessment of associations between perceptions of potential barriers and respondents’ characteristics, such as age, sex, ethnicity, years in practice, type of medical practice, and province. Building on this prior work, the objective of this project is to 1) conduct condensed literature reviews on the existing evidence on the most frequently cited barriers, and 2) obtain a deeper understanding of rheumatologists’ perspectives of these barriers by applying a qualitative research approach to previously conducted focus group interviews.

**Project activities: This project will involve the student in the following activities:**

1) Condensed literature review:
   - Perform literature searches and reviews pertaining to each perceived barrier
   - Assist with developing a synthesis strategy of the scientific evidence
   - Assist with summarizing and abstracting relevant literature

2) Qualitative content analysis of focus group transcripts:
   - Assist with conducting analysis of transcribed physician focus group interviews
   - Code and/or label concepts related to perceived barriers
   - Assist with constructing categories and subcategories or groupings and organize codes into higher level themes
   - Abstract themes and/or interpret relationships between constructed categories
   - Summarize constructed themes and categories into appropriate tables and where relevant, figures, with supporting quotes

**Expected outcome:** This project will contribute an overview of the evidence and a better understanding of physicians’ perceptions of barriers relating to the implementation of preventative therapies in RA. Results have direct implications for knowledge translation and
program planning as the paradigm of RA changes from treating to preventing the disease over the next decade.

**Role of the Summer Student:** The summer student will work closely with the supervisor and research team to complete the project. The summer student will be responsible for conducting condensed literature reviews, qualitative content analyses of transcribed focus group data, and reporting of results. Excellent verbal and written and inter-personal communication skills are a prerequisite. Coursework in research methods and/or previous experience with qualitative data analysis is an asset. Must be detail-oriented, organized and self-motivated. The student will be offered co-authorship on publications of the results of the project.
Summer Student Research Program Project Description
SSRP-Pachev-01

Project Title: “Learning Scripts” in Pharmacy Education Settings

Supervisor: George S Pachev, Natalie E LeBlanc, Office of Educational Assessment

Project Description:

Goal: This study is to identify, through individual and group interviews with pharmacy students, the routine events and actions related to effective learning and to compare them to the “learning scripts” in experiential education settings, identified in a previous study.

Background: The notion of “script”, as introduced by Schank & Abelson\(^1\), denotes mental representations of routine everyday events, consisting of actions leading to a goal and related through spatial and temporal relations, rather than logic category relations. The presence of such representation helps understand everyday situations and provides “cognitive economy” by guiding expectations and actions.

In a recent study\(^2\) of pharmacy students’ learning during practicum, a script-like structure seemed to underlie the descriptions of learning situations. Common elements of this script included: a “trigger”, which could be a preceptor assigned task, or independently set goal by the student; an iterative process of “practice” involving preparation, looking up necessary information, application of the skill, reflection-in-action, self-assessment and looking for feedback or assessment; in some cases there is “follow up” and/or “reflection-on-action”. Conditions for effective learning when enacting this script include preceptor’s support, clear delineation (and acceptance by the student) of responsibilities, sense of independence, initiative and involvement in interaction with patients.

It is not clear whether “learning scripts” could be found in descriptions of learning in academic settings, and if similar structures were identified, how do they compare to the scripts in practicum settings. The study will explore these issues, guided by the research questions below.

Research questions: How do pharmacy students describe the situations, events, and action routines when they learn most effectively in academic settings? What are the associated conditions necessary for learning to occur? What are the preparation and/or follow-up activities needed to consolidate learning, if any?


Project activities

This project will involve the student in the following activities:

1. Literature review: searching the scholarly literature on the “script” concept and its application to education and in health sciences. Complete a written review of the literature.

2. Data collection: design data collection protocols; pilot the instruments. The successful candidate will gain experience in the development and administration of qualitative interviews and analyses of qualitative data.

3. Ethics approval: preparing documentation for submission to the Institutional Research Ethics Board, including letters of initial contact and consent forms.

4. Dissemination of results: creating and developing a poster and seminar for presentation to the Faculty and other audiences, and participating in the preparation of a manuscript suitable for publication.

The student undertaking this project will be expected to work effectively within general guidelines but with minimal direct supervision and to have excellent verbal and written communication skills.
Summer Student Research Program Project Description
SSRP-Ross-01

Project Title: Development of an *in vitro* model of Lipoprotein Lipase Deficiency (LPLD) to investigate the therapeutic efficacy of CRISPR/cas9 genome editing.

