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|  |   Department of Biostatistics and Bioinformatics **PUBH 6015** **Biostatistics Culminating Experience (2 credits)****Residential Graduate Course**  |

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Course Summary

The Culminating Experience is a Credit/No credit course where students apply the biostatistical methods and skills acquired in the program. It consists of four elements that focus on the synthesis and summary of data acquired through application of biostatistical methods in research or surveillance activities.

**Course Description**

The four elements are: (a) Concept Paper, (b) Proposal, (c) Final Report or Manuscript, 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 Culminating Experience Elements.

MPH students are required to demonstrate proficiency in the application of the skills they acquire during their academic programs through the Practicum (PubH 6000) and the Culminating Experience (PubH 6015). The two courses can be linked but this is not a departmental requirement. In addition, they can be taken simultaneously or sequentially, in which case the Practicum would come first.

Course Prerequisite(s)

* PubH 6002 Biostatistical Applications for Public Health
* PubH 6003 Principles and Practice of Epidemiology

Co-Requisites

* PubH 6853 Use of Stat Packages for Data Management/Data Analysis
* PubH 6022: Essentials of Public Health Practice and Leadership 2
* PubH 6252 Advanced Epidemiologic Methods

Recommended Course

* PubH 6004 Environmental and Occupational Health
* PubH 6006 Management and Policy Approaches to Public Health
* PubH 6007 Social and Behavioral Science Methods

Other prerequisites

* Students must take the online training courses relating to research with human subjects (CITI) and protection of personal health information (HIPAA). (see MISPH Student Practicum Guidebook for details)
* Students must have participated in the Department of Epidemiology and Biostatistics mandatory Practicum/Culminating Experience orientation.
* Students must have submitted the Student Project Oversight Form and, if applicable, have approved IRB approval for the project before participating in the Practicum or Culminating Experience.

# MPH Foundational Competencies (list):

1. Select quantitative and qualitative data collection methods appropriate for a given public health context
2. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
3. Interpret results of data analysis for public health research, policy, or practice

# Program Competencies (list) – Biostatistics

1. Apply basic principles of biostatistics to contribute to the design, planning, and conduct of public health and biomedical studies
2. Manage databases from public health and biomedical studies using statistical software, e.g., SAS®.
3. Analyze data by applying methodological concepts and interpret the results from public health and biomedical studies
4. Communicate results from statistical analysis in layman's terms as a member of a multidisciplinary research team on public health or biomedical studies.
5. Identify and apply basic ethical principles pertaining to data confidentiality and interpretation of statistical results derived from public health and biomedical data.

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| **Course Learning Objectives/Learning Outcomes – Upon completion of the course, students will be able to:** *(Avoid verbs like “understand” or “know;” instead use words such as: “analyze,” “synthesize,” “apply,” and “evaluate.”)* | **Meets Competency** **Number** *(for required courses only)* |
| * Identify and assess patterns of emerging diseases to postulate hypotheses and to identify appropriate strategies in order to evaluate the impact of health problems.
 | # 1, 2,3,4,5 |
| * 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.
 | # 2, 4, 5 |
| * Apply epidemiological and biomedical concepts in identifying and describing the determinants and the distribution of disease in human populations.
 | # 1, 3, 4, 5 |
| * Synthesize data and relevant literature to interpret findings in a casual framework, write reports/manuscripts, and make oral presentations.
 | # 1, 2,3,4,5 |

**Definitions and Roles and Responsibilities**

**Students** – Students identify and develop a research project applying and integrating the knowledge and skills they have obtained in their course work. At times the data comes from the student’s Practicum.

**Site Preceptor** – This individual works in the field and supervises the student’s work. This individual also provides input to the GW Faculty Advisor on the student’s performance, through an evaluation. The MISPH faculty members are permitted to precept students on their CEs.

**GW Faculty Advisor**– This is a member of the MISPH Department of Biostatistics and Bioinformatics 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. The student should meet with the GW Faculty Advisor a minimum of twice per month throughout their CE coursework. If the GW Faculty Advisor is also serving as the site preceptor, they are also responsible for the site preceptor’s responsibilities and portion of the student’s evaluation (see table with the evaluation distribution below).

