

Heilbrunn Department of Population & Family Health
Master's Student Handbook
2023 - 2024



HEILBRUNN DEPARTMENT OF
POPULATION & FAMILY HEALTH

Heilbrunn Department of Population and Family Health

Master's Student Handbook

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Disclaimer

This version of the handbook was published in August 2023. The policies herein are applicable to all students enrolled in the Heilbrunn Department of Population and Family Health.

Although the degree and academic requirements will not change during the academic year, Columbia University Mailman School of Public Health policies are reviewed and updated regularly. The Mailman School of Public Health reserves the right to make changes at any time. Significant handbook changes will be communicated to the department community and cataloged below for one academic year.

Overview

The Heilbrunn Department of Population and Family Health (HDPFH) addresses a wide range of challenges to health, focusing on sexual and reproductive health and rights, forced migration, child and adolescent health, environmental justice, and complex health systems.

Vision

Our vision is to affirm that health is a basic human right. Combining knowledge of the impact of law and global governance on public health at the local level with complex health systems analysis and implementation science, HDPFH prevents and addresses public health threats in low-income, unstable, and inequitable environments globally.

Mission

The HDPFH uses varied interdisciplinary scientific and technological approaches and a justice framework to understand factors undermining health and wellbeing to shift policy and practice. The Department educates leaders in sexual and reproductive health, wellbeing of migrant populations, the health of children facing adversity, environmental justice, and human rights. The Department shifts global health policy and practice to improve health systems and health outcomes for populations in low-income, unstable, or inequitable environments worldwide.

History of the Department

The Department was founded in 1975 by Dr. Allan Rosenfield as the Center for Population and Family Health (CPFH). Its early mission was to improve the planning, management, and effectiveness of population and family health programs in the context of broader development efforts. Dr. Rosenfield was an obstetrician/gynecologist who specialized in family planning, family health, and maternal/child health; he served as the first director of the CPFH from 1975-1986. In 2000, CPFH was renamed as the Harriet and Robert Heilbrunn Department of Population and Family Health, a department of the Mailman School of Public Health. The core values of Dr. Rosenfield are still evident in the Department's focus on improving health systems and outcomes among vulnerable populations worldwide.

Program Offerings

Within PopFam, students can pursue three degrees: the Master of Public Health (MPH), the Master of Science (MS), and the Doctor of Public Health (DrPH). Graduates from PopFam go on to hold leadership positions in US- and internationally based non-governmental organizations, government, community-based organizations, health care organizations, universities, research organizations, foundations and philanthropies, and ministries of health.

General Information and Resources

The Heilbrunn Department of Population and Family Health is located on floors B2 & B3 of 60 Haven Avenue. Dr. Patrick Kachur is the Vice Chair of Education and is currently serving as the Interim Chair. Dr. Samantha Garbers is the Curriculum Director, Chelsea Kolff, MPH, is the Director of Academic Programs, and Manuela Ortiz, MPH, is the Academic Coordinator. The academic team is responsible for all academic affairs related to the MPH, MS, and DrPH programs including admissions, academic progress, Applied Practice Experience (APEX), and graduation. Feel free to come by if you have questions or just to say hello! We are also available via email and phone.

Chelsea Kolff
cak2190@cumc.columbia.edu

Manuela Ortiz
mpo2122@cumc.columbia.edu

Competencies

MPH Foundational Competencies

Evidence-based Approaches to Public Health

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

Public Health & Health Care Systems

5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and systemic levels

Planning & Management to Promote Health

7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs

Policy in Public Health

12. Discuss the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity

Leadership

16. Apply leadership and/or management principles to address a relevant issue
17. Apply negotiation and mediation skills to address organizational or community challenges

Communication

18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content

Interprofessional Practice

21. Integrate perspectives from other sectors and/or professions to promote and advance population health

Systems Thinking

22. Apply a systems thinking tool to visually represent a public health issue in a format other than standard narrative

Concentration-Specific MPH Competencies for the Department of Population and Family Health

1. Advocate for ethics, social justice and human-rights principles surrounding long-term, action-oriented public health research, policies, or programs
2. Develop strategies to engage with diverse communities, with attention to privilege and power dynamics, and to human resource assets and constraints in diverse locations and contexts
3. Design and synthesize methodologically-sound, evidence-based research to improve both public health practice and policy in one or more of the main substantive areas of the Department*
4. Implement data collection strategies and instruments to guide program development and monitoring and evaluation strategies for use in a broad range of local and global contexts, particularly in resource-constrained settings
5. Propose viable, effective, and context-specific programs in one or more of the primary substantive areas of the department, and articulate the location of these programs within public health systems and local contexts*

MS Competencies for the Department of Population and Family Health

1. Explain the evidence basis for public health action in the context of at least one of the substantive areas of the Department*
2. Effectively apply public health research and program evaluation methods
3. Design and evaluate public health interventions
4. Demonstrate technical competence in a selected concentration
5. Formulate conceptually coherent and evidence-based strategies to improve health at the population level

**Substantive areas of the Department: Sexuality and sexual and reproductive health and rights; child, youth, and family health; maternal child health; health & human rights; public health and humanitarian action; implementation science; and complex health systems.*

Degree Requirements

MS Degree Requirements

The MS degree in PopFam requires 30 credits in total and a thesis. This program is designed to be either completed in one academic year or part-time over 2-3 years, not to exceed 5 years.

The coursework requirements are as follows:

- **School Requirement**
All incoming MS students without a bachelor's or master's degree in public health from a CEPH-accredited school or program must complete a non-credit, asynchronous requirement: Introduction to Public Health. Students will be contacted during the summer prior to their first semester regarding this requirement.
- **Required Courses (7.5 credits)**
The required courses or equivalents are: P6400 Principles of Epidemiology (3 credits), P6104 introduction to Biostatistics (3 credits), and P8698 Interdisciplinary Seminar in Population and Family Health (1.5 credits). Required courses can be substituted with additional elective courses where the student can demonstrate they have already achieved the relevant competencies. Students are also required to register for P8663 for their thesis.
- **Elective Courses (22.5 credits)**
Students should work with their advisor to tailor a plan of study to augment their professional skills and experience and to deepen their knowledge in a key concentration area of the Department, such as sexuality and sexual and reproductive health and rights; child, youth, and family health; maternal child health; health & human rights; public health and humanitarian action; implementation science; and complex health systems.

Students in the MS program are required to complete a thesis that demonstrates proficiency in their area of focus and an ability to perform technical and specialized skills. Faculty reader will be requested in consultation with advisor and assigned by the Director of Academic Programs. Thesis should demonstrate mastery of professional and research skills acquired through the MS. It will generally take the format of a scholarly manuscript of publishable quality or detailed program proposal for an institutional donor.

MPH Degree Requirements

In PopFam, the MPH degree is offered in four formats: the Columbia MPH (two year), Accelerated, Dual Degree, and the 4+1 program. All programs require coursework, an Applied Practice Experience (APEX), and a capstone paper (which serves as the Integrative Learning Experience).

In PopFam, Columbia MPH, dual degree and 4+1 students are required to complete 240 hours for their APEX. Accelerated students are required to complete 140 hours.

Oral and visual presentation of work is a key public health competency; reflecting this, students in the Department of Population and Family Health are required to do a presentation of their Applied Practice Experience (APEX) that conforms with conventions for public health meetings, including the American Public Health Association. Most PopFam students participate in the departmental APEX Symposium held each fall. Global Health and PHHA certificate students participate in the required Global Health poster session or Forced Migration practicum seminars instead of the PopFam APEX Presentation session. October graduates will participate in an APEX Presentation session held over the summer.

Presentation at a student's respective event is *mandatory*; dates for the event are circulated several months in advance to avoid any scheduling conflicts.

Academic Advising

Upon admission to PopFam, each student is assigned a faculty academic advisor that is based on student's application, research topics and interests, and/or certificate.

An advisor's main role is to help students clarify their academic objectives and further focus their professional goals. Advisors can help provide ideas about other available resources that may be of value to the student and suggest coursework and out-of-class experiences that will help expand the student's expertise and professional skill set. Advisors can also provide students with ideas about other university, campus, or community resources that may be of value to the student.

Faculty advisors can help advise students regarding course requirements, selecting electives, Applied Practice Experience (APEX) plans, specific skills needed, Capstone plans, and employment opportunities, all in the context of students' interests and future career plans.

In addition to the faculty advisor, Chelsea Kolff, the Director of Academic Programs, is assigned to all students as a secondary advisor. Chelsea is the most appropriate person to consult with about administrative and logistical aspects of the program, such as the rules and facilities of the University, program requirements, registration, and course schedules. Manuela Ortiz is available for support regarding the APEX and can help answer questions on the administrative and logistics for them.

It is the responsibility of advisees to contact their designated faculty advisor. Students should email their advisor at the start of their first fall semester to request a time to meet. You should consult with your advisor and/or Chelsea periodically and stay in contact throughout the semester.

Students who need help managing their advisement are encouraged to contact Chelsea. Faculty advisors are reassigned only in rare circumstances. Students and advisors are encouraged to communicate freely regarding expectations for their advising relationship and resolve differences collaboratively.

Registration

Registration Process

Incoming MPH students are registered by the school for their first semester Core courses. Incoming MS students will work with their advisor and the Director of Academic Programs to select and register for classes. In subsequent semesters, students will use Student Services Online ([SSOL](#)) to register for department, certificate, and elective courses. Detailed information regarding the registration process can be found [online](#), including information regarding cross registration. Please note that Chelsea Kolff is the appropriate person to contact for approval for cross registration forms.

Registration dates and the change of program period are posted in the Columbia Mailman [Academic Calendar](#). Each term, courses offered as well as information on required permission and pre-requisites are posted in the Columbia Mailman School of Public Health course directory [online](#).

The grading, pass/fail, and transfer credit policies can be found in the [Columbia Mailman student handbook](#).

Stellic

Students in the Department of Population and Family Health will be asked to create course plans using [Stellic](#), which is a degree audit and tracking tool for students to visualize and follow their own degree progress. Stellic is a planning tool only; students must still register for planned courses via SSOL. The Office of Enrollment Management has created a [Student Guide](#) for using Stellic on CourseWorks.

Courses: Required, Selectives and Electives

Students should review their respective academic plans to ensure they are taking classes necessary to complete their degrees as prescribed, including department required courses and certificate requirements. MPH students may find their academic plans in the [certificate requirements database](#) and on [Stellic](#).

Selectives refer to department or certificate required courses in which a student selects from two or more course options. When counting as a selective, courses cannot be taken pass/fail.

A **department elective** is any course taught by the PopFam department, typically denoted by a course number beginning with P86.

Certificate electives are courses that are applied toward the student's certificate. Some certificates specify a selection of courses from which the student must choose electives and other certificates have a wider range of options for electives. Any exceptions must be approved by the certificate faculty lead.

A **general elective** is any graduate level course taken in or outside of PopFam. General electives may be taken at other schools of the university. Most graduate level courses are indicated by course numbers of 4000 or higher.

No course can count in multiple categories; students may choose in which category to count a course, but it may only count in one.

Tutorials

A tutorial is an individualized course of study in which a student works with a faculty member in a less structured setting than a classroom course. One-to-one student/faculty tutorials may include, for example, participation in major research or other projects, small individual projects, pilot projects, literature review, and field experience. A tutorial may be taken for one to three credits depending on the amount of work it entails. Students may complete a total of 6 credits of tutorials.