Supervisor: Dr. Colin Ross

Project Description

**Background:** Genome sequencing has aided our ability to understand and diagnose genetic diseases and cancer. However, less than 5% of human genetic diseases have approved treatments. LPLD is a rare autosomal recessive disorder, which affects the body’s ability to metabolize fats. Previously, Dr. Ross helped develop a gene therapy for LPLD known as Glybera, which aimed at treating the genetic diseases by inserting functional copies of the LPL gene into patients. While this approach was successful and gained clinical approval, critical limitations remained.

**Project Overview:** To overcome these limitations, we are investigating the potential of using novel CRISPR/cas9 gene editors to directly repair a pathogenic mutation in the DNA sequence of the LPL gene. In order to evaluate and later optimize this novel approach, we are developing an *in vitro* disease model.

**Methods:** This project will require UBC biosafety and chemical safety training. The project involves lab-based molecular biology techniques, imaging, and bioinformatics-based analyses. Students will learn mammalian cell culture techniques, cloning techniques and analysis of enzymatic assays. In addition, the project will require quantitative data analyses and the application of statistics to summarize laboratory findings. Finally, the project will require detailed presentations of findings in weekly lab meetings and reporting of project findings.

**Role of the Summer Student:** The summer student will work closely with the supervisor, research associates/postdoctoral fellows and graduate students to complete the project. The research will involve significant laboratory-based research involving bacteria and mammalian cell lines. The role of the summer student will be to generate *in vitro* models of LPLD using cloning and transfection techniques. In addition, the student will use CRISPR/cas9 to correct the mutation and compare enzymatic activity to the wildtype levels. This exciting summer project will demonstrate proof-of-principle gene correction and will be the foundation for the development of a subsequent patient cell line model and *in vivo* mouse model. The summer student will be expected to participate in weekly lab meetings and prepare a final report and poster presentation.
Summer Student Research Program Project Description

SSRP-Ross-01

**Project Title:** Optimization of novel strategies for therapeutic genome editing using *in vitro* and *in vivo* reporter model.

**Supervisor:** Dr. Colin Ross

**Project Description**

**Background:** Genome sequencing has aided our ability to understand and diagnose genetic diseases and cancer. However, less than 5% of human genetic diseases have approved treatments. Previously, gene therapies have focused on the treatment of genetic diseases by inserting functional copies of a gene into patient cells. While this approach has been successful, critical limitations remain.

**Project Overview:** To overcome these limitations, we are investigating the potential of using novel CRISPR/cas9 gene editors to specifically repair pathogenic mutations directly in the DNA sequence of the gene of interest. In order to optimize this novel approach, we are developing *in vitro* and *in vivo* reporter model systems that utilize the GFP and luciferase genes to evaluate nanotechnology-based approaches to deliver therapeutic components into cells.

**Methods:** This project will require UBC biosafety and chemical safety training. The project involves lab-based molecular biology techniques, imaging, and bioinformatics-based analyses. Students will learn mammalian cell culture techniques, fluorescent imaging, luminescence assays and flow cytometry. In addition, the project will require quantitative data analyses and the application of statistics to summarize laboratory findings. Finally, the project will require detailed presentations of findings in weekly lab meetings and reporting of project findings.

**Role of the Summer Student:** The summer student will work closely with the supervisor, research associates/postdoctoral fellows and graduate students to complete the project. The research will involve significant laboratory-based research involving bacteria and mammalian cell lines. The role of the summer student will be to generate *in vitro* reporter models and perform optimization experiments to improve gene editing efficiency. In addition, the summer student will assist in the further development of the *in vivo* mouse models by developing and conducting genotyping assays. These important foundational experiments using the cell lines will be applied to all subsequent disease models and *in vivo* mouse studies in the future. The summer student will be expected to participate in weekly lab meetings and prepare a final report and poster presentation.
2019 Summer Student Research Program Project Description
SSRP-Soon-01

Supervisor(s): Dr. Judith Soon and Parkash Ragsdale

Project Title: Interprofessional Medication Reconciliation (IP MedRec): Qualitative Evaluation

Project Description:

Healthcare Problem:
Patient safety issues related to transitions of care can result in serious medication-related consequences, leading to costly hospital readmissions and increased patient morbidity and mortality.

Background:
Educating healthcare professionals while they are undergraduate students or early in their career has the potential to:
- enhance clinical skill development;
- encourage collaborative, interprofessional communication between healthcare practitioners;
- enable front-line healthcare professionals to understand and successfully perform their MedRec role; and
- optimize patient health outcomes.

