MPH Professional Paper Guidelines
Integrative Learning Experience (ILE)
MPH 6991 and MPH 6992

2022-2023

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Section I. Overview of the MPH Professional Paper

The professional paper constitutes the integrative learning experience for the MPH program, a culminating experience in which students demonstrate synthesis of foundational and concentration competencies by developing "a high-quality written product that is appropriate for the student's educational and professional objectives."[1]

To successfully accomplish their professional paper requirement, students will conduct a research project, which will include the following steps: review the literature regarding a practice-based or action-oriented public health or clinical question, design and plan a research project, complete an Institutional Review Board (IRB) application (if necessary), implement the project, write up the findings like a manuscript, and present the findings to the faculty and fellow students. To achieve the criterion of producing a high-quality written product, students are encouraged throughout the professional paper experience to seriously apply themselves to improving their scientific writing skills.

Research is a process by which we discover new knowledge, and it has different definitions. In the Code of Federal Regulations (45 CFR 46.102(d)) pertaining to the protection of human subjects, research is defined as: "A systematic investigation (i.e., the gathering and analysis of information) designed to develop or contribute to generalizable knowledge."[2] A more broad definition of research is a "systematic investigation of a subject aimed at uncovering new information (discovering data) and/or interpreting relations among the subject's parts (theorizing)."[3] In a basic sense, research can be seen as the gathering of data or information for the development of new knowledge or understanding, but the research process must be systematic and follow a series of steps and protocol designed in advance. Students may choose from a variety of types of research for their professional paper project, including a descriptive study, an experimental or quasi-experimental study, an evaluation study, or a systematic literature review or white paper. Examples of appropriate types of professional papers and examples of titles of recently completed papers are listed in Appendix A.

The professional paper consists of two linked courses: MPH 6991 and MPH 6992. The goal of the 2 semester-hour MPH 6991 Professional Paper I course is to develop a well-constructed proposal for a research project that can be completed the following semester in the 1 semester-hour MPH 6992 Professional Paper II course. The project is conducted, and the paper is written in MPH 6992. If appropriate, students are encouraged to structure their professional paper for publication in a peer-reviewed journal and/or for presentation at regional, state, or national public health conferences. All completed professional papers are retained by the MPH program and available to current students and the academic and practice community.

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[1] Council on Education for Public Health, Accreditation Criteria, Public Health Programs, Amended 2016, Criterion D7. URL https://media.ceph.org/wp_assets/2016.Criteria.pdf
[2] Office of Research Integrity, Department of Health and Human Services. Module 1: What is Research? URL https://ori.hhs.gov/content/module-1-introduction-what-research. Accessed July 31, 2017.
[3] Vogt WP. *Dictionary of Statistics and Methodology.* Newbury Park, CA: Sage Publication, 1993.

The MPH 6991 and 6992 courses have multiple sections, each of which is directed by a Professional Paper Primary Advisor who is a member of the MPH program's core faculty and provides primary guidance in developing the proposal, conducting the project, and writing the paper. The student may wish to select another professor or practitioner for advice on methods and/or substantive expertise; this person would be a Content Advisor.

Prerequisites for MPH 6991 are: MPH 6000, MPH 6002, MPH 6011, and one of the concentration-specific research methods courses (MPH 6020, MPH 6702, or MPH 6027). The prerequisites for MPH 6992 are completion of MPH 6991 and all other core courses (MPH 6010, MPH 6013, MPH 6035, and BIOS 7021).

The research methods class (MPH 6020 for Health Policy, Administration and Leadership concentration students; MPH 6702 for Epidemiology students; MPH 6027 for Community Health and Health Behavior students) is an important foundational course for the professional paper. The curriculum for each of these courses includes research methods appropriate for professional paper projects. Professional paper students may want to go back and review materials from their research methods class to help design their professional paper research project and develop a data analysis plan. Research methods classes will also provide guidance on scientific writing and the logic that needs to be employed when writing a scientific proposal or manuscript, such as the professional paper. For example, the introduction of the paper needs to present the public health problem within the context of existing scientific literature and to logically show how the new project will complement existing knowledge. Then this logic needs to be extended to the discussion section by comparing the new results with prior results from the literature and discussing how the new results add to our knowledge about the public health problem.

Section II. Preparing for MPH 6991/2

A. Choosing a topic
Ideally, students should identify a topic for their professional paper prior to enrolling in MPH 6991. The range of topics students choose reflects both diversity of the field of public health as well as the diversity of MPH students and their interests. The choice of topic may be a curiosity that the student brought to the program or one elicited by coursework or the internship experience. It must, however, be *feasible* to address in no more than two semesters and within the student's means. The topic should be *interesting* and *novel(new)* to the student. The method for examining the topic must be *ethical*. Any research involving human subjects must be approved by the University and Medical Center Institutional Review Board. Last, but not least, the topic must be *relevant* to public health - something that can be applied and lead to or inform action to improve the health of the public. The acronym, *FINER*, standing for the italicized words above, can guide selection of topic.