**Practicum/CE Director (PD)** – Guides student through Practicum-CE process. The PD also coordinates student placement, provides guidance on the Practicum Application website to student and Site Preceptors, and assists students with scheduling orientations and Culminating Experience presentations.

**SAS Coach** – assists students with data management and analysis. Please contact your Practicum Director when assistance is needed.

**Student Checklist:**

1. Discuss your plans to begin and intention to present with your Practicum Director
2. Choose your topic
3. Complete a Draft Concept Paper and send it to the Practicum Director (PD) who will connect you with a GW Faculty Advisor (GWFA)
4. Meet with your GWFA and Site Preceptor (SP) to discuss your Timeline and feasibility – use the [DEB CE and FP Requirements Timeline](https://publichealth.gwu.edu/media/29011) to inform your project specific timeline.
5. Complete your Concept Paper and submit it to the Practicum Director
6. Submit your RTF to Register for the course
7. Submit your Student Project Oversight Form and start your Proposal
8. Once your form has been reviewed and a determination issued you may begin analytical work
9. Submit your Proposal to your Faculty Advisor, once approved submit to Practicum Director
10. Complete Analytics and start your Final Manuscript (be sure to share your shell tables with your SP and GW Faculty Advisor)
11. Submit first draft of Manuscript to your GW Faculty Advisor and Site Preceptor (if applicable).
12. Start your Final Presentation Slides
13. Submit your final paper and Slides to GW Faculty Advisor
14. Practice and refine your Presentation
15. Submit Final Presentation, Manuscript and Abstract to the Practicum Director

Student responsibilities

1. Before registering for the Culminating Experience, students should talk to the Practicum/CE Director (PD) to discuss their plans and interests. The first step in the Culminating Experience is identification of a topic. In some cases students work on a topic during the Practicum that can be developed to fulfill the requirements of the Culminating Experience. At other times, they may decide to choose a new topic.
2. Students must develop the CE under the guidance of both a Site Preceptor and a GW Faculty Advisor. (Students are permitted to have a MISPH Department of Epidemiology and Biostatistics faculty member be both the Preceptor and Faculty Advisor on their Culminating Experience). Once students decide on a Culminating Experience topic they are assigned a GW Faculty Advisor, unless the person they are working with is a member of the Department of Epidemiology and Biostatistics. In that case, the faculty member serves as both the Site Preceptor and the GW Faculty Advisor. The student provides a draft Concept Paper to the PD, who will use it to identify a GW Faculty Advisor.
3. Students should meet with their GW Faculty Advisor and agree on a timeline to complete all steps of their CE. If necessary, the Site Preceptor should also be consulted for guidance on a reasonable timeline.
4. **Student Project Oversight**
* All students participating in projects related to school requirements (dissertation, MPH culminating experience (CE), MPH Practicum, Biostatistics Consulting Practicum, Field Lab Experience, 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.
* Before beginning any school project, students must complete the determination process and have a determination about next steps made.
* 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 a determination is made. Faculty advisors are ultimately responsible for each of the students that they advise on research projects.
1. **Process to comply with Student Project Oversight**
* Students should complete the REDCap form <https://is.gd/gwsphstudentprojectoversight> as soon as they have a project lined up, even if the proposal is not finalized; this will expedite the process.
* The Practicum/CE Director will be notified a determination is waiting. In the unlikely event that there is no response within 7 working days, please write to slee@gwu.edu to confirm receipt.
* The REDCap team will review the submission and ask the student and faculty advisor (if applicable) for clarifying information by email.
* Final determinations will be sent to the student, faculty advisor, and Practicum/CE Director.
* RTF forms for the CE will not be approved until a determination has been made and all relevant approvals are in place.

**NOTE: For more information, please consult the Student Project Oversight Process on the DEB Practicum-CE Resource page**.

