

# Milken Institute School of Public Health

THE GEORGE WASHINGTON UNIVERSITY

## Department of Epidemiology

### PUBH 6280.10

#### Public Health Microbiology and Emerging Infectious Disease Final Project (2 Credits)

Residential Graduate Course

For more information, please visit:  
<https://publichealth.gwu.edu/practice-experience-ms-phmeid>

#### Course Co-Directors

Dr. Irene Kuo  
Associate Research Professor  
Department of Epidemiology  
950 New Hampshire Avenue NW, 5<sup>th</sup> Floor  
Washington, DC 20052  
Phone: 202-994-0367  
Email: [ikuo@gwu.edu](mailto:ikuo@gwu.edu)

Dr. Mimi Ghosh  
Associate Professor  
Department of Epidemiology  
800 22<sup>nd</sup> Street NW, 7<sup>th</sup> Floor  
Washington, DC 20052  
Phone: 202-994-5740  
Email: [mghosh@gwu.edu](mailto:mghosh@gwu.edu)

#### Course Coordinators

Vivi Alves de Sa, MS  
Practicum Co-Director  
950 New Hampshire Ave NW 5<sup>th</sup> Floor  
Phone: (202) 994-0556  
Email: [vivianne\\_a@gwu.edu](mailto:vivianne_a@gwu.edu)  
Office Hours: by appointment.

Joseph Schmitthenner, MS  
Practicum Co-Director  
950 New Hampshire Ave NW 5<sup>th</sup> Floor  
Phone: (202) 994-7154  
Email: [jschmitthenner@email.gwu.edu](mailto:jschmitthenner@email.gwu.edu)  
Office Hours: By appointment

#### Bulletin Description

Research project to demonstrate proficiency in application of skills acquired throughout the MS PHMEID program

#### Short Title of Course

MS PHMEID Final Project

#### Course Summary

The **Final Project** is a credit/no credit course which consists of four elements that focus on the synthesis and summary of data acquired through epidemiologic and/or public health laboratory research. The four elements are: (a) Concept Paper, (b) Proposal, (c) Final Report, and (d) two Oral Presentations (one at the site, and a final presentation evaluated by GW Faculty). These elements are fully described in the Appendix – Guidelines for Final Project Elements.

MSPHMEID students are required to demonstrate proficiency in the application of the skills they acquire during their academic programs through the **Final Project** (PUBH 6280.10).

### **Course Prerequisites**

- PUBH 6002 Biostatistical Applications for Public Health
- PUBH 6003 Principles and Practice of Epidemiology

### ***Co-Requisites***

- PUBH 6247 Epidemiologic Methods I: Design of Health Studies
- PUBH 6853 Use of SAS for Data Management & Analysis

### ***Other prerequisites***

- Students must complete the GWU Biosafety training course (chemical hygiene component) during the spring semester of their 1<sup>st</sup> year of matriculation
- Students must take the online training courses relating to research with human subjects (CITI) and personal health information (HIPAA)
- Students must have participated in the Department of Epidemiology mandatory Final Project orientation
- If applicable, students must have submitted IRB paperwork before participating in the Final Project.

### **Student Responsibilities**

1. Before registering for the Final Project, students should talk to the Course Director to discuss their plans and interests.
2. The first step in the Final Project is identification of a topic of study
3. The first requirement of the Final Project is the development of a concept paper which describes the work that will be done and how it will be carried out. (See Appendix for Concept Paper template)
4. The Concept Paper is reviewed and approved by the Site Preceptor and GW Faculty Advisor to assess the appropriateness of its scope as well as its feasibility.
5. Once the Concept Paper is approved, the student expands the Concept Paper into a Proposal which requires the approval of the GW Faculty Advisor and Site Preceptor. (See Appendix for Proposal guidelines)
6. **Student Project Oversight**
  - a. All students participating in projects related to school requirements (dissertation, MPH culminating experience (CE), MPH Practicum, Biostatistics Consulting Practicum, independent study, etc.) require oversight of their projects. This is not only for human protection / IRB reasons but also so the Department can monitor what types of projects are being conducted by students and ensure proper oversight.
  - b. Before beginning any school project involving seeing or handling data derived from humans, students must complete the determination process and have a determination about next steps made.
  - c. Student requirements for project oversight are not always the same as faculty requirements. For example, certain types of studies may be considered non-human subjects research (NHSR) for faculty but due to their sensitive subject area, exempt review is required for students.