In addition to a range of possible topics, there is also a range of project types and methods that can be used to investigate a selected topic. The methods may include the collection of original data or the use of data that has already been collected; data collection and analysis may involve quantitative or qualitative methods, or a mixture of both. The student should consider what skills they would like to learn or improve and try to incorporate these skills into their pro paper experience.

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For students who do not know what topic they would like to address, there is a list of possible topics generated by faculty based on perceived data needs and their own interests and areas of expertise. This list is available on the Professional Paper page of the Department of Public Health (DPH) website at: https://public-health.ecu.edu/professional-paper/.

If students do their internship (MPH 6903 or MPH 6904/6905) before or at the same time as their professional paper, they are encouraged to link their internship and their professional paper experiences. The internship provides an ideal setting to develop professional paper objectives and methods, including opportunity for collection of data. However, the internship and the professional paper must involve different projects. This may require planning both the internship and a professional paper project prior to starting the internship. Students should discuss this possibility with their academic advisor.

B. Primary advisor and content advisor for professional paper
Students are encouraged to talk with various faculty about possible topics and to choose one faculty member with whom they would like to work. Students should then ask this faculty member if they would be willing to serve as their primary advisor for their professional paper.

The ILE Agreement and Concept Form Part I needs to be completed by the student and the professional paper primary advisor before the student registers for MPH 6991. Completion of this form involves reviewing and signing the Professional Paper Primary Advisor/Student Agreement and formalizes the agreement between the student and the advisor to work together. The ILE Agreement and Concept Form Part II needs to be completed by the midpoint in the student's MPH 6991 semester. Completion of the ILE Part II form involves describing the concept of and possible data sources for the student's professional paper and selecting competencies for the student's professional paper experience.

The primary advisor will work with students to establish dates and deadlines for the major sections of the proposal in MPH 6991 and the paper in MPH 6992 based on the academic calendar. This will allow the primary advisor to review the student's progress and provide feedback. The student must set up meetings with the advisor for specific guidance. The primary advisor is responsible for the student's professional paper products aligning with department requirements.

Although a rare occurrence, it is possible for a student to switch their primary advisor during the professional paper process (MPH 6991/2). The student should consult with their academic advisor and the student services coordinator. There is a form that the student, their academic advisor, and primary advisor need to complete and then submit to the student services coordinator.

The student may also identify a content advisor, separate from their primary advisor, who will serve to provide expertise on the substantive topic area. The content advisor is optional and not required. The content advisor may work outside the MPH program, for example, an internship preceptor.

If the student choses to have a content advisor, the student, the primary advisor, and the content advisor should meet early in the MPH 6991 semester to agree on a plan for the student and to define the roles and responsibilities of each person. The results of this meeting should be put in writing (e.g., an E-mail message).

C. Enrollment in MPH 6991
After receiving the completed ILE Concept and Agreement Form Part I, the student services coordinator will register the student for MPH 6991.

Section III.   MPH 6991 Details

A. Course objectives and competencies
The overall goal of MPH 6991 is to produce a well-constructed proposal for a research project that can be completed the following semester in MPH 6992.

Students in consultation with their primary advisor will select at least four foundational competencies and one concentration competency to address during their professional paper experience (MPH 6991/2). The selected competencies should be appropriate to their professional paper project and align with their educational and professional goals. Each student's selected competencies should be documented in the ILE Agreement and Concept form.

The selected competencies for MPH 6991/2 will be assessed by the primary advisor through review and critique of the professional paper proposal, paper, and poster. Meeting of competencies will be reported by exception during the professional paper process. That is, if the student is not making good progress towards meeting one or more competency, then the primary advisor will report this to the chair of the department, the academic advisor, the student services coordinator, and the student. The primary advisor will then work with the student to establish a remediation plan.

Towards the end of the MPH 6992 semester, the student will create a table that lists their selected competencies along with how they met these competencies during MPH 6991/2. This "Competency Achievement" table should be included in their professional paper, placed after the conclusions section, and be submitted as one of the final professional paper products. If an in-person professional paper poster session is held, students should bring several copies of their competency achievement table as a hand-out to share with guests. At the end of MPH 6992, the primary advisor will attest that the student has met all their selected competencies in the Professional Paper Submission Form.

B. Course organization
MPH 6991, Professional Paper I, is a 2 semester-hour required course in which the student writes a proposal for their professional paper project. This course involves the following steps:
1. Confirming and clarifying a proposal topic and title,
2. Defining the research question, and goal and objectives,
3. Designing a conceptual model or framework,
4. Conducting a literature review,
5. Planning the methods to be used (e.g., qualitative or quantitative) and the protocol,

6. Obtaining IRB approval (if necessary),
7. Preparing a timeline,
8. Outlining expectations for MPH 6992.

Each primary advisor will provide a syllabus that includes the date on which the proposal is due and other milestones. By the second week of the semester, the student and the primary advisor together should have developed a schedule for the student to follow during the semester in order to complete the proposal. It is the student's responsibility to report deviations from the timeline to their advisor. The advisor will meet with the student at least four times during the semester to provide guidance; these meetings may take place in person, by phone, or by a telecommunications application that provides both video and voice.

