



# Capstone and Integrative Learning Experience Guidelines 2024–2025

Jefferson College of Population Health

## Capstone Guidelines

The *Capstone Guidelines* are intended to describe the general policies and procedures regarding Capstones at the Jefferson College of Population Health (JCPH). It is accurate at the time of printing but is subject to change from time to time as deemed appropriate by the College in order to fulfill its role and mission or to accommodate circumstances beyond its control. Any such changes may be implemented without prior notice and without obligation and, unless specified otherwise, are effective when made.

To obtain the latest information, please consult the **online version** located on our [Student Resources](#) page under Handbooks & Forms.

Thomas Jefferson University is accredited by The Middle States Commission on Higher Education. The Master of Public Health (MPH) Program at JCPH is accredited by the Council on Education for Public Health (CEPH).

Please direct any suggestions for changes to this document to Lisa Chosed, Director, Academic Affairs, 901 Walnut Street, 10<sup>th</sup> Floor, Philadelphia, PA 19107, [Lisa.Chosed@jefferson.edu](mailto:Lisa.Chosed@jefferson.edu).

Photo Credit: Hamilton at night, photo taken by Robert Neroni, 2007

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## OVERVIEW

The Capstone (referred to as Capstone-Integrated Learning Experience (ILE) for MPH students) is the culminating experience required to complete a master's degree at the Jefferson College of Population Health (JCPH). It is guided scholarly work under faculty supervision. The overall purpose of the Capstone is for the student to approximate a professional achievement in the area of the student's program and demonstrate the ability to integrate core competencies.

The purpose of the *Capstone Guidelines* is to provide master's students with procedural details for successful completion of their Capstone. Described in the section for the student's respective program, are the process details for the Capstone from beginning to end. Questions should be emailed to the respective Program Director.

# APPLIED HEALTH ECONOMICS & OUTCOMES RESEARCH (AHEOR)

The Master of Science in Applied Health Economics and Outcomes Research Capstone courses are an opportunity for students to demonstrate their mastery of the program's core competencies, preferably, in a real-world setting. The AHEOR Capstone courses draw upon skills and proficiencies needed to assess value in actual practice and real-world settings. Ideally, students will apply much, or all, of the knowledge and skills they have learned in their coursework.

## Overview

The Applied Health Economics & Outcomes Research Capstones are coordinated through the Program Director who will guide and advise students in the development, formation, and implementation of the Capstone as well as assign a final grade. Prior to registering for Capstone, students are expected to identify their Capstone topic by contacting their Program Director to discuss their plan and timeline.

Students must successfully complete all other coursework before registering for Capstone unless they have been approved otherwise. During the time students are registered for Capstone they are expected to prepare the Capstone proposal, based on the guide below, and begin implementing next steps in the Capstone with guidance from their Program Director. Students are expected to review these *Capstone Guidelines* and identify a Capstone Chair as well as a Second Reader, if necessary.

In addition, if needed, students will complete the CITI training and the Conflict of Interest (COI) form; and obtain IRB approval if the Capstone involves human subjects, analysis of materials originating from human subjects, or data obtained from people (TJU or elsewhere). The [Jefferson Office of Human Research](#) has detailed instructions on uploading IRB forms.

More details about IRB submission via iRIS are available on the [Office of Human Research](#) site. The student's Capstone mentor or primary advisor serves as the Primary Investigator on the IRB proposal, but the student is responsible for submitting the proposal and collecting signatures.

There are two types of Capstone courses depending on the AHEOR track chosen:

- Research Track: AHE 651 Capstone Research Project
- Industry Track: AHE 652 Strategic Capstone Portfolio and Presentation

## Expectations & Deliverables

- **Proposal** – Students submit their final Capstone proposal to their Program Director according to their instructions.
- **Progress** - Students are expected to communicate with their Program Director on a regular basis regarding their progress on the approved timeline.
- **Capstone Title & Student Name** – Students will be asked to submit their Capstone title along with the way they want their name formally listed on the schedule **prior to the presentation**.

- **Presentation Slides** - Students will work with the Program Director on their final presentation slides until a final version can be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas at least **one week prior to their scheduled presentation**.
- **JDC Release Form** - Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#) and students are encouraged to view past presentations at any time. Students are expected to sign a JDC Release Form and submit to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**. If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director. The JDC Release Form can be found online in the **Handbooks & Forms** section of the [Student Resources](#) page.
- **Abstract** - Students are expected to submit an abstract following the below guidelines to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.
- **Final Manuscript** - Students will work with the Program Director on their various drafts, based on the guide below, until a final manuscript is ready to submit. This will be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.

## Presentation

Students are required to give an oral presentation of their Capstone to peers and faculty. These presentations are expected to resemble those at a scholarly conference as opposed to a recitation of the Capstone manuscript. Presentation date options are available during each trimester: Fall, Spring, and Summer. These should be scheduled with the Program Director.

- Students are advised to set up a meeting with their Program Director at least two weeks in advance of their scheduled presentation in order to review the oral presentation.
- Presentation slides should use the [Jefferson template](#).
- Students present the oral presentation of the Capstone to peers and faculty.
- Presentations are 20 minutes long and are followed by 5-10 minutes of Q&A. As a general rule, one slide is equal to one minute of speaking (not including the title slide).
- Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#). If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director.

## Grading

The Capstone is graded on a Pass (P) or Fail (F) basis. Students receive an IP, or In Progress, as their grade for the Capstone course until they have completed their Capstone and presentation to the satisfaction of the Program Director. When a grade change is submitted, and processed, that is the final step in the Capstone process.

## Graduation

- Students will not be certified for graduation until a completed Capstone manuscript and Presentation are approved with a Passing grade.
- Students can graduate in December, May, or August. Commencement occurs in May.
- Students complete the Exit Satisfaction Survey sent by the Office of Assessment and Accreditation. The Exit Satisfaction Survey asks students to reflect on their experiences at JCPH. Results are used for curricular improvements and accreditation purposes.
- Students will not be certified to graduate if they have outstanding account balances.

## AHEOR Capstone Research Project (AHE 651) – Research Track

Students are supposed to implement a project demonstrating their ability to manipulate and analyze data to address an AHEOR research question.

### Capstone Proposal

The purpose of the Capstone proposal is to clearly and concisely address the major components of the proposed Capstone Research Project. The Capstone proposal should be no more than 5 double-spaced, typed pages in length (excluding references). The Capstone proposal incorporates:

1. **Proposed Title** — May be provisional but should be sufficient to inform the Capstone Chair of the topic of the student’s Capstone Research Project.
2. **Introduction and Definition of the Problem** — Establishes the necessity for the Capstone Research Project by summarizing:
  - a. Clearly articulated question.
  - b. Previous work on the topic.
  - c. Available information and deficiencies of previous information.
  - d. Relation of (a) and (b), above, to the significance of the proposed Capstone Research Project.
  - e. Specific aims of Capstone Research Project.
3. **Design, Scope, and Timeline** — Describes how the issue will be addressed. An individual reading the Capstone proposal should be able to determine whether the Capstone Research Project plan can adequately accomplish its aims. The Capstone Chair should be able to determine if the Capstone Research Project is feasible with the time, resources, and expertise available. This section should include:
  - a. Description of the implementation plan.

- b. Description of the methods of analysis.
  - c. Timeline for the Capstone Research Project.
- 4. Materials and Methods** — Describes materials and methods to be used in the Capstone Research Project. A professional in the student’s program area should clearly understand the methods/methodological model or theory that they would use to replicate the work. The bibliography should reference any previously published procedures. Students are required to have sufficient expertise with the data prior to writing the methods section.
- a. Assessment of the relative guidelines and practices for a research project
    - i. [Reporting guidelines for main study types](#)
  - b. Identification of resources necessary to collect and analyze data.
  - c. Identification of proposed solution and desired/“hoped for” outcome(s).
  - d. Statistical and programming needs of the project, as appropriate.
  - e. Please review [Ethical Guidelines](#) for Statistical Practice by the ASA.
- 5. Competencies Addressed** — Students, in consultation with their Capstone Chair, should identify which program competencies will be/are addressed in their Capstone Research Project. Students should complete this identification process twice: (1) once in the Capstone proposal and (2) again in the Capstone manuscript appendices. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page,** for a list of competencies.
- 6. Bibliography** — References current literature and pertinent professional studies using an appropriate format discussed with the Capstone Chair.

## Capstone Manuscript

The Capstone manuscript incorporates:

- 1. Title Page** — Title, student name, date, program (MS in AHEOR), institutional affiliation, names of Capstone Chair and Second Reader (if applicable).
- 2. Table of Contents**
- 3. Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.
- 4. Abstract** — Maximum of 300 words, single-spaced, and without indents. The Capstone Research Project abstract is posted in the [Jefferson Digital Commons](#), with written permission of the student. According to the Jefferson Office of Technology Transfer, publication of the student’s abstract on the TJU website constitutes public disclosure. The student must inform the Program



Director if they, or other investigators involved with the Capstone Research Project, do not wish the abstract to be posted on the website.

NOTE: Abstracts that do not conform to the format specified below will be returned for revision.

- a. Title
  - i. Capitalize every word in the title.
  - ii. List authors' names (No full names and use initials without periods for first and middle names).
  - iii. The only names on the abstract should be that of the student (underlined) and the Capstone Chair.
  - iv. Provide College and institutional affiliations of authors (i.e., Jefferson College of Population Health, Thomas Jefferson University).
- b. Body of the Abstract
  - i. One single paragraph without separate sections.
  - ii. Figures and tables are not permitted.
  - iii. Abstract should include:
    1. A background statement.
    2. A statement of the study's purpose (one sentence).
    3. A statement of the methods used.
    4. A summary of the results obtained, presented in sufficient detail to support conclusions.
    5. A statement of the conclusions reached.

NOTE: It is NOT satisfactory to state, for example, that "the results will be discussed," or that "other data will be presented."

- 5. Introduction and Literature Review** — Relates background of the Capstone Research Project, including a statement of the problem and aims of the Capstone Research Project. Reviews existing body of knowledge (literature) or work on the subject.
- 6. Materials and Methods** — Expands the same section included in the Capstone proposal. After reading this section, a professional in the student's area of study should clearly understand the methods or methodological models (or theory, where applicable) that they would use to replicate the work. Previously published procedures are referenced in the bibliography.
- 7. Results** — Presents collected data and outcomes.

8. **Discussion** — Provides conclusions drawn from data and analysis. Accurately discusses the Capstone Research Project’s findings such as unexpected results, etc. and relates them to existing knowledge on the topic. Addresses limitations of the research/analysis. Includes difficulties encountered in the Capstone Research Project and recommendations for further study.
9. **Recommendations/Implications** — Clearly articulated set of discrete policy options with objective pros and cons and an action plan or a presentation of next steps to address the issues identified in the analysis.
10. **Bibliography/References**—References current literature and pertinent professional studies based on format approved via the Capstone Chair.
11. **Tables**
12. **Figures/Illustrations**
13. **Appendices** — One of the appendices should be a reevaluation of identified competencies from the Capstone proposal. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page**, for the list of program competencies.

## **AHEOR Capstone Strategic Portfolio & Presentation (AHE 652) – Industry Track**

Students are supposed to implement a presentation demonstrating a portfolio of their experiences in the degree program. If a student in the Industry Track wants to pursue a Capstone Research Project in lieu of the Strategic Portfolio & Presentation, Program Director approval is required.