7. Approval for the project itself is not implied by the completion of the determination project; students still need to work with faculty and staff to ensure the project is approved and meets academic requirements.
  - a. It is the faculty advisor's responsibility to ensure that students have a determination on file for projects that meet academic program requirements. Students cannot begin their projects until process is completed. Faculty advisors are ultimately responsible for each of the students that they advise on research projects.

### **Process**

- Once Practicum Director (PD) approves practicum plan, they will advise student to complete the Student Project Oversight form here: <https://cri-datacap.org/surveys/index.php?s=T3783HC8Y4>
- Final determinations will be sent to the student, faculty advisor, and PDs
- RTF forms for the Practicum, CE, Final Project, or Independent Study, students will not be approved until a determination has been made and all relevant approvals are in place.
- Students should submit their Concept Paper, Proposal, and IRB Determination Form as soon as possible. Once the Concept Paper and Proposal are approved copies should be submitted to the Course Director.
- Students will produce a Final Report which expands on their Proposal by including their results and discussion. (See Appendix for guidelines for the Final Report) The GW Faculty Advisor must receive a near final draft of the complete report four weeks before the student intends to make their Oral Presentation.
- Once the GW Faculty Advisor and Site Preceptor give authorization, the student works with their GW Faculty Advisor and Final Project Course Coordinator to schedule the Oral Presentation. Students are encouraged to invite their Site Preceptors to their Oral Presentations.
- Students must provide the GW Faculty Advisor with a copy of their PowerPoint presentation two weeks before the scheduled date of their Oral Presentation. (See Appendix)
- Each student is required to make an Oral Presentation to their site preceptor (if they are working in the field) and/or GW Faculty Advisor previous to the actual final Oral Presentation.

### **Deliverables**

As they progress through the Final Project, students are required to provide the course director with electronic copies of the final versions of the Concept Paper, Proposal, Final Paper and Oral Presentation so that these can be saved in the students' electronic folders.

### **Course Objectives**

Upon completion of the course, students will be able to:

1. Identify and assess patterns of emerging infectious diseases to postulate hypotheses and to identify appropriate strategies in order to evaluate the impact of health problems.
2. Enumerate and apply underlying principles and methods to design, plan, and conduct epidemiologic studies including observational and experimental designs, screening programs, public health surveillance, and other epidemiologic designs.

3. Apply epidemiological and biomedical public health laboratory concepts in identifying and describing the determinants and the distribution of infectious diseases in human populations.
4. Synthesize data and relevant literature to interpret findings in a causal framework, write manuscripts, and make oral presentations.

### **Required Texts**

None. Students will conduct relevant research to inform their Final Project.

### **Key Definitions – Course Participants**

- Students – Students identify and develop a topic applying and integrating the knowledge and skills they have obtained through epidemiologic research or surveillance data.
- Site Preceptor – The individual in the field who supervises the student’s work and provides input to the GW Faculty Advisor on the student’s performance, through an evaluation.
- GW Faculty Advisor – A member of the GWSPH Department of Epidemiology faculty who works with the student throughout the process to ensure that the student’s project and work meet Departmental standards. The GW Faculty Advisor is responsible for portions of the student’s final evaluation and grade.
- Final Project Course Director– guides student through the Final Project process.

### **Method of Instruction**

<input type="checkbox"/>	Lectures	<input type="checkbox"/>	Class and Small Group Discussions
<input type="checkbox"/>	Case Studies	<input checked="" type="checkbox"/>	Student Presentations
<input type="checkbox"/>	Required Readings/Textbook	<input type="checkbox"/>	Other Field Lab Research
<input type="checkbox"/>	Recommended/Supplemental Readings	<input checked="" type="checkbox"/>	Other [Independent Research]

Students are actively involved in the integration of knowledge and skills gained in their MSPHMEID program under the supervision of the Site Preceptor and the GW Faculty Advisor. The student’s progress in accomplishing the four basic elements of the course is tracked with the use of the Student Checklist, which assists students by outlining the specific steps needed to complete the Final Project. The Student Checklist is available on the Final Project Resource Page: <https://publichealth.gwu.edu/practice-experience-ms-phmeid>

### **Methods of Evaluation**

Students will be assessed on how well they accomplish the objectives for the Final Project through the evaluation of their (a) Concept Paper, (b) Proposal, (c) Final Report, and (d) Oral Presentation. The Site Preceptor completes an evaluation of the student’s performance. The GW Faculty Advisor also contributes to the final grade, as do Faculty attending the students’ presentations.