C. MPH 6991 grading

The "S" & "U" Grading System is used. Upon successful completion of 6991, the primary advisor will post either an "S" or "U" in Banner.

- S (Satisfactory progress) A special grade reserved for thesis and dissertation research, internships, practica, and similar courses. The grades in these courses are not included in meeting the cumulative grade point average of 3.0 required for graduation.
- U (Unsatisfactory progress) A special grade reserved for thesis and dissertation research, internships, practica, and similar courses. The grades in these courses are not included in meeting the cumulative grade point average of 3.0 required for graduation.

D. Structure of the professional paper proposal (MPH 6991)

The form and style of the proposal may vary depending on the research project being proposed and should be negotiated with the student's primary advisor.

It is recommended that students choose either the APA or the AMA citation style and use it consistently throughout their professional paper proposal. Other citation styles are also acceptable if the student's advisor has a citation preference, or the student would like to submit their paper to a specific journal which requires another citation style. For help with citation styles, see the ECU Libraries Citation Guide at: https://libguides.ecu.edu/citation . Students are also encouraged to use a reference or citation manager throughout their professional paper process. RefWorks is the citation manager supported by ECU; information about RefWorks can be found on the Laupus Library webpage at https://hsl.ecu.edu/. Students can also ask for assistance from the librarians at Laupus Library.

Based on the topic, there may be variation in the components of each proposal, but there are some components that most public health research proposals include. The following provides a structural guideline to the proposal for a research project.

Cover page Includes the title of the proposal, student's name, primary advisor and content advisor, date, and the semester. The title answers the question, "What you are going to do?" including person, place, and time. It should be clear and concise. A reader should understand the aim, the target population, and the dependent variable(s) if hypotheses are investigated (80-100 characters).

Introduction "What is the problem and why is it important?" This section gives a brief

description of the problem. Students should state the importance of the problem from a public health perspective and justify their decision for proposing this study. (1 page)

Background "What has been reported on this problem?" This section supports the introduction by summarizing the scientific literature relevant to the problem and demonstrating how the student's investigation addresses the unmet research needs in the area. The background section is a very important foundational part of the proposal and reflects the scientific literature review conducted by the student. (2-4 pages)

Goal and objectives "What are you planning to investigate and accomplish?" The goal states the broader long-term goal for the project. To reach this goal, the student needs to identify their measurable objectives. Just one goal and no more than three objectives are recommended. As part of the goal and objectives, the student should develop a research question, or a specific purpose for the project. (1 page maximum)

Conceptual model Every proposal must have one of the following: conceptual model, conceptual framework, or logic model for describing the problem, process, and/or grounding for the inquiry. This conceptual model is a visual display of the context of the project. Students should include an explanation of the model in the text accompanying the model.

Methods "What will be explored, described, or explained? How are you going to implement the proposal in MPH 6992?" This section is the detailed explanation of the activities that will be undertaken to obtain results or findings. The process should be explained as if giving detailed instructions to a reader interested in duplicating the project. Depending on the type of study or project that is being proposed, the subsections in the methods section may vary. Below are subsections that are often included. (4 pages maximum).

> **Target population** The target population is the group of people (or things) about whom the researcher is interested in making conclusions. The target population should be defined in clear terms addressing time, geographic location, and demographic characteristics.
>
> **Study population** The study population is the selected sample or group from the target population that will be included in the study. Describe what inclusion and exclusion criteria will be used to select the study population; how the participants will be recruited; the unit of analysis; how the sample size will be determined; and what sampling method will be used. If a comparison group is included, similarly describe criteria for eligibility and inclusion in that sample.
>
> **Study design** Describe the study design.
>
> **Data collection** "How are you going to collect data?" Explain the sources of data and details of the data collection methodology, e.g., use of data that has already been collected, original data collection, survey research, in-depth interviews, focus group discussions, biometric measurements, data abstraction forms, logbooks, etc. Describe the design of the data collection instrument, and if relevant, include how the instrument will

be tested and how the data will be collected and managed.

Variables Define and explain the variables that will be analyzed to answer the research question, or the main variables that will be used in the project. Each variable must be clearly defined and operationalized in terms of definitions and coding. Depending on the study design, goal and objectives, students may need to develop a dependent and independent variable list for the study.

Data analysis Develop an analysis plan. Describe development of a data dictionary or codebook and operationalization of variables. Analysis of quantitative data requires knowledge of biostatical tests. What statistical methods and techniques will be employed; descriptive or inferential? Student should discuss the process of data analysis with their primary advisor to determine the best approach. A brief description of the planned data analysis including the software packages (e.g., SAS, SPSS) and the analytical techniques should be included.