1. Concept Paper
	* The first requirement of the Culminating Experience 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). 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. As such, a student may be asked to revise their Concept Paper several times before approval to meet requirements for appropriateness or feasibility.
2. Proposal
	* The GW Faculty Advisor and Site Preceptor will review the Concept Paper and work with the student and decide when the student is ready to expand the Concept Paper into a Proposal. As with the Concept Paper, the proposal should be reviewed first by the SP, and then the GW Faculty Advisor will work with the student to ensure that the proposal meets the CE requirements in terms of scope and appropriate analyses. Should the SP request further aims or analyses than are deemed needed by the GW Faculty Advisor for fulfillment of the CE it is the responsibility of the student to work this out with the SP, but these additions do not need to be submitted to the GW Faculty Advisor or PD. Once the Proposal is approved by the GW Faculty Advisor and Site Preceptor, the student provides a final copy to the PD. (See Appendix for Proposal guidelines). If the student links the Practicum and CE, the Concept Paper and Proposal may be written during the Practicum.
	* Note: all parties should understand that, while there may need to be some adjustments made to the final analysis plans due to problems with the data, unforeseen analysis issues, etc., the proposal represents an agreement between the student, SP and GW Faculty Advisor as to the scope of the project
3. Final Report of Manuscript
	* Students will produce a Manuscript which expands on their Proposal by including their results and discussion. (See Appendix for guidelines for the Manuscript) The GW Faculty Advisor and when applicable, the Site Preceptor, must receive a near final draft of the complete report/manuscript four weeks before the student intends to make their Oral Presentation.
4. Oral Presentation
* Once the GW Faculty Advisor and Site Preceptor give written authorization for the student to present, the student works with the GW Faculty Advisor and Practicum Director to schedule the Oral Presentation. Students are encouraged to invite Site Preceptors external to the Department of Epidemiology and Biostatistics 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 a practice oral presentation with their site preceptor (if they are working in the field) and/or GW Faculty Advisor previous to the actual final Oral Presentation.

# Required Texts

None. Students will conduct relevant research to inform their CE project.

**Technology Requirements**

Technology requirements may vary depending on the site/project developed. Students are required to work with their Site Preceptor to determine the requirements for their placement. Students may be required to provide their own laptop, microphone and webcam. Some students may require access to the GW VLC

# Methods of Instruction (check all that apply)

Students are actively involved in the integration of knowledge and skills gained in their MPH 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 Practicum and Culminating Experience.

The Student Checklist is available on the Practicum and Culminating Experience Resource Page: <http://publichealth.gwu.edu/departments/epidemiology-and-biostatistics/practice-experience>

 Lectures Class and Small Group Discussions

 Case Studies Student Presentations

 Required Readings/Textbook x Other [Specify]

 Recommended/Supplemental Readings Other [Specify]

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| **Methods of Evaluation**  | **Percent of Grade** |
| CE Prep: Concept Paper, Proposal, Oversight submission, if applicable | 25% |
| Final Report/Manuscript | 35% |
| Oral Presentation | 20% |
| Final Evaluation | 20% |
| **TOTAL** | **100%** |

The course is a Credit/No Credit course. Students will be assessed on how well they accomplish the objectives for the Culminating Experience through the evaluation of their (a) Concept Paper, (b) Proposal, (c) Final Report/Manuscript, and (d) Oral Presentation. The Site Preceptor completes an evaluation of the student’s performance (found on the Practicum and CE Resource Page). The GW Faculty Advisor also contributes to the final grade, as do Faculty attending the students’ presentations.

Upon completion of the Culminating Experience the student will also have an opportunity to provide feedback regarding the course through completion of a Final Student Evaluation (found on the Practicum and CE Resource Page).

**Grading Scale and Standards (Credit/ No Credit)**

**1**= Unacceptable **2**= Poor **3**=Acceptable **4**=Good **5**=Excellent

GW Faculty Advisors and Site Preceptors will each rate students on the following products using the scale above. If the GW Faculty Advisor is serving as the Site Preceptor as well, then she/he enters the same score:

CE Prep: Concept Paper, Proposal, IRB submission (if applicable)

Final Report/Manuscript

Oral Presentation

Final Evaluation

A score of 3 or more in at least 3 of the categories will be sufficient for credit.

**Workload**

This is an individualized course where students are learning through 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.