Students interested in taking a tutorial should first obtain a faculty member's agreement to serve as the instructor. The student then must complete the Tutorial Form and submit it to the Director of Academic Programs no fewer than 72 hours prior to the last registration day of the semester.

Communication

Columbia Email

Columbia University has [established email](#) as an official means of communication with students and expects that every student will read email on a frequent and consistent basis. A student's failure to read University communications in a timely manner does not absolve that student from knowing and complying with the content of such communications.

PopFam Listservs

The department regularly sends information for students such as program announcements, work opportunities, and job postings for students. All students are automatically subscribed to this email listserv. Sub-listservs also exist for each cohort, to which students are also automatically assigned. Students may opt in to the PopFamJobs listserv upon graduation. Some certificates also maintain listservs.



COLUMBIA

MAILMAN SCHOOL
OF PUBLIC HEALTH

HEILBRUNN DEPARTMENT OF
POPULATION & FAMILY HEALTH

Integrative Learning Experience:

Capstone Paper Handbook

2023-2024

HEILBRUNN DEPARTMENT OF
POPULATION & FAMILY HEALTH

Guidelines for Capstone Paper Preparation

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Overview for Current Students

The Capstone Paper serves as the Integrative Learning Experience (ILE) for MPH students in the Heilbrunn Department of Population and Family Health. Completing it successfully is a graduation requirement and meets the standards set by the Council on Education for Public Health (CEPH), which accredits public health schools and programs in the United States. Students in the MS program are required to complete a Thesis that demonstrates proficiency in their area of focus and an ability to perform technical and specialized skills.

All students are required to register for a course so that this graduation requirement is recorded on their transcript.

[Purpose of the Capstone Paper](#)

[Options](#)

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Purpose of the Capstone Paper

The Capstone Paper requires students to demonstrate their abilities to synthesize information, think and communicate clearly, integrate their learning through coursework and applied practice experience, and make professional contributions to their main fields of interest with guidance from faculty. It serves as the final piece of evidence that the student is prepared to practice as a public health professional. By producing a high-quality written product for their Capstone paper, students demonstrate that they can synthesize foundational and concentration-specific competencies. These competencies are in Appendix A.

The value of a well-researched and well-written Capstone Paper or Thesis extends far beyond the degree. Effective organizations depend upon staff members who can design needs assessments, programs, evaluations, and strategic plans, and document them in writing. Policy advocates seek professionals to synthesize and articulate complicated public health evidence and ideas in articles, reports, and monographs. Doctoral programs look for students who can conceptualize, analyze, and communicate in writing about complex, interdependent health circumstances. Capstone Papers stand as concrete examples of students' mastery of substantive areas, as well as proof of their skills in developing such products.

Capstone Products

In the Heilbrunn Department of Population and Family Health, MPH students meet the CEPH Integrative Learning Experience (ILE) requirement for a high-quality written product by writing a Capstone Paper and choose to prepare one of the following products commonly developed as part of public health practice. They may write a:

1. **Manuscript of publishable quality** (e.g. a research article, a review article in journal format, or a book chapter);

2. **Research or Evaluation Proposal** narrative, including an executive summary, for a major research or evaluation project aimed at a **specific funding agency or foundation**;
3. **Rigorous public health practice critical assessment and synthesis** about the practice of public health service delivery (based upon one's Applied Practice Experience); or
4. Paper presenting the theory-based development of an **innovative educational curriculum** (the curriculum itself stands as an addendum to the Capstone Paper).

Each product option is available to all MPH students in the Department. Students choosing the Manuscript or Proposal Narrative can, but do not need to, base their paper on their Applied Practice Experience (APEX). A related or even completely different topic can also be selected.

The Critical Assessment & Synthesis product **MUST** be related to the APEX, as it is designed to encourage critical, independent thinking about the experience.

The Theory-Based Development of an Educational Curriculum product **MUST** be based on the APEX, unless written approval is obtained from the Director of Academic Programs (Chelsea Kolff). This Capstone product represents a “deeper dive” into the development of a full curriculum including the planning and evaluation of the curriculum.

For MS students, the required Thesis may take only the forms of 1) a manuscript of publishable quality in a peer-reviewed journal or 2) detailed research or program evaluation proposal for an institutional funder.

The Integrative Learning Experience Capstone or Thesis work product must represent original work by the student in fulfillment of this requirement.

1. Students may **NOT** submit work that has previously been submitted to fulfill course requirements.
2. Research proposals or evaluation proposals for work that has already been completed (by the student, APEX sponsor, or others) are **NOT** allowed.
3. Students may **NOT** use one of their APEX deliverables for their Capstone.

Capstone Reader

The role of the Capstone Reader is to provide students with guidance and feedback during the writing process and assess the final product.

The Capstone Reader will need to review and approve the Capstone Proposal. In consultation with the Capstone Reader, students will select the foundational and concentration-specific competencies appropriate for their paper.

The Reader will work with the student to develop a timeline appropriate to provide feedback on the Capstone as it is being developed and written.

The Capstone Reader is responsible for assessing the final paper and certifying that the required number of competencies have been adequately demonstrated.

Input from students is one of several factors considered when the Department matches faculty readers. Students express their preferences via survey link shared via email. This survey can be found in Appendix D, and a list of potential faculty readers can be found in Appendix E. **Please be sure to consult this list prior to noting your preferences.** In consultation with the Certificate Leads, the Academic Program makes final decisions regarding students' Readers.

In some cases, a student may wish to consult with other faculty or non-faculty members. Students are asked to inform the Capstone Reader first before approaching other faculty. Only the faculty member designated as the Capstone Reader can approve a student's proposal and evaluate the final Capstone Paper.

Prerequisites

Before beginning the Capstone Paper, students must have completed the following components towards their MPH degree:

- The Core
- Personal Leadership in Public Health
- Integration of Science and Practice
- Research Design and Data Collection
- Public Health Program Planning

Students will also benefit from having completed or initiated Department Selectives: Quantitative Data Analysis, Qualitative Data Analysis, Evidence to Action in Child Health, Public Health Aspects of Adolescent Health, Investigative Methods in Complex Emergencies, Systems Thinking for Maternal Health, or Methods in Program Evaluation.

Capstone Timeline

Choosing a reader: You will request a Capstone reader via an electronic survey distributed in the fall of your second year (timeline may vary for February and October graduates). Once assigned, you should plan to meet with your Capstone Reader in advance of the Proposal Deadline.

Submitting a Capstone Proposal: Students are required to submit a proposal that will be reviewed and approved by their Reader before proceeding to work on the Capstone. The submitted Proposal will specify **three** foundational and department competencies that their final product will demonstrate. Students must select at least one foundational competency and at least one departmental competency. Students may work with their Reader to adjust the selected competencies (as the Capstone is being written) as long as the final written product still addresses the required number and mix of foundational and departmental competencies.

The Capstone Proposal must be delivered by the student via email to your reader and the Director of Academic Programs no later than **November 10th**. Students should submit to their Reader a draft of their Proposal and refine the draft based on feedback from the Reader before this submission deadline.

If you plan to work with data that has personally identifying information of individuals (See Appendix B), you **MUST** obtain CUIMC Institutional Review Board (IRB) approval before working with the data. If you think you may need IRB approval, you should discuss this with your Capstone Reader as soon as the Reader is assigned.

Capstone submission:

Due dates for Capstones are:

December 1 for February Graduation

March 22 for Spring Graduation

July 15 for October Graduation

Late Capstones may delay your graduation.

Dual degree, part-time, and off-cycle students will follow adjusted time frames set in consultation with the Director of Academic Programs and their Capstone Readers. **It is the responsibility of students in this category to remain informed of the Department's policies, processes, and deadlines.**

Capstone Grading

The Capstone grade is listed separately on each student's transcript. While there are a range of possible grades the Reader may assign, the only grades that are included on the transcript are PASS (high pass, pass, low pass) and FAIL. The Capstone Paper will be evaluated by the Capstone Reader according to these criteria:

A **High Pass** is reserved for papers that are excellent. These are well-written and organized papers that offer a series of deep and insightful reflections about public health practice. These papers address all, most, or many of the supporting element in all student-identified competencies.

A **Pass** will be given to papers that are solidly acceptable. They involve abstraction, reflection, writing, and organization that falls within a range from good to very good. These papers address some or more supporting elements in each of the student-identified competencies.

A **Low Pass** will be given to papers that are minimally acceptable, but lack certain aspects of writing and organization, within the range from average to good. These papers do not address supporting elements in one or more of the student-identified competencies, but sufficiently demonstrate three competencies met.

A grade of **Fail** will be given to papers that do not meet minimally acceptable standards. If a paper is not adequate—meaning poorly written and organized, missing critical elements, or is written in such a way that the thoughts and ideas are inaccessible to the reader—a grade of Fail may be assigned. The student must revise the Capstone Paper to the level of a Low Pass or higher in order to graduate.

The extent to which the student demonstrates mastery of the selected competencies will be documented by the Capstone Reader using the Capstone ILE Faculty Assessment Form (Appendix F). The quality of writing is assessed as part of the final Capstone grade.

Technical Considerations

Authorship:

A student's Capstone must reflect original work conducted by the student. Still, the work of others should be discussed and acknowledged before the Capstone is written.

Usually, peer-reviewed articles, book chapters, review articles, and/or monographs are written by more than one person. In public health, steps including the conceptualization of the research question, instrument design, sampling, field work, and data collection, analysis, processing, and interpretation are typically collaborative activities. Specific individuals may be more involved in some steps than in others, and it is often the case that many people indirectly contribute to the research by maintaining the ongoing health care services or public health programming on which the research is based.

Department students may be involved in some or all of these steps, including the proposal or writing of a manuscript or proposal for submission. Thus, even if a student (or any other individual) has drafted and written much or all of an article, he or she may not be the first author when the article is published due to contributions from other authors that preceded the writing of the Capstone.

The names and order of authorship must be a joint and early decision of those involved in the research or proposal writing. Students can also consult their Reader to discuss authorship. It is appropriate for the student to be listed as an author on the article, providing that she or he has contributed to 1) the conception, design, acquisition of data, or analysis and interpretation of data, and 2) drafting the article. All authors listed must have participated sufficiently in the work to *take public responsibility* for it.

The American Psychological Association has helpful guidelines for students in identifying authors and assessing the order of authors:

<https://www.apa.org/science/leadership/students/authorship-paper>

The student must make a substantial contribution to the writing, regardless of whether they are the first author on the final product. The student should delineate their specific role as an author and provide a rationale for author order and the respective roles of other authors. Authorship discussions should take place early in collaboration with the co-authors (e.g. APEX sponsor, investigator whose data are being analyzed).

Length:

The appropriate length of the Capstone should comport with conventions in actual public health practice.

1. **Manuscript of Publishable Quality.** The manuscript should be written with a specific target journal in mind. To identify a target journal – that is, a journal that is appropriate in scope and focus given the student's area of inquiry – consult the Journal and Author Name Estimator (<https://jane.biosemantics.org/>). Most journals have a word limit of 3,500 to 5,000 words excluding tables, figures, and references.

2. **Research or Evaluation Proposal.** The proposal narrative should follow the content, length, and spacing specified in the target funding agency guidelines. The student should indicate in their Proposal the target funding agency guidelines or should follow NIH guidelines.
3. **Public Health Practice Critical Assessment & Synthesis.** This Capstone should be 15-20 double-spaced pages, not including attachments.
4. **Theory-Based Curriculum.** The curriculum development narrative should be 15-20 double-spaced pages, not including the Curriculum or other attachments.