For qualitative research questions, data analysis may include selecting major themes/topics to explore, a plan for coding each interview (double coding using independent coders), and the qualitative data analysis package to be used (NVivo, AtlasTI). This section would also include an outline of inductive versus deductive analysis strategy.

Expected results/outcomes "What are the anticipated outcomes of the project?" This section summarizes the end products of the study, how public health practice might be informed and improved. Based on the analysis plan, drafts of tables or figures to report results should be developed, e.g., table shells with column and row headings, title of figures, and x-and y- axis of graphs. (See Appendix B for examples of table shells.) For qualitative research, include a table of potential themes/topics and salient quotes to illustrate each theme. (1/2 page)

Limitations and strengths "What are the strengths and weaknesses of the study?" State the limitations and strengths of the study plan and briefly explain how limitations may affect the study results.

Timeline "What is your schedule?" Each proposed activity should be planned chronologically (weekly or monthly) with critical events identified. The MPH 6991 proposal should include an individualized timeline of activities that the student proposes follow in MPH 6992 in order to complete their professional paper.

Human subjects The final proposal should include relevant IRB-related information, including whether human subjects research is being proposed, and if so when the IRB application was submitted, the identification number assigned by the ECU University and Medical Center Institutional Review Board (UMCIRB), and the approval number or letter granting exempt status, if IRB review has been completed. (See section E below for additional information on the IRB process.)

References The source of all literature cited in the proposal should be referenced in a format appropriate for submission to a professional journal, e.g., MLA, APA, or biomedical format,

depending on the contextual discipline in which the work is done. Advice of the primary advisor should be sought. Other literature, articles, book chapters, books, and unpublished material consulted but not cited may be listed in a bibliography.

Appendices Sample survey tools, questionnaires, consent forms, and other related documents for the proposal may be added as appendices.

E. IRB process

Below are the definitions of research and human subjects as described in the federal regulations governing human subject research [45 CFR 46.102(d)]:

Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes. For example, some demonstration and service programs may include research activities.

Human subject means a living individual about whom an investigator (whether professional or student) conducting research:
(1) Obtains information or bio-specimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or bio-specimens; or
(2) Obtains, uses, studies, analyzes, or generates identifiable private information or identifiable bio-specimens.

See the federal website for the protection of human subjects for more details at: http://www.hhs.gov/ohrp/.

All MPH 6991 professional paper students will be proposing a research project; however, all students will not necessarily be proposing a human subjects research project. The student and the primary advisor should first decide whether the research project being proposed by the student involves human subjects, as defined above. If it does not, then the student does not need to go through the IRB process. If the primary advisor is unsure about whether the proposed research involves human subjects or not, then the UMCIRB office should be contacted for guidance.

All students proposing to conduct human subjects research must submit their research study to the UMCIRB for prospective review and approval. No portion of the research (recruitment, consent, intervention, or interaction with participants, etc.) may be conducted before approval is granted by the UMCIRB. Students with questions about their proposed human research should contact the UMCIRB office via e-mail at UMCIRB@ecu.edu or at 252- 744-2914. The IRB website is https://rede.ecu.edu/umcirb/

Completion of the IRB submission must be done in conjunction with the primary advisor. The following is a list of the steps that need to be taken in order to submit human research to the UMCIRB for review and approval:
(1) If not already registered, you must register to become an ePIRATE (the online IRB submission and review system)

(2) Successful completion of the mandatory online training, CITI training
   See https://rede.ecu.edu/oric/citi-program-new-user-instructions/
(3) Creation and submission of the research study in ePIRATE. Information required in the submission includes but may not be limited to:
   a. Lay summary of your project
   b. Study team members
      i. Primary advisor or the content advisor should be the primary investigator (PI) for the project, not the student
      ii. All persons involved in the pro paper student's project should be listed on the IRB
   c. Project funding and location information
   d. Plans for recruitment and informed consent of participants inclusive of the informed consent document(s) to be used or request and justification of waive of informed consent
   e. For student projects a free-standing professional paper proposal/thesis/or dissertation proposal is required to be uploaded and should generally include the following information
      i. Literature review
      ii. Hypothesis/Research question
      iii. Goals/objectives
      iv. Methodology for answering your research question
      v. Risks and benefits of the study as well as plans for minimizing risks
      vi. Plan for data collection and secure maintenance of data
      vii. Description of your plan for recruitment and consent of the participants
   f. Projected number of people to be enrolled
   g. Methodology
   h. Risk(s) and benefit(s) discussion
   i. Data privacy, your plan for maintenance of the data during the conduct of the study as well as after the study is completed and your plan for destruction of the data

If the student is participating in an existing human subjects study that has already received an IRB determination/approval, they do not need to submit a separate IRB application but do need to be added to the existing IRB documents. The professional paper primary advisor and the primary investigator on the IRB (if different from the advisor) must agree with this option and an amendment to the existing study to add the student would be required within ePIRATE. For students being added to an existing IRB-approved study as a study team member, steps #1 and #2 above are still required.