# Class Policy:

This is not a classroom experience but one where students work semi-independently, under the

supervision of their preceptor and GW Faculty Advisor. As such, the GW Faculty Advisor serves as the faculty member of record responsible for evaluating student performance. Although you may discuss the project with other students, advisors and mentors, the written assignment you turn in must be your own work in your own words. If you copy another student’s assignment or let someone else copies yours, you are both cheating

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|  | **Syllabus Appendix****AY 2022-2023** |

**DIVERSITY, EQUITY AND INCLUSION (DEI)**

***DEI Resources and Bias Reporting***

The Milken Institute School of Public Health (GWSPH) at the George Washington University (GW) is committed to support the highest standards and practices of diversity, equity, and inclusion in all of our processes, systems and interactions throughout our community.  We embrace an intellectual community enriched and enhanced by diversity along a number of dimensions, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. We at the GWSPH will work in the promotion of diversity, equity and inclusion not only to drive innovation and excellence throughout all our programs but also in honoring our commitment to social justice.  Each of us is responsible for creating a safer, more inclusive environment. More information is available on our school website [here](https://publichealth.gwu.edu/diversity-and-inclusion).

Unfortunately, incidents of bias or discrimination do occur, whether intentional or unintentional. Resources available at the University to assist you include the following:

* GW maintains a website for reporting incidents of bias, <https://diversity.gwu.edu/report-bias-incident-online>. This site allows any university community member to report, including anonymously, incidents of bias and other forms of unwelcome conduct motivated by hatred based on race, color, religion, gender or gender identity, sexual orientation, national origin or any other factor.
* GW Office of Diversity Equity and Community Engagement:  <https://diversity.gwu.edu/>

# *Religious Holidays*

In accordance with University policy, students should notify faculty during the first week of the term, but no later than three weeks prior to the absence, of their intention to be absent from class on their day(s) of religious observance. If the holiday falls in the first three weeks of the term, the student must inform the faculty within the first week of the semester that they are enrolled in the class. For details and policy, see “Religious Holidays” at: <https://provost.gwu.edu/policies-procedures-and-guidelines>.

# COURSE AND CLASSROOM RESOURCES

# *Blackboard*

Blackboard will be used for posting course files and assignments and for communicating with the class. You are already enrolled for this course on Blackboard if you have completed registration for the course. It is your responsibility to periodically check the course site (log in at <http://blackboard.gwu.edu/>using your gwu.edu address) for updates to the syllabus/readings.

For additional support or navigating Blackboard, GW Information Technology Support Center is your point of contact for support: [Blackboard | GW Information Technology | The George Washington University (gwu.edu)](https://it.gwu.edu/blackboard)

***2GW (applicable for @GW online programs)***

2GW will be used for online course activities, hosting weekly course content, the posting of course files and assignments and for communicating with the class. Students are already enrolled for this course on 2GW if registration has been completed for online courses, not residential coursework typically offered residentially. It is the student’s responsibility to periodically check the course site for updates to the syllabus/readings/schedules.

***Use of Electronic Course Materials and Class Recordings***

Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Please contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Please contact Disability Support Services at [disabilitysupport.gwu.edu](https://disabilitysupport.gwu.edu/) if you have questions or need assistance in accessing electronic course materials.

# *Academic Integrity*

Academic integrity is an essential part of the educational process, and all members of the GW community take these matters very seriously. As the instructor of record for this course, my role is to provide clear expectations and uphold them in all assessments. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, and otherwise violate the [Code of Academic Integrity](https://studentconduct.gwu.edu/code-academic-integrity). If you have any questions about whether or not particular academic practices or resources are permitted, you should ask me for clarification. If you are reported for an academic integrity violation, you should contact the [Office of Student Rights and Responsibilities](https://studentconduct.gwu.edu/) (SRR) to learn more about your rights and options in the process. Consequences can range from failure of assignment to expulsion from the university and may include a transcript notation.

For more information, please refer to the SRR website [studentconduct.gwu.edu/academic-integrity](https://studentconduct.gwu.edu/academic-integrity) email rights@gwu.edu, or call 202-994-6757. For additional online learning guidance, please see the University’s “Guide of Academic Integrity in Online Learning Environments” available at [studentconduct.gwu.edu/academic-integrity-online-learning-environments](https://studentconduct.gwu.edu/academic-integrity-online-learning-environments).