### **Capstone Proposal**

The purpose of the Capstone proposal is to clearly and concisely address the major components of the proposed Capstone Strategic Portfolio & Presentation. The Capstone proposal should be an executive summary of the presentation. The executive summary should be no more than 5 double-spaced, typed pages in length (excluding references). This executive summary incorporates:

1. **Proposed Title** — May be provisional but should be sufficient to inform the Capstone Chair of the topic of the student’s presentation.
2. **Introduction and Design of Presentation** — Establishes the necessity for the presentation by summarizing:
  - a. Clearly articulated portfolio and topic
  - b. Course work being delineated and coalesced within the presentation

- c. Relation of (a) and (b), above, to the significance of the proposed presentation
  - d. Specific aims of the presentation
  - e. Dissemination of the portfolio
- 3. Scope and Timeline** — Describes how the issue will be addressed. An individual reading the Capstone proposal should be able to determine whether the Capstone timeline can adequately accomplish the Capstone Strategic Portfolio & Presentation aims. The Capstone Chair should be able to determine if the presentation is feasible with the time, resources and expertise available. This section should include:
- a. Scope and timeline for the presentation.
- 4. Materials and Methods** — Describes materials that will be used from the coursework to be used in the presentation. A professional in the student’s program area should clearly understand the methods/methodological model or theory that they would use to replicate the work. The bibliography should reference any previously published procedures.
- a. Assessment of the relative guidelines and practices for statistical modeling and analysis.
    - i. [Reporting guidelines for main study types](#)
  - b. Identification of resources necessary to collect and analyze data.
  - c. Identification of proposed solution and desired/“hoped for” outcome(s).
  - d. Please review [Ethical Guidelines](#) for Statistical Practice by the ASA.
- 5. Competencies Addressed** — Students, in consultation with their Capstone Chair, should identify which program competencies will be/are addressed in their Capstone Strategic Portfolio & Presentation. Students should complete this identification process in the proposal and Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page**, for a list of competencies.
- 6. Bibliography** — References current literature and pertinent professional studies using an appropriate format discussed with the Capstone Chair.

# AHEOR Capstone Strategic Portfolio & Presentation Outline and Summary

## Presentation

The purpose of this presentation is to demonstrate proficiencies in core competencies of the master's degree program. The student will delineate these competencies through one or two exercises from the course work and disseminate results of the assignments. This portfolio presentation is not the only pathway for AHEOR Industry Track students. These are guardrails; however, modifications and flexibility are available. Please address with the Program Director.

The following general principles apply specifically to the presentation:

1. **Title Slide** — Title, student name, date, program (MS in AHEOR), institutional affiliation, names of Capstone Chair and Second Reader.
2. **Agenda**
3. **Background/Introduction**
  1. A background statement
  2. A statement of the portfolio's purpose
  3. A statement of the methods/materials used
  4. A summary of the results obtained, presented in sufficient detail to support conclusions
  5. Objectives of the presentation
4. **Materials/Methods** — Expands the same section included in the proposal. After reading this section, a professional in the student's area of study should clearly understand the methods or methodological models (or theory where applicable) that they would use to replicate the work. Previously published procedures are referenced in the bibliography.
5. **Results**- Student delineates their competencies in this section by expanding on the coursework portfolio.
6. **Conclusion** — Provides conclusions drawn from results. Accurately discusses the any findings such as unexpected results, etc. and relates them to existing knowledge on the topic. Addresses limitations and discusses difficulties encountered in the Capstone Presentation and recommendations for further study.
7. **Recommendations/Implications** — Clearly articulated set of discrete policy options with objective pros and cons and an action plan or a presentation of next steps to address the issues identified in the analysis.
8. **Bibliography/References**— References current literature and pertinent professional

9. **Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.

## Summary

The student will write a summary paper. The structure of the summary will reflect the content of the presentation, including the following: background, methods, results, conclusions, and recommendations/implications-limited to 7 pages excluding references.

In addition to the summary, the student will write an abstract to be posted in the [Jefferson Digital Commons](#), with written permission of the student. According to the Jefferson Office of Technology Transfer, publication of the student's abstract on the TJU website constitutes public disclosure. The student must inform the Program Director if they, or other investigators involved with the Strategic Portfolio & Presentation, do not wish the abstract to be posted on the website.

**Abstract** — Maximum of 300 words, single-spaced, and without indents.

NOTE: Abstracts that do not conform to the format specified below will be returned for revision.

- a. Title
  - i. Capitalize every word in the title.
  - ii. List authors' names (No full names and use initials without periods for first and middle names).
  - iii. The only names on the abstract should be that of the student (underlined) and the Capstone Chair.
  - iv. Provide College and institutional affiliations of authors (i.e., Jefferson College of Population Health, Thomas Jefferson University).
- b. Body of the Abstract
  - i. One single paragraph without separate sections.
  - ii. Figures and tables are not permitted.
  - iii. Abstract should include:
    1. A background statement.
    2. A statement of the study's purpose (one sentence).
    3. A statement of the methods used.
    4. A summary of the results obtained, presented in sufficient detail to support conclusions.
    5. A statement of the conclusions reached.

NOTE: It is NOT satisfactory to state, for example, that “the results will be discussed,” or that “other data will be presented.”

## AHEOR Capstone Evaluation Rubric

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Fluency of Content Knowledge (General)</b></p> <p>The Capstone experience demonstrates knowledge of one or more of the following:</p> <ul style="list-style-type: none"> <li>• Burden of illness (epidemiology)</li> <li>• Cost of illness (health economics)</li> <li>• Observational science (health services research)</li> <li>• Cost-effectiveness (modeling)</li> <li>• H-RQoL (subjective and patient-reported outcomes)</li> <li>• Quality of Care (observational and health policy research)</li> <li>• Health system characteristics (sociology)</li> </ul>	<p>Framing of Capstone problem/question addressed reflects some gaps in content knowledge as does the application of tools and concepts.</p> <p>Conclusions and their implications are incompletely evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed expertly reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are fully evaluated in relation to the most relevant aspects of the field.</p>
<p><b>Fluency of Content Knowledge (Capstone Specific)</b></p> <p>Must include an overarching value assessment such as cost-effectiveness modeling and critical evaluation of evidence worked into value constructs.</p>	<p>Work lacks overarching value assessment and/or does not fully demonstrate proficiency with set of closely related concepts and tools core to the field. Critical evaluation and elements of original synthesis are lacking.</p>	<p>Work includes overarching value assessment, critical evaluation of evidence and demonstrates proficiency with set of closely related concepts and tools core to the field, including their critical evaluation and elements of original synthesis.</p>	<p>Work includes strong, overarching value assessment, critical evaluation of evidence and demonstrates mastery of set of closely related concepts and tools core to the field, including their critical evaluation and original synthesis.</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
	Work is not completely aligned with content knowledge objectives previously identified by the student and their Program Director.	Work is well aligned with content knowledge objectives previously identified by the student and their Program Director.	Work is fully aligned with content knowledge objectives previously identified by the student and their Program Director. In addition, highly relevant content has been added.
<p><b>Critical Thinking</b></p> <p>Accurately interprets evidence, statements, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims) pro and con.</p> <p>Thoughtfully analyzes and evaluates major alternative points of view.</p> <p>Draws warranted, judicious, non-fallacious conclusions.</p> <p>Justifies key results and procedures, explains assumptions.</p> <p>Fair-mindedly follows where evidence and reasons lead.</p>	<p>Some interpretations of the evidence, statements, graphics or inquiries are questionable.</p> <p>Identification of the salient arguments (reasons and claims) is inconsistent.</p> <p>Little analysis or consideration of alternative perspectives.</p> <p>Conclusions not adequately justified. Assumptions insufficiently examined.</p>	<p>Accurately interprets evidence, statements, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims), pro and con.</p> <p>Thorough analysis or consideration of alternative perspectives.</p> <p>Conclusions adequately justified. Assumptions methodically examined.</p>	<p>Meets proficiency standard.</p> <p>In addition, fair-mindedly follows wherever evidence and reasons lead</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Research Methodology &amp; Information Literacy</b></p> <p>Formulates population health research questions informed by relevant theoretical and conceptual models, systematic reviews of the literature, valid, reliable and generalizable data and stakeholder needs.</p> <p>Accesses and manages secondary data from existing public and private sources.</p> <p>Implements research protocols with standardized procedures that ensure reproducibility of the science.</p> <p>Selects appropriate study designs to address specific population health research questions.</p> <p>Identifies information needs and corresponding resources.</p> <p>Analyzes and synthesizes information demonstrating understanding of current information technology, how information is socially situated and the critical evaluation of emerging information tools.</p>	<p>Formulation of research question is incompletely informed.</p> <p>Some relevant information resources are overlooked in support of the research and Capstone outcomes.</p> <p>Study designs and/or research methods are not fully suited to the problem or are applied without adequate attention to their strengths, limitations, and reproducibility.</p> <p>Information needs are incompletely identified, current information technology underutilized and social/cultural context of the information technology unexamined.</p>	<p>Formulation of research question is well-informed.</p> <p>Information resources are used to good effect in support of the research and Capstone outcomes.</p> <p>Study designs and/or research methods well-suited to the problem are applied with attention to their strengths, limitations and reproducibility.</p> <p>Information needs are identified, current information technology used and social/cultural context of the information technology examined.</p>	<p>Formulation of research question is exceptionally well-informed.</p> <p>Information resources, both conventional and unconventional/ original, are used to great effect in support of the research and Capstone outcomes.</p> <p>Study designs and/or research methods well-suited to the problem at hand are applied with exceptional attention to their strengths, limitations and reproducibility.</p> <p>Information needs are astutely identified, current information technology fluently used and social/cultural context of information technology examined.</p>



<p><b>Communication</b></p> <p>Demonstrates comprehension, organization, development and effective expression.</p> <p>In addition:</p> <p><u>Written:</u> Capstone manuscript conforms to structure specified in the <i>Capstone Guidelines</i>.</p> <p><u>Oral:</u> Vocal qualities (pace, inflection, volume, enunciation) and physical behaviors (gestures, stance, eye-contact, movement) augment content and maintain audience interest.</p> <p>Provides clear structure and adequate transitions between ideas.</p> <p><u>Visual:</u> Determines the nature and extent of the visual materials needed.</p> <p>Accesses needed images and visual media effectively and efficiently.</p> <p>Interprets and analyzes the meanings of images and visual media.</p> <p>Evaluates images and their sources.</p> <p>Uses images and visual media effectively.</p> <p>Designs and creates meaningful images and visual media.</p> <p>Understands many of the ethical, legal, social and economic issues surrounding the creation and use of images and visual media, and accesses and uses visual materials ethically.</p>	<p>Communication lacks some clarity, credibility or persuasiveness and/or conventions of structure or style prescribed in <i>Capstone Guidelines</i> are violated.</p> <p>Delivery is marred in places by distracting aspects of voice or manner.</p> <p>Visual assets or other source material not sufficiently assessed or adequately incorporated into the presentation.</p> <p>Ethical analysis of media use is missing where it would be appropriate.</p>	<p>Communicates clearly, credibly and persuasively with the intended audience and the wider scholarly community while conforming to all structure and style conventions specified in the <i>Capstone Guidelines</i>.</p> <p>Delivery is compelling and free from distraction.</p> <p>Visual assets and other source materials have been carefully assessed and are fully integrated into the presentation.</p> <p>Ethical analysis of media use is conducted as appropriate.</p>	<p>Meets Proficiency standard.</p> <p>In addition, communicates with exceptional clarity, credibility, persuasiveness, and originality.</p> <p>Written, oral, and visual components of the work are seamlessly integrated and mutually reinforcing.</p>
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<p><b>Technical Proficiency</b></p> <p>Applies contemporary technologies to one or more areas: Creativity and Innovation; Communication and Collaboration; Research and Information Fluency; Digital Citizenship; Technology Operations and Concepts.</p> <p>And program-specific skills in:</p> <ol style="list-style-type: none"> <li>1. Epidemiology</li> <li>2. Statistics</li> <li>3. Modeling</li> <li>4. Research</li> <li>5. Health services research</li> <li>6. Econometrics</li> <li>7. Ethics</li> <li>8. Communication</li> </ol>	<p>Design or application of discipline-specific tool (or customized tool of other provenance) does not fully support Capstone outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to support Capstone outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to exceptionally enhance Capstone outcomes in one or more program-specific skill areas.</p>
<p><b>Contribution to the Discipline/Profession</b></p> <p>A form of value evaluation that achieves a level of quality that demands attention because the work is:</p> <ul style="list-style-type: none"> <li>• Conceptually attentive <ul style="list-style-type: none"> <li>○ A topical issue in value assessment</li> <li>○ Clinically relevant</li> </ul> </li> <li>• Technically competent <ul style="list-style-type: none"> <li>○ Analytically precise</li> <li>○ Properly evaluated</li> </ul> </li> <li>• Methodologically credible <ul style="list-style-type: none"> <li>○ Employs appropriate analytic strategy</li> <li>○ Properly referenced</li> <li>○ Free from bias</li> </ul> </li> </ul>	<p>Value of contribution to the discipline or professional application is not fully apparent in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcomes.</p>	<p>Constitutes a meaningful contribution to the discipline or noteworthy professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcomes.</p>	<p>Constitutes a major contribution to the discipline or exceptional professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcome.</p>

## HEALTH DATA SCIENCE (HDS)

The Master of Science in Health Data Science (HDS) Capstone courses are an opportunity for students to demonstrate their mastery of the program's core competencies, preferably, in a real-world setting. The HDS Capstone courses draw upon skills and proficiencies needed to assess value in actual practice and real-world settings. Ideally, students will apply much or all of the knowledge and skills they have learned in their coursework.