F. Summary of the professional paper proposal process
   1. Select the study topic and project type.
   2. Select the primary advisor and content advisor (if appropriate).
   3. Develop the timeline for the proposal.
   4. Acquire knowledge, skills, and resources needed to complete the proposal and project.
   5. Write the proposal.

6. Submit the proposal for primary advisor's and content advisors' approval.
7. Obtain Institutional Review Board (IRB) approval, if necessary.

Section IV. MPH 6992 Details

A. Course objectives and competencies
The objective for MPH 6992 is to implement the proposed project by following the timeline developed in MPH 6991. The student will implement the project proposed in 6991 to generate the findings/outcomes/results section of the paper, summarize and discuss the findings, submit a written report, and present the project publicly.

Students in collaboration with their primary advisor select competencies for MPH 6991/2 at the beginning of the MPH 6991 semester. The selected competencies apply to both MPH 6991 and MPH 6992.The primary advisor will assess whether the student has met the competencies for MPH 6991/2 by evaluating the student's proposal, paper, poster, and oral presentation of the study.

B. Course organization
There are no organized class sessions for MPH 6992. The primary advisor will provide a syllabus and timeline for the dates that drafts are due. Prior to start of each semester, if an in-person poster session is to be held, a time and date for the poster presentation session will be scheduled for a time at the end of the semester.

The primary advisor will meet with each student at least four times during the semester to provide guidance; these meetings may take place in person, by phone, or by a telecommunications application that provides both video and voice.

C. MPH 6992 grading
The "S" & "U" Grading System is used. Upon successful completion of MPH 6992, the primary advisor will send a memo to the student services coordinator to upload into SharePoint/DegreeWorks stating the date work was completed. Once the memo is uploaded, the registrar will code professional paper as "R" -- Successful Completion. The primary advisor will post either an "S" or "U" in Banner. The registrar is the only person who may assign an "R."
- S (Satisfactory progress) A special grade reserved for thesis and dissertation research, internships, practica, and similar courses. The grades in these courses are not included in meeting the cumulative grade point average of 3.0 required for graduation.
- U (Unsatisfactory progress) A special grade reserved for thesis and dissertation research, internships, practica, and similar courses. The grades in these courses are not included in meeting the cumulative grade point average of 3.0 required for graduation.

D. MPH 6992 paper structure
The form and style of the paper may vary depending on the type of research project and the methods chosen. The student and the primary advisor should negotiate the required paper format at the beginning of the MPH 6992 semester.
It is recommended that students choose either the APA or the AMA citation style and use it consistently throughout their professional paper. Other citation styles are also acceptable

if the student's advisor has a citation preference, or the student would like to ultimately submit their paper to a specific journal which requires another citation style. For help with citation styles, see the ECU Libraries Citation Guide at: http://libguides.ecu.edu/c.php?g=17467&p=97552. Students are also encouraged to use a reference or citation manager throughout their professional paper process. RefWorks is the citation manager supported by ECU; information about RefWorks can be found on the Laupus Library webpage at http://hsl.ecu.edu/. Students can also ask for assistance from the librarians at Laupus Library.

The professional paper may be in the public health research article format. The IMRAD format (which is the acronym for "introduction, methods, results, and discussion") is the most common format for public health research papers and may be used in writing the professional paper. The following instructions summarize the structure of this format. Students can read further details on this format from the International Committee of Medical Journal Editors (ICMJE) web page at http://www.icmje.org/.

Paper length will vary. Students should focus on being succinct yet including sufficient detail so that others could replicate the results. Depending on the topic and type of study, it is highly suggested that the paper be modeled after certain journals in that field.

In general, the format of a research professional paper will include the following:

Professional paper cover page This page is like the cover page used for the proposal. Students should state the title, their name, and the semester. The names, affiliations, and academic credentials of the primary advisor and content advisor (if applicable) should appear on this page.

Abstract Summarizes the background, methods, results, and the conclusion of the paper. Use a "structured" format for the abstract and summarize each section under separate headings. The abstract should be limited to 200 words.

Introduction The introduction of the paper combines aspects of and summary from the "Introduction," "Background," and "Goal and Objectives" sections of the proposal. It gives a brief description of the problem being addressed and its importance, a summary of the scientific literature on the topic and how the proposed study will add to or complement what is already known, and the purpose of the study. The literature review in the proposal should be omitted from the introduction, except to use citations from literature to support introductory statements. It may be helpful to find a good peer-reviewed paper and follow its example for the content of the Introduction.