All Milken Institute School of Public Health students are required to complete an academic integrity online activity. The GW Academic Integrity activity must be completed within two weeks of starting your coursework at GWSPH. See more at:[publichealth.gwu.edu/integrity#sthash.FlIRdO5H.dpuf.](https://publichealth.gwu.edu/integrity#sthash.FlIRdO5H.dpuf)

***SafeAssign and TurnItIn***

All GWSPH Faculty have access to the SafeAssign and TurnItIn plagiarism detection services.

Please be aware that the work products you submit for this course may be scanned by these tools for originality. Students found plagiarizing will be subject to penalties outlined in the GWSPH Student Handbook and GW Code of Academic Integrity.

# *Disabilities Support Services (DSS) 202-994-8250*

Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services in Rome Hall, 801 22nd Street, NW, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information see: <https://disabilitysupport.gwu.edu/>

# SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM

***Academic Commons***

Academic Commons provides tutoring and other academic support resources to students in many courses. Students can schedule virtual one-on-one appointments or attend virtual drop-in sessions. Students may schedule an appointment, review the tutoring schedule, access other academic support resources, or obtain assistance at <https://academiccommons.gwu.edu/>.

Tutoring and course review sessions are offered through Academic Commons in an online format. See [academiccommons.gwu.edu/tutoring](https://academiccommons.gwu.edu/tutoring).

***Writing Center***

GW’s Writing Center cultivates confident writers in the University community by facilitating collaborative, critical, and inclusive conversations at all stages of the writing process. Working alongside peer mentors, writers develop strategies to write independently in academic and public settings. Appointments can be booked online. See [gwu.mywconline](https://gwu.mywconline.com/).

Writing and research consultations are available online. See [academiccommons.gwu.edu/writing-research-help](https://academiccommons.gwu.edu/writing-research-help)

***Student Success Coaching***

The Student Success Coaching Program, offered through the Office for Student Success, is an academic support service available to all interested undergraduate students. Participating students work with Student Success Coaches (trained graduate students) in 1:1 sessions to build the foundation for a successful academic experience. Coaches help students to develop learning strategies, establish healthy study habits, build a GW support system, and other necessary skills for a fulfilling and successful undergraduate experience. See [studentsuccess.gwu.edu/academic-program-support](https://studentsuccess.gwu.edu/academic-program-support).

To learn more about what is offered through this program and access informational materials, please visit <https://studentsuccess.gwu.edu/student-success-coaching> or email studentuccess@gwu.edu.

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# *Counseling and Psychological Services - 202-994-5300*

# GW’s Colonial Health Center offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and difficulties that may interfere with academic, emotional, and personal success. For additional information see: <https://healthcenter.gwu.edu/counseling-and-psychological-services>

To reach the **National Suicide Helpline**, call or text 9-8-8 to be connected with an immediate resource.

***Sexual Harassment (Title IX)***

GW and its faculty and staff are committed to creating a safe and open learning environment for all students. If you or someone you know has experienced sexual harassment, including sexual assault, dating or domestic violence, and stalking, please know that help and support are available. GW strongly encourages all members of the community to take action, seek support, and report incidents of sexual harassment to the Title IX Office. You may contact the Title IX Office at 202-994-7434 or at titleix@gwu.edu or learn more by visiting [titleix.gwu.edu](http://titleix.gwu.edu/). Please be aware that faculty members are required to disclose information about suspected or alleged sexual harassment or other potential violations of the Title IX Sexual Harassment and Related Conduct Policy to the Title IX Office. If the Title IX Office receives information about an incident, they will reach out to offer information about resources, rights, and procedural options as a member of the campus community. Community members are not required to respond to this outreach.  If you, or another student you know, wishes to speak to a confidential resource who does not have this reporting responsibility, please contact Counseling and Psychological Services through the Colonial Health Center 24/7 at 202-994-5300, or the Office Of Advocacy and Support at 202-994-0443 or at oas@gwu.edu.