### Overview

The Health Data Science Capstones are coordinated through the Program Director who will guide and advise students in the development, formation, and implementation of the Capstone as well as assign a final grade. Prior to registering for Capstone, students are expected to identify their Capstone topic by contacting their Program Director to discuss their plan and timeline.

Students must successfully complete all other coursework before registering for Capstone unless they have been approved otherwise. During the time students are registered for Capstone they are expected to prepare the Capstone proposal, based on the guide below, and begin implementing next steps in the Capstone with guidance from their Program Director. Students are expected to review these *Capstone Guidelines* and identify a Capstone Chair as well as Second Reader, if necessary.

In addition, if needed, students will complete the CITI training and the Conflict of Interest (COI) form; and obtain IRB approval if the Capstone involves human subjects, analysis of materials originating from human subjects, or data obtained from people (TJU or elsewhere). The [Jefferson Office of Human Research](#) has detailed instructions on uploading IRB forms.

More details about IRB submission via iRIS are available on the [Office of Human Research](#) site. The student's Capstone mentor or primary advisor serves as the Primary Investigator on the IRB proposal, but the student is responsible for submitting the proposal and collecting signatures.

There are two types of Capstone courses depending on the HDS track chosen:

- Research Track: HDS 651 Capstone Research Project
- Management Track: HDS 652 Strategic Capstone Portfolio and Presentation

### Expectations & Deliverables

- **Proposal** – Students submit their final Capstone proposal to their Program Director according to their instructions.
- **Progress** - Students are expected to communicate with their Program Director on a regular basis regarding their progress on the approved timeline.
- **Capstone Title & Student Name** – Students will be asked to submit their Capstone title along with the way they want their name formally listed on the schedule **prior to the presentation**.

- **Presentation Slides** - Students will work with the Program Director on their final presentation slides until a final version can be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas at least **one week prior to their scheduled presentation**.
- **JDC Release Form** - Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#) and students are encouraged to view past presentations at any time. Students are expected to sign a JDC Release Form and submit to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**. If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director. The JDC Release Form can be found online in the **Handbooks & Forms** section of the [Student Resources](#) page.
- **Abstract** - Students are expected to submit an abstract following the below guidelines to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.
- **Final Manuscript** - Students will work with the Program Director on their various drafts, based on the guide below, until a final manuscript is ready to submit. This will be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.

## Presentation

Students are required to give an oral presentation of their Capstone to peers and faculty. These presentations are expected to resemble those at a scholarly conference as opposed to a recitation of the Capstone manuscript. Presentation date options are available during each trimester: Fall, Spring, and Summer. These should be scheduled with the Program Director.

- Students are advised to set up a meeting with their Program Director at least two weeks in advance of their scheduled presentation in order to review the oral presentation.
- Presentation slides should use the [Jefferson template](#).
- Students present the oral presentation of the Capstone to peers and faculty.
- Presentations are 20 minutes long and are followed by 5-10 minutes of Q&A. As a general rule, one slide is equal to one minute of speaking (not including the title slide).
- Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#). If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director.

## Grading

The Capstone is graded on a Pass (P) or Fail (F) basis. Students receive an IP, or In Progress, as their grade for the Capstone course until they have completed their Capstone and presentation to the satisfaction of the Program Director. When a grade change is submitted, and processed, that is the final step in the Capstone process.

## Graduation

- Students will not be certified for graduation until a completed Capstone manuscript and Presentation are approved with a Passing grade.
- Students can graduate in December, May, or August. Commencement occurs in May.
- Students complete the Exit Satisfaction Survey sent by the Office of Assessment and Accreditation. The Exit Satisfaction Survey asks students to reflect on their experiences at JCPH. Results are used for curricular improvements and accreditation purposes.
- Students will not be certified to graduate if they have outstanding account balances.

## HDS Capstone Research Project (HDS 651) – Research Track

Students are supposed to implement a project demonstrating their ability to manipulate and analyze data to address an HDS research question.

### Capstone Proposal

The purpose of the Capstone proposal is to clearly and concisely address the major components of the proposed Capstone. The Capstone research proposal should be no more than 5 pages double-spaced, typed pages in length (excluding references). The Capstone proposal incorporates:

1. **Proposed Title** — May be provisional, but should be sufficient to inform the Capstone Chair of the topic of the student's Capstone.
2. **Introduction and Definition of the Problem** — Establishes the necessity for the Capstone by summarizing:
  - a. Clearly articulated question.
  - b. Previous work on the topic.
  - c. Available information and deficiencies of previous information.
  - d. Relation of (a) and (b), above, to the significance of the proposed Capstone Research Project.
  - e. Specific aims of Capstone Research Project.
3. **Design, Scope, and Timeline** — Describes how the issue will be addressed. An individual reading the Capstone proposal should be able to determine whether the Capstone Research Project plan can adequately accomplish the Capstone Research Project aims. The Capstone Chair should be able to determine if the Capstone Research Project is feasible with the time, resources and expertise available. This section should include:
  - a. Description of the methods of analysis.

- b. Timeline for the Capstone Research Project.
4. **Materials and Methods** — Describes materials and methods to be used in the Capstone Research Project. A professional in the student’s program area should clearly understand the methods/methodological model or theory that they would use to replicate the work. The bibliography should reference any previously published procedures. Students are required to have sufficient expertise with the data prior to writing the methods section.
    - a. Assessment of the relative guidelines and practices for statistical modeling and analysis.
      - i. [Reporting guidelines for main study types](#)
    - b. Identification of resources necessary to collect and analyze data.
    - c. Identification of proposed solution and desired/“hoped for” outcome(s).
    - d. Statistical and programming needs of the research project, as appropriate.
    - e. Please review [Ethical Guidelines](#) for Statistical Practice by the ASA.
  5. **Competencies Addressed** — Students, in consultation with their Capstone Chair, should identify which program competencies will be/are addressed in their Capstone Research Project. Students should complete this identification process twice: (1) once in the Capstone proposal and (2) again in the Capstone manuscript appendices. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page,** for a list of competencies.
  6. **Bibliography** — References current literature and pertinent professional studies using an appropriate format discussed with the Capstone Chair.

## Capstone Manuscript

The Capstone manuscript incorporates:

1. **Title Page** — Title, student name, date, program (MS in HDS), institutional affiliation, names of Capstone Chair and Second Reader.
2. **Table of Contents**
3. **Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.
4. **Abstract** — Maximum of 300 words, single-spaced, and without indents. The Capstone Research Project abstract is posted in the [Jefferson Digital Commons](#), with the written permission of the student. According to the Jefferson Office of Technology Transfer, publication of the student’s abstract on the TJU website constitutes public disclosure. The student must inform the Office of Academic Affairs if they, or other investigators involved with the Capstone Research Project, do not wish the abstract to be posted on the website.

NOTE: Abstracts that do not conform to the format specified below will be returned for revision.

- a. Title
  - i. Capitalize every word in the title.
  - ii. List authors' names (No full names and use initials without periods for first and middle names).
  - iii. The only names on the abstract should be that of the student (underlined) and the Capstone Chair.
  - iv. Provide College and institutional affiliations of authors (i.e., Jefferson College of Population Health, Thomas Jefferson University).
- b. Body of the Abstract
  - i. One single paragraph without separate sections.
  - ii. Figures and tables are not permitted.
  - iii. Abstract should include:
    1. A background statement.
    2. A statement of the study's purpose (one sentence).
    3. A statement of the methods used.
    4. A summary of the results obtained, presented in sufficient detail to support conclusions.
    5. A statement of the conclusions reached.

NOTE: It is NOT satisfactory to state, for example, that "the results will be discussed," or that "other data will be presented."

- 5. Introduction and Literature Review** — Relates background of the Capstone Research Project, including a statement of the problem and aims of the Capstone Research Project. Reviews existing body of knowledge (literature) or work on the subject.
- 6. Materials and Methods** — Expands the same section included in the Capstone proposal. After reading this section, a professional in the student's area of study should clearly understand the methods or methodological models (or theory where applicable) that they would use to replicate the work. Previously published procedures are referenced in the bibliography.
- 7. Results** — Presents collected data and outcomes.
- 8. Discussion** — Provides conclusions drawn from data and analysis. Accurately discusses the Capstone Research Project's findings such as unexpected results, etc. and relates them to existing

knowledge on the topic. Addresses limitations of the research/analysis. Includes difficulties encountered in the Capstone Research Project and recommendations for further study.

9. **Recommendations/Implications** — Clearly articulated set of discrete policy options with objective pros and cons and an action plan or a presentation of next steps to address the issues identified in the analysis.
10. **Bibliography/References**— References current literature and pertinent professional studies based on format approved via the Capstone Chair.
11. **Tables**
12. **Figures/Illustrations**
13. **Appendices** — One of the appendices should be a reevaluation of identified competencies from the Capstone proposal. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page**, for the list of program competencies

## **HDS Capstone Strategic Portfolio Presentation (HDS 652) – Management Track**

Students are supposed to implement a presentation demonstrating a portfolio of their experiences in the degree program. If a student in the management track wants to pursue a Capstone Research Project in lieu of the Strategic Portfolio Presentation, Program Director approval is required.

### **Capstone Proposal**

The purpose of the Capstone proposal is to clearly and concisely address the major components of the proposed Strategic Portfolio Presentation. The Capstone proposal should be an executive summary of the presentation. The executive summary should be no more than 5 double-spaced, typed pages in length (excluding references). This executive summary incorporates:

1. **Proposed Title** — May be provisional, but should be sufficient to inform the Capstone Chair of the topic of the student’s presentation.
2. **Introduction and Design of Presentation** — Establishes the necessity for the presentation by summarizing:
  - a. Clearly articulated portfolio and topic
  - b. Course work being delineated and coalesced within the presentation
  - c. Relation of (a) and (b), above, to the significance of the proposed presentation



- d. Specific aims of the presentation
  - e. Dissemination of the portfolio
3. **Scope and Timeline** — Describes how the issue will be addressed. An individual reading the Capstone proposal should be able to determine whether the Capstone timeline can adequately accomplish the Capstone Presentation aims. The Capstone Chair should be able to determine if the presentation is feasible with the time, resources and expertise available. This section should include:
- a. Scope and timeline for the presentation.
4. **Materials and Methods** — Describes materials that will be used from the coursework to be used in the presentation. A professional in the student’s program area should clearly understand the methods/methodological model or theory that they would use to replicate the work. The bibliography should reference any previously published procedures.
- a. Assessment of the relative guidelines and practices for statistical modeling and analysis.
    - i. [Reporting guidelines for main study types](#)
  - b. Identification of resources necessary to collect and analyze data.
  - c. Identification of proposed solution and desired/“hoped for” outcome(s).
  - d. Please review [Ethical Guidelines](#) for Statistical Practice by the ASA.
5. **Competencies Addressed** — Students, in consultation with their Capstone Chair, should identify which program competencies will be/are addressed in their Capstone Presentation. Students should complete this identification process in the proposal and Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page**, for a list of competencies.
6. **Bibliography** — References current literature and pertinent professional studies using an appropriate format discussed with the Capstone Chair.

## HDS Capstone Strategic Portfolio Presentation Outline and Summary

### Presentation

The purpose of this presentation is to demonstrate proficiencies in core competencies of the master’s degree program. The student will delineate these competencies through one or two exercises from the

course work and disseminate results of the assignments. This portfolio presentation is not the only pathway for HDS Management Track students. These are guardrails; however, modifications and flexibility are available. Please address with the Program Director.

