



## Research Certificate Program

### *Program Syllabus, Requirements, and Expectations*

The purpose of the Research Certificate Program (RCP) is to provide participants with the foundation to conduct research projects and support those interested in pursuing a career with continued scholarly efforts. The Program is designed to enhance research quality and collaboration amongst Medical College of Wisconsin (MCW) School of Pharmacy, Froedtert & the Medical College of Wisconsin (F&MCW), Children’s Wisconsin, Milwaukee Veteran’s Affairs Healthcare System, Concordia University Wisconsin School of Pharmacy, and other greater Milwaukee partners.

#### **Goals and Objectives:**

1. Increase comfort and awareness of the various research processes and resources available
  - a. Improve understanding of how to develop a research question.
  - b. Improve understanding of research processes.
  - c. Decrease barriers to research.
  - d. Familiarize participants to research to increase the number of research mentors.
  - e. Increase engagement in research.
2. Improve quality of research project submissions.
3. Improve quality of research posters and presentations.
4. Increase ability to apply appropriate statistical tests while writing a protocol and analyzing results.

Additionally, the Program is designed to enhance the research development curriculum of American Society of Health-System Pharmacists (ASHP) accredited residencies, as outlined below.

Goal	Objectives
<u>PGY-1 Residency</u>  R2.2: Demonstrate ability to evaluate and investigate practice, review data, and assimilate scientific evidence to improve patient care and/or the medication-use system.	<ul style="list-style-type: none"> <li>• R2.2.1: (Analyzing) Identify changes needed to improve patient care and/or the medication use system.</li> <li>• R2.2.2: (Creating) Develop a plan to improve patient care and/or the medication-use system.</li> <li>• R2.2.3: (Applying) Implement changes to improve patient care and/or the medication-use system.</li> <li>• R2.2.4: (Evaluating) Assess changes made to improve patient care or the medication-use system.</li> <li>• R2.2.5: (Creating) Effectively develop and present, orally and in writing, a final project report.</li> </ul>
<u>PGY-2 Residency</u>  R2.2: Demonstrate ability to conduct a quality improvement or research project.	<ul style="list-style-type: none"> <li>• R2.2.1: (Analyzing) Identify or refine a specific project topic to improve patient care of internal medicine patients, or a topic for advancing internal medicine pharmacy practice.</li> <li>• R2.2.2: (Creating) Develop a plan or research protocol for a practice quality improvement or research project for the care of internal medicine patients, or a topic for advancing the pharmacy profession or internal medicine pharmacy practice.</li> <li>• 2.2.3 (Evaluating) Collect and evaluate data for a practice quality improvement or research project for the care of internal medicine patients or for a topic for advancing the pharmacy profession or internal medicine pharmacy practice.</li> <li>• R2.2.4: (Applying) Implement quality improvement or research project to improve care of internal medicine patients or implement</li> </ul>

	<p>an idea/project intended to advance the pharmacy profession or internal medicine pharmacy practice.</p> <ul style="list-style-type: none"> <li>• R2.2.5: (Evaluating) Assess the implemented project and determine whether changes are required.</li> <li>• R2.2.6: (Creating) Effectively develop and present, orally and in writing, a final project or research report suitable for publication related to care for internal medicine patients or for a topic for advancing the pharmacy profession or internal medicine pharmacy practice at a local, regional, or national conference. (The presentation can be virtual.)</li> </ul>
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**Program Co-Chairs:**

