Applied Practice Experience (APE) and Integrative Learning Experience (ILE) guide for the MPH with Specialization in Biomedical Informatics

2023-2024

THE OHIO STATE UNIVERSITY

COLLEGE OF MEDICINE

THE OHIO STATE UNIVERSITY

COLLEGE OF PUBLIC HEALTH

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Applied Practice Experience (APE) AND Integrative Learning Experience (ILE) FOR THE MASTER OF PUBLIC HEALTH IN BIOMEDICAL INFORMATICS

Overview

The objective of the Applied Practice Experience (APE) and Integrative Learning Experience (ILE) in the Master of Public Health with a specialization in Biomedical Informatics (MPH-BMI) is to demonstrate competency attainment and provide the student with a continuum of experiences that constitute the foundation for a career in applied biomedical informatics with a specific focus on addressing population-level health. These experiences range from the initial identification of motivating informational needs, to the generation of informatics-based intervention strategies targeting such requirements, to the evaluation of the impact and outcomes of ensuing technologies and methods. Accordingly, the APE and ILE encompass different stages of the spectrum of experiences but are, in fact, a continuum in the process of new knowledge discovery and application. The table below summarizes the key points to know about the APE and ILE:

	APE	ILE
Pre-requisites /timing	Complete at least 20 hours of coursework in MPH program prior to starting; often completed in the summer after the first year of MPH	Usually completed after the APE, in the final semester of MPH
Setting	Work with preceptor at a governmental, non-governmental, non-profit, industrial, or for-profit site outside of the Colleges of Medicine and Public Health	Work under the guidance of a faculty member in the Colleges of Medicine or Public Health
Primary activity	Practical, operational work with a site preceptor	Applied research or practice-based project including Data collection, analysis, and synthesis of findings
What to hand in	- Final report - 2 work products - Student evaluation - Preceptor evaluation - Faculty advisor evaluation	- Research paper - Formal presentation to ILE committee
To read more	https://cph.osu.edu/mph/appliedpracticeexperience	https://cph.osu.edu/students/graduate/mph-integrative-learning-experience
To register	Register using the online APE Learning agreement, found at: https://cph.osu.edu/mph/appliedpracticeexperience/students	Submit your proposal for approval: https://osu.az1.qualtrics.com/jfe/form/SV_5cChIE9WDWypCDQ

The Applied Practice Experience

APE Content and Requirements

For the MPH-BMI, the APE represents an opportunity for the student to work closely with a research and/or operational mentor who serves as the preceptor to guide the student through a series of experiences. The student's academic advisor collaborates in designing and approving the learning content to ensure the content is BMI-focused in nature. For general guidance on the APE see https://cph.osu.edu/mph/appliedpracticeexperience. This document will outline the unique features of the APE for BMI students.

Because of the multi-disciplinary nature of the BMI program, APE projects can vary widely from student to student, depending on their interest in the field. Given this diversity, it is expected that students establish a base knowledge of BMI principles and theories by taking Introduction to Biomedical Informatics (BMI 5710), Introduction to Research Informatics (BMI 5740) and biostatistics courses within CPH before starting their APE projects. By establishing this foundation, the student will be able to identify appropriate projects and use informatics applications in all aspects of their topic selection, study design, planning, and project implementation. Finally, given the unique computational dimensions of the intersection between Public Health and Biomedical Informatics, a foundational acculturation to computer science is strongly encouraged prior to engaging in this APE.

As its name implies, the APE comprises the practical skills involved in any biomedical informatics/public health informatics project. The APE involves working with a research or operational mentor outside of CPH and BMI, and should result in 2 practical, non-academic work products that are of use to the organization and that demonstrate competency attainment. These work products could include:
1. Grant proposals
2. Training manuals
3. Surveys
4. Presentations
5. Spreadsheets
6. Websites
7. Applications

BMI students are encouraged to begin discussions of possible APE opportunities with their academic advisors and potential research/operational mentors as soon as possible after beginning the program. This will help the student's faculty academic advisor to suggest any courses they should take that might be critical to the success of their project in anticipation of the APE.

APE Report Guidelines

All MPH students are required to complete and submit the following components for their APE to CARMEN: All APE forms can be found online on the CPH APE Page, https://cph.osu.edu/mph/appliedpracticeexperience
1. Final report (see below for details)
2. Work product #1
3. Work product #2
4. Student evaluation

Final Report
The final written report should focus on sharing information on the APE experience. At the conclusion of the APE, BMI students will prepare a brief report discussing APE goals and objectives and how the APE allowed the student to address the competencies outlined in the learning agreement.

The report's length needs to be sufficient to cover the expected content carefully, usually around ten pages in length.

The final report must present a clear picture of your APE with details of your research or practice experience and how this APE is important to the field of public health.