The following general principles apply specifically to the presentation:

1. **Title Slide** — Title, student name, date, program (MS-HDS), institutional affiliation, names of Capstone Chair and Second Reader.
2. **Agenda**
3. **Background/Introduction**
  - a. A background statement
  - b. A statement of the portfolio's purpose
  - c. A statement of the methods/materials used
  - d. A summary of the results obtained, presented in sufficient detail to support conclusions
  - e. Objectives of the presentation
4. **Materials/Methods** — Expands the same section included in the proposal. After reading this section, a professional in the student's area of study should clearly understand the methods or methodological models (or theory where applicable) that they would use to replicate the work. Previously published procedures are referenced in the bibliography.
5. **Results**- Student delineates their competencies in this section by expanding on the coursework portfolio.
6. **Conclusion** — Provides conclusions drawn from results. Accurately discusses the any findings such as unexpected results, etc. and relates them to existing knowledge on the topic. Addresses limitations and discusses difficulties encountered in the Capstone Presentation and recommendations for further study.
7. **Recommendations/Implications** — Clearly articulated set of discrete policy options with objective pros and cons and an action plan or a presentation of next steps to address the issues identified in the analysis.
8. **Bibliography/References**— References current literature and pertinent professional
9. **Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.

## Summary

The student will write a summary paper. The structure of the summary will reflect the content of the presentation, including the following: background, methods, results, conclusions, and recommendations/implications-limited to 7 pages excluding references.

In addition to the summary, the student will write an abstract to be posted in the [Jefferson Digital Commons](#), with written permission of the student. According to the Jefferson Office of Technology Transfer, publication of the student’s abstract on the TJU website constitutes public disclosure. The student must inform the Program Director if they or other investigators involved with the Strategic Portfolio & Presentation do not wish the abstract to be posted on the website.

**Abstract** — Maximum of 300 words, single-spaced, and without indents.

NOTE: Abstracts that do not conform to the format specified below will be returned for revision.

- a. Title
  - i. Capitalize every word in the title.
  - ii. List authors’ names (No full names and use initials without periods for first and middle names).
  - iii. The only names on the abstract should be that of the student (underlined) and the Capstone Chair.
  - iv. Provide College and institutional affiliations of authors (i.e., Jefferson College of Population Health, Thomas Jefferson University).
- b. Body of the Abstract
  - i. One single paragraph without separate sections.
  - ii. Figures and tables are not permitted.
  - iii. Abstract should include:
    1. A background statement.
    2. A statement of the study’s purpose (one sentence).
    3. A statement of the methods used.
    4. A summary of the results obtained, presented in sufficient detail to support conclusions.
    5. A statement of the conclusions reached.

NOTE: It is NOT satisfactory to state, for example, that “the results will be discussed,” or that “other data will be presented.”

## HDS Capstone Course Rubric

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Fluency of Content Knowledge (General)</b></p> <p>The Capstone Course demonstrates knowledge of:</p> <ul style="list-style-type: none"> <li>• Health Data Science concepts and outcomes</li> <li>• Health Informatics and Analytics</li> <li>• Statistical Modeling and Inference</li> <li>• Predictive Modeling</li> <li>• Data Visualization</li> <li>• Observational Science (health services research)</li> <li>• R programming Proficiency (Research Track)</li> <li>• Supervised and Unsupervised Machine Learning Algorithms (Research Track)</li> <li>• Implementation Science (Management Track)</li> <li>• Analytics Leadership (Management Track)</li> </ul>	<p>Framing of Capstone problem/question addressed reflects some gaps in content knowledge as does the application of tools and concepts.</p> <p>Conclusions and their implications are incompletely evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed expertly reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are fully evaluated in relation to the most relevant aspects of the field.</p>
<p><b>Fluency of Content Knowledge (Capstone Specific)</b></p> <p>Must include an overarching value assessment such as predictive modeling and critical evaluation of evidence worked into value constructs.</p>	<p>Work lacks overarching value assessment and/or does not fully demonstrate proficiency with set of closely related concepts and tools core to the field. Critical evaluation and elements of original synthesis are lacking.</p>	<p>Work includes overarching value assessment, critical evaluation of evidence and demonstrates proficiency with set of closely related concepts and tools core to the field, including their critical evaluation and elements of original synthesis.</p>	<p>Work includes strong, overarching value assessment, critical evaluation of evidence and demonstrates mastery of set of closely related concepts and tools core to the field, including their critical evaluation and original synthesis.</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
	Work is not completely aligned with content knowledge objectives previously identified by the student and their Program Director.	Work is well aligned with content knowledge objectives previously identified by the student and their Program Director.	Work is fully aligned with content knowledge objectives previously identified by the student and their Program Director. In addition, highly relevant content has been added.
<p><b>Critical Thinking</b></p> <p>Accurately interprets evidence, statements, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims) pro and con.</p> <p>Thoughtfully analyzes and evaluates major alternative points of view.</p> <p>Draws warranted, judicious, non-fallacious conclusions.</p> <p>Justifies key results and procedures, explains assumptions.</p> <p>Fair-mindedly follows where evidence and reasons lead.</p>	<p>Some interpretations of the evidence, statements, graphics or inquiries are questionable.</p> <p>Identification of the salient arguments (reasons and claims) is inconsistent.</p> <p>Little analysis or consideration of alternative perspectives.</p> <p>Conclusions not adequately justified. Assumptions insufficiently examined.</p>	<p>Accurately interprets evidence, statements, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims), pro and con.</p> <p>Thorough analysis or consideration of alternative perspectives.</p> <p>Conclusions adequately justified. Assumptions methodically examined.</p>	<p>Meets proficiency standard.</p> <p>In addition, fair-mindedly follows wherever evidence and reasons lead</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Research Methodology &amp; Information Literacy</b></p> <p>Formulates Health Data Science research questions informed by relevant theoretical and conceptual models, systematic reviews of the literature, valid, reliable and generalizable data and stakeholder needs.</p> <p>Accesses and manages secondary data from existing public and private sources.</p> <p>Implements research protocols with standardized procedures that ensure reproducibility of the science.</p> <p>Selects appropriate study designs to address specific Health Data Science research questions.</p> <p>Identifies information needs and corresponding resources.</p> <p>Analyzes and synthesizes information demonstrating understanding of current information technology, how information is socially situated and the critical evaluation of emerging information tools.</p>	<p>Formulation of research question is incompletely informed.</p> <p>Some relevant information resources are overlooked in support of the research and course outcomes.</p> <p>Study designs and/or research methods are not fully suited to the problem or are applied without adequate attention to their strengths, limitations, and reproducibility.</p> <p>Information needs are incompletely identified, current information technology underutilized and social/cultural context of the information technology unexamined.</p>	<p>Formulation of research question is well-informed.</p> <p>Information resources are used to good effect in support of the research and course outcomes.</p> <p>Study designs and/or research methods well-suited to the problem are applied with attention to their strengths, limitations and reproducibility.</p> <p>Information needs are identified, current information technology used and social/cultural context of the information technology examined.</p>	<p>Formulation of research question is exceptionally well-informed.</p> <p>Information resources, both conventional and unconventional/original, are used to great effect in support of the research and course outcomes.</p> <p>Study designs and/or research methods well-suited to the problem at hand are applied with exceptional attention to their strengths, limitations and reproducibility.</p> <p>Information needs are astutely identified, current information technology fluently used and social/cultural context of information technology examined.</p>

<p><b>Communication</b></p> <p>Demonstrates comprehension, organization, development and effective expression.</p> <p>In addition:</p> <p><u>Written:</u> Capstone manuscript conforms to structure specified in the <i>Capstone Guidelines</i>.</p> <p><u>Oral:</u> Vocal qualities (pace, inflection, volume, enunciation) and physical behaviors (gestures, stance, eye-contact, movement) augment content and maintain audience interest.</p> <p>Provides clear structure and adequate transitions between ideas.</p> <p><u>Visual:</u> Determines the nature and extent of the visual materials needed.</p> <p>Accesses needed images and visual media effectively and efficiently.</p> <p>Interprets and analyzes the meanings of images and visual media.</p> <p>Evaluates images and their sources.</p> <p>Uses images and visual media effectively.</p> <p>Designs and creates meaningful images and visual media.</p> <p>Understands many of the ethical, legal, social and economic issues surrounding the creation and use of images and visual media, and accesses and uses visual materials ethically.</p>	<p>Communication lacks some clarity, credibility or persuasiveness and/or conventions of structure or style prescribed in <i>Capstone Guidelines</i> are violated.</p> <p>Delivery is marred in places by distracting aspects of voice or manner.</p> <p>Visual assets or other source material not sufficiently assessed or adequately incorporated into the presentation.</p> <p>Ethical analysis of media use is missing where it would be appropriate.</p>	<p>Communicates clearly, credibly and persuasively with the intended audience and the wider scholarly community while conforming to all structure and style conventions specified in the <i>Capstone Guidelines</i>.</p> <p>Delivery is compelling and free from distraction.</p> <p>Visual assets and other source materials have been carefully assessed and are fully integrated into the presentation.</p> <p>Ethical analysis of media use is conducted as appropriate.</p>	<p>Meets Proficiency standard.</p> <p>In addition, communicates with exceptional clarity, credibility, persuasiveness, and originality.</p> <p>Written, oral, and visual components of the work are seamlessly integrated and mutually reinforcing.</p>
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<p><b>Technical Proficiency</b></p> <p>Applies contemporary technologies to one or more areas: Creativity and Innovation; Communication and Collaboration; Research and Information Fluency; Digital Citizenship; Technology Operations and Concepts.</p> <p>And program-specific skills in:</p> <ol style="list-style-type: none"> <li>1. Statistics</li> <li>2. Modeling</li> <li>3. Research</li> <li>4. Data Science</li> <li>5. Data Visualization</li> <li>6. Implementation Science</li> <li>7. Ethics</li> <li>8. Communication</li> </ol>	<p>Design or application of discipline-specific tool (or customized tool of other provenance) does not fully support course outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to support course outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to exceptionally enhance course outcomes in one or more program-specific skill areas.</p>
<p><b>Contribution to the Discipline/Profession</b></p> <p>A form of value evaluation that achieves a level of quality that demands attention because the work is:</p> <ul style="list-style-type: none"> <li>• Conceptually attentive <ul style="list-style-type: none"> <li>○ A topical issue in value assessment</li> <li>○ Clinically relevant</li> </ul> </li> <li>• Technically competent <ul style="list-style-type: none"> <li>○ Analytically precise</li> <li>○ Properly evaluated</li> </ul> </li> <li>• Methodologically credible <ul style="list-style-type: none"> <li>○ Employs appropriate analytic strategy</li> <li>○ Properly referenced</li> <li>○ Free from bias</li> </ul> </li> </ul>	<p>Value of contribution to the discipline or professional application is not fully apparent in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcomes.</p>	<p>Constitutes a meaningful contribution to the discipline or noteworthy professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcomes.</p>	<p>Constitutes a major contribution to the discipline or exceptional professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcome.</p>



# HEALTHCARE QUALITY & SAFETY (HQS) AND OPERATIONAL EXCELLENCE (OPX)

The Master of Science in HQS or OPX Capstone is an opportunity for students to demonstrate their mastery of the program's core competencies, ideally based in their present work environment. While an HQS or OPX Capstone follows the general outline of a research project, it is *not* a formal research project. Rather, because it is based in a healthcare operational framework, it needs to address considerations such as behavioral and/or organizational barriers and solutions, appropriate short- and long-term organizational financial issues, regulatory and accreditation requirements, healthcare system issues, information technology and relevant legal issues, among others. Ideally, students will apply much or all of the tools, knowledge, and skills they have learned in their coursework.

## Overview

The Capstone is coordinated through the Program Director who will guide and advise students in the development, formation, and implementation of the Capstone as well as assign a final grade. Prior to registering for Capstone, students are expected to identify their Capstone topic by contacting their Program Director to discuss their plan and timeline.

Students must successfully complete all other coursework before registering for Capstone unless they have been approved otherwise. During the time students are registered for the Capstone course they are expected to write a brief background paper of at least five pages plus references used, stating the relevant need for addressing their Capstone by noting what else has been evaluated in the topic. The Capstone course is followed by implementation of the Capstone using the tools and methods that they have learned during time as a student. Implementation should take place in consultation with the Program Director in order to keep the Capstone focused and in scope. Students are expected to review these *Capstone Guidelines* and raise any questions with their Capstone Chair, typically the Program Director, unless otherwise designated. The Capstone Chair will designate the second reader for the manuscript.