Format:

- 1" margins.
- Page numbering.
- 12 pt Times New Roman or 11 pt Arial fonts.

Capstone Paper Proposal

All students are required to obtain approval of their Capstone Proposal outline and secure approval from their Reader prior to preparing the Capstone Paper.

If you are submitting a Manuscript or Research or Evaluation Proposal, your Capstone Proposal should conform to the following guidelines:

1. **Cover page:** The title of your paper, your name, your certificate track, form of your capstone product (manuscript, evaluation proposal, etc.), expected date of graduation, and the name of your Capstone Reader. Also indicate whether IRB approval (if necessary) has been received or is in progress.
2. **Description of project:** Limiting yourself to two double-spaced pages, incorporate the following elements:
 - a. **Overall aim:** State succinctly the public health issue to be addressed and how the Capstone will fill a gap in knowledge
 - b. **Background and significance:** Summarize the existing knowledge on the topic, the scope and significance of the public health issue, and the importance of the project for public health in general and your area of specialization in particular.
 - c. **Specific aims:** State concisely and realistically (in 2-3 bullet points) what your Capstone Paper intends to accomplish.
 - d. **Project plan:** Provide a brief description of your Capstone methods and approach. Summarize the target population(s) or sample(s) to be used; specific theory(s) or framework(s) to be applied; program components (if applicable); and data analysis plan (if applicable).
3. **Authorship**
 - a. **Listing of joint authors, in order.**
 - b. **Rationale for student's authorship role:** Explain your role as a manuscript author, and a rationale for the author sequence.
 - c. **Delineation of student's expected contribution:** Describe the portion of the final joint-authored paper for which you are responsible.
4. **Competencies**
 - a. On a separate page, **list the three competencies** you plan to synthesize as you write your Capstone Paper.
 - b. All students must select at least one foundational competency and at least one departmental competency.

If you are electing write a **Public Health Practice Critical Assessment and Synthesis**, follow these guidelines for your proposal:

1. **Cover page:** This should include the title of your paper, your name, your certificate track, expected date of graduation, and the name of your Capstone Reader.
2. **Description of project:** In two double-spaced pages, incorporate the following elements:
 - a. **Description of the Applied Practice Experience site and project (two paragraphs).**
 - b. **Public Health Relevance of APEx work** – Align the APEx work with the scope and significance of a public health issue, priority, or challenge.

- c. **Annotated Relevant Literature** – Identify and summarize at least eight peer reviewed sources that speak to one or more of the issues you will reflect upon in your paper. Briefly note the importance of the issue(s) for public health in general and your practicum experience in particular.
3. **Authorship:** Students may submit Public Health Practice Critical Assessment and Synthesis papers on an individual basis only.
4. **Competencies**
 - a. On a separate page, **list the three competencies** you plan to synthesize as you write your Capstone Paper.
 - b. All students must select at least one foundational competency and at least one departmental competency.

If you are electing to write a **Curriculum**, follow these guidelines for your proposal:

1. **Cover page.** The title of your paper, your name, your certificate track, expected date of graduation, and the name of your Capstone Reader.
2. **Description of project.** In two double-spaced pages, incorporate the following elements:
 - a. **Purpose of curriculum** - Describe the target audience and potential training site(s) for curriculum use (two paragraphs). Delineate the specific needs of the target audience and the public health issue or challenge the curriculum will play a part in addressing.
 - b. **Underlying Theory.** Describe the theory that underpins the curriculum. Include information on how the theory has been used to inform other curricula or public health programs.
 - c. **Annotated Relevant Literature** – Identify and summarize at least eight peer reviewed sources that speak to one or more of the theories upon which you will base your curriculum. Briefly note the importance of the theories for public health in general and for your curriculum in particular.
3. **Authorship:** Students may submit Curriculum papers on an individual basis only.
4. **Competencies**
 - a. On a separate page, **list the three competencies** you plan to synthesize as you write your Capstone Paper.
 - b. All students must select at least one foundational competency and at least one departmental competency.

A copy of your final, approved Capstone Paper Proposal must be approved by your Faculty Reader and submitted to the Director of Academic Programs via email by **November 10th, 2023**.

Detailed Guidelines for Capstone Products

[Manuscript of Publishable Quality](#)

[Research or Evaluation Proposal](#)

[Public Health Practice Critical Assessment and Synthesis Paper](#)

[Theory-Based Educational Curriculum](#)

Manuscript of Publishable Quality

[Overview](#)

[Manuscript Targeted at a Peer-Reviewed Journal](#)

[Review Article](#)

Overview

Students may elect to write a Capstone Paper that is a manuscript targeted at a specific peer-reviewed journal, either presenting the analysis of qualitative and/or quantitative data or a scoping or systematic review that synthesizes an evidence base.

Manuscript Targeted for a Peer-Reviewed Journal

Manuscripts for peer-reviewed journals disseminate new research or evaluation findings, synthesis of existing evidence, or novel approaches to programs. Students choosing this Capstone form are not required to publish their manuscript, but should follow established conventions for manuscripts in peer-reviewed journals. Manuscripts that include the analysis of qualitative and/or quantitative data may need IRB approval. Students should consult their Capstone Reader as soon as possible to discuss the need for IRB approval; at a minimum, this must be discussed before the Proposal is submitted.

Students who choose to submit their manuscript to a journal should prepare for the peer-review process. In the peer review process, each submission is reviewed by 2-4 outside experts in the subject area, who provide recommendations to the journal editor about the manuscript's scientific quality and merit for publication. Reviewers provide constructive criticism on how the manuscript could be improved, whether the manuscript is accepted for publication or not. Their recommendations may include:

- Strengthened or clarified rationale for the study given prior evidence;
- Additional literature to review;
- Correcting errors in logic or analysis;
- Considering perspectives or alternative statistical methodologies that will improve the study's scientific rigor;
- Clarifying research findings; and/or
- Ensuring that recommendations or conclusions are supported by the data or evidence provided.

In practice, most manuscripts are not accepted for publication at the first submission. Students should expect that they will be asked to revise and resubmit their manuscript, and should discuss with their Reader who should be the author to correspond with the journal after submission.

Structure

Most peer-reviewed journal articles follow the IMRaD (Introduction, Methods, Results, and Discussion) format. Manuscripts also include an Abstract at the beginning, and References at the end. It is the student's responsibility to prepare the manuscript according to the guidelines of the target publisher (often found in the "Instructions for Authors" section). Students selecting this option are encouraged (but not required) to submit their work for publication. The student should identify the target journal prior to drafting the Capstone Paper, and organize their paper according to the guidelines of the target journal; some journals deviate from the IMRaD format.

If the target journal's word limit is substantially shorter than the 3,500 recommended for a Capstone Paper, students should discuss how to supplement the article with their Reader in order to meet the Capstone requirement.

Abstract

The abstract of the manuscript is a concise summary of the research problem, objectives, research design, results, and conclusion. Usually the word count for the abstract is between 150-250. Some journals require a structured abstract that includes subheadings such as objective, design, setting, participants, outcome measure, results, and conclusion.

Introduction

This section provides a review of what is known about the public health issue, and where gaps remain (that will be filled by the work presented here). The Introduction (called Background in some journals) should cover:

- a. A detailed description of the public health issue, including its magnitude, scope, and significance;
- b. The key findings in the scientific literature regarding the public health issue;
- c. What is still not well understood, or where there are mixed findings. And, how your study will contribute to the existing knowledge gained from prior findings;
- d. If appropriate, the theoretical framework that guides your hypothesis; and
- e. The purpose of the investigation and hypotheses; that is, how can your inquiry inform practice.

Methods

After you select a research problem, determine the most effective design for

investigating. In your manuscript, you will need to decide which of the following sub-sections to include, and the approximate length of each:

Overview of Research Design: Briefly describe the overall approach of your study. If it has phases, describe these too.

Source(s) of Data: Depending upon the type of study that you are designing, you should include as many of the following sub-sections as necessary:

Sample: In writing this sub-section, try to answer the following questions: What is the population from which you are planning to draw your sample? Who are you selecting to participate in your study? Who is eligible and not eligible? In other words, what are the inclusion and exclusion criteria for your study? What are the reasons for your selection criteria? How many people do you plan to include in the study? What are the reasons for your sample size? How much power does your study have to detect an effect? What are your estimates of participant attrition? How do you plan to recruit research participants? Be very specific. For example, *Latina women between the ages of 60 and 75 who reside in upper Manhattan, New York City will be recruited*. If you have completed a secondary data analysis, you should answer the following questions: What is the data set that you have selected for your research? How were the data collected for the selected data set? What are the benefits and limitations of the data set?

Research or Program Setting: Describe in detail the geographical and/or social community that you have selected for your study and the reasons for your selection.

Data Collection Method(s): Present a general overview of the method(s) you selected, your reasons for selecting it, and how this is going to be implemented in your data collection. If your research proposal only concentrates on secondary data analysis, you should focus this section on the types of measures that you are going to use in your analysis.

Measures: Describe what measures will be used, the reliability of each measure, the suitability of each measure for the study population.

Analytical Methods: Specify the types of methods that you are going to use to analyze your data (e.g., logistic regression, historical trends, and content analysis) and the reasons for your selection. Describe how these methods address specific aims.

Ethical Concerns and Protection of Human Subjects: For all original research and/or secondary data analysis, protection of human subjects must be addressed, i.e., was IRB approval requested and obtained, or if not, was this study exempted and on what basis. This information is usually one or two sentences in the methods section.

Results

In the *Results* section, accurately account for the study findings. Once you have completed your analyses, and decided how best to present each finding, think about how you will arrange them. Your analyses should tell a story that will lead your readers through the steps needed to logically answer the question(s) you posed in the *Introduction*.

Because the order in which you present your results can be as important as what you actually say in the text, authors usually begin this section by reporting descriptive statistics, i.e., sample characteristics. Often, tables are used to present comprehensive pictures of the sample and their characteristics. Text should not reiterate data that are presented in tables or graphs, but complement what is written in the narrative.

After you have outlined your descriptive results, the next task is to provide the results of any statistical analyses that have been performed on your data. There are distinct conventions concerning how your analysis should be described.

Students commonly provide too much information in the *Results*. Typically, editors allow a maximum total of 4-5 tables and/or figures. Only the most salient results should be reported. Also, remember that the purpose of this section is to describe the obtained results, not to provide interpretation of their meaning. Interpretation will be presented in the *Discussion* section.

The two examples that follow demonstrate well-presented results. When you prepare yours, consider:

- Are your data are reported in a clear, concise, logical, and well-organized manner?
- Are your data are presented on any measurement that was not described in the Methods?
- Are your findings are internally consistent?
- Do the numbers add up? (e.g. text and tables)

Example 1

RESULTS

Participants were primarily female (64%) and Latino (68%), with a mean age of 16.3 (SD=1.5) [Table 1].

Sleep Quality, Subjective Sleep Quality, and Psychosocial Stressors

The mean global PSQI score was 9.2 (SD=3.2, range 0-16 with lower scores indicating better sleep quality). More than half of patients (58%) had global PSQI scores >5, indicating poor sleep quality, a higher proportion than the 32% who reported fairly bad or very bad subjective sleep quality. Less than half (45%) of those with poor sleep quality characterized their sleep as fairly bad or very bad. Substantial proportions of participants reported experiencing psychosocial stressors, including going to bed thinking about things they need to do (65%), replaying the day's events over in their minds (42%), worrying about things happening at home or at school (41%), experiencing

things that made them feel strong emotions within an hour of going to bed (35%), and feeling upset (26%).