Methods This section contains the methods used to conduct the study or project. In some situations, the methods to implement the proposal may have changed by the time the paper is written. This section should reflect what was actually done in terms of methods for the study design, protocol, data collection, and biostatistical sections. The methods section should include UMCIRB number and determination; if the research did not involve human subjects, that should be stated.

Results This section presents the observed findings and the objective results of the analyses without any interpretation. Students should use tables and figures (which are placed after the reference list) along with the text to summarize the data. Data in tables should not be repeated verbatim in the text section. Read other journals as to the common practice of appropriate result section writing.

Discussion The first paragraph should briefly summarize the major findings. The next paragraphs should discuss the results in the context of previously published findings, i.e., describe whether the results agree or disagree with studies cited in the literature review. This section also includes speculation about why or why not results agree or disagree with prior findings. Next, both strengths and limitations of the study must be discussed. Students should conclude the discussion with the study's contributions to public health practice, community health and scientific literature, and give recommendations for future research.

Conclusion Not more than a short paragraph, this section should give the "take home" message from the project as well as what should be researched next.

Competencies The Competency Achievement table, which includes a list of the competencies selected by the student and how they met each competency, should be placed in this section.

Acknowledgements Students should include a brief section in the paper and on the poster acknowledging help they received from various individuals.

References Only works cited should be listed in final paper. An appendix of other literature consulted, published and unpublished, may be listed as a Bibliography. Epidemiology papers should use the AMA format.

Figures and Tables Figures and tables should be placed after the references on separate pages.

E. Professional paper poster

All students are required to develop a poster describing their professional paper project. At the end of the MPH 6992 semester, each student will develop a poster about their professional paper project. We encourage all students to present their posters at the in-person poster session, if possible. However, for those who cannot attend in-person, accommodations will be made. These students will be asked to present virtually by recording an 8-10-minute presentation using Zoom, WebEx, MSTEAMS, Studio, or voice-over-PowerPoint. The recorded presentation file should be less than 15 MB, since a larger file will be difficult to email and to store.

The date and time of the poster session will be determined at the start of the semester. For an in-person poster session, the following guidelines should be adhered to for printing, displaying, and presenting the poster.

1. Posters should be printed through the Laupus Library printing services at (https://lib.ecu.edu/laupus/posterprinting/). The department will pay for poster printing.

2. The department will provide an easel and poster board and pins to display the poster at the session.
3. Students are expected to have a professional dress and demeanor during the poster session and stand by their poster for the entire session.
4. Students are expected to bring a few copies of their Competency Achievement table as hand-outs for interested guests.
5. Students can either keep the poster themselves or give it to their primary advisor or content advisor after the poster session.

Posters should be created using the ECU PowerPoint 42-inch by 48-inch poster template. An annotated version of this poster template is available on the DPH pro paper webpage.

In the acknowledgement section of the poster, students should acknowledge all those who helped them with their professional paper project and indicate the role of each individual and the assistance they provided.

There are two options for authorship on the student's professional paper poster, which should be discussed among the student, primary advisor, and content advisor (if applicable).
Option 1. The student is the sole author. This is recommended if the student does not plan to present the poster again at a conference or professional meeting.
Option 2. The student is the first author, followed by all those who contributed to the project. This option is recommended if the student does plan to present the poster in other professional venues.

F. Paper submission
The student should revise their paper according to suggestions of the primary advisor and content advisor and deliver a final draft to them no later than one week before the scheduled presentation day.

The student should do the following after the paper is final:
1. Ask their primary advisor to confirm their approval of the final paper.
2. Complete Part A of the Professional Paper Submission Form and email the completed form along with their final professional paper, poster, and competency achievement table to their advisor. All files should be in pdf format.
3. Ask their primary advisor (or content advisor if PI) to "close" the study with the IRB through ePirate.

G. Publication of paper
Early in the MPH 6992 semester, the student and primary advisor should discuss the possibility of submitting the student's paper for publication. If the student would like to try and publish their professional paper, authorship and responsibilities should be discussed early in the process and agreed upon among the student and advisors.

H. Summary of the professional paper process (MPH 6992)
1. Conduct the research project, and/or data collection after obtaining IRB approval (if IRB is necessary).
2. Prepare the data base.
3. Enter and clean data.

4. Analyze the data.
5. Review the data with advisors.
6. Edit and update the introduction and methods sections as necessary.
7. Write the results section, prepare tables and figures, and double-check results.
8. Write the discussion and conclusion.
9. Prepare the reference citation list, and bibliography if appropriate.
10. Write the abstract and prepare a cover page.
11. Submit an electronic version of a complete draft of the paper for suggested revision and/or approval by primary advisor and content advisor.
12. Develop a poster presentation based on the professional paper; submit draft of poster to primary advisor and content advisor for their review at least one week before poster session.
13. Present the poster in an in-person poster session or record an 8-10-minute presentation.
14. Student and primary advisor complete the Professional Paper Submission Form and submit by email the completed form along with final professional paper, poster, and competency achievement table to the department chair and to the student services coordinator.
15. Close the study with the IRB in collaboration with the primary advisor or content advisor (whomever is the PI), if appropriate.