Healthcare Quality and Safety and Operational Excellence Capstones rarely require an IRB review because they are considered to be implementation of prior science. However, if the author anticipates publication or presentation, a review by the IRB at their location should be completed to ascertain if theirs is an exempt Capstone. If needed, students will complete the CITI training and the Conflict of Interest (COI) form and obtain IRB approval if the Capstone involves human subjects, analysis of materials originating from human subjects, or data obtained from people (TJU or elsewhere). The [Jefferson Office of Human Research](#) has detailed instructions on uploading IRB forms.

More details about IRB submission via iRIS are available on the [Office of Human Research](#) site. The student's Capstone mentor or primary advisor serves as the Primary Investigator on the IRB proposal, but the student is responsible for submitting the proposal and collecting signatures. The Principal Investigator must be a Jefferson faculty member.

Students in Healthcare Quality and Safety register for HQS 650 Capstone and students in Operational Excellence register for OPX 650 Capstone. The actual course may include both Healthcare Quality and Safety and Operational Excellence students.

## Expectations & Deliverables

- **Proposal** – Students submit their final Capstone proposal to their Program Director according to their instructions.
- **Progress** - Students are expected to communicate with their Program Director on a regular basis regarding their progress on the approved timeline.
- **Capstone Title & Student Name** – Students will be asked to submit their Capstone title along with the way they want their name formally listed on the schedule **prior to the presentation**.
- **Presentation Slides** - Students will work with the Program Director on their final presentation slides until a final version can be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas at least **one week prior to their scheduled presentation**.
- **JDC Release Form** - Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#) and students are encouraged to view past presentations at any time. Students are expected to sign a JDC Release Form and submit to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**. If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director. The JDC Release Form can be found online in the **Handbooks & Forms** section of the [Student Resources](#) page.
- **Abstract** - Students are expected to submit an abstract following the below guidelines to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.
- **Final Manuscript** - Students will work with the Program Director on their various drafts, based on the guide below, until a final manuscript is ready to submit. This will be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.

## Presentation

Students are required to give an oral presentation of their Capstone to peers and faculty. These presentations are expected to resemble those at a scholarly conference as opposed to a recitation of the Capstone manuscript. Presentation date options are available during each trimester: Fall, Spring, and Summer. These should be scheduled with the Program Director.

- Students are advised to set up a meeting with their Program Director at least two weeks in advance of their scheduled presentation in order to review the oral presentation.
- Presentation slides should use the [Jefferson template](#).
- Students present the oral presentation of the Capstone to peers and faculty.
- Presentations are 40 minutes long and are followed by 15-20 minutes of Q&A. As a general rule, one slide is equal to one minute of speaking (not including the title slide).

- Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#). If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director.

## Grading

The Capstone is graded on a Pass (P) or Fail (F) basis. Students receive an IP, or In Progress, as their grade for the Capstone course until they have completed their Capstone and presentation to the satisfaction of the Program Director. When a grade change is submitted, and processed, that is the final step in the Capstone process.

## Graduation

- Students will not be certified for graduation until a completed Capstone manuscript and Presentation are approved with a Passing grade.
- Students can graduate in December, May, or August. Commencement occurs in May.
- Students complete the Exit Satisfaction Survey sent by the Office of Assessment and Accreditation. The Exit Satisfaction Survey asks students to reflect on their experiences at JCPH. Results are used for curricular improvements and accreditation purposes.
- Students will not be certified to graduate if they have outstanding account balances.

## Capstone Course

The purpose of the Capstone Course is to clearly and concisely address the major components of the proposed Capstone. At the end, students submit a 5-7 page, 12 point font Times New Roman, 1 inch margins, double-spaced, typed paper elaborating on the Background of the Capstone—what is the current environment nationally, what is the current and historical research, and how has the problem been impacted by other inputs. The Capstone Course Outline incorporates:

- 1. Proposed Title** — May be provisional, but should be sufficient to inform the Capstone Advisor of the topic of the student's Capstone.
- 2. Introduction and Definition of the Problem** — What is the rationalization for doing this Capstone? Is it an ongoing issue within the institution that needs a solution? Is it a problem that affects a larger segment of the healthcare system? Issues to be addressed:
  - a. What is the previous work that has been done on this topic?
  - b. Is that previous work flawed? Does it need validation or further refinement and definition?
  - c. What is available in the literature and is it relevant?
  - d. Does the literature in any way change your approach to the Capstone?

3. **Related Considerations** — What other factors enter into the successful completion of the Capstone and the sustainability of any gains over time? What other systems in the healthcare environment will interact with the Capstone and need to be considered? Considerations, in both the short- and long-term, must be given to:
  - a. Organizational behavior issues (including stakeholder analysis).
  - b. Organizational reporting (both during the Capstone and for sustainability).
  - c. Financial impact and resource needs (short- and long-term).
  - d. Regulatory, payer and accreditation requirements (where applicable).
  - e. Possible integrated IT solutions moving forward.
4. **Competencies Addressed** — Students will be evaluated to assess which competencies have been addressed in the Capstone. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page**, for the list of program competencies.
5. **Reference List** — References current literature and pertinent professional studies using current American Psychological Association (APA) format.

## Capstone Manuscript

1. **Title Page** — Title, student name, trimester during which it is presented, program (MS in HQS or OPX), institutional affiliation, names of Capstone Chair, Second Reader.
2. **Table of Contents**
3. **List of Illustrations or Figures**
4. **List of Tables**
5. **Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.
6. **Abstract** — Maximum of 300 words, single-spaced, and without indents. The Capstone abstract is posted in the [Jefferson Digital Commons](#), with written permission of the student. According to the Jefferson Office of Technology Transfer, publication of the student's abstract on the TJU website constitutes public disclosure. The student must inform the Office of Academic Affairs if they, or other investigators involved with the Capstone, do not wish the abstract to be posted on the website.

NOTE: Abstracts that do not conform to the format specified below will be returned for revision.

- a. Title
  - i. Capitalize every word in the title.

- ii. List authors' names (No full names and use initials without periods for first and middle names).
- iii. The only names on the abstract should be that of the student (underlined) and the Capstone Chair.
- iv. Provide College and institutional affiliations of authors (i.e., Jefferson College of Population Health, Thomas Jefferson University).

b. Body of the Abstract

- i. One single paragraph without separate sections.
- ii. Figures and tables are not permitted.
- iii. Abstract should include:
  - 1. A background statement.
  - 2. A statement of the study's purpose (one sentence).
  - 3. A statement of the methods used.
  - 4. A summary of the results obtained, presented in sufficient detail to support conclusions.
  - 5. A statement of the conclusions reached.

NOTE: It is NOT satisfactory to state, for example, that "the results will be discussed," or that "other data will be presented."

- 7. Introduction and Literature Review** — Relates background of the Capstone, including a statement of the problem and aims of the Capstone. Reviews existing body of knowledge (literature) or work on the subject.
- 8. Design, Scope, Barriers and Stakeholder Analysis** — Expands the same section included in Capstone course. After reading this section, a professional in the student's area of study should clearly understand the methods or methodological models (or theory where applicable) that they would use to replicate the work. Previously published procedures are referenced in the bibliography.
- 9. Results** — Presents collected data and outcomes.
- 10. Discussion** — Provides conclusions drawn from data and analysis. Accurately discusses the Capstone's findings such as unexpected results, negative outcomes, etc. and relates them to existing knowledge on the topic. Addresses limitations of the Capstone. Includes difficulties encountered in the Capstone and recommendations for further study. In presenting next steps, includes recommendations concerning sustainability of gains, present and future resource needs,

relevant financial, organizational and quality/safety rationalizations, and regulatory and accreditation requirements.

**11. Reference List** — References current literature and pertinent professional studies using current American Psychological Association (APA) format

**12. Tables**

**13. Figures/Illustrations**

**14. Appendices** — One of the appendices should be a self-evaluation of identified competencies from the program. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page**, for the list of program competencies.

## HQS & OPX Capstone Manuscript Rubric

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Fluency of Content Knowledge (General)</b></p> <p>The Capstone demonstrates knowledge of:</p> <ul style="list-style-type: none"> <li>• Literature relevant to the Capstone</li> <li>• Quality and safety tools</li> <li>• Collaborative working environments</li> <li>• Stakeholder analysis</li> <li>• Cultural barriers to change</li> <li>• Data collection and analysis techniques</li> <li>• Resource allocation</li> <li>• Capstone monitoring and outcome evaluation</li> <li>• Organization development and behavior</li> </ul>	<p>Framing of Capstone problem/question addressed reflects some gaps in content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are incompletely evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed expertly reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are fully evaluated in relation to the most relevant aspects of the field.</p>
<p><b>Fluency of Content Knowledge (Capstone Specific)</b></p> <p>The Capstone will demonstrate an ability to apply knowledge obtained throughout the program in a systematic and relevant manner to “problem solve” in the context of a modern healthcare system.</p>	<p>Work is not completely aligned with content knowledge objectives previously identified by the student and their Program Director.</p> <p>Critical evaluation and elements of original synthesis are lacking.</p>	<p>Work is well aligned with content knowledge objectives previously identified by the student and their Program Director.</p> <p>Relevant content has been added.</p>	<p>Work is fully aligned with content knowledge objectives previously identified by the student and their Program Director.</p> <p>Highly relevant content has been added.</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Critical Thinking</b></p> <p>Accurately interprets data, collaborative input, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims), pro and con.</p> <p>Thoughtfully analyzes and evaluates major alternative points of view.</p> <p>Draws warranted, judicious, non-fallacious conclusions.</p> <p>Justifies key results and procedures and explains assumptions.</p> <p>Fair-mindedly follows where evidence and reasons lead.</p>	<p>Some interpretations of the data, collaborative input, graphics or inquiries are questionable.</p> <p>Identification of the salient arguments (reasons and claims) is inconsistent.</p> <p>Little analysis or consideration of alternative perspectives.</p> <p>Conclusions not adequately justified.</p> <p>Assumptions insufficiently examined.</p>	<p>Accurately interprets data, collaborative input, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims).</p> <p>Thorough analysis or consideration of alternative perspectives.</p> <p>Conclusions adequately justified.</p> <p>Assumptions methodically examined.</p>	<p>Meets proficiency standard.</p> <p>In addition, fair-mindedly follows wherever data and outcomes lead.</p>
<p><b>Research Methodology &amp; Information Literacy</b></p> <p>Formulates Capstone statement concisely and in a focused manner applying relevant resources from systematic reviews of the literature, valid, reliable and generalizable data and stakeholder needs.</p> <p>Accesses and manages regulatory and accreditation requirements from existing public and private sources.</p> <p>Selects appropriate quality tools and</p>	<p>Formulation of Capstone statement is incompletely informed.</p> <p>Some relevant information resources are overlooked in support of the research and Capstone outcomes.</p>	<p>Formulation of Capstone statement is well-informed.</p> <p>Information resources are used to good effect in support of the research and Capstone outcomes.</p>	<p>Formulation of Capstone statement is exceptionally well-informed.</p> <p>Information resources, both conventional and unconventional/original, are used to great effect in support of the research and Capstone outcomes.</p>



Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p>change management techniques.</p> <p>Identifies information needs and corresponding resources.</p> <p>Analyzes and synthesizes information demonstrating understanding of current information technology, how information is socially situated and the critical evaluation of emerging information tools.</p>	<p>Capstone and/or research methods are not fully suited to the problem or are applied without adequate attention to their strengths, limitations and reproducibility.</p> <p>Information needs are incompletely identified, current information technology underutilized and social/cultural context of the information technology unexamined.</p>	<p>Capstone and/or research methods well-suited to the problem are applied with attention to their strengths, limitations and reproducibility.</p> <p>Information needs are identified, current information technology used and social/cultural context of the information technology examined.</p>	<p>Capstone and/or research methods well-suited to the problem at hand are applied with exceptional attention to their strengths, limitations and reproducibility.</p> <p>Information needs are astutely identified, current information technology fluently used and social/cultural context of information technology examined.</p>