<p><b>Kristin Busse, PharmD, BCPS</b>  <i>Assistant Professor of Regulatory Sciences</i>  School of Pharmacy  <i>Regulated Research Oversight Program Director</i>  Office of Research  Medical College of Wisconsin  8701 W Watertown Plank Rd  Milwaukee, WI 53226  <a href="mailto:kbusse@mcw.edu">kbusse@mcw.edu</a></p>	<p><b>Co-Chair Vacant</b></p>
<p><b>Program Advisory Group:</b></p>	
<p><b>Joel T. Feih, PharmD, BCCCP</b>  <i>Clinical Pharmacist, Froedtert Hospital</i>  <i>PGY2 Critical Care Pharmacy Residency</i>  <i>Program Director</i>  Froedtert &amp; the Medical College of Wisconsin  9200 West Wisconsin Avenue  Milwaukee, Wisconsin 53226  <a href="mailto:joel.feih@froedtert.com">joel.feih@froedtert.com</a></p>	<p><b>William J. Peppard, PharmD, BCPS, FCCM</b>  <i>Pain Stewardship Coordinator</i>  Froedtert &amp; the Medical College of Wisconsin  <a href="mailto:william.peppard@froedtert.com">william.peppard@froedtert.com</a></p>
<p><b>Audrey Kostrzewa, PharmD, MPH, BCPS</b>  <i>Medical Utilization Pharmacist</i>  Froedtert &amp; the Medical College of Wisconsin  <i>Associate Professor</i>  Concordia University School of Pharmacy  <a href="mailto:audrey.kostrzewa@froedtert.com">audrey.kostrzewa@froedtert.com</a>  <a href="mailto:Audrey.Kostrzewa@cuw.edu">Audrey.Kostrzewa@cuw.edu</a></p>	<p><b>Anne Zechlinski, PharmD, BCPS</b>  <i>Pharmacy Coordinator</i>  <i>PGY1 Pharmacy Residency Program Director</i>  Froedtert &amp; the Medical College of Wisconsin  <a href="mailto:anne.zechlinski@froedtert.com">anne.zechlinski@froedtert.com</a></p>
<p><b>Kajua Lor, PharmD, BCACP</b>  <i>Founding Chair/Associate Professor, Clinical Sciences Department</i>  Medical College of Wisconsin School of Pharmacy  <a href="mailto:kblor@mcw.edu">kblor@mcw.edu</a></p>	
<p><b>Staff Support:</b></p>	
<p><b>Ms. Teresa Dobrowski</b>  Program Coordinator II  Medical College of Wisconsin  School of Pharmacy  <a href="mailto:tdobrowski@mcw.edu">tdobrowski@mcw.edu</a></p>	

Contact information for all MCW School of Pharmacy administration, faculty and staff is available on the MCW School of Pharmacy Phone List. Faculty biography information is available on the MCW School of Pharmacy [website](#).

**Audience:** Any pharmacy resident, preceptor, or project advisor at the Medical College of Wisconsin or greater Milwaukee area healthcare partner is eligible to complete this certificate program.

**Components for Completion of the Certificate:**

- Attendance at 100% of Research Development Series sessions
- Active participation in the Research Development Series sessions, whether joining live or virtual
- Completion of a brief quiz after each session [Required - Due 30 days after each session]
- Program evaluation and feedback [Required – Due 30 days after each session]
- Abstract Submission [Required - Due 4/1/2024]
- Poster or oral presentation at a national-, regional-, or state-level meeting [Required - Due 6/1/2024]
- Poster presentation at the MCW School of Pharmacy Research Forum in May [Required]
- Preparation of a manuscript suitable for publication in a peer-reviewed journal [Optional]

Note: For Residents, Residency Program Director approval is required prior to granting the certificate. The Research Certificate is optional for most residents. However, individual residency programs have the opportunity to require additional components as part of certificate completion; they may also require the certificate as part of residency completion requirements. Discuss with your Residency Program Director what their expectations are for the Research Certificate.

**Logistics and Expectations for Completion:**

The participant is responsible for tracking their own completion of the program and ensuring that program leadership have all the necessary components to award a certificate at the end of the year. Reminders will not be sent to request the needed materials.

Attendance at 100% of the Research Development Series sessions is required. Participants should make every effort to attend live and in-person. Virtual attendance will be allowed.

As part of completion, participants will be expected to complete any assigned pre-session readings or activities and the post-session project activities described below. Pre-session readings or activities will be distributed by the session leader in advance and should be completed prior to attending the session. Session presentation materials will be distributed to participants after the session. Post-session project activities should be completed by the participant in a timely fashion after the session. These deliverables do not need to be submitted to the program leadership.

Participants will be expected to share final deliverables for their poster or presentation and manuscript (optional) prior to the end of the residency or the fiscal year (exception for PGY1 HSPAL transitioning into PGY2). These deliverables should be emailed to [SOPRCP@mcw.edu](mailto:SOPRCP@mcw.edu) at least 4 weeks prior to the end of the residency or fiscal year. See deadlines for deliverables above.