Over the past seven years, a unique MedRec program has trained over 5000 Pharmacy, Medicine and Nursing undergraduate students and practicing pharmacists in Vancouver (UBC), Victoria (UVIC), Kelowna (UBC-O) and Prince George (UNBC). The program involved pre-readings and review of an online MedRec video; a live, interactive session where pre-assigned groups of 8 multidisciplinary students collaboratively evaluated a complex patient case at a transition of care, documented and proposed resolution of medication inconsistencies identified; and submitted a group report. This was followed by a facilitated debriefing session to consolidate learning, and completion of a post-session evaluation.

Purpose and Activities:
The objective of this SSRP project will be to analyze the content of seven years of post-session qualitative student comments and analyze for repeated and saturated themes. One-on-one semi-structured interviews will be conducted with community and hospital pharmacists who participated in the March 2018 IP MedRec program, as well as with Health Authority and hospital-based experts responsible for medication reconciliation in clinical practice. Interviews will be digitally recorded, transcribed and subjected to thematic analysis. These findings will inform the proposed future expansion of the medication reconciliation training program for interprofessional healthcare undergraduates and clinicians across the province. The student will also assist with writing a publication on this IP MedRec program.

Required skills: Strong oral and written qualitative communication skills; critical thinking skills; and personal and group organizational skills.
2019 Summer Student Research Program Project Description
SSRP-Soon-02

Supervisor(s): Dr. Judith Soon and Parkash Ragsdale

Project Title: Interprofessional Medication Reconciliation (IP MedRec): Quantitative Evaluation

Project Description:

Healthcare Problem: Patient safety issues related to transitions of care can result in serious medication-related consequences, leading to patient morbidity, costly hospital readmissions and mortality.

Background:

Educating healthcare professionals while undergraduate students or early in their career has the potential to:

- enhance clinical skill development;
- encourage collaborative, interprofessional communication between healthcare practitioners;
- enable front-line healthcare professionals to understand and successfully perform their MedRec role; and
- optimize patient health outcomes.

Over the past seven years, a unique IP MedRec program has trained over 5000 Pharmacy, Medicine and Nursing undergraduate students and practicing pharmacists in Vancouver (UBC), Victoria (UVIC) and Prince George (UNBC). The program involved pre-readings and review of an online MedRec video; a live, interactive session where pre-assigned groups of 8 multidisciplinary students collaboratively evaluated a complex patient case at a transition of care, documented and proposed resolution of medication inconsistencies identified; and submission of a group report. This was followed by a facilitated debriefing session to consolidate learning, and completion of a post-session evaluation.

Purpose and Activities: The objective of this SSRP project will be to summarize seven years of post-session student quantitative evaluations, analyze the content of student assignments, evaluate how revisions to program content and assignments addressed student recommendations, and document potential revisions for future programs, and assist with writing a publication on this IP MedRec program.

Required skills: Strong quantitative statistical skills; critical thinking skills; oral and written communication skills; and personal and group organizational skills.
Summer Student Research Program Project Description
SSRP-Leung/Min-01

Project Title: Entry-to-Practice PharmD Interprofessional Education Program Evaluation

Supervisor: Larry Leung and Jason Min

Project Description

Background: Interprofessional Education (IPE) at the University of British Columbia (UBC) Faculty of Pharmaceutical Sciences is under the portfolio of the Office of Experiential Education. IPE occurs when students, healthcare workers, or health professionals from two or more disciplines work collaboratively to “learn about, from and with each other to enable effective collaboration and improve health outcomes” World Health Organization, 2010.

Our vision for IPE is to become a global leader in a competency-based program in the Entry-to-Practice PharmD, that is integrated and collaborative, to support students in becoming effective interprofessional collaborators in patient care. “As the scope of pharmacist practice continues to expand and healthcare innovations such as team-based care become firmly established, we need to ensure that our graduates are equipped to succeed in and help shape this evolving landscape.” Faculty of Pharmaceutical Sciences

Strategic Plan 2017-2022: Catalyst for Change.

The Entry-to-Practice PharmD curriculum includes required intra- and interprofessional learning experiences, which are embedded throughout the professional program, enabling graduates to provide patient care as a collaborative member of a healthcare team. In order to ensure that the IPE program is meeting our vision, a strategy must be created to evaluate intended outcomes for our students.

Project Overview: The purpose of this project is to conduct a scoping review of the literature, conduct a gap analysis of current curriculum and create an evaluation strategy for the E2P PharmD IPE Program.