<p><b>Communication</b></p> <p>Demonstrates comprehension, organization, development, and effective expression.</p> <p>In addition:</p> <p><u>Written:</u> Capstone manuscript conforms to structure specified in the <i>Capstone Guidelines</i>.</p> <p><u>Oral:</u> Vocal qualities (pace, inflection, volume, enunciation) and physical behaviors (gestures, stance, eye-contact, movement) augment content and maintain audience interest.</p> <p>Provides clear structure and adequate transitions between ideas.</p> <p><u>Visual:</u> Determines the nature and extent of the visual materials needed.</p> <p>Constructs appropriate visual aids (PowerPoint) that conveys clearly and in a focused manner with salient Capstone components and the critical thinking involved.</p> <p>Where appropriate, visual aids clearly indicate and defend the need for resources and the manner of ongoing data collection to support continued Capstone analysis.</p>	<p>Communication lacks some clarity, credibility, or persuasiveness and/or conventions of structure or style prescribed in the <i>Capstone Guidelines</i> are violated.</p>	<p>Communicates clearly, credibly and persuasively with the intended audience and the wider scholarly community while conforming to all structure and style conventions specified in the <i>Capstone Guidelines</i>.</p>	<p>Meets Proficiency standard.</p> <p>In addition, communicates with exceptional clarity, credibility, persuasiveness, and originality.</p>
	<p>Delivery is marred in places by distracting aspects of voice or manner.</p> <p>Visual assets or other source material not sufficiently assessed or adequately incorporated into the presentation.</p> <p>Ethical analysis of media use is missing where it would be appropriate.</p>	<p>Delivery is compelling and free from distraction.</p> <p>Visual assets and other source materials have been carefully assessed and are fully integrated into the presentation.</p> <p>Ethical analysis of media use is conducted as appropriate.</p>	<p>Written, oral, and visual components of the work are seamlessly integrated and mutually reinforcing.</p>

<p><b>Technical Proficiency</b></p> <p>Applies contemporary technologies (EMR, CPOE, data analysis, etc.) to the Capstone in a creative and innovative manner.</p> <p>And program-specific skills in:</p> <ol style="list-style-type: none"> <li>1. Data collection techniques</li> <li>2. Ongoing outcome monitoring and reporting</li> <li>3. Communication</li> </ol>	<p>Design or application of discipline-specific tool (or customized tool of other provenance) does not fully support Capstone outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to support Capstone outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to exceptionally enhance Capstone outcomes in one or more program-specific skill areas.</p>
<p><b>Contribution to the Discipline/Profession</b></p> <p>A form of value evaluation that achieves a level of quality that demands attention because the work is:</p> <ul style="list-style-type: none"> <li>• Conceptually attentive <ul style="list-style-type: none"> <li>○ Real problem in value assessment</li> <li>○ Clinical-relevant issue</li> </ul> </li> <li>• Technically competent <ul style="list-style-type: none"> <li>○ Analytically precise</li> <li>○ Proper tool selection</li> </ul> </li> <li>• Methodologically credible <ul style="list-style-type: none"> <li>○ Free from bias</li> <li>○ Credible and doable</li> <li>○ Outcome clinical-relevant</li> </ul> </li> </ul>	<p>Value of contribution to the discipline or professional application is not fully apparent in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcomes.</p>	<p>Constitutes a meaningful contribution to the discipline or noteworthy professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcomes.</p>	<p>Constitutes a major contribution to the discipline or exceptional professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcome.</p>

## POPULATION HEALTH (POP)

Effective population health initiatives demand that practitioners have knowledge and expertise from diverse disciplines. Students must conduct Capstones that demonstrate proficiency and aptitude in the various subjects covered in the Population Health curriculum. The goal of a Capstone should be improvement in the health outcomes of a defined population. Target populations should be relatively large and/or diverse and not limited to a single healthcare practice. The lessons learned from the experience would ideally be generalizable to larger groups and transferrable to other populations or applied to other health issues. Students will document both the specific findings and the broader application in their Capstone manuscript.

Students will have the option of choosing an initiative that addresses a need at their current institution or taking on a Capstone at another site. In either case, the Capstone should be broad in scope and involve activities that go beyond the student's primary work responsibilities. It is expected that students will conduct Capstones on a wide variety of population health-related topics.

### Overview

The Population Health Capstone is coordinated through the Program Director who will guide and advise students in the development, formation, and implementation of the Capstone as well as assign a final grade. Prior to registering for Capstone, students are expected to identify their Capstone topic by contacting their Program Director to discuss their plan and timeline.

Students must successfully complete all other coursework before registering for Capstone unless they have been approved otherwise. During the time students are registered for Capstone they are expected to prepare the Capstone proposal, based on the guide [below](#), and begin implementing next steps in the Capstone with guidance from their Program Director. Students are expected to review these *Capstone Guidelines*, conduct a detailed literature review on the proposed topic, and identify a Capstone Chair as well as Second Reader, if necessary.

In addition, if needed, students will complete the CITI training and the Conflict of Interest (COI) form; and obtain IRB approval if the Capstone involves human subjects, analysis of materials originating from human subjects, or data obtained from people (TJU or elsewhere). The [Jefferson Office of Human Research](#) has detailed instructions on uploading IRB forms.

More details about IRB submission via iRIS are available on the [Office of Human Research](#) site. The student's Capstone mentor or primary advisor serves as the Primary Investigator on the IRB proposal, but the student is responsible for submitting the proposal and collecting signatures.

Students register for POP 650 Capstone.

### Expectations & Deliverables

- **Proposal** – Students submit their final Capstone proposal to their Program Director according to their instructions.

- **Progress** - Students are expected to communicate with their Program Director on a regular basis regarding their progress on the approved timeline.
- **Capstone Title & Student Name** – Students will be asked to submit their Capstone title along with the way they want their name formally listed on the schedule **prior to the presentation**.
- **Presentation Slides** - Students will work with the Program Director on their final presentation slides until a final version can be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas at least **one week prior to their scheduled presentation**.
- **JDC Release Form** - Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#) and students are encouraged to view past presentations at any time. Students are expected to sign a JDC Release Form and submit to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**. If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director. The JDC Release Form can be found online in the **Handbooks & Forms** section of the [Student Resources](#) page.
- **Abstract** - Students are expected to submit an abstract following the below guidelines to the corresponding dropbox in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.
- **Final Manuscript** - Students will work with the Program Director on their various drafts, based on the guide below, until a final manuscript is ready to submit. This will be submitted to the corresponding dropbox located in the [JCPH Student Community](#) in Canvas **no later than a week prior to when final grades are due in the trimester in which presentation is made**.

## Presentation

Students are required to give an oral presentation of their Capstone to peers and faculty. These presentations are expected to resemble those at a scholarly conference as opposed to a recitation of the Capstone manuscript. Presentation date options are available during each trimester: Fall, Spring, and Summer. These should be scheduled with the Program Director.

- Students are advised to set up a meeting with their Program Director at least two weeks in advance of their scheduled presentation in order to review the oral presentation.
- Presentation slides should use the [Jefferson template](#).
- Students present the oral presentation of the Capstone to peers and faculty.
- Presentations are 30-40 minutes long and are followed by 10-20 minutes of Q&A. As a general rule, one slide is equal to one minute of speaking (not including the title slide).
- Presentations are recorded and posted to the [Jefferson Digital Commons \(JDC\)](#). If a student is not able to post details of their Capstone publicly for any reason, please inform the Program Director.

## Grading

The Capstone is graded on a Pass (P) or Fail (F) basis. Students receive an IP, or In Progress, as their grade for the Capstone course until they have completed their Capstone and presentation to the satisfaction of the Program Director. When a grade change is submitted, and processed, that is the final step in the Capstone process.

## Graduation

- Students will not be certified for graduation until a completed Capstone manuscript and Presentation are approved with a Passing grade.
- Students can graduate in December, May, or August. Commencement occurs in May.
- Students complete the Exit Satisfaction Survey sent by the Office of Assessment and Accreditation. The Exit Satisfaction Survey asks students to reflect on their experiences at JCPH. Results are used for curricular improvements and accreditation purposes.
- Students will not be certified to graduate if they have outstanding account balances.

## Capstone Proposal

The purpose of the Capstone proposal is to clearly and concisely address the major components of the proposed Capstone. The Capstone proposal incorporates:

- 1. Proposed Title** — May be provisional, but should be sufficient to inform the Capstone Chair of the topic of the student's Capstone.
- 2. Introduction and Definition of the Problem** — Establishes the necessity for the Capstone by summarizing:
  - a. Clearly articulated population health issue to be addressed.
  - b. Previous work on the topic.
  - c. Available information and deficiencies of previous information.
  - d. Relation of (a) and (b), above, to the significance of the proposed Capstone.
  - e. Specific aims of the Capstone.
- 3. Design, Scope, and Timeline** — Describes how the issue will be addressed. An individual reading the Capstone proposal should be able to determine whether the Capstone plan can adequately accomplish the Capstone aims. The Capstone Chair should be able to determine if the Capstone is feasible with the time, resources and expertise available. This section should include:
  - a. Description of the implementation plan.
  - b. Description of the methods of analysis and interventions.

- c. Timeline for the Capstone.
4. **Materials and Methods** — Describes materials and methods to be used in the Capstone. A professional in the student’s program area should clearly understand the methods/methodological model or theory that they would use to replicate the work. The bibliography should reference any previously published procedures.
5. **Competencies Addressed** — Students, in consultation with their Capstone Chair and Capstone instructor, should identify which of the program competencies will be/are addressed in their Capstone. Students should complete this identification process twice: (1) once in the Capstone proposal and (2) again in the Capstone manuscript appendices. Students should refer to the **JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources page](#)**, for the list of competencies.
6. **Bibliography** — References current literature and pertinent professional studies using American Psychological Association (APA) format 6<sup>th</sup> edition or higher.

## Capstone Manuscript

1. **Title Page** — Title, Student name, date, program (MS in POP), institutional affiliation, names of Capstone Chair, Second Reader and Preceptor (if applicable).
2. **Table of Contents**
3. **List of Illustrations or Figures**
4. **List of Tables**
5. **Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.
6. **Abstract** — Maximum of 300 words, single-spaced, and without indents. The Capstone abstract is posted in the [Jefferson Digital Commons](#), with written permission of the student. According to the Jefferson Office of Technology Transfer, publication of the student’s abstract on the TJU website constitutes public disclosure. The student must inform the Office of Academic Affairs if they, or other investigators involved with the Capstone, do not wish the abstract to be posted on the website.

NOTE: Abstracts that do not conform to the format specified below will be returned for revision.

- a. Title
  - i. Capitalize every word in the title.
  - ii. List authors’ names (No full names and use initials without periods for first and middle names).
  - iii. The only names on the abstract should be that of the student (underlined) and the Capstone Chair.

iv. Provide College and institutional affiliations of authors (i.e., Jefferson College of Population Health, Thomas Jefferson University).

b. Body of the Abstract

- i. One single paragraph without separate sections.
- ii. Figures and tables are not permitted.
- iii. Abstract should include:
  1. A background statement.
  2. A statement of the study's purpose (one sentence).
  3. A statement of the methods used.
  4. A summary of the results obtained, presented in sufficient detail to support conclusions.
  5. A statement of the conclusions reached.

NOTE: It is NOT satisfactory to state, for example, that “the results will be discussed,” or that “other data will be presented.”

- 7. Introduction and Literature Review** — Relates background of the Capstone, including a statement of the problem and aims of the Capstone. Reviews existing body of knowledge (literature) or work on the subject.
- 8. Materials and Methods** — Expands the same section included in the Capstone proposal. After reading this section, a professional in the student's area of study should clearly understand the methods or methodological models (or theory where applicable) that they would use to replicate the work. Previously published procedures are referenced in the bibliography.
- 9. Results** — Presents collected data and outcomes.
- 10. Discussion** — Provides conclusions drawn from data and analysis. Accurately discusses the Capstone's findings such as unexpected results, etc. and relates them to existing knowledge on the topic. Addresses limitations of the research/analysis. Includes difficulties encountered in the Capstone and recommendations for further study.
- 11. Recommendations/Implications** — Clearly articulated set of discrete policy options with objective pros and cons and an action plan or a presentation of next steps to address the issues identified in the analysis.
- 12. Bibliography/References** — References current literature and pertinent professional studies using American Psychological Association (APA) format 6<sup>th</sup> edition or higher.

**13. Tables**



**14. Figures/Illustrations**

- 15. Appendices** — One of the appendices should be a reevaluation of identified competencies from the Capstone proposal. Students should refer to the **JCPH Degree Requirements Guide**, located under **Handbooks & Forms** on the [Student Resources](#) page, for the list of program competencies.