Please see the final report requirements at https://cph.osu.edu/mph/appliedpracticeexperience/requirements. For the BMI APE final report, be sure to address the following additional prompts:

1. Underlying driving problems as well as corresponding information needs. What problem are you trying to address and how will Biomedical Informatics theories and methods satisfy corresponding information needs? How will you evaluate the desired outcome?

2. What is your overall study design or project plan? Classify the design in terms of methodology and evaluation plans/approaches?

3. What bioethical issues are relevant to this project? What was your participation in the IRB process (if one was in place simply state; but discuss the ethical and human subject issues relevant to this project, if any).

4. Describe any plans for data collection, codification, and management.

5. What biostatistical and/or qualitative methods do you anticipate for the analysis of any data collected?

Both the APE preceptor and the faculty academic advisor will be responsible for verifying the achievement of the APE objectives and your performance. A final copy of the final written report and work products should be provided to your faculty advisor and APE preceptor. Once approved, these should be uploaded to Carmen along with the evaluations.

For advice on fulfilling the above requirements, please consult your faculty advisor.

The Integrative Learning Experience

ILE Project Overview

MPH-BMI students can satisfy the ILE, by completing a combined APE and ILE or as a stand-alone ILE where the skills learned in the APE can be applied to a separate ILE. In a stand-alone ILE, the student completes an appropriate informatics project including relevant data analysis. In the combined APE and ILE the research process initiated in the APE continues and consists of the appropriate statistical analysis of the data collected within the APE. These analyses are then reported in a final paper, which is to be prepared in scientific journal format. Though students may collaborate with others on the project, the final report must represent the student's own work

The Master's examination committee should consist of the faculty advisor (a BMI faculty member), and a CPH faculty member (chosen after discussion with your faculty member). Both committee members must have category M or P Graduate Faculty status in the College of Public Health and at least one committee member must have a *primary appointment in the College of Public Health*. If the student's research advisor is not the academic advisor or a primary appointment CPH faculty member they can serve as a 3rd faculty member on the committee. Completion of the culminating project involves review and approval of the final report by the committee in addition to an oral presentation of the work to the committee. This presentation should be approximately 20-30 minutes, followed by discussion and questions from the committee.

Students are encouraged to submit abstract summaries of their work at national meetings and to publish their findings in an appropriate peer-reviewed scientific journal.

ILE Report Guidelines

The final report for the ILE must represent your own individual work. If you are working on a collaborative project, your final report must be some aspect of the project that you completed yourself and must be in the format of a peer-reviewed journal article.

The MPH-BMI ILE final report should include the following elements:

1. Title Page
2. Abstract – brief summary of the project
3. Introduction and Background – rationale for the project; what is the basic research and why is it of interest
4. Literature Review – synthesize information written by other researchers and evaluation it according to the guiding concept that you have identified for your project
5. Methods – what were the methods and procedures used to collect and analyze data, what were the key variables of interest, and how were those variables measured

6. Results – describe the results of the data analyses and refer to any tables and figures within the text; reference any tables used from other sources
7. Discussion – interpret the data as they relate to project questions, goals, and objectives; discuss the implications of the findings and how they may impact public health

For more details on the ILE report, consult your faculty advisor, and see the CPH ILE guidance at https://cph.osu.edu/students/graduate/mph-integrative-learning-experience.

MAKE SURE TO CAREFULLY FOLLOW THE TIMELINE AND CHECKLIST ON THE NEXT PAGE TO PREVENT ANY DELAYS IN GRADUATION.

Two semesters prior to the semester of completion:

___ Discuss your ILE plan with your faculty advisor.

The semester prior to completion:

___ Third week of the term prior to the term of graduation: Work with your advisor to identify a second reader with a primary appointment in the College of Public Health and appropriate Graduate Faculty status to serveon your master's exam committee*.*

___ Fourth week of the term prior to the term of graduation: Submit the BMI ILE permission form at http://go.osu.edu/bmi-ILE to get department approval to register for PUBHLTH 7998 for 3 credit hours during your last semester. This form will get electronically routed to your faculty advisor.

___Fill out a CPH Course Enrollment Permission form at http://go.osu.edu/cphpermissiontoenroll in order for OAPSS staff to be able to register you for Public Health 7998 with your advisor. **If the BMI ILE permissions form is not already approved, this requested will be denied.**

___ Submit the application to graduate online to the Graduate School by the last day of classes of the term *prior* to the semester of graduation.