### **Grading Scale**

This is a credit/no credit course. Students will be assessed and graded on how well they accomplish the objectives for the Final Project through the evaluation of the following elements:

- Concept Paper and Proposal –25%
- Final Report – 35%
- Oral Presentation – 20%

- Final evaluation – 20%

Each of the required elements will be evaluated separately by the GW Faculty Advisor and the Site Preceptor. The Oral Presentation will be evaluated based on feedback from the GW Faculty Advisor and Departmental faculty attending the final presentation.

The rating scale is as follows:

- 1 = unacceptable
- 2 = poor
- 3 = acceptable
- 4 = good
- 5 = excellent

To receive credit, a student must have a score of 3 or more in at least 3 of the evaluation categories.

The table below shows the overall and proportional contribution of the GW Faculty Advisor, Site Preceptor and GW Faculty in calculating the student's final grade for the Final Project.

Element	Overall Proportion of Grade	GW Faculty Advisor (%)	Site Preceptor (%)	GW Faculty (%)
FP Prep: Concept Paper, Proposal, IRB submission, if applicable	25%	15	10	--
Final Report	35%	25	10	--
Oral Presentations	20%	10	0	10
Final evaluation	20%	10	10	--
<b>Total</b>	<b>100%</b>	<b>60</b>	<b>30</b>	<b>10</b>

### **Class Policy: Attendance/Participation**

This is not a classroom experience but one where students work semi-independently, under the supervision of their preceptor and GW Faculty Advisor.

### **Academic Integrity**

All Milken Institute School of Public Health Students are required to complete two (separate) online activities regarding academic integrity -- the GW Academic Integrity Activity and the Identifying and Avoiding Plagiarism Activity. Both activities must be completed within 2 weeks of starting your coursework at Milken Institute School of Public Health. - See more at: <https://publichealth.gwu.edu/integrity#sthash.FIIRdO5H.dpuf>

Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. Common examples of academically dishonest

behavior include, but are not limited to, the following: cheating; fabrication; plagiarism; falsification and forgery of University academic documents; facilitating academic dishonesty. For the remainder of the code, see <https://studentconduct.gwu.edu/code-academic-integrity>.

### **Workload**

This is an individualized course where students are learning through public health practice or research. Students are expected to put in a minimum of 120 hours over the course of a semester, which works out to a minimum of 9 hours a week. This meets the workload requirements of at least 37.5 contact hours per credit.

### **Blackboard**

Blackboard is not used for this course.

### **Syllabus Appendix**

<https://publichealth.gwu.edu/syllabus-appendix>

## APPENDIX

### Guidelines for Final Project Elements

#### **1. Title Page**

A Title Page must be included with each of the written documents (Concept Paper, Proposal, and Final Report) submitted to your GW Faculty Advisor, and Site Preceptor. The proper format of the Title Page should be:

TITLE DATE

Protocol Approved by  
The George Washington University Institutional Review Board IRB # (if applicable)

Submitted by:  
Student Name  
Contact Information

Preceptor Name  
Contact Information

GW Faculty Advisor Name  
Contact Information

In Partial Fulfillment of the Requirements for the  
Masters of Science Degree in Public Health Microbiology and Emerging Infectious Diseases  
Department of Epidemiology  
The George Washington University  
Milken Institute School of Public Health

#### **2. Concept Paper: 2-3 pages double-spaced (including references)**

Please follow this template by maintaining the headings of each section. If they are not applicable, please explain why.

- a. Title Page: as above
- b. Background: brief review of the literature, public health significance, and justification of need for the activity to be carried out (gaps in research area).
- c. Scope: explicit statement of what will be done during the Culminating Experience.
- d. Principal Aims and Hypotheses: Clear statement of the principal aims and research hypotheses to accomplish these goals.
- e. Methods: outline of the proposed analytic methods, including:
  - study design: Type of study or activity to be conducted (e.g. secondary data analysis, case-control study, laboratory epidemiology, or surveillance project).
  - data sources - defend adequacy in terms of the availability and quality of data; quantity of data
  - variables: principal independent and dependent variables, and potential confounders
  - statistical analysis methods

- human subjects protection issues
- f. Discussion: of the public health significance of the proposed project.
- g. References

### **3. Proposal: about 5-10 pages double-spaced pages**

The proposal represents an expansion of the approved Concept Paper. In addition to the above elements which should be described in greater detail, a scientific abstract using standard *New England Journal of Medicine (NEJM)* format should be included after the Title Page. It is understood that the abstract for the proposal will not contain results.