## POP Capstone Manuscript Rubric

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p><b>Fluency of Content Knowledge (General)</b></p> <p>The Capstone demonstrates knowledge of:</p> <ul style="list-style-type: none"> <li>• Policy making and analysis</li> <li>• Elements of the US healthcare delivery system</li> <li>• Population health its relationship to the public health and healthcare systems</li> <li>• Social determinants of health</li> <li>• Health quality and safety</li> <li>• Health economics</li> <li>• Health law and regulation</li> <li>• Health informatics</li> </ul>	<p>Framing of the Capstone problem/question addressed reflects some gaps in content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are incompletely evaluated in relation to relevant aspects of the field.</p>	<p>Framing of Capstone problem/question addressed reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are evaluated in relation to relevant aspects of the field.</p>	<p>Framing of the Capstone problem/question addressed expertly reflects broad content knowledge and the application of tools and concepts.</p> <p>Conclusions and their implications are fully evaluated in relation to the most relevant aspects of the field.</p>
<p><b>Fluency of Content Knowledge (Capstone Specific)</b></p> <p>A set of specific content knowledge domains will be incorporated into the student's Capstone proposal.</p>	<p>Work lacks overarching value assessment and/or does not fully demonstrate proficiency with set of closely related concepts and tools core to the field. Critical evaluation and elements of original synthesis are lacking.</p>	<p>Work includes overarching value assessment, critical evaluation of evidence and demonstrates proficiency with set of closely related concepts and tools core to the field, including their critical evaluation and elements of original synthesis.</p>	<p>Work includes strong, overarching value assessment, critical evaluation of evidence and demonstrates mastery of set of closely related concepts and tools core to the field, including their critical evaluation and original synthesis.</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
	Work is not completely aligned with content knowledge objectives previously identified by the student and their Program Director.	Work is well aligned with content knowledge objectives previously identified by the student and their Program Director.	Work is fully aligned with content knowledge objectives previously identified by the student and their Program Director. In addition, highly relevant content has been added.
<p><b>Critical Thinking</b></p> <p>Accurately interprets evidence, statements, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims) pro and con.</p> <p>Thoughtfully analyzes and evaluates major alternative points of view.</p> <p>Draws warranted, judicious, non-fallacious conclusions.</p> <p>Justifies key results and procedures, explains assumptions.</p> <p>Fair-mindedly follows where evidence and reasons lead.</p>	<p>Some interpretations of the evidence, statements, graphics or inquiries are questionable.</p> <p>Identification of the salient arguments (reasons and claims) is inconsistent.</p> <p>Little analysis or consideration of alternative perspectives.</p> <p>Conclusions not adequately justified.</p> <p>Assumptions insufficiently examined.</p>	<p>Accurately interprets evidence, statements, graphics, questions, etc.</p> <p>Identifies the salient arguments (reasons and claims).</p> <p>Thorough analysis or consideration of alternative perspectives.</p> <p>Conclusions adequately justified.</p> <p>Assumptions methodically examined.</p>	<p>Meets proficiency standard.</p> <p>In addition, fair-mindedly follows wherever evidence and reasons lead</p>
<p><b>Research Methodology &amp; Information Literacy</b></p> <p>Formulates population health research questions informed by relevant theoretical and conceptual models, systematic reviews of the literature, valid, reliable and generalizable data and stakeholder needs.</p> <p>Accesses and manages secondary data from existing public and private sources.</p>	<p>Formulation of research question is incompletely informed.</p> <p>Some relevant information resources are overlooked in support of the research and Capstone outcomes.</p>	<p>Formulation of research question is well-informed.</p> <p>Information resources are used to good effect in support of the research and Capstone outcomes.</p>	<p>Formulation of research question is exceptionally well-informed.</p> <p>Information resources, both conventional and unconventional/ original, are used to great effect in support of the research and Capstone outcomes.</p>

Criteria	Sub-Standard	Proficient	Distinguished
	1	2	3
<p>Implements research protocols with standardized procedures that ensure reproducibility of the science.</p> <p>Selects appropriate study designs to address specific population health research questions.</p> <p>Identifies information needs and corresponding resources.</p> <p>Analyzes and synthesizes information demonstrating understanding of current information technology, how information is socially situated and the critical evaluation of emerging information tools.</p>	<p>Study designs and/or research methods are not fully suited to the problem or are applied without adequate attention to their strengths, limitations, and reproducibility.</p> <p>Information needs are incompletely identified, current information technology underutilized and social/cultural context of the information technology unexamined.</p>	<p>Study designs and/or research methods well-suited to the problem are applied with attention to their strengths, limitations and reproducibility.</p> <p>Information needs are identified, current information technology used and social/cultural context of the information technology examined.</p>	<p>Study designs and/or research methods well-suited to the problem at hand are applied with exceptional attention to their strengths, limitations and reproducibility.</p> <p>Information needs are astutely identified, current information technology fluently used and social/cultural context of information technology examined.</p>

<p><b>Communication</b></p> <p>Demonstrates comprehension, organization, development and effective expression.</p> <p>In addition:</p> <p><u>Written:</u> Capstone manuscript conforms to structure specified in the <i>Capstone Guidelines</i>.</p> <p><u>Oral:</u> Vocal qualities (pace, inflection, volume, enunciation) and physical behaviors (gestures, stance, eye-contact, movement) augment content and maintain audience interest.</p> <p>Provides clear structure and adequate transitions between ideas.</p> <p><u>Visual:</u> Determines the nature and extent of the visual materials needed.</p> <p>Accesses needed images and visual media effectively and efficiently.</p> <p>Interprets and analyzes the meanings of images and visual media.</p> <p>Evaluates images and their sources.</p> <p>Uses images and visual media effectively.</p> <p>Designs and creates meaningful images and visual media.</p> <p>Understands many of the ethical, legal, social, and economic issues surrounding the creation and use of images and visual media, and accesses and uses visual materials ethically.</p>	<p>Communication lacks some clarity, credibility, or persuasiveness and/or conventions of structure or style prescribed in <i>Capstone Guidelines</i> are violated.</p> <p>Delivery is marred in places by distracting aspects of voice or manner.</p> <p>Visual assets or other source material have not sufficiently been assessed or adequately incorporated into presentation.</p> <p>Ethical analysis of media use is missing where it would be appropriate.</p>	<p>Communicates clearly, credibly and persuasively with the intended audience and the wider scholarly community while conforming to all structure and style conventions specified in the <i>Capstone Guidelines</i>.</p> <p>Delivery is compelling and free from distraction.</p> <p>Visual assets and other source materials have been carefully assessed and are fully integrated into presentation.</p> <p>Ethical analysis of media use is conducted as appropriate.</p>	<p>Meets Proficiency standard.</p> <p>In addition, communicates with exceptional clarity, credibility, persuasiveness, and originality.</p> <p>Written, oral and visual components of the work are seamlessly integrated and mutually reinforcing.</p>
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<p><b>Technical Proficiency</b></p> <p>Applies contemporary technologies to one or more areas: Creativity and Innovation; Communication and Collaboration; Research and Information Fluency; Digital Citizenship; Technology Operations and Concepts.</p> <p>And program-specific skills in:</p> <ol style="list-style-type: none"> <li>1. Productivity</li> <li>2. Research</li> <li>3. Communication</li> </ol>	<p>Design or application of discipline-specific tool (or customized tool of other provenance) does not fully support Capstone outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to support Capstone outcomes in one or more program-specific skill areas.</p>	<p>Work demonstrates productive and original design or application of discipline-specific tool (or customized tool of other provenance) to exceptionally enhance Capstone outcomes in one or more program-specific skill areas.</p>
<p><b>Contribution to the Discipline/Profession</b></p> <p>A form of value evaluation that achieves a level of quality that demands attention because the work is:</p> <ul style="list-style-type: none"> <li>• Significant <ul style="list-style-type: none"> <li>○ Relevant</li> <li>○ Timely</li> </ul> </li> <li>• Technically competent <ul style="list-style-type: none"> <li>○ Analytically precise</li> <li>○ Implemented with appropriate tools</li> </ul> </li> <li>• Methodologically credible <ul style="list-style-type: none"> <li>○ Free from bias</li> <li>○ Evidentially sound</li> </ul> </li> <li>• Translatable <ul style="list-style-type: none"> <li>○ Broadly applicable</li> <li>○ Useful for policymakers and other stakeholders</li> </ul> </li> </ul>	<p>Value of contribution to the discipline or professional application is not fully apparent in the timeliness and relevance of its subject, skill of the execution, and credibility of the result or outcomes.</p>	<p>Constitutes a meaningful contribution to the discipline or noteworthy professional application in the timeliness and relevance of its subject, skill of the execution, and credibility of the result or outcomes.</p>	<p>Constitutes a major contribution to the discipline or exceptional professional application in the timeliness and relevance of its subject, skill of the execution and credibility of the result or outcome.</p>

# PUBLIC HEALTH (MPH)

## OVERVIEW

The Master of Public Health (MPH) Capstone-Integrative Learning Experience (C-ILE) demonstrates synthesis of the program's competencies. It is a requirement of the Council on Education for Public Health (CEPH) for all accredited graduate programs in public health. The C-ILE approximates a professional achievement in public health and demonstrates the ability to integrate core competencies of the public health curriculum. The C-ILE is expected to be a high-quality example of one or more of the following: community assessment; program planning and evaluation; secondary data analysis; systematic or rapid systematic review; original research; policy analysis; strategic planning; a grant proposal; a curriculum; a product of utility; or other approved project. Ideally, students will apply much, or all, of the knowledge and skills they have learned in their coursework.

The C-ILE has three tangible deliverables:

1. **Comprehensive Manuscript:** This should be a scholarly manuscript of publishable quality that describes the project. Like the project itself, the manuscript can take many forms, but the manuscript must include:
  - a. An abstract and lay summary
  - b. A statement addressing the impact of the work on health equity (4-10 sentences)
  - c. Background and significance
  - d. Methods or process plan
  - e. Results or outcome (product and description of product, as appropriate)
  - f. Discussion and conclusion
  - g. References and appendices
2. **Oral Presentation:** This is a brief professional oral PowerPoint presentation (flash talk). The goal of the presentation is to introduce the audience to the student's work. The student's presentation is reviewed by members of the JCPH faculty and community (including alumni, peers, or other invited public health professionals).
3. **Poster Presentation:** This is a professional poster developed to expand on the oral presentation. The student's poster is also reviewed by members of the JCPH faculty and community (including alumni, peers, or other invited public health professionals).

The C-ILE is coordinated by the MPH faculty teaching the two-part seminar (PBH 611/612 or PBH 613/614). C-ILE instructors assist students in the development of the C-ILE proposal and completion of the C-ILE, including the identification of a mentor for LPHT students and content expert, as appropriate, for LEAP students.

The MPH LEAP student's C-ILE Committee consists of:

- **C-ILE Instructor** (required): The role of the C-ILE instructor is to guide and advise the student in the development, formation, and implementation of the C-ILE and to review, evaluate, and approve the final C-ILE. Note: LEAP students are all required to conduct a rigorous rapid review of the literature following PRISMA guidelines, and the course instructor (or instructor team) serves as the primary project mentor(s).
- **Jefferson Research Librarian** (required): The role of the Research Librarian is to guide, advise, and support the student as they plan and carry out a rigorous systematic literature research and review following PRISMA guidelines.
- **Content Expert** (optional): The role of the Content Expert is to provide guidance to the study as they formulate a researchable question and conduct their Rapid Systematic Review.

The MPH LPHT student’s C-ILE Committee consists of:

- **C-ILE Instructor** (required): The role of the C-ILE instructor is to guide and advise the student in the development, formation, and implementation of the C-ILE and to review, evaluate, and approve the final C-ILE.
- **JCPH C-ILE Mentor** (required for LPHT students): This committee member is a JCPH faculty member (full-time/adjunct) with experience, methodological, or subject matter expertise. The JCPH C-ILE mentor may be the same person as the C-ILE instructor. The role of the JCPH C-ILE mentor is to serve as a content reviewer and ensure that the student completes the C-ILE in a timely manner. The JCPH C-ILE mentor is assigned and/or approved by the C-ILE instructor upon consultation with the student.
- **External C-ILE Mentor** (optional): This external professional has experience or subject matter expertise. Oftentimes, the External C-ILE mentor may be connected with an organization or agency crucial to the C-ILE. This may include individuals outside of JCPH, but still within Jefferson. The role of the External C-ILE mentor is to serve as a resource for the student and provide content or topic expertise.