Participants will be expected to complete program evaluation after each research development series session. Questions intended to engage learners to identify areas of improvement for the Program will be included in the attendance quiz required to document participation at each research development session.

**Research Development Series (RDS):**

Most sessions are approximately 1 hour long and will occur during a typical Academic Afternoon schedule. To achieve 100% attendance, participants will have to view the session either synchronously (in person or virtual) or asynchronously and complete a brief quiz. Sessions will be recorded and provided via Webex Teams.

Each session has associated objectives and recommended project activities. The participant is expected to complete the recommended project activities prior to the corresponding discussion session and then use the information from each session to modify and optimize that component of their residency project.

Session #	Timing	Topic	Objectives for the Session	Recommended Project Activities	Leader
1	7/12/2023 1400	Developing a Research Question and Specific Aims (1 hour)	<ul style="list-style-type: none"> <li>Describe the services and resources that the library provides and how to access the content.</li> <li>Describe the steps involved in identifying a research question.</li> <li>Discuss how to do a systematic review of the literature.</li> </ul>	<ul style="list-style-type: none"> <li>Apply concepts from this session to develop your research question further.</li> <li>Perform a comprehensive literature search prior to <i>Research Best Practices from a Librarian's Perspective</i> session.</li> </ul>	Ashley Zeidler, MCW Librarian
2	7/19/2023 1400	Institutional Review Board (IRB) and Institutional Research Resources (1 hour)	<ul style="list-style-type: none"> <li>Describe the Belmont Report and ethical principles of research.</li> <li>Explain the role of IRB and oversight of human subject protections.</li> <li>Describe the contents of a project protocol that incorporate appropriate ethical standards for research.</li> <li>Describe institutional resources available for research.</li> <li>Explain the institutional process for project approval.</li> </ul>	<ul style="list-style-type: none"> <li>Register in eBridge in preparation for your IRB submission.</li> <li>Apply concepts from this session in preparing the first draft of your project protocol.</li> </ul>	Kristin Busse, MCW School of Pharmacy
3	7/26/2023 1400	Introduction to Citation Managers and Practice Workshop (1 hour)	<ul style="list-style-type: none"> <li>Review Zotero Citation Manager functionality</li> <li>Practice adding literature references to your Zotero account</li> </ul>	<ul style="list-style-type: none"> <li>Create an account to log into Zotero</li> <li>Apply concepts from this session in developing your project background literature search.</li> </ul>	Audrey Kostrzewa, CUW School of Pharmacy

Session #	Timing	Topic	Objectives for the Session	Recommended Project Activities	Leader
4	8/9/2023	Study Design 101 (1 hour)	<ul style="list-style-type: none"> <li>• Compare and contrast various study designs.</li> <li>• Characterize a study based on how its methods are designed.</li> <li>• Describe the methods of a study given its design.</li> <li>• Understand Qualitative Study Designs</li> </ul>	<ul style="list-style-type: none"> <li>• Identify an appropriate and detailed description for your study design.</li> <li>• Describe associated advantages and disadvantages with that design for incorporation into future discussion section of your manuscript.</li> </ul>	Audrey Kostrzewa, CUW School of Pharmacy
5	8/16/2023	Meta analysis and scoping reviews (1 hour)	<ul style="list-style-type: none"> <li>• Explain common characteristics, advantages, and disadvantages of meta-analyses and scoping reviews.</li> <li>• Identify how pharmacy clinicians may be involved in these types of projects</li> </ul>	<ul style="list-style-type: none"> <li>• Review your reference list for any meta-analyses, systematic reviews, general reviews, or noninferiority trials.</li> <li>• Apply concepts from this session to critique those studies and take note for incorporation into future background or discussion sections of your manuscript.</li> </ul>	Eric Harding, MLS Clinical Services MCW Librarian
6	8/30/2023	Statistics 101 (1 hour)	<ul style="list-style-type: none"> <li>• Identify types of data and variables.</li> <li>• Describe the process of determining an appropriate statistical test.</li> <li>• Identify the appropriate statistical test given appropriate details of a study and its outcome(s).</li> </ul>	<ul style="list-style-type: none"> <li>• Review your primary and secondary outcomes and classify the data types.</li> <li>• Using the data type, identify the appropriate measures of central tendency and variability (if applicable) or other appropriate descriptive statistics to summarize that data type.</li> <li>• Review your primary and secondary outcomes to identify if inferential statistics can be applied</li> </ul>	Shannon Werner/ Dan Kapp
7	9/6/2023	Applied Statistics (1 hour)	Demonstrate matching methods and how to execute in practice. Describe statistical methods for minimizing bias and identifying confounders.	<ul style="list-style-type: none"> <li>• Identify if statistical methods for minimizing bias or identifying confounders might be appropriate for your project.</li> </ul>	Ruta Brazauskas, MCW Biostatistics