### **4. Institutional Review Board (IRB) Review**

Students must work with their GW Faculty Advisor to decide whether the topic for a proposed Final Project must be submitted for IRB approval.

**If you are working with data or accessing any health records, you must ensure that you are allowed to access the data. This must be done prior to looking at, downloading, or analyzing any data!** Another example of a situation where IRB review might be required is if the student has been conducting research with the intent to publish.

There are several steps to go through:

- Ensure you are listed on the study/program in the agency where you are working and are covered by the agency's rules regarding working with their data. Provide a copy of IRB (or other) approvals to F/LE or Final Project Advisor.
- Once Practicum Director (PD) approves, they will advise student to complete the Student Project Oversight form here: <https://cri-datacap.org/surveys/index.php?s=T3783HC8Y4>
- Final determinations will be sent to the student, faculty advisor, and PDs
- RTF forms for the Practicum, CE, Field Lab Experience, Final Project, or Independent Study, students will not be approved until a determination has been made and all relevant approvals are in place.

The IRB is a committee mandated by federal law to protect the rights and welfare of human subjects participating in research activities. The IRB achieves its primary function, protecting the rights and welfare of subjects participating in research, by educating researchers.

Other institutions with their own IRBs: Students will sometimes work with institutions other than GWU that have their own IRB. The general rule is that students still have to complete an IRB submission for GW once the IRB used by the site has approved the project. Students should include the other IRB's documentation of project approval.

For students conducting research at Children's National Medical Center (CNMC), submissions are made directly to the CNMC IRB. There is no need for a submission to the GW IRB because there is an agreement between the two institutions and the CNMC IRB will notify the GW IRB of any submissions.

### **5. Final Report Guidelines – about 18-20+ double-spaced pages**

The Final Report follows the outline of a published research paper, and represents an expansion



of the Proposal. The goal of the final report is that it should be a manuscript of publication quality. It should include the following elements:

- a. Title Page: as above
- b. Abstract\*
- c. Background: brief review of the literature, public health significance, and justification of need for the activity to be carried out (gaps in research area).
- d. Principal Aims and Hypotheses: Clear statement of the principal aims and research hypotheses to accomplish these goals and objectives.
- e. Methods: outline of the proposed analytic methods, including:
  - study design: Type of study or activity to be conducted (e.g. case-control study or surveillance project).
  - data sources - defend adequacy in terms of the availability and quality of data; quantity of data
  - variables: principal independent and dependent variables, and potential confounders
  - statistical analysis methods
  - human subjects protection issues
- f. Results: what were the key study findings along with appropriate tables and graphs
- g. Discussion: of the public health significance of the proposed project.
- h. References

Tables and figures, references, and any appendices are not included in the 18-20 pagination limit.

\*The abstract should follow the outline below using *NEJM* format with a word limit of 250 words:

- Background/Objectives
- Methods
- Results
- Conclusions

## **6. Oral Presentation Guidelines**

Students are expected to prepare a concise, 15-minute oral presentation using PowerPoint slides. The basic outline of the talk should include a Title Slide, Background, Hypotheses and Objectives, Methods, Results, Summary and/or Conclusions, Recommendations, and Acknowledgments.

The number of slides presented should be limited to about 15, as each slide takes about one minute to present. Each presentation will be followed by a 5-minute question and answer session with Department faculty and other students.

At least two weeks prior to the scheduled presentation date, students must provide a copy of and review their PowerPoint presentation with their GW Faculty Advisor. The GW Faculty Advisor and Site Preceptor must authorize the student's presentation by emailing the Final Project Course Coordinator.

The student must also provide an abstract of the written report to the Course Coordinator at least one week before the presentation is scheduled so that announcements can be made to Department faculty and students.

<b>Milken Institute School of Public Health</b> <hr/> <b>THE GEORGE WASHINGTON UNIVERSITY</b> <hr/>	<b>Syllabus Appendix</b>
--	--------------------------

<https://publichealth.gwu.edu/syllabus-appendix>