Section V. Resources for Professional Paper Students

A. Library services for literature searches

Heidi Reis is the library liaison for Public Health at Laupus Library. Feel free to contact her with any questions you may have about literature searches and library resources. Her email address is reish21@ecu.edu.The ECU Libraries' Research Guide for Public Health can be found at: http://libguides.ecu.edu/c.php?g=17380&p=97092

B. Support for statistical analyses

Students seeking analytical support have a variety of resources. First, the student should attempt the analysis on their own in **consultation with their primary advisor**. Then the student should check with their primary advisor regarding the best choices for analytical support. Potential sources of support include other DPH faculty members, as well as faculty in the Department of Biostatistics. If a student and primary advisor decide to seek input from a faculty member in the Department of Biostatistics, the primary advisor should initiate contact with a Biostatistics faculty member, and if the Biostatistics faculty member agrees to provide consultation, he or she should serve as a content advisor for the professional paper student.

C. University Writing Center

The University Writing Center offers consultations and resources to help students at any stage of the writing process and has locations at both Joyner and Laupus Libraries. Their website is: https://writing.ecu.edu/uwc/

D. UMCIRB

The University and Medical Center Institutional Review Board (UMCIRB) website has a lot of helpful information. Tutorials about ePirate can be found at: https://rede.ecu.edu/umcirb/

Section VI. Roles and Responsibilities

The roles and responsibilities of each person involved in the MPH 6991/2 process are outlined below.

Primary advisor
- Develop a Canvas site for their professional paper students including a syllabus and other materials or develop other means of delivering materials.
- Define MPH 6991/2 components clearly.
- If the student's project is a component of a larger study being conducted by the primary advisor (content advisor or other professor), clearly define the role and responsibilities of the student in that project.
- Establish clear benchmarks/timeline for each semester.
- Assist student's development of a sound methodological framework.
- Provide timely and constructive feedback/input for questions posed by students.
- If the student's project requires IRB approval, provide guidance for the IRB submission and be the PI. (In some instances, the content advisor may be the PI.)
- Encourage students to improve scientific writing skills throughout the professional paper process, including requiring students to use the University Writing Center.
- Check on the student's progress on the timeline.
- Communicate with the content advisor about the students' progress and about attending the final MPH 6992 presentation.
- Assign final grades of S or U for MPH 6991 and MPH 6992.
- Complete the student's Professional Paper Submission Form and forward form along with the student's final paper, poster, and competency achievement table to the department chair and the student services coordinator.

Content Advisor (if applicable)
- Provide input on public health implications of research topic.
- Guide the student regarding sound methodology.
- Early in the MPH 6991 semester, meet with the student and primary advisor to define student's professional paper project and the roles and responsibilities of each person. Results of this meeting should be documented in writing.
- Provide timely input to drafts of proposal and professional paper.
- Attend the student's final poster presentation, if possible.
- The content advisor does not assign the grade and does not participate in grading. The content advisor may provide editing and other suggestions that will enhance the final product.

Student
- Develop a topic that is feasible, measurable, and achievable.
- Conduct a thorough literature review on the selected topic, asking for help from their primary advisor, content advisor, and ECU librarians as needed.

- Lead development of a sound methodological framework to answer research question/topic.
- Work on writing skills, especially scientific writing, throughout the professional paper process. This will include using the services of the University Writing Center as needed.
- Implement feedback from primary advisor and content advisors in a timely fashion.
- Complete the proposal and paper in a timely and efficient manner.
- Work collaboratively with the primary advisor and content advisor throughout the professional paper process, including:
  - Communicating with the primary advisor and content advisor regularly, including answering emails in a timely manner.
  - Communicating problems encountered and asking for help.
  - Adhering to benchmarks set by the primary advisor and communicating related problems when they arise.

Appendix A. Examples of types of professional paper projects and recent professional paper titles

Types of professional papers
1. An epidemiological investigation
2. Description and analysis of a significant public health problem affecting a population not previously examined
3. Description and analysis of an emerging public health issue
4. Clinical effectiveness/outcomes research
5. A research question in the clinical research setting
6. A systematic literature review, or a white paper on a specific topic
7. History of a public health problem or program
8. An evaluation of a public health intervention or program
9. An analysis of a public health policy
10. Legislative research for drafting new public health legislation
11. Research for legal action to promote public health

Examples of professional paper titles (with student's name and date of presentation) from recent MPH graduates

A Survey Assessment of Epinephrine Injector Accessibility Within Pitt County, North Carolina Restaurants in 2020 (Holly Ingram, May 2020)

Epidemiological Assessment of Fetal Cardiac Anomalies in Eastern North Carolina (Christina Nutt, May 2020)