Session #	Timing	Topic	Objectives for the Session	Recommended Project Activities	Leader
				<ul style="list-style-type: none"> <li>Apply concepts from this lecture to optimize your data collection tool.</li> </ul>	
8	9/27/2023	Preparing and Delivering a Research Abstract (1 hour)	<ul style="list-style-type: none"> <li>Apply authorship guidelines to establish the most appropriate authorship order for your research project.</li> <li>Develop presentation objectives and self-assessment questions using Bloom's Taxonomy that are customized and specific for your audience.</li> <li>Identify and report the most relevant research outcomes in an abstract based on the research methodology, platform for presentation (eg, podium, webinar, poster), audience composition (eg, pharmacist, physician, nurse, multi-professional), and audience level of experience (eg, learners, staff).</li> </ul>	<ul style="list-style-type: none"> <li>Discuss authorship order for abstracts and presentations of your project with your project team.</li> <li>Draft (or review and revise) your presentation objectives and self-assessment questions.</li> <li>Draft (or review and revise) your abstract submission for your project.</li> </ul>	Bill Peppard
9	10/18/2023	Data Management (1 hour)	<ul style="list-style-type: none"> <li>Describe available electronic platforms for data collection (Excel, Access, RedCap), and identify strengths and limitations for each.</li> <li>Identify tactics for data organization, creating a data collection tool, and formats for recording data.</li> <li>Discuss data cleaning after data collection prior to data analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Discuss with adviser and team which electronic platform will be best for your project.</li> <li>Identify which data points will require transformation for analysis.</li> <li>Create your data dictionary and data collection tool.</li> </ul>	Brianne Bakken, MCW School of Pharmacy
10	1/17/2024	Applied Statistics - Workshop (1 hour)	<ul style="list-style-type: none"> <li>Using an example data set, practice basic statistical analysis for primary outcome analysis and demographics</li> </ul>	<ul style="list-style-type: none"> <li>Confirm account access to Minitab</li> </ul>	Anne Zechlinski / Kajua Lor, MCW School of Pharmacy

Session #	Timing	Topic	Objectives for the Session	Recommended Project Activities	Leader
11	2/7/2024	Manuscript Preparation (1 hour)	<ul style="list-style-type: none"> <li>• Discuss how to establish authorship criteria for a manuscript.</li> <li>• Discuss how to select an appropriate journal with or without a journal finder.</li> <li>• Describe the different sections of the manuscript and the process for writing the manuscript.</li> <li>• Examine the article submission and peer review process with appropriate follow-up actions.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss authorship order for the manuscript with your project team.</li> <li>• Identify options for publication of your project, and narrow selection to target a single journal.</li> <li>• Draft (or review and revise) your manuscript applying the guidelines for your selected journal.</li> </ul>	Joel Feih / Janelle Juul
12	3/6/2024	Open Access Publishing (1 hour)	<ul style="list-style-type: none"> <li>• Describe an overview of Open Access publishing</li> <li>• Explain how Open Access different than traditional publishing</li> <li>• Identify the implications for researchers, publishers, and libraries</li> <li>• Describe considerations to be aware of when publishing in the open access model</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion with project team the option of Open Access publishing</li> </ul>	Ashely Zeidler, MCW Librarian



**Registration Information:**

- **Please register by Wednesday July 12<sup>th</sup>** by completing the registration form. Once registered, program staff will add you to the WebEx Team where you will find more program information.
- Fill out the registration form with the link provided [HERE](#) or scan the QR code below.