Demographic Differences in Poor Sleep Quality

Female participants, compared to male, had significantly higher odds of poor sleep quality in all logistic regression models (unadjusted: OR=2.32, 95% CI 1.19-4.53; adjusted for sociodemographic variables: OR=2.44, 95% CI 1.13-5.30; adjusted for number of psychosocial stressors: OR=2.80, 95% CI 1.21-6.45). Almost two-thirds (62%) reported experiencing at least one stressor (38 reported 1 stressor, 29 reported 2, and 37 reported 3 or 4). Experiencing 3-4 psychosocial stressors before bed was also associated with higher odds of poor sleep quality in both the unadjusted model (OR=3.88, 95% CI 1.40-10.77) and the model adjusted for number of stressors (OR=3.32, 95% CI 1.09-9.68) [Table 2].

Interest in and Preferences for a Mind-Body Integrative Health (MBIH)-Based Intervention Most participants (77%) reported that they would be likely to participate in an MBIH-based intervention, with 92% reporting they would participate in four or more sessions. The proportion of participants who reported being interested or likely to participate in an intervention, both overall and among those reporting poor sleep quality, did not differ significantly by gender or race/ethnicity. Approximately one-third (30%) of participants reported that they would prefer an equal mixture of both one-on-one and group sessions to learn about MBIH modalities. About half (52%) of participants would be willing to provide their parent or caregiver's information to receive information about healthy sleep. The preponderance (80%) of participants would be willing to wear an actigraph on the wrist for two weeks.

Example 2

TABLE 1. Characteristics, sociodemographics, and psychosocial stressors by sleep quality (n=167)

	PSQI ≤ 5 "Good" Sleep Quality	PSQI >5 "Poor" Sleep Quality	Total	P-value
	n (%)	n (%)	n (%)	
RACE/ETHNICITY				p=0.318
Black, not Latino/a	14 (26.4)	20 (18)	34 (20.7)	
Latino/a, of any race other than Black	32 (60.4)	80 (72.1)	112 (68.3)	
Neither Black nor Latino/a	7 (13.2)	11 (9.9)	18 (11.0)	
GENDER^a				p=0.012*
Male	27 (50.0)	34 (30.1)	61 (36.5)	
Female	27 (50.0)	79 (69.9)	106 (63.5)	
AGE in years	mean (SD)	mean (SD)	mean (SD)	p= 0.302
	16.15 (1.26)	16.42 (1.51)	16.29 (1.45)	
PSYCHOSOCIAL STRESSORS: "quite often," "frequently," or "always" going to bed...	n (%)	n (%)	n (%)	
Feeling upset	8 (15.1)	34 (30.9)	42 (25.8)	p=0.031*
Replaying the day's events over in mind	16 (30.2)	52 (47.7)	68 (42.0)	p=0.034*
Worrying about things happening at home or school	14 (26.4)	53 (48.2)	67 (41.1)	p=0.008*
Thinking about things I need to do	32 (59.3)	75 (67.6)	107 (64.8)	p=0.294
1 hour before bed, things happen that make me feel strong emotions (e.g. sadness, anger, excitement)	12 (22.6)	45 (40.9)	57 (35.0)	p=0.022*

*Chi-square test, p-value <0.05.

^a Gender identity options included in survey but not selected: trans female/transwoman/transfeminine; trans male/transman/transmasculine; gender nonconforming, non-binary, or genderqueer.

Discussion

In the *Discussion* section, begin with a narrative summary of your study's findings. (Do not repeat the *Results* section here; simply summarize. You should not include tables or figures from the results.) Then, explain and expound upon your findings in the context of existing literature. (i.e. Does your study extend the literature? Provide new findings? Contradict findings?)

Next, you can attempt to explain the results by relating your findings to other research findings and theoretical models (which you already referred to in the *Introduction*). Do your results support or refute the theoretical framework you may have employed? If you are looking at HIV prevention interventions, for example, you might ask: How does the finding that there is no difference between two interventions relate to what others have found about what makes a successful HIV prevention program? Do our findings agree with or contradict the published research? How can what we have found be explained in terms of the theoretical models outlined in the introduction?

Then, analyze the methodology. Were there any weaknesses that could have affected the results? Were your experimental results due to the manipulation of the independent variable or were they due to some other factor? If you found no difference among conditions (and thus accepted the null hypothesis), is this because there is no real difference or are there other explanations? Could there be other reasons?

The role of the final part of the discussion is to suggest further research in light of your results. An attempt should be made to move beyond simply saying that “there should be more participants” or that the experiment should “be more controlled.” Your suggestions should show a full grasp of the methodology or the actual area being studied. You should try to elaborate on the implications of your results and fruitful areas for new studies.

The *Discussion* section should close with the conclusions of your study and can include recommendations for public health practice that are supported by your findings.

The main error that students make when developing a Discussion is failing to synthesize – rather than summarize -- the findings and provide a comprehensive discussion of the synthesis. Do not merely repeat findings; actually discuss them, compare them to other findings, and relate them to important models or theories. Avoid drawing conclusions that are not supported by the findings presented. A Discussion section should include a subsection (sometimes with a separate Conclusion heading) thoughtfully discussing the limitations of your research. Show thought and imagination when you suggest further research.

References

This section lists the sources that you cited in the text. Depending on the style specified by your journal guidelines, references may be listed either numerically as they are cited in text, or alphabetically (for more detail about citing references

and sources within a manuscript, see section entitled “Citations” in this handbook.)

You want to make sure that references are:

- current;
- the most important sources for this topic, in your opinion;
- accurately stating the information from sources; and
- accurately cited (all types, including journal articles, books, reports, etc.).

Tables and Figures

The last section of a submitted manuscript is the tables, graphs, and/or figures. They should be presented in order of appearance in the text and all should be clearly titled.

Tables: Tables present lists of numbers or text in columns, each column having a title or label. Do not use a table when you wish to show a trend or a pattern of relationship between sets of values - these are better presented in a Figure. For instance, if you needed to present population sizes and sex ratios for your study organism at a series of sites, and you planned to focus on the differences among individual sites according to (say) habitat type, you would use a table. However, if you wanted to show us that sex ratio was *related* to population size, you would use a Figure.

Figures: Figures are visual presentations of results, including graphs, diagrams, photos, drawings, schematics, maps, etc. Graphs show trends or patterns of relationships.

Graphs are the most common type of figure.

Review Article

A review article consists of selecting a problem; reviewing what is currently known in the scientific literature; and building an argument that will lead to new insights, a set of suggestions, and recommendations. Review articles typically fall into one of the following categories:

- Research reviews focus on scanning, summarizing, and synthesizing findings from research on a particular issue. Research reviews include **scoping reviews**, which are exploratory reviews covering a broad topic, seeking to identify gaps in the evidence; **systematic reviews** collate empirical evidence from a focused research question, and assess the quality of the evidence; and **meta-analyses**, a type of systematic review that combining pertinent qualitative and quantitative **study** data from several selected studies.
- Students should consult the resource **[JBI Manual for Evidence Synthesis](#)**, which provides structured guidance on how to synthesize and assess the evidence in systematic, scoping reviews, and meta-analyses using mixed methods.
- Theoretical reviews focus on the theoretical underpinnings and frameworks around a particular issue, develop an argument that constructively critiques current thinking, and propose alternative ways or frameworks for analyzing the issue.
- Methodological reviews focus on a particular method or methodology for research, evaluation, or intervention on a specific research or service delivery

- problem, discuss the strengths and limitations of the method, and offer a critique and suggestions for future work.
- Policy reviews focus on analyzing the impact of a specific policy or set of policies in certain populations, and suggesting arenas and strategies for advocacy and points of intervention.

Structure

While review articles generally follow the same IMRaD structure, the structure may differ for review articles within a specific target journal. Most (but not all) peer-reviewed journals accept review articles and have specific submission guidelines for review articles, generally with higher word count limits. Your argument will need to be consistent with the journal guidelines and conform to the JBI Evidence Synthesis guidelines.

Research or Evaluation Proposal

[Overview](#)
[Research Proposals](#)
[Evaluation Proposals](#)

Overview

A well-written proposal is how public health programs are funded. If you choose to write a research or evaluation proposal, you should obtain the guidelines of a funding agency which might consider proposals like the one you are writing and follow those guidelines closely.

NOTE: Program proposals are not eligible for a Capstone proposal.

An ideal target funding agency for a research proposal is the National Institutes of Health (NIH). The “Quick Guide for Grant Applications” by the NIH has a resource [“Writing Your Application”](#) that offers specific tips on writing the different sections of a research proposal for funding any of the [27 institutes within the NIH](#).

More resources on grant applications – especially the specific aims – can be found at the [National Institute for Child Health & Development \(NICHD\)](#). Consult examples of R01 (a 4-5 year grant) or R21 (a 2-year grant) proposals from the [National Institute of Allergies and Infectious Diseases \(NIAID\)](#).

Research Proposals

A research proposal presents a set of arguments that illustrate the public health relevance (at the theoretical and/or programmatic level) of the specific topic of investigation, followed by a convincing methodology to investigate the research problem. Research proposals may be approached from multiple methodological perspectives, including but not limited to quantitative studies (such as surveys and secondary data analysis), historical studies (such as those using archival data); qualitative studies, such as ethnographic studies; and mixed-methods studies that incorporate qualitative and quantitative elements.

Abstract

Approximate length: half a page

The abstract of your proposal is a concise summary of your research problem, objectives, and research design. It is the first thing that readers will encounter, but it's advisable to write this last, using text from the body of the proposal.

Research Protocol

Section 1: Specific Aims Approximate length: 1 page

The Specific Aims is a single-page that includes everything important about the proposed research or evaluation work, without going into too much detail. In this section, you should describe: the significance of the public health problem your proposed work will address; the overall aim or purpose of your proposed work; the specific objectives of the work (i.e., what you explicitly propose to investigate) with the hypotheses (if applicable); and the implications of the study. This handy [one-page overview](#) from the NICHD describes the four key components of specific aims:

- a) An introductory paragraph, including knowns and unknowns (the gap in knowledge)
- b) Central hypothesis and rationale
- c) Aims (specific aims/goals)
- d) Payoff paragraph consisting of expectations and positive impact

Section 2: Background and Significance Approximate length: 2 pages

This section provides a literature review. Here the goal is to present:

- a) A detailed description of the research problem, including the magnitude, scope, and significance of the research problem that you have elected to address;
- b) The key findings in the scientific literature regarding your research problem;
- c) How your study will contribute to the existing knowledge gained from prior findings; and
- d) If appropriate, the theoretical perspective that your study is guided by (e.g., social learning theory, social constructionism) and your reason for selecting it. Remember to be concise.

Section 3: Preliminary Work (optional) Approximate length: 1 page

In this section, you should describe the findings from prior studies that you have conducted or have been involved with. Do not repeat findings mentioned in the prior section. This section allows you to argue why you and/or your team will be capable of conducting the proposed study.

Section 4: Approach or Research Design - Approximate length: 3-5 pages

This is the part of the proposal where you need to be the most creative. After you select a specific research problem, you need to decide upon the most effective design for investigating it. Therefore, you need to determine which of the following sub-sections to include:

Overview of Research Design: Briefly describe the overall approach of your study. If it has phases, describe these, too (e.g., household survey of clients, focus groups, interviews).