# SAFETY AND SECURITY

# *Adverse Weather/Class Cancellation*

In the advent of inclement weather or any other emergency, the Milken Institute School of Public Health will follow the decision of the University. Call the University hotline at 202.994.5050 or check the Campus Status at <http://CampusAdvisories.gwu.edu>. In the event of inclement weather, instructors are encouraged to maintain instructional continuity. Your instructor will communicate directly with you regarding alternate modes of instruction as appropriate. Students are responsible to check email, blackboard, or other learning platforms used in class, for updates and be available if accommodations have been offered. In the event of class cancellation, we will email you about rescheduling, assignments due, etc. The University will continue to offer [make-up days](https://click.gwu.edu/click/kz9t0c/81n545/ougzeo) in the event of a closure if no alternative remote class has been made available.

# *Classroom Lockdown System*

All classrooms have been equipped with a classroom lockdown system (box with lid and internal button).

If the classroom button is pushed GWorld Card access to the room will be disabled and GW Dispatch will be alerted.  The door must be manually closed if it is not closed when the button is pushed.  Anyone in the classroom will be able to exit, but no one will be able to get in.  The system may only be reset by GW Dispatch.

# *GW Alert*

In case of an emergency, if at all possible, the class should shelter in place. If your building is affected, follow the evacuation procedures and seek shelter at a predetermined rendezvous location. GW Alert is the university’s notification system that sends emergency text message and email alerts to the GW community. Download the GW Personal Alarm Locator (GW PAL), a mobile safety and security application that allows users to alert GWPD of a crime, report crime tips anonymously, provide a safety profile, and identify their location in real time. For more safety and security information and tips, visit <https://safety.gwu.edu/>.

***Evacuation (if applicable)***

An evacuation will be considered if the building we are in is affected or we must move to a location of greater safety. We will always evacuate if the fire alarm sounds. In the event of an evacuation, please gather your personal belongings quickly (purse, keys, GWorld card, etc.) and proceed to the nearest exit. Every classroom has a map at the door designating both the shortest egress and an alternate egress. Anyone who is physically unable to walk down the stairs should wait in the stairwell, *behind the closed doors*. First responders will check the stairwells upon entering the building.

Once you have evacuated the building, proceed to our primary rendezvous location: the court yard area between the GW Hospital and Ross Hall. In the event that this location is unavailable, we will meet on the ground level of the Visitors Parking Garage (I Street entrance, at 22nd Street). From our rendezvous location, we will await instructions to re-enter the School.

***Additional Resources and Emergency Contact Information***

* For further information about GW and GWSPH resources, please visit the [GWSPH website](https://publichealth.gwu.edu/) or more specifically to the Student Resources page: <https://publichealth.gwu.edu/content/services-students>
* **Online Student Support**- GWorld, technical services, student services, GW Libraries: [online.gwu.edu/student-support](https://online.gwu.edu/student-support).
* **In case of emergency:** call GWPD 202-994-6611 or 911
* **For situation-specific actions:** review the Emergency Response Handbook: <https://safety.gwu.edu/emergency-response-handbook>.
* **Campus Advisories:** GW’s primary website for incident-related information (including class cancellations) <https://campusadvisories.gwu.edu/>.
* **Stay Informed:** <https://safety.gwu.edu/stay-informed>
* **GW Alert:** Notification system that sends emergency alerts to email addresses and mobile devices. Students, faculty and staff are requested to maintain current contact information and campus location by logging into alert.gwu.edu. In emergency situations, alerts may also appear at the top of university webpages.
* **GW PAL (Personal Alarm Locator):** Download this app to your iOS or Android smartphone. This mobile safety app allows users to quickly communication with GWPD (when off campus); users can send crime tips to GWPD; call for 4RIDE; check recent GW Alerts. More Information visit <https://safety.gwu.edu/>.

## Appendix B

**Guidelines for Culminating Experience Elements**

1. **Title Page**

A Title Page must be included with each of the written documents (Concept Paper, Proposal, and Manuscript) submitted to your GW Faculty Advisor, Site Preceptor, and Practicum Director. 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 Public Health Degree

Department of Biostatistics and Bioinformatics

The George Washington University

Milken Institute School of Public Health

1. **Concept Paper: approximately 2-3 pages double-spaced (not including references)**