Project Activities: The student researcher will participate in the following three main activities as part of this evaluation:

1) Scoping review of literature
   • Formulate the appropriate search strategies for related publications
   • Perform literature review of strategies and specific indicators used for the evaluation of interprofessional education
   • Analyze and summarize relevant literature thoroughly
   • Propose indicators that should be used to evaluate the Entry-to-Practice PharmD program

2) Gap analysis of current program
   • Conduct a gap analysis of all IPE activities and learning objectives in the program, as it relates to the National IPE competencies
   • Identify areas of strengths and areas for improvement in the IPE program
   • Summarize data thoroughly
3) Create evaluation plan for IPE Program
   • Create evaluation strategy for the IPE program including surveys, focus groups, and interviews.
   • Prepare report of findings and present findings to relevant faculty members

**Expected Outcome:** This project will contribute to development of the IPE evaluation.

**Student Attributes:** The summer student researcher will work closely with the supervisors to complete the project. The following are desired skills/abilities for the candidate:
   • Self-motivated and works well independently
   • Communicates in a logical, clear and effective manner
   • Speaks for the intended audience of communication
   • Writes in sophisticated, detailed and concise manner
   • Prepares documents that are consistent and error-free in style, tone, and grammar
   • Reliable and punctual
Summer Student Research Program Project Description
SSRP-Yeung-01

Supervisor(s): Dr. Janice Yeung, Director – Office of Experiential Education

Project Title: Assessing Pharmacy Student Performance on Practicum in the Entry-to-Practice Doctor of Pharmacy Program Using the Dreyfus Model of Skill Acquisition Framework

Background: Performance assessment requires students to demonstrate specific skills or competencies by performing a task or producing something within a real-world practice setting. Performance assessment is prone to assessor subjectivity as individual practice educators may have differing judgements or opinions on performance based on their own perceptions or experiences.

The previous practicum assessment rubric utilized a Likert scale and was based on 9 AFPC Educational Outcomes - Care Provider, Communicator, Collaborator, Manager, Advocate, Scholar and Professional. Student performance was rated from 1 to 9, with 1 to 3 designated as “unsatisfactory”, 4 to 6 as “satisfactory”, and 7 to 9 as “superior”. Guidelines described overall “satisfactory” performance for each outcome but included multiple requirements, some with up to 26 individual elements, and no delineation between the individual ratings themselves (i.e. what is the difference in performance between a 4 and a 6?). This resulted in unclear expectations for both students and practice educators around satisfactory performance and significant challenges with assessment consistency.

To address these issues and provide authentic, actionable feedback to students, an assessment rubric based on the Dreyfus Model of Skill Acquisition framework was developed and implemented for the E2P PharmD direct patient care practicum courses in May 2018. The Dreyfus framework describes the five developmental stages (novice, advanced beginner, competent, proficient, expert) a learner passes through in acquiring a skill. Each developmental stage is delineated and described with expected levels of knowledge, standard of work, autonomy, ability to cope with complexity and perception of context. Due to its’ ability to couple clinical reasoning with performance levels and provide a clearly defined set of standard set of criteria for competency assessment, this framework has garnered interested from different health professional groups. However, it has yet to be widely applied or studied in pharmacy education including experiential education assessment practices.

Project Objective: To better support student learning and to gain further knowledge to inform the ongoing refinement of our experiential education assessment processes, the research questions posed are:

1. To what extent is the Dreyfus Model of Skill Acquisition framework effective for assessing pharmacy student performance on practicum?
2. What are the challenges when using the Dreyfus Model of Skill Acquisition framework in assessing pharmacy student performance on practicum?
3. What improvements can be made when using the Dreyfus Model of Skill Acquisition framework in assessing pharmacy student performance on practicum?
Project Activities: A mixed-methods approach including document analysis, post-practicum surveys, focus groups, and semi-structured interviews will be utilized to solicit student, faculty and practice educator experiences and perceptions.

The student researcher will collaborate with the supervisor in the development and facilitation of focus group discussions and in-person interviews involving students, practice educators and faculty members. Both the interviews and focus group discussions will be audio recorded, transcribed and subject to thematic analysis. Once the major themes around the perceived utility of the assessment rubric are identified, surveys will be created and disseminated to all students and practice educators to verify the information gathered from the focus group and interview discussions.

Expected Outcome: The gained knowledge from this project will inform and guide the ongoing refinement of our assessment processes with the desired goals of:

- Improving student learning in the experiential education practice setting
- Better supporting students in achieving the intended educational outcomes within their practicum courses by clearly defining expected levels of performance and mapping out expected milestones of student learning and skill development longitudinally across our program
- Minimizing subjectivity and improving consistency between practice educators in assessing student capability and competence
- Aligning our practicum assessment processes with the UBC E2P PharmD Program’s Cognitive Model, the framework currently utilized by Faculty in the development of didactic course material. Consistent language and messaging on expectations across the program will hopefully improve student learning.

Required Skills: Strong critical thinking and oral/written communication skills, excellent interpersonal and organizational skills, demonstrates initiative and judgement and ability to work well independently.