Source(s) of Data: Depending upon the type of study that you are designing, you should include as many of the following sub-sections as necessary:

Sample: In writing this sub-section, try to answer the following questions: What is the general study population from which you are planning to draw your sample? Who are you selecting to participate in your study? Who is not eligible? In other words, what are the inclusion and exclusion criteria for your study? What are the reasons for your selection criteria? How many people do you plan to include in the study? What are the reasons for your sample size? How much power does your study have to detect an effect? What are your estimates of participant attrition? How do you plan to recruit research participants? Be very specific. For example, *Latina women between the ages of 60 and 75 who reside in upper Manhattan, New York City will be recruited.*

Archival Materials: In writing this sub-section, try to answer the following questions: Which archives do plan to visit? What are your reasons for selecting these archives? What type of materials will be included as part of the study? Which materials will be excluded?

Secondary Data Sets: In writing this sub-section, try to answer the following questions: What is the data set that you have selected for your research? How were the data collected for the selected data set? What are the benefits and limitations of the data set?

Research Setting: Describe in detail the geographical and/or social community that you have selected for your study and the reasons for your selection.

Data Collection Method(s): Present a general overview of the method(s) you selected, your reasons for selecting it, and how this is going to be implemented in your data collection. If your research proposal only concentrates on secondary data analysis, you should focus this section on the types of measures that you are going to use in your analysis.

Measures: Describe what measures are used, the reliability of each measure, the suitability of the measures for the study population.

Analytical Methods: Specify the types of quantitative and/or qualitative methods that you are going to use to analyze your data and the reasons for your selection. Describe how these methods address specific aims.

Minimization of bias: Describe what methods you will use to minimize bias – for example, by conducting multivariable analysis to control for confounding, or

using multiple coders and calculating inter-rater reliability.

Limitations & Alternative Approaches: Acknowledge and describe the potential limitations of your proposed work. Lay out a plan for alternative approaches in case you hit a roadblock (e.g. what you would do if enrollment or recruitment is below the expected plan) or get unexpected results.

Data Management: How are you going to organize the collection and storage of data? You should include a timeline or timetable for the duration of the project period. Describe how these methods address specific aims.

Ethical Concerns and Protection of Human Subjects: Discuss the most salient ethical concerns related to your research proposal, whether or not these relate to human subject research or broader ethical implications of your research study, and what mechanisms you propose to use to address them. While you are not expected to write a Protection of Human Subjects Protocol for an Institutional Review Board, you must write at least one Informed Consent Form.

Timeline: Include a visual timeline (by months) depicting when you will complete each aim, and the specific steps within each aim.

Section 5: Feasibility Approximate length: 1-2 pages

In this section, you ought to consider the feasibility of the proposed study. Discuss the resources that will be needed to implement the research project. It is very important that it is possible and practical to conduct the study. As part of the feasibility section, include a timetable to show when and how the different components of the research study are going to be implemented. Discuss potential problems you may encounter with the research plan, and strategies you will use to mitigate them.

Evaluation Proposals

If your practicum exposed you to a program that was recently design and implemented, or particularly successful (or particularly ineffective), or if you are interested in policy impact analysis, you may want to explore your questions through an evaluation proposal.

Structure

Evaluation proposals for the Capstone Paper are divided into three main components: the abstract, the evaluation protocol, and the references.

Abstract *Approximate length: Half a page*

The abstract of your proposal is a concise summary of your evaluation problem, objectives, and evaluation design. It is the last thing that you should write and the first thing that you should present.

Evaluation Protocol

Section 1: Specific Aims

Approximate length: 1 page

In this section, you should describe the overall purpose, specific objective(s), and implications of the evaluation (see Figure 1 for an example).

Figure 1. Example of a specific aims for an evaluation proposal

Evaluation Problem	<p>Unintentional injuries are the leading cause of death among U.S. children and a major cause of childhood morbidity. Most injury morbidity and mortality occur in the home or automobile, and may be decreased through the use of preventive safety practices. The purpose of this evaluation is to determine the effectiveness of tailored injury prevention information provided in the primary care setting on parent adoption of injury prevention practices. Initial investigation demonstrated the potential feasibility and effectiveness of a computer-tailored information approach to the provision of injury prevention education during well-child visits. The objective of this evaluation is to test the impact of the delivery of concurrent tailored parent and physician information on (1) physician-parent communication during the well-child visit regarding injury prevention behaviors and (2) subsequent parent adoption of new safety practices. This evaluation will inform the potential development and use of strategies employing tailored communications for pediatric injury prevention in the primary care setting.</p> <p>Source: <i>Research Study: Pediatric Injury Prevention Health Communications Study</i> (Principal Investigator: Dr. Nansel) at the Prevention Research Branch from the National Institute for Child Health and Human Development (http://www.nichd.nih.gov/about/despr/prbrsh.htm).</p>
Overall Purpose	
Specific Objective	
Implications	

Section 2: Background and Significance

Approximate length: 2-4 pages

This section is dedicated to your literature review. Here the goal is to present:

- a) A detailed description of the evaluation problem and the significance of conducting a rigorous evaluation of the problem that you have selected;
 - b) The key findings in the scientific/evaluation literature regarding ways to evaluate your selected problem;
 - c) A discussion of how your study will contribute to the already existing knowledge base from prior findings;
 - d) The theoretical perspective from which your evaluation design emerged; and
 - e) Any conceptual innovations in the approach of your evaluation.
- Remember to be concise.

Section 3: Evaluation Design

Approximate length: 5-8 pages

This is the part of the proposal where you need to be the most creative. After you select a specific evaluation problem, you need to decide upon the most effective design for investigating it. Therefore, you need to determine which of the following sub-sections to include and the approximate length of each:

- Overview of evaluation design: Briefly describe the overall design/approach of your evaluation (outcome evaluation, process evaluation, structural evaluation, etc.) and your reasons for selecting it.
- Target Program/Initiative: Describe the program/initiative that you plan to evaluate, its core components (content, pedagogy, intended implementation), its target population (e.g., urban youth), and its expected goals.
- Indicators: Identify and define the specific indicators that you are going to use in your evaluation, and your reasons for selecting these indicators. Specify the data source for each indicator.
- Data collection methods: Describe the methods and strategies that you are going to use to assess the indicators of the proposed evaluation. For each data collection method/strategy, present a general overview, your reasons for selecting it, the sampling strategy (from whom you will collect data), and how it is going to be implemented in your data collection.
- Validity: In this part of your proposal, you ought to identify the issues of potential threats to internal validity, construct validity, and external validity of your evaluation design, and discuss the ways that you are going to mitigate them in your evaluation methods.
- Analytical methods: Specify the methods that you are going to use to analyze your data (e.g., logistic regression, historical trends, content analysis) and the reasons for your selection.
- Data management: Describe how are you planning to organize the collection and storage of your data. You need to include a timeline or timetable for the duration of the project.
- Ethical concerns and protection of human subjects: Discuss the most salient ethical concerns related to your evaluation proposal, whether or not these relate to human subjects research or broader ethical implications of your evaluation, and the mechanisms you propose to use to address them. You are not expected to write a Protection of Human Subjects Protocol for an Institutional Review Board.

Section 4: Feasibility

Approximate length: 1 page

In this section, you ought to discuss the feasibility of conducting the evaluation design that you propose. The viability of the evaluation is a very important component of your proposal. Discuss potential problems you may encounter with the evaluation plan, and strategies you will use to mitigate them. As part of the feasibility section, include a timetable to show when and how the different components of the evaluation are going to be implemented.

Section 5: Results

How will the information be used for decision-making? Who will be involved? How will the results, findings, and lessons be shared with the organization, the population of interest, and the broader professional community?

Public Health Practice Critical Assessment and Synthesis

Overview

This Capstone Paper product is a cohesive synthesis of the Applied Practice Experience (APEX) that includes a robust literature review and synthesis (incorporated into the introduction section); a comprehensive description of the project's history, goals, methods, products, and findings; and a discussion section connecting the APEX experience and outcomes to classroom learning.

Reflective writing in public health allows a practitioner to learn from an event or experience, and to engage in analytical thinking about the application of an experience to past and future learning.¹ Reflective writing can be a part of continuous professional development for public health professionals, and should include the practice of critically contextualizing, observing, and analyzing to generate new insight to ultimately enhance practice.² A public health practice critical assessment and synthesis based on a student's applied field practice experience (APEX) must integrate the same rigor in the preparation of a manuscript. This ILE format is intended to describe the implementation of a set of coordinated activities, a structured comparison of possible programmatic approaches, or to provide a narrative review of an applied field experience that deeply contextualizes the work so that the reflective paper could inform other's future practice.

The length for your paper should be 15-20 double-spaced pages, not including appendices.

Section 1: Introduction

Approximately 4-5 pages

This section should discuss your project within a broader social and public health context. The introduction must include a fully-referenced literature review – synthesizing, through review of peer-reviewed journal articles and/or policy papers or evidence reviews, the significance of the public health issue the APEX project seeks to address. This synthesis, which must bring together information from a minimum of 20 background articles, must describe the history, prevalence, scope, and inequities of the public health issue. This synthesis should also describe the rationale for the programmatic approach taken through the APEX. In addition, the introduction should cover the prior work relating to the APEX – what prior work has already taken place within the host organization as well as in the broader field, and what is the goal of the current APEX.

The Introduction should describe the APEX setting: its location, population, demographics, and mission. This section should also **include the specific goal(s) of the APEX** and how they relate to the mission of your agency and the broader context described. Specific goals may include the adaptation or implementation of a program, answering a research question (or questions) through data collection and analysis, developing an educational plan.

¹ Syed N, Scouler A, Reaney L. Faculty of public health tips on writing effective reflective notes. Faculty of Public Health. 2012 Sep.

² Jayatilleke N, Mackie A. Reflection as part of continuous professional development for public health professionals: a literature review. Journal of Public Health. 2013 Jun 1;35(2):308-12.

Section 2: Methodology

Approximately 1-2 pages

The methods that were used to carry out the work should be described. A review of the methods that undergird the APEX work should review the programmatic, research, policy and/or advocacy methods that were used. This should include detailed description of the data and information sources that were used as part of the applied practice experience – for example, any conceptual frameworks, screening tools, or primary or secondary data collection must be described. If this ILE describes the implementation of a program (including educational programs), a logic model with detailed narrative description of the program components within the logic model should be provided.

Be specific about project design, sample, instrument construction, data collection, and data analysis procedures. Describe in detail any conceptual or theoretical frameworks on which the APEX work was based. The process for developing, implementing, and assessing any activities or materials must be described.

Section 3: Results and Deliverables

Approximately 4-5 pages

The results section should discuss in detail the activities and outputs (including deliverables) that resulted from the APEX. This section should cover the number and characteristics of units of activity that resulted from the work, with presentation of quantitative data using tables and figures as appropriate. The Results section should also include a discussion of noted patterns, connections, or gaps that were identified through the methods described. This may include program recommendations for future work or a conceptual analysis of themes that emerged from the work.

Research Project: If you collected primary data or analyzed secondary data -- even if these analyses were for a formative purpose – this section should describe the findings from the analyses. For quantitative analyses, descriptive, bivariate and/or multivariable analyses should be presented both in table or figure form as well as narrative form. For qualitative analyses, present the main themes identified, providing illustrative quotes.