Partnership Evaluation of the West Greenville Health Council (Victoria Edwards, May 2020)

Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements (Justine Olegario, May 2020)

Emotional Burden and Diabetes-Related Distress: Examining the Impact of a Lifestyle Intervention, Distress and Self-Care Behaviors (Mackenzie Brown, May 2019)

The Impact of Student Experiences at the ECU School of Dental Medicine on Student Attitudes Toward Treating Underserved Patient Populations, 2018-2019 (Stephanie Wangerin, May 2019)

Retrospective Chart Review of Multiple Myeloma Patients in Eastern North Carolina (Michael Tapia, May 2019)

Injury-Related Emergency Department Visits After Hurricane Matthew in North Carolina (Joshua Mabellos, May 2018)

Examples of Professional Papers of recent MPH graduates that have been published.

Kinney S, Lea CS, Kearney G, Kinsey A, Amaya C. Predictors of using a HIV self-test among migrant and seasonal farmworkers in North Carolina. *Int. J. Environ. Res. Public Health.* 2015, 12, 8348-8358; doi:10.3390/ijerph120708348

Gao F, Luo H, Jones K, Nicholson W, Bell RA. Gestational Diabetes and Health Behaviors Among Women: National Health and Nutrition Examination Survey, 2007-2014. *Preventing Chronic Disease.* 2018;**15**:E131 doi: 10.5888/pcd15.180094.

Whitt OR, Pitts SJ, Rafferty AP, Payne CR, Ng SW. The effects of traffic light labelling versus cartoon labelling on food and beverage purchases in a children's hospital setting. *Pediatr Obes.* 2018;13(4):265-268. doi: 10.1111/ijpo.12232.

Hicks K, Lazorick S, Pitts SBJ, Fang X, Rafferty AP. Examining the association between screen time, beverage and snack consumption, and weight status among eastern North Carolina youth. *NC Med J.* 2019;80:69-75. Doi: 10.18043/ncm.80.2.69.

Lyonnais MJ, Bray P, Rafferty AP, Winterbauer NL, Bell RA. Potential effect of vouchers on the completion of self-management education among patients with diabetes. *J Public Health Manag Pract.* 2020;26(1):67-70. Doi: 10.1097/PHH.0000000000000985.

Appendix B. Examples of Table Shells (or Mock Tables)

A table shell is a structured table that includes a title, the appropriate number of columns and rows, column headings, row headings, and footnotes but does not include any results. Creating table shells early in the research process helps the researcher to make sure they are collecting the right data and also helps to define the analysis plan.

Example of table shell to describe the sample population

Distribution (number and percent) of Demographic Characteristics, Pitt County Smoking Survey, 2013		
Demographic Characteristic	Number	Percent
Age (in years)		
18-44		
45-64		
>=65		
Gender		
Male		
Female		
Race-ethnicity		
Whites, non-Hispanic		
Blacks, non-Hispanic		
Hispanic		
Other		
Education		
<= HS graduate		
Some post-secondary		
College graduate		
Annual household income		
<$35,000		
$35,000- 49,999		
>= $50,000		

Example of table shell to describe univariate statistics of main analysis variables

Prevalence of Current Cigarette Smoking Status and Other Characteristics, Pitt County Smoking Survey, 2013		
	n	Percent
Current cigarette smoking status		
Currently smokes*		
Does not smoke		
Number cigarettes per day**		
Less than 5		
5-10		
11-19		
20 or more		
Participated in Employee Wellness Program***		
Yes		
No		
*Has smoked at least 100 cigarettes in their lifetime and currently smokes cigarettes. **Number of cigarettes smoked on a typical day, among current smokers. ***Participated in any wellness program in the past 12 months offered by their employer.		

Example of table shell to report bivariate statistics.

Prevalence of Current Cigarette Smoking and Number of Cigarettes Smoked per Day by Participation in Employee Wellness Program, Pitt County Smoking Survey, 2013			
	Participated in wellness program*** % (n)	Did not participate in wellness program % (n)	Chi-square p-value
Current cigarette smoking			
Currently smokes*			
Does not smoke			
Number cigarettes per day**			
Less than 5			
5-10			
11-19			
20 or more			
*Has smoked at least 100 cigarettes in their lifetime and currently smokes cigarettes. **Number of cigarettes smoked on a typical day, among current smokers. ***Participated in any wellness program in the past 12 months offered by their employer.			

Appendix C. Example of Title Page for Professional Paper
A title page is required for both the professional paper proposal (MPH 6991) and the professional paper (MPH 6992). The format is the same for both. An example is provided on the next page.

Title of Paper

Name of Student

Department of Public Health
Brody School of Medicine
East Carolina University
Greenville, NC 27834

Primary Advisor
Ann P. Rafferty, PhD

Content Advisor
John Q. Public, PhD

MPH 6992 Professional Paper II
Fall 2021