The final semester:

___ Meet with your faculty advisor and agree upon a timeline to complete the requirements for your project and schedule a time convenient for your committee for the presentation of your findings

___ Submit your final paper to your committee members at least 2 weeks prior to your scheduled presentation

___ The results of the Master's Exam must be submitted via Gradforms by all Committee members by Graduate School deadlines

___ Keep your advisor updated on your progress.

___ Submit an electronic copy (PDF or Word) of your approved project to OAPSS the Friday before graduation

Graduation Calendar

Semester	Applications to Graduate Due	Examinations and Reports Completed by	Approved thesis and dissertation submitted and accepted by	Commencement	End-of-Semester Deadline
Autumn 2023	Sept. 8, 2023	Nov. 22, 2023	Dec. 1, 2023	Dec. 17, 2023	Jan. 5, 2023
Spring 2024	Jan. 26, 2024	Apr. 12, 2024	Apr. 19, 2024	May 5, 2024	May 6, 2024
Summer 2024	May 24, 2024	July 12, 2024	July 19, 2024	Aug. 4, 2024	Aug 19, 2024

<p style="text-align: center;">**Responsible Research Practice Requirements**
(Appendix H of the CPH Handbook)</p>

Many students in the College of Public Health and College of Medicine are involved in research, either for their own degree requirements or in work assignments with faculty members or others. It is essential that students learn and abide by the applicable rules concerning research involving human or animal subject. This topic will be covered in some courses as appropriate. This summary is intended to provide an overview. You are strongly advised to contact your faculty advisor or employer about the procedures described below.

What research is covered by this policy?

All research that collects data from human subject needs to be approved by the OSU Institutional Review Board (IRB). All research involving animals needs approval from OSU Institutional Animal Care and Use Committee (IACUC). This includes culminating project, these and doctoral dissertations. In a few rare cases, APE placements might also need approval if it involves collecting research-type data. When IRB or IACUC approval are necessary, such approval must be obtained before any data collection begins. Allow 6 weeks or more from submission to approval.

Research with human subject
When do project need IRB approval?

The linked document from Ohio State's Human Research Protection Program defines clearly what constitutes "research" and what types of research require IRB oversight. The document can be found here: https://orrp.osu.edu/files/2022/01/2-Research-Involving-Human-Subjects.pdf. Pages 6-8, are very useful to help determine when IRB oversight is required. If your research seems to fall into a "gray area" not clearly covered by this document, contact Ohio State's Office of Responsible Research Practices for help.

Procedures for human subject research approval

Students should work closely with their faculty advisors to complete the necessary materials to secure approval for research with human subject. Guidance, forms, and directions are available through the Office of Responsible Research Practices: http://orrp.osu.edu/irb/buck-IRB/

All faculty, staff and students participating in human subject research at Ohio State are required to complete the Collaborative Institutional Training Initiative (CITI) web-based course on human subject available at http://orrp.osu.edu/irb/training/citi. The Office of Responsible Research Practices also offers regular training for researchers. Additional information is available on the Web at http://orrp.osu.edu/irb/training/. In addition to completing CITI training, everyone (faculty, staff, and students) involved in sponsored research or other research which is reviewed by the IRB must also complete a Conflict of Interest disclosure, which can be found at http://go.osu.edu/coi.

Some low-risk research may qualify for "exemption" from full IRB review; however, the determination that the research is exempt must be made by the university's Office of

Responsible Research practices (ORRP) and cannot be assumed by the student or investigator. Students who will be using data previously collected by faculty members for a theses, dissertation, or culminating project will also need to obtain IRB approval, frequently via the exempt status form. The form for requesting an exemption determination is available at http://orrp.osu.edu/irb/irbforms/exempt/

One aspect of student research which should be noted is that for purposes of the IRB application, the student's advisor must be listed on the form as the "Principal Investigator," i.e., the person responsible for the research. The student is a "co-investigator." Both the student and the advisor must have completed the on-line human subject training (CITI). The IRB will not review an application unless everyone listed as principal or co-investigator has completed the on-line training.

Research with animals
All animal protocols should be submitted in via the university's e-Protocol system. Directions to secure approval for research with animals are available through the Office of Responsible Research Practices. Approval requires completion of the Animal Usage Orientation Course (either classroom or online) and the Occupational Health and Safety Training Course (online only). Information regarding these courses is available online at http://orrp.osu.edu/iacuc/.

Need assistance?
You are encouraged to contact your faculty advisor or employer about research, including the requirements for responsible research practices. You may also speak with Maria Gallo PhD, Associate Dean for Research in the College of Public Health, if you have questions or concerns.

If you have additional questions or need to discuss specific issues concerning research you are undertaking, contact:
Office of Responsible Research Practices
The Ohio State University
300 Research Administration Building
1960 Kenny Road Columbus, Ohio 43210-1063
Phone: (614) 688-8457
Fax: (614) 688-0366
http://orrp.osu.edu/

[Template for APE Report Cover Page]

Applied Practice Experience Final Report

Student Name
MPH in Biomedical Informatics
Entering Class of 20xx

Title

Research Mentor: Name
Department, Organization

Faculty Academic Advisor: Name

Date Submitted

[Template for ILE Cover Page]

Title

Student Name
Entering Class of 20xx

Integrative Learning Experience for

Master of Public Health in Biomedical Informatics

Committee Members:

Faculty Academic Advisor's Name

Research Mentor's Name

Additional Graduate Faculty Member's Name

The Ohio State University College of Public Health and

College of Medicine's Department of Biomedical Informatics

Submitted on Date