If you developed research instruments as a deliverable for your APEX, present them here. Describe how the features of the research instruments and how they were (or will be) used. If other components of the research process constituted your deliverables, describe them and the contributions they will make to the overall project.

Program/Educational Project: Describe and include (as an attachment) the deliverables you completed. Describe the intended effect or impact among the population your APEX was designed to serve, as well as the extent to which outputs, short-term or longer-term effects were observed. Was there (or will there be) organizational changes as a result of your work? What challenges need to be overcome for change to take place, on both the micro and macro levels?

For all projects: What are the next steps that can /should be taken in this particular area of public health practice? Reflect on those steps that should be taken at various levels of social organization (individual, institutional, and policy).

Section 4: Discussion and Conclusions

Approximately 6 - 8 pages

In this final section, the student is required to place the APEX methods, results, and deliverables within the context of applied public health practice as well as the academic program.

If you analyzed qualitative and/or quantitative data, this section must discuss the public health implications of your findings (or potential findings), both at the individual/agency level, and within a broader social context. What steps need to be taken to integrate your findings into service delivery/program development? Are there unanswered questions raised by your study findings that should be followed up with further research?

The Discussion section must include a section evaluating the strengths and weaknesses of your methods, including any methodological problems encountered and the strategies used to minimize them. Discuss how and what you would modify to improve the methodology, if appropriate.

In your Discussion, you must reflect on one theme in each of the following two areas:

1) Relate the APEX to classroom-based learning. How did the APEX relate to your experiences and learning in the classroom?

- What *specific* theoretical approaches, skills, or other class-based information, from specific courses, were relevant to your practicum?
- What were areas of convergence and divergence in your coursework versus field experience and how can the two combine (or not) to offer a holistic view of the public health issue/problem/challenge addressed by your practicum?
- What field lessons were not taught in the classroom and vice-versa?

2) Relate the APEX to the field of public health practice. Select an important area of public health practice and critically assess how it is relevant to your APEX. This section must relate to the synthesis of the evidence covered in the Introduction, bringing in theoretical and/or research/program/clinical implications. Discuss the strengths and limitations of your APEX in reflecting best practices in the area you choose. These include (but are not limited to):

- Health equity;
- The dismantling of structures of power and oppression;
- Community engagement, including a CBPR model;
- Advocacy;
- Mission and Goals (including long-term versus short-term goals).

Theory-Based Educational Curriculum

Overview

In this paper, a student will describe the development of a curriculum, usually prepared during the Applied Practice Experience, including its theoretical bases, learning objectives, pilot results (if applicable) and other components described in the Handbook. If a student wishes to base the Capstone Paper on a curriculum developed outside of the APEx (a curriculum created as a course assignment is not eligible), s/he must obtain the approval of the Academic Director prior to initiating the project.

Structure

Section 1: Literature Review

Identify the health problem or issue and what need the curriculum is developed to address.

Section 2: Target Population

For whom is the curriculum intended? Why?

Section 3: Theoretical Framework

(Discuss relevance of at least two aspects listed below)

- Theories of Health Behavior
- Theories of Adult/Adolescent/Child Learning
- Pedagogical Approaches
- Other Models

Section 4: Goals and Objectives of the Curriculum

- Utilization of the SMART model (see below)
- Learners will be able to.... (see Haller example below)

Section 5: Content of the Curriculum

- Given the learning objectives of the curriculum, many different topics areas could have been included. You likely included some topics and not others. Justify those decisions.
- Some topics/themes/skills rose to a central position in your curriculum (which may be reflected in their coverage across a variety of sessions). How and why did you choose the ones you did for this central position?
- How did you decide what material to utilize from other curricula and what to create on your own?
- Instruction Strategies

- Method(s) of Instruction
 - Mode(s) of presenting material (actual activities of teachers and learners; didactic and interactive components)
 - Connection to theoretical framework and objectives
- Implementation: frequency, setting, train the trainers (if applicable)

Section 6: Quality Control, Supervision and Limitations

- Address the assurance of fidelity in the delivery of the curriculum
- Address ideas/plans for re-dosing of the curriculum (as applicable) as well as preparation of new educators as staff changes
- What are the limitations of the curriculum?

Section 7: Evaluation Outline

Outline a plan for evaluating the effect(s) of the curriculum on learners, including key indicators.

Section 8: APPENDIX OF CURRICULUM COMPONENTS

SMART Goal Setting

- **S = Specific**
- **M = Measurable**
- **A = Attainable**
- **R = Realistic**
- **T = Timely**

Specific

Goals should be straightforward and emphasize what you want to happen. Specifics help us to focus our efforts and clearly define what we are going to do.

Specific is the What, Why, and How of the SMART model.

- **WHAT** are you going to do? Use action words such as direct, organize, coordinate, lead, develop, plan, build etc.
- **WHY** is this important to do at this time? What do you want to ultimately accomplish?
- **HOW** are you going to do it? (By...)

Ensure the goals you set are very specific, clear and easy to understand.

Measurable

If you can't measure it, you can't manage it. In the broadest sense, the whole goal statement is a measure for the project; if the goal is accomplished, the project is a

success. However, there are usually several short-term or smaller incremental measurements that can be built into the goal and represent steps toward achieving it.

Choose a goal with measurable progress, so you can see the change occur. How will you see when you reach your goal? Be specific! Assign numbers / quantity to goals.

Establish concrete criteria for measuring progress toward the attainment of each goal you set. When you measure your progress, you stay on track, reach your target dates, and experience the exhilaration of achievement that spurs you on to continued effort required to reach your goals.

Attainable

When you identify goals that are most important to a project, you begin to figure out ways you can make them come true. You develop attitudes, abilities, skills, and financial capacity to reach them. You begin seeing previously overlooked opportunities to bring yourself closer to the achievement of the goals.

Goals you set which are too far out of reach will not be sustainable. A goal needs to stretch the project slightly so you feel it is possible, yet realistic.

Realistic

This is not a synonym for “easy.” **Realistic, in this case, means “do-able.”** It means that the learning curve is not a vertical slope, that the skills needed to do the work are available, that the project fits with the overall strategy and goals of the organization. A realistic project may push the skills and knowledge of the people working on it but it shouldn’t break them.

Devise a plan or a way of getting there which makes the goal realistic. The goal needs to be realistic for the project, organization or company. Be sure to set goals that can be attained with some effort! Too difficult and you set the stage for failure, but too low sends the message that the project team is not very capable. **Set the bar high enough for a satisfying achievement!**

Timely

Set a timeframe for the goal: for next week, in three months, by next year. Putting an end point on your goal gives you a clear target to work towards.

If you don’t set a time, the commitment is too vague. It tends not to happen because you feel you can start at any time. Without a time limit, there is no urgency to start taking action now.

Time must be measurable, attainable and realistic.

HALLER-HDPFH HEALTH EDUCATION PROGRAM CONTENT EXAMPLE

SESSION 1: HIV/STIs, UNINTENDED PREGNANCY PREVENTION

Goals: To identify risk factors for HIV/STIs and unwanted pregnancies, and ways to prevent both. Students will be able to identify contraceptive methods, and affirm the responsibility of both partners to communicate about contraception and STI prevention.

Objectives:

- Students will identify at least 3 methods of birth control and the prevention of HIV/STIs and pregnancy.
- Students will identify 2 advantages, 2 disadvantages, and 2 risks of various forms of birth control.

SESSION 2: SUBSTANCE USE AND ADDICTION

Goal: To identify different substances and their impact on their bodies and health. Students will be able to analyze different situations that lead to use and abuse of substances. They will also be able to critically assess the role of advertising in teenager's view of alcohol and tobacco.

Objectives:

- To be able to state the cycle of use for substance use
- To list 3 effects of different substances, e.g tobacco and alcohol
- To increase student's knowledge of advertising strategies by listing at least 3 strategies advertisers use
- To increase student's ability to critically evaluate ads and messages and have them demonstrate 2 ways to debunk ads

SESSION 3: DATING VIOLENCE

Goal: To challenge myths regarding abuse in dating relationships and to educate about the different forms of relationship abuse.

Objectives:

- To identify and clarify at least 3 myths about abuse.
- To identify and list at least 4 different forms of abusive relationships.
- Define and identify 3 aspects of abusive relationships.
- To demonstrate and list 3 factors that increases the risk of date rape.

SESSION 4: COMMUNICATION

Goal: To emphasize the importance of effective communication skills to reduce the risk of engaging in sexual risk-taking behaviors and increase the prevention of STIs. Students will learn the application of assertive communication and interpersonal skills through skill building and dialogue.

Objectives:

- Students will be able to list 3 techniques of effective communication strategies to prevent pregnancy and STIs/HIV.
- Students will demonstrate through role play how to communicate about risk reduction with their partner.

Appendix A: Competencies

MPH Foundational Competencies

Evidence-based Approaches to Public Health

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

Public Health & Health Care Systems

5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and systemic levels

Planning & Management to Promote Health

7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs

Policy in Public Health

12. Discuss the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity

Leadership

16. Apply leadership and/or management principles to address a relevant issue
17. Apply negotiation and mediation skills to address organizational or community challenges

Communication

18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content

Interprofessional Practice

21. Integrate perspectives from other sectors and/or professions to promote and advance population health

Systems Thinking

22. Apply a systems thinking tool to visually represent a public health issue in a format other than standard narrative

Concentration-Specific MPH Competencies for the Department of Population and Family Health

1. Advocate for ethics, social justice and human-rights principles surrounding long-term, action-oriented public health research, policies, or programs
2. Develop strategies to engage with diverse communities, with attention to privilege and power dynamics, and to human resource assets and constraints in diverse locations and contexts
3. Design and synthesize methodologically-sound, evidence-based research to improve both public health practice and policy in one or more of the main substantive areas of the Department³
4. Implement data collection strategies and instruments to guide program development and monitoring and evaluation strategies for use in a broad range of local and global contexts, particularly in resource-constrained settings
5. Propose viable, effective, and context-specific programs in one or more of the primary substantive areas of the department, and articulate the location of these programs within public health systems and local contexts³

MS Competencies for the Department of Population and Family Health

1. Explain the evidence basis for public health action in the context of at least one of the substantive areas of the Department³
2. Effectively apply public health research and program evaluation methods
3. Design and evaluate public health interventions
4. Demonstrate technical competence in a selected concentration
5. Formulate conceptually coherent and evidence-based strategies to improve health at the population level

³ Substantive areas of the Department: Sexuality and sexual and reproductive health and rights; child, youth, and family health; maternal child health; health & human rights; public health and humanitarian action; implementation science; and complex health systems.

Appendix B: Institutional Review Board Approval

Not all Capstone Papers will require Institutional Review Board (IRB) review and approval. Approval may involve a full review, an expedited review, or an exemption (meaning IRB review and approval is not needed). An exemption can only be granted by the IRB. That is, neither you nor the faculty member with whom you are working can make the determination that your project is exempt. Students should first consult with their Reader about the potential need for IRB approval, and then consult the CUIMC IRB.

Papers that consist of secondary analysis of publicly-available data (e.g. NHANES, NSFG, NYC Community Health Survey) do not require IRB approval.

The following types of Papers will need approval by the IRB:

- Papers that involve the collection of data from human subjects need to be submitted for review to the IRB before any data are collected.
- Papers that involve the secondary analysis of previously collected data may require IRB approval, and need to be submitted to the IRB so that it can determine if your project is exempt from IRB review or needs approval.
- Papers that involve the collection or analysis of data from human subjects as part of an already approved IRB study may require submission to the IRB of a modification or amendment to the IRB protocol and/or the addition of you to the personnel listed on the IRB protocol.