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

1. Title Page: as above
2. Background: brief review of the literature, public health significance, and justification of need for the activity to be carried out (gaps in research area).
3. Specific Aims and Hypotheses: Clear statement of the specific aims (at least two) and research hypotheses and how these aims will be achieved.
4. Methods: outline of the proposed analytic methods, including:
	1. Study design: Type of study or activity to be conducted (e.g. case-control study or surveillance project).
	2. Population description and inclusion/exclusion criteria. A description of sampling should be included if relevant.
	3. Data sources- defend adequacy in terms of the availability, quality and quantity of data.
	4. Variables: description of principal independent and dependent variables, and potential cofounders. Must include when and how they are measured (e.g. survey, laboratory), as well as how they will be used in the analyses (e.g. provide cut-offs to define a dichotomous variable from continuous data)
	5. Statistical analysis methods—both descriptive and analytic methods
	6. Human subjects protection issues
5. Deliverables: report of research or public health practice activity.
6. Discussion:
	1. Describe the short-term and long-term public health significance of the proposed project.
7. Timeline: for the project or activity and a description of projected meetings with field preceptor and GW Faculty Advisor
8. References
9. **Proposal: about 10 pages double-spaced pages**

The proposal represents an expansion of the approved Concept Paper. You must provide adequate detail in your proposal for each of the sections listed in the concept paper in order to demonstrate to your advisor a complete understanding of your project and analysis. Create shell tables which will make clear what variables you will be using.

In addition, 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.

You may use the **PUBH 6247 “Guidelines: Research Proposals”** as a reference for clarifying the relevant elements of the proposal.

1. **Final Manuscript Guidelines – about 18-20 double-spaced pages**

The final product can be a Manuscript which follows the outline of a published research paper, and represents an expansion of the Proposal. A Manuscript should include the following elements:

1. Title Page
2. Abstract \*
3. Introduction which includes background and outlines the purpose of the paper.

Methods: including study design, inclusion and exclusion criteria, data sources, sample size, variables, statistical analysis methods, and human subjects protection issues. : Be sure to discuss sample size, distribution of exposed and unexposed as well as distribution of diseased and undiseased

Results: a description of the data and the principal findings

1. Discussion: of the main findings and public health significance as well as the strengths and limitations of the project. Be sure to add a summary of prior literature to which your findings will be compared. Add a discussion of potential for confounding, selection bias, and information bias and how your study minimizes this.
2. Tables and Figures
3. References\*\*
4. Appendices: e.g., data collection instruments

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

1. Background/Objectives
2. Methods
3. Results
4. Conclusions

\*\* References should follow the NEJM style in as explained in the excerpt below from the Journal Style section of the NEJM Author Center Resources:

“References must be double-spaced and numbered consecutively as they are cited. References first cited in a table or figure legend should be numbered so that they will be in sequence with references cited in the text at the point where the table or figure is first mentioned. List all authors when there are six or fewer; when there are seven or more, list the first three, followed by “et al.” The following are sample references:

1. Shapiro AMJ, Lakey JRT, Ryan EA, et al. Islet transplantation in seven patients with type 1 diabetes mellitus using a glucocorticoid-free immunosuppressive regimen. N Engl J Med 2000;343:230-8.
2. Goadsby PJ. Pathophysiology of headache. In: Silberstein SD, Lipton RB, Dalessio DJ, eds. Wolff's headache and other head pain. 7th ed. Oxford, England: Oxford University Press, 2001:57-72.
3. Kuczmarski RJ, Ogden CL, Grammer-Strawn LM, et al. CDC growth charts: United States. Advance data from vital and health statistics. No. 314. Hyattsville, Md.: National Center for Health Statistics, 2000. (DHHS publication no. (PHS) 2000-1250 0-0431.)
4. U.S. positions on selected issues at the third negotiating session of the Framework Convention on Tobacco Control. Washington, D.C.: Committee on Government Reform, 2002. (Accessed March 4, 2002, at http://www.house.gov/reform/min/inves\_tobacco/index\_accord.htm.)

Numbered references to personal communications, unpublished data, or manuscripts either ‘in preparation’ or ‘submitted for publication’ are unacceptable. If essential, such material can be incorporated at the appropriate place in the text.

**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, Objectives and Hypotheses, 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 to the Practicum Director via email. The student must also provide an abstract of the written Report/Manuscript to the Practicum Director one week before the presentation is scheduled so that announcements can be made to Department faculty and students.