The IRB review process is usually straightforward but can be time-consuming. If your Capstone Paper may require IRB approval, submit the IRB application as soon as possible; at a minimum, before . You should consult with your Capstone Reader about this process when developing your proposal.

The Columbia University Medical Center Institutional Review Board does not permit students to be listed as Principal Investigators on IRB protocols. Applications that are submitted to the IRB need a Columbia University faculty member sponsor listed as the Principal Investigator (PI) on the IRB protocol. Students can be listed as Investigators. In the protocol, the project can be identified as Capstone Paper research that you are conducting under faculty mentorship.

If you seek to work on a project that may require an application to the IRB, you should discuss your project with your Reader before beginning the process, and obtain her/his agreement to serve as the PI on your project.

All Columbia personnel listed on the protocol (including students) need to have successfully completed the required human subjects protection trainings and a conflict of interest attestation, which are hosted on Columbia's Rascal website. These trainings may include Good Clinical Practices (GCP), Research with Minors, and/or the Health Insurance Portability Accountability Act (HIPAA) training.

Submission of IRB protocols and correspondence with the IRB is conducted on-line using RASCAL (see <https://www.rascal.columbia.edu/>). At the RASCAL website, click on "Compliance" and then click on "Human Subjects Protocols" or "Consent Forms" as applicable. Under "Human Subjects Protocols" you can also click on "Helpful

Information,” a comprehensive archive of information and commonly asked questions. Students can also contact the IRB directly: Please contact the Human Research Protection Office if you have questions about submitting to the IRB, or whether this study requires review. CUMC Campus:(212) 305-5883 | irboffice@columbia.edu

Appendix C: Writing and Style Tips

In writing, think about your audience. An effective essay is one that argues a point. Imagine that you are arguing your point to a class, during a meeting, or to friends. Write in a formal (social science) style, but write clearly. Use simple language. Avoid jargon, fancy words, and florid styles. Use terms consistently. Try to be very economical. Even if you have many interesting ideas, concentrate on one or two major themes. Introduce the theme or themes early on, preferably in the first paragraph (e.g., “In this essay I will argue that...”). Use a title and headings to help your reader move along through your essay; these will make it clearer when you move to the next step of your argument, or from one topic to another.

Often, the most important part of the writing process is in the editing stage. You are unlikely to come up with a clear structure on your first draft. Allow yourself the freedom to write unreservedly, but then edit your work closely. Even if you did start out with a clear structure, outline your essay after it is written. This provides an opportunity for you to add headings if you didn’t start out with them. Make sure your arguments are built logically and coherently. Careful editing will help you to see where you drift from a main argument, or where a second argument needs an introduction. Don’t hesitate to remove passages if they distract from the main theme(s) of your essay. Even if these extrinsic arguments are interesting, it is better to be coherent and stay on topic. You may expand on such passages in another essay or place them in a footnote.

Provide evidence to support to your statements and arguments. Imagine your readers are a jury in a court of law. You have to convince us! Why should we agree with what you say? What is your reasoning? Where is your evidence? In the social sciences, we use and cite sources of both ideas and facts. But remember, evidence may be of mixed validity – use it critically! Don’t just say, for example, “Young people have unsafe sex because of low self-esteem.” Be clear when you are mentioning this as a fact based upon research evidence by citing the source of the information. If instead you are proposing this as a hypothesis, let your readers know. If the hypothesis is someone else’s, cite the source. Furthermore, you will help the reader assess the evidence you provide by qualifying it. Is there overwhelming evidence for this assertion, or is it merely suggested by one research project? Is the evidence convincing to you? It is more than all right if you don’t know the answer to everything. Raise questions. Discuss problems.

Draw conclusions and take sides. Your paper should reflect your own thinking. Take care not to be simplistic or overzealous. Complex problems often have complex, somewhat conflicting, or even bewildering conclusions. This makes them interesting.

Citations

Make sure that you properly cite the sources of information that you use throughout your proposal. Use a consistent scientific style of citation. If you are preparing a manuscript for eventual publication, use the citation style required by the target journal as indicated on the publisher’s website.

If not, you may choose to use either the *American Medical Association Manual of Style: Guide for Authors and Editors* (<http://www.amamanualofstyle.com/>) or the *Publication Manual of the American Psychological Association* (7th ed.) (<http://www.apastyle.org/>).

The APA and AMA style guides differ in how you cite a reference within the body of the text and how you cite it in the reference list at the end. The following (adapted from the American Nursing Association) outlines the differences between the two styles for journal articles; consult the guidelines for conventions for books and websites.

APA uses author and publication date citations within the text. The references are then listed in alphabetical order in the reference list.

Example

In-text citation: Four studies reported that the intervention was more effective than standard treatment (Smith et al., 2020; Rodriguez & Jones, 2021; Matsumoto, 2018; Brown, 2022). [Citations are fictitious.]

Reference list example: Butcher, B. W., Eaton, T. L., Montgomery-Yates, A. A.; & Sevin C. M. (2022). Meeting the challenges of establishing intensive care unit follow-up clinics. *American Journal of Critical Care*, 31(4), 324-328. <https://doi.org/10.4037/ajcc2022987>

AMA uses superscripted numbers that are consecutively numbered within the body of the text. All the references are then listed in numerical order in the reference list.

Example

In-text citation: Four studies reported that the intervention was more effective than standard treatment.¹⁻⁴

Reference list example: 1. Butcher BW, Eaton TL, Montgomery-Yates AA, Sevin CM. Meeting the challenges of establishing intensive care unit follow-up clinics. *Am J Crit Care*. 2022;31(4):324-328. doi:10.4037/ajcc2022987

We recommend using a citation management software program. The CUIMC Health Sciences Library offers support for a number of citation management software programs, including EndNote, Zotero, and Mendeley:

<https://library.cumc.columbia.edu/activities/citation-management>

Appendices

Appendices are not required but questionnaires, scales, interview schedules, maps, photographs, and so on, can be included in an *Appendices* section, after the *References* section. There is no limit on the number of appendices or the number of pages in the appendices.

Additional Help on Writing

The Columbia University Writing Center

<http://www.college.columbia.edu/core/uwp/writing-center> is available for students.

Successful Scientific Writing & Publishing: A Step-by-Step Approach (2018). Centers for Disease Control & Prevention (CDC):

https://www.cdc.gov/pcd/issues/2018/18_0085.htm

For systematic & scoping reviews, the Joanna Briggs Institute Manual for Evidence Synthesis (2023): <https://jbi-global-wiki.refined.site/space/MANUAL>

The CUIMC Health Sciences Library offers numerous resources on writing in its searchable knowledge base: <https://library.cumc.columbia.edu/kb>

Online Writing Lab of Purdue University: <https://owl.purdue.edu/owl/>

Appendix D: Survey of Capstone Intentions

Please complete the online survey:

<https://forms.office.com/r/nTC2UX9jjW>

Note: Students must be signed into their CUIMC Microsoft account to complete the survey.

The content of the survey is this:

Please provide us with information about your plans for the Capstone Paper.

1. Your Name
2. Uni
3. Certificate
4. Which Capstone Paper product you plan to do (this can be modified later, if you change your mind)
5. The general topic or content area your Capstone will address.
6. The Department matches students with faculty capstone readers. To express your preference, please provide the names of three potential capstone readers from Appendix E of the handbook.
7. Comments? Questions? Additional information we should know?

Appendix E: Potential Capstone Paper Readers

Kayum Ahmed
Maureen Allwood
David Bell
Juliana Bol
Sara Casey
Marina Catalozzi
Lauren Chernick
Silvia Cunto-Amesty
Nicole Cushman
Helen de Pinho
Shannon Farley
Lynn Freedman
Claire Greene
Abigail Greenleaf
Stephanie Grilo
Kelli Hall
Sabrina Hermosilla
Patrick Kachur
Cassie Landers
Rachel Moresky
Virginia Rauh
John Rausch
Karampreet Sachatp
John Santelli
Melissa Stockwell
Vandana Tripathi
Ken Wickiser
Monette Zard

Appendix F: Capstone ILE Faculty Assessment Form

Student Name:

Faculty Reader:

Student Uni:

Student: Identify relevant competency	FOUNDATIONAL Competency	Supporting Evidence to assess student proficiency	Faculty Assessment
F1 <input type="checkbox"/>	Apply epidemiological methods to settings and situations in public health practice	Assessment must include the application of various epidemiological study designs (e.g., cohort study) and principles (e.g., sample size, incidence, prevalence, morbidity, etc.). A single setting/situation is insufficient. Student can apply multiple study designs in various contexts in coursework and assignments. Student can apply multiple epidemiological principles in coursework and assignments	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F2 <input type="checkbox"/>	Select quantitative and qualitative data collection methods appropriate for a given public health context	"Select" = choose among methods. Students must be exposed to various methods so that they can distinguish between and among them. Students can select among both quantitative and qualitative (e.g., focus groups, key informant interviews) data collection methods. Students can justify selection based on characteristics of given public health context	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F3 <input type="checkbox"/>	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	Assessment must address both parts of the competency statement: 1) qualitative (i.e., non-numerical) and 2) quantitative. Students can analyze both types of data using the appropriate software. Appropriate software may be general (e.g., Excel or Word) or specific (e.g., NVivo or SPSS)	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F4 <input type="checkbox"/>	Interpret results of data analysis for public health research, policy or practice	Students should understand and apply findings from data analysis. Students should have an understanding of the data findings and be able to draw linkages to how the results may influence decisions. Student can apply findings from data analysis for public health research, policy or practice. Student can draw linkages to how the results may influence decisions	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F5 <input type="checkbox"/>	Compare the organization, structure and function of health care, public health, and regulatory systems across national and international settings	International health systems must be apparent for comparison to be possible.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F6 <input type="checkbox"/>	Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community, and systemic levels	Students should be able to discuss factors (including racism, specifically) that impact health equity at multiple levels for a particular health problem. Students should be able to discuss health disparities and differences among groups, as well as the ways in which organizations, systems, and structures operate that may have inequitable influences on certain groups.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F7 <input type="checkbox"/>	Assess population needs, assets and capacities that affect communities' health	Very concrete skill. Assess a specific community's strengths, challenges, and the desired outcomes that are necessary for community well-being. Student can analyze a specific community to identify strengths,	<input type="checkbox"/> Met <input type="checkbox"/> Not Met

Student: Identify relevant competency	FOUNDATIONAL Competency	Supporting Evidence to assess student proficiency	Faculty Assessment
		challenges. Student can assess desired outcomes for community well-being, taking into account community's own self-identified health goals	
F8 <input type="checkbox"/>	Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or programs	Must see preparation of students in connecting concepts of culture to the assignment (e.g., cultural adaptation/tailoring, stakeholder involvement in planning, cultural humility). A standard program planning assignment in the traditional social & behavioral class is not sufficient without specific attention to cultural considerations. Student can identify cultural values essential to effective, ethical, and culturally sustaining public health practice. Student can propose culturally responsive approaches to a public health program or policy in design or implementation. Student can produce a critique of an existing policy/program (rather than the actual design/ implementation of something new)	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F9 <input type="checkbox"/>	Design a population-based policy, program, project or intervention	Very concrete skill. Examples include research project, program plan, etc. Student can produce a research project, plan for a program, policy statement, etc. Project must be at the population level	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F10 <input type="checkbox"/>	Explain basic principles and tools of budget and resource management	"Resource management" refers to stewardship (planning, monitoring, etc.) of resources throughout a project, not simply preparing a budget statement that projects what resources will be required. Writing a supplemental description to individual line items in a projected budget is often insufficient unless there are other parameters around the task or assignment related to managing budgets and resources (e.g., staffing, space, multiple programs). Students can explain and complete steps involved in managing budgets or other resources AFTER a project begins.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F11 <input type="checkbox"/>	Select methods to evaluate public health programs	"Select" = choose among methods. Students should be able to consider a public health program and choose the appropriate evaluation method for the program. Students do not have to actually evaluate, but must be able to identify the correct approach. Student can explain or design formative evaluation (feasibility, appropriateness, acceptability). Student can explain or design process/implementation evaluation (have activities been implemented as intended), outcome/effectiveness evaluation (effect in the target population), and impact evaluation (success in achieving ultimate program goals)	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F12 <input type="checkbox"/>	Discuss the policy-making process, including the roles of ethics and evidence	Broader than analyzing a specific policy. Students must be able to explain the technical aspects of how policies (on a local, state, or national level) are created and adopted, including legislative and/or regulatory roles and processes. Students can describe how policy may move from one legislative committee to another. Student can analyze the iterations a policy goes through to incorporate feedback sufficient to garner legislative support for the final version. Students can consider how research or evaluation	<input type="checkbox"/> Met <input type="checkbox"/> Not Met

Student: Identify relevant competency	FOUNDATIONAL Competency	Supporting Evidence to assess student proficiency	Faculty Assessment
		evidence and ethics influence the policy making process	
F13 <input type="checkbox"/>	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	Students should recognize the importance of community involvement and buy-in as instrumental to promoting community change and improvement and should think about how to bring relevant stakeholders together. Student describes specific strategies for increasing community partnership and investment in collaborative. Student can select and justify specific approaches to engage relevant partners and address their goals and motivations	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F14 <input type="checkbox"/>	Advocate for political, social or economic policies and programs that will improve health in diverse populations	Students must understand how to advocate for a particular issue and have the ability to influence policy and/or decision making, such as through stakeholder mobilization, educating policy makers, etc. Students must produce a product that would be part of an advocacy campaign or effort (e.g., legislative briefing paper or fact sheet, advocacy strategy outline, etc.).	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F15 <input type="checkbox"/>	Evaluate policies for their impact on public health and health equity	Assessment should focus on the evaluation of policies rather than the development of policies. Students can, in writing or discussion, consider how groups are affected by policies, including both intended and unintended consequences with a focus on the impacts on equity	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F16 <input type="checkbox"/>	Apply leadership and/or management principles to address a relevant issue	Principles of leadership and management may include creating a vision, empowering others, fostering collaboration, and guiding decision making. It is insufficient to simply describe principles in an essay or exam, observe these skills in others, or have students self-reflect on their leadership style. Students must identify and apply specific leadership and management principles by developing their own strategies or approaches to a given scenario. Examples may be responding to a case study or scenario and justifying which leadership/mgmt. strategies are selected	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F17 <input type="checkbox"/>	Apply negotiation and mediation skills to address organizational or community challenges	This skill extends beyond the level of negotiating required in a successful intra-group process and assessment must involve more than persuasive communication. Student can, in writing, discussion, or practice, identify and apply specific ways to negotiate/mediate when another party has conflicting interests and/or different desired outcomes from their own and there is a need to come to a common conclusion.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F18 <input type="checkbox"/>	Select communication strategies for different audiences and sectors	"Select" = determine how to communicate with different groups by considering the needs and usual practices of the target audience. This competency is often conflated with #19, but it is different. Student can, in writing or discussion, discern between different media, consider levels of health literacy, and take into account cultural norms and strengths to select appropriate communication strategies. etc.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met

Student: Identify relevant competency	FOUNDATIONAL Competency	Supporting Evidence to assess student proficiency	Faculty Assessment
F19 <input type="checkbox"/>	Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation	Students should communicate using words and images that are effective, accessible, and understandable for each audience. An audience of peers/fellow students or an academic audience is not sufficient. Student can identify relevant features of the venues or methods of communication and message delivery (e.g., social media, press release, oral presentation, journal article). Student can justify the communication approaches that best fit the circumstances/context. One assessment may be sufficient if it has written and oral components, or multiple assessments are needed	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F20 <input type="checkbox"/>	Describe the importance of cultural competence in communicating public health content	Different from #8 – the focus is on communicating public health content and why cultural competence is an important consideration when crafting public health communications. Student can explain, in writing or discussion, the importance of ensuring that different groups can easily relate to and apply public health information.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F21 <input type="checkbox"/>	Integrate perspectives from other sectors and/or professions to promote and advance population health	Other sectors and/or professions may include physicians, nurses, pharmacists, and physical therapists, and can extend past the health sciences into education, urban planning, public administration, engineering, housing authorities, the legal system, police departments, and beyond. Not acceptable to solely assess in internship. Role-playing in which public health students assume the identity of an individual from another profession or sector to which they do not already belong is not an acceptable substitute. Student must combine the external sector/profession's perspective and/or knowledge with their own public health training to complete a task, solve a problem, etc. to produce a work of interprofessional synthesis (program proposal, plan for action, etc.). Student must actually interact with individuals in a profession or sector other than public health (in-person or online).	<input type="checkbox"/> Met <input type="checkbox"/> Not Met
F22 <input type="checkbox"/>	Apply a systems thinking tool to visually represent a public health issue in a format other than a standard narrative	Evidence of competency demonstration must be non-narrative. Describing how systems thinking might apply is not sufficient. Logic models and evidence tables are not sufficient to address this competency. Student must show that they can actually apply systems thinking tools by constructing a product, such as a causal loop diagram, systems archetypes, network analyses, and concept maps.	<input type="checkbox"/> Met <input type="checkbox"/> Not Met

Student: Identify relevant competency	DEPARTMENTAL Competency	Supporting Evidence	Assessment
D1 <input type="checkbox"/>	1. Advocate for ethics, social justice and human-rights principles surrounding long-term, action-oriented public health research, policies, or programs	<ul style="list-style-type: none"> • Describes engagement with key stakeholders • Articulates how ethics, social justice, and human rights principles factor into the practice of service delivery and research • Explains how current work will advance public health goals, including long-term goals • Demonstrates high standards of personal and organizational integrity, compassion, honesty, and respect • Relates methods of work to equity and accountability • Draws connections between ethics, social justice, and human rights with sustainable, measurable, effective outcomes • Other: _____ 	<input type="checkbox"/> Met all or most of the supporting evidence <input type="checkbox"/> Met some of the supporting evidence <input type="checkbox"/> Did not meet the supporting evidence
D2 <input type="checkbox"/>	2. Develop strategies to engage with diverse communities, with attention to privilege and power dynamics, and to human resource assets and constraints in diverse locations and contexts	<ul style="list-style-type: none"> • Explains how current work will advance public health goals • Reviews how dialogue and/or learning from key stakeholders contributes to advancing public health goals • Demonstrates high standards of personal and organizational integrity, compassion, honesty, and respect • Describe the strengths and limitations of current directions in programmatic and policy responses • Other: _____ 	<input type="checkbox"/> Met all or most of the supporting evidence <input type="checkbox"/> Met some of the supporting evidence <input type="checkbox"/> Did not meet the supporting evidence
D3 <input type="checkbox"/>	3. Design and synthesize methodologically-sound, evidence-based research to improve both public health practice and policy in one or more of the main substantive areas of the Department ⁴	<ul style="list-style-type: none"> • Selected research question, design and methods are described in the context of prior literature, identifying areas of consistency and inconsistency in the body of evidence • Strategies for maximizing internal and external validity are described • Findings are described in the context of prior evidence • Acknowledges limitations of study design, sampling, data sources, analytic approach, or other methodologic elements • Describes how these limitations affect implications for public health research and practice • Describes implications of the findings for public health research, practice, or policy • Other: _____ 	<input type="checkbox"/> Met all or most of the supporting evidence <input type="checkbox"/> Met some of the supporting evidence <input type="checkbox"/> Did not meet the supporting evidence

⁴ Substantive areas of the Department: Sexuality and sexual and reproductive health and rights; child, youth, and family health; maternal child health; health & human rights; public health and humanitarian action; implementation science; and complex health systems

D4 <input type="checkbox"/>	4. Implement data collection strategies and instruments to guide program development and monitoring and evaluation strategies for use in a broad range of local and global contexts, particularly in resource-constrained settings	<ul style="list-style-type: none"> Context of the proposed work is described, including resources, assets, and constraints of the setting Selected research question, design and methods are described in the context of prior literature, identifying areas of consistency and inconsistency in the body of evidence Strategies for maximizing internal and external validity are described Rationale for proposed methods is placed in the context of the setting Acknowledges limitations of study design, sampling, data sources, analytic approach, or other methodologic elements Describes how these limitations affect implications for public health research, practice, or policy Other: _____ 	<input type="checkbox"/> Met all or most of the supporting evidence <input type="checkbox"/> Met some of the supporting evidence <input type="checkbox"/> Did not meet the supporting evidence
D5 <input type="checkbox"/>	5. Propose viable, effective, and context-specific programs in one or more of the primary substantive areas of the department, and articulate the location of these programs within public health systems and local contexts	<ul style="list-style-type: none"> Articulates how complex interrelated forces combine to affect people’s health and wellbeing Context of the proposed work is described, including resources, assets, and constraints of the setting Delineates how program elements or features are responsive to the context Uses a logic model or other framework to operationalize the program Differentiates among the goals, measurable objectives, related activities, and expected outcomes and impacts Other: _____ 	<input type="checkbox"/> Met all or most of the supporting evidence <input type="checkbox"/> Met some of the supporting evidence <input type="checkbox"/> Did not meet the supporting evidence
<input checked="" type="checkbox"/> applies to all	Overall quality of the written product	<ul style="list-style-type: none"> Written communication is clear, concise, and well-structured Conclusions are appropriate for the presented findings Data (figures, tables) are presented clearly and with transparency Writing is accessible to the audience being addressed Written product is responsive to guidelines in Capstone Handbook Other: _____ 	<input type="checkbox"/> Met all or most of the supporting evidence <input type="checkbox"/> Met some of the supporting evidence <input type="checkbox"/> Did not meet the supporting evidence

Descriptive assessment of the student’s paper:

Please provide a narrative summary and assessment of the student’s paper (~5 sentences).

Final Grade

- High Pass** – Addresses all, most, or many of the supporting elements in all student-identified competencies; a High Pass is reserved for papers that are excellent. These are well-written and organized papers that offer a series of deep and insightful reflections about public health practice.
- Pass** – Addresses some or more supporting element in each of the student-identified competencies; a Pass should be given to papers that are solidly acceptable. They involve abstraction, reflection, writing, and organization that falls within a range from good to very good.
- Low Pass** - Does not address supporting elements in 1 or more of the student-identified competencies; a Low Pass is given to papers that are minimally acceptable but lack certain aspects of writing and organization, within the range from average to good.
- Fail** – Does not address any supporting elements in any of the student-identified competencies. If a paper is not adequate—meaning poorly written and organized, missing critical elements, or is written in such a way that the thoughts and ideas are inaccessible to the reader—a grade of Fail may be assigned. The student must rewrite the Capstone Paper to the level of a Low Pass or higher in order to graduate.