LPHT students only: The JCPH C-ILE mentor and External C-ILE mentor read and sign the *Capstone-ILE Mentor-Mentee Agreement* (see [Handbooks & Forms](#)). This form must be submitted as part of the C-ILE proposal and acts as acknowledgement of the mentor’s role. Students may not implement their C-ILEs until Committee members have been identified, the form signed, and the C-ILE proposal approved.

## C-ILE Courses

MPH students develop their C-ILEs over a minimum of two trimesters. Students must register for the appropriate *C-ILE* courses.

Program	C-ILE Course	Availability
LEAP	<i>PBH 611 LEAP Capstone-ILE 1 (2 c)</i>	Spring only
	<i>PBH 612 LEAP Capstone-ILE (1 c)</i>	Summer only
LPHT	<i>PBH 613 LPHT Capstone-ILE 1 (3 c)</i>	Pre-Fall, Fall, Spring and Summer



<b>(including Bridge, Dual Degree*, Advanced Standing)</b>	<i>PBH 614 LPHT Capstone-ILE 2 (0 c)</i>	Pre-Fall, Fall, Spring and Summer
<b>PA/MPH*</b>	<i>PBH 615 PA Capstone-ILE (2)</i>	Summer only

\*PA/MPH, PhD/MPH, and EDM/MPH dual degree students complete a joint C-ILE with their other academic program. Students in these dual degrees register for C-ILE courses in their other academic program and produce a project under the guidance of both program directors. PA/MPH students also register for a public health C-ILE course designed to support the integration of Public Health into the clinical nature of their Capstone work.

### **C-ILE, Part 1**

The **C-ILE, Part 1 course** (PBH 611 or PBH 613) is dedicated to preparing the C-ILE proposal and beginning the implementation of the C-ILE project as outlined in the C-ILE proposal.

During the first C-ILE course, the student:

1. Reviews C-ILE guidelines and expectations, IRB and iRIS requirements, and reference bibliography tools and techniques, as required.
2. Identifies the key elements or dimensions of the project and structures that go into a background and significance section, clearly articulating the public health context. The C-ILE should be related to a student's concentration.
3. Identifies a JCPH C-ILE mentor (if applicable) in consultation with the C-ILE instructor.
4. Develops a well-defined research question(s) and/or problem statement and specific aims for the proposed project.
5. Designs a methodology or process plan that is in alignment with the research question or project, respectively. This may include the target population, recruitment approach, data collection, data storage, project implementation, analytic strategy, search strategy, selection criteria, and/or other steps.
6. Determines if the C-ILE requires the completion of CITI training and the Conflict of Interest (COI) form; and IRB approval if the C-ILE involves human subjects, analysis of materials originating from human subjects, or data obtained from people (TJU or elsewhere). The [Jefferson Office of Human Research](#) has detailed instructions on completing the online IRB and iRIS proposal submission.
7. Identifies the public health competencies (see JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page) expected to be addressed through the C-ILE (competencies may differ among students depending on the nature of the project and the student's concentration).

When preparing the C-ILE proposal with support from the C-ILE instructor, the student should:

1. Use the designated content and format ([below](#)).
2. Include a signed *Capstone-ILE Mentor-Mentee Agreement* (*LPHT students only*; see [Handbooks & Forms](#)).
3. Identify public health competencies expected to be addressed through the C-ILE (see JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page).
4. Determine if issues involving intellectual property/patents and/or human subjects/samples need to be addressed.
5. Identify a specific trimester in which to present their C-ILE.
6. Ensure that IRB approval is acquired, if appropriate
7. Follow deadlines for C-ILE proposal components, as outlined in the course syllabus.
8. Obtain approval from the C-ILE committee (instructors and mentors, as appropriate).

Students must successfully complete all C-ILE assignments in either PBH 611 or PBH 613 before they can enroll in PBH 612 or PBH 614, respectively. Students who do not successfully complete all assignments will receive an IP (In Progress) grade. They must fill out an *MPH Capstone-ILE In Progress Agreement* (see [Handbooks & Forms](#)) and work with their C-ILE instructor to successfully complete all the assignments before they can register for PBH 612 or 614, respectively. LEAP students follow an intensive program that requires adherence to the prescribed academic plan. Thus, they must complete PBH 611 in the spring trimester in order to proceed to PBH 612 in the summer trimester. Failure to complete PBH 611 by the start of the summer trimester may result in delayed graduation.

## **C-ILE, Part 2**

The **C-ILE, Part 2 course** (PBH 612 or PBH 614) is dedicated to the student completing the C-ILE. At the end of the second C-ILE course students give oral and poster presentations to their peers, faculty, and invited guests. The presentations are evaluated by members of the Jefferson Public Health community.

In the second C-ILE course, the student:

1. Carries out the C-ILE project.
2. Consults with the C-ILE Committee by phone, video, email, or in-person to review and clarify C-ILE content, methodology, or other issues.
3. Submits initial and final drafts of all C-ILE deliverables, as outlined in the course syllabus.
  - a. Prepares and conducts an oral presentation (flash talk) with presentation slides
  - b. Develops and presents an academic poster
  - c. Submits a C-ILE manuscript. The final submitted C-ILE manuscript must:
    - i. Incorporate all necessary changes and corrections stipulated by the C-ILE Committee.

- ii. Follow the American Psychological Association (APA) formatting and citation guidelines.
4. Submits a final list of public health competencies addressed during the implementation of the C-ILE (see JCPH Degree Requirements Guide, located under Handbooks & Forms on the [Student Resources](#) page).
5. Submits all other assignments, as outlined in the course syllabus.

## Proposal & Manuscript Guidelines

### Proposal

The C-ILE proposal is developed under the guidance of the C-ILE Committee.

The purpose of the C-ILE proposal is to clearly and concisely address the major components of the proposed C-ILE. The C-ILE proposal should be approximately 5-7 double-spaced, typed pages in APA format. The C-ILE proposal incorporates:

- 1. Proposed Title**
- 2. Introduction, Background, and Significance of the Issue** — Establishes the necessity for the C-ILE by summarizing:
  - a. Previous work on the topic (literature review).
  - b. The need for the project (what gap will this project fill in practice, research, or application?).
  - c. The project goal, research question, specific aims, or objectives.
  - d. The public health significance and potential impact on health equity.
- 3. Methods or Process Plan** — Describes how the student will complete the project (as appropriate, research methods, analysis plan, step-by-step process plan, or evaluation). The student should address the need for project approval (e.g. IRB, Office of International Affairs). The students should address feasibility, resources needed, sustainability plan, and mentorship needed, as appropriate.
- 4. Placeholders** — For the results, discussion, and conclusion.
- 5. References** — References current peer-reviewed literature, government, or organizational reports, needs assessments, and other pertinent work or resources used in support of the proposal. Students must use APA format.

## Manuscript

The C-ILE manuscript is developed under the guidance of the C-ILE instructor and mentor. All C-ILE manuscripts follow these formatting guidelines:

- Final version of the C-ILE manuscript incorporates all necessary changes and corrections stipulated by the C-ILE mentor and instructor.
- All manuscripts should follow the APA formatting and citation guidelines.
- All text pages including footnotes, legends, figures, tables, and bibliography are typed, double-spaced on 8.5” by 11” paper.
- Margins are 1” on all sides.
- Font style is Times New Roman and font size is 12 pt.
- Tables and graphs may use 10-11 pt. font, as necessary.

An APA template will be provided and will include the following:

1. **Title Page** – Includes the names of all C-ILE mentor(s) and instructor(s) members.
2. **Abstract** — Contains 150-250 words without indents. The C-ILE abstract is posted in the [Jefferson Digital Commons](#). According to the Jefferson Office of Technology Transfer, publication of the student’s abstract on the TJU website constitutes public disclosure. The student must inform the C-ILE instructor if they or their mentor(s), or other collaborators, do not wish the abstract to be posted on the website.

NOTE: It is NOT satisfactory to state, for example, that “the results will be discussed,” or that “other data will be presented.”

3. **Lay Summary** — Contains up to 350 words and summarizes the project in lay terms for the general public.
4. **Equity Statement** – This should be a brief (4-10 sentences) statement addressing the impact of this work on health equity.
5. **Key Words** — Lists a minimum of five key search terms. Students may refer to MeSH search terms as a starting point.
6. **Table of Contents**
7. **Dedication**
8. **Acknowledgements** — Expresses appreciation for those who assisted the student. Mentions permissions obtained for copyrighted material. Mentions any special funding.
9. **List of Tables**

## **10. List of Illustrations or Figures**

**11. Background and Significance** — Addresses relevant background and justification for the C-ILE, including a statement of the problem and aims. Reviews existing body of knowledge (literature) or work on the subject. Addresses the public health relevance of the topic.

**12. Methods or Process Plan** — Expands the section included in the C-ILE proposal. After reading this section, a professional in the subject area should clearly understand the methods/methodology, models/theories, or processes that would be used or followed to replicate the work.

**13. Results** — Presents collected data and outcomes or, for non-research project, the product/deliverable created to fill a gap or meet a need. For example; a curriculum and presentation, children’s book, or other educational program materials.

**14. Discussion** — Provides conclusions drawn from data and analysis. Accurately discusses C-ILE findings such as unexpected results, etc. and relates them to existing knowledge on the topic and implications for public health or describes how the product created can and should be used going forward, including any plans for maintaining and updating the product. Addresses limitations of the research or project. Includes difficulties encountered in the C-ILE and recommendations for further study or related follow-up. Presentation of next steps is encouraged.

**15. References** — Cites pertinent journal articles, sources and reference texts using APA format.

**16. Tables**

**17. Figures/Illustrations**

**18. Appendices**

## Presentation & Poster Guidelines

Students are required to give oral and poster presentations of their C-ILE. These presentations are expected to resemble those at a scholarly conference and not just be a recitation of the C-ILE manuscript. Generally, presentation dates are available at the end of the fall, spring, and summer trimesters. Students are encouraged to invite friends, family, and C-ILE stakeholders. Presentations vary slightly by student group, but the general format is described below. A link for virtual attendance can be provided for family and friends. Students in the online pathway will have the option to present C-ILE virtually.

- Capstone-ILE Symposiums are scheduled at the end of every trimester. LPHT students may present in the fall, spring, or summer. LEAP students only present in the summer trimester. The number of sessions will depend on the number of students presenting. Students will be required to present and attend at least one session but are encouraged to stay for the entire event.
- The presentations consist of a ‘flash’ talk and a poster session.
  - The ‘flash’ talk is created using [Jefferson College of Population Health template Microsoft PowerPoint slides](#) (size provided by C-ILE instructor). It will consist of a brief summary of the C-ILE and will act as an invitation to the audience to visit the accompanying poster and ask questions. As a general rule, one slide is equal to one minute of discussion (not including title slides). Prior to the presentation, the slides should be reviewed for accuracy of spelling, grammar, and appropriate use of fonts and formatting of graphs/tables.
  - The poster is created using a [Jefferson College of Population Health template Microsoft PowerPoint slide](#) (48’ x 36’). The poster will provide information on C-ILE aims, objective(s), methods, results, discussion points, and study or project limitations. The poster session will also act as the question and answer period of the presentation.
- C-ILE presentations are audio-recorded and posted to the [Jefferson Digital Commons](#). Students are encouraged to review prior C-ILE presentations.
- PA/MPH, PhD/MPH and EDM/MPH students, in addition to presenting their work to the MPH community, may be required to present their work in forums organized by their respective additional programs.

## **Additional Policies**

### **Capstone-ILE Reimbursement**

The C-ILE Reimbursement Policy applies only to MPH students.

In cases where the MPH student is developing and conducting a C-ILE outside of a supervising organization, incurred expenses may be eligible for reimbursement from JCPH. Eligible expenses may include, but are not limited to, incentives to potential participants, printing and mailing study materials, development of materials for the C-ILE, and travel expenses.

To be eligible for reimbursement:

1. All reimbursable expenses should be a vital part of the approved C-ILE.
2. Prior to spending, students acquire approval from Program Director before start of Capstone.
3. Maximum reimbursement is \$100.
4. Reimbursement requires the approved request, receipts, and a W9 submitted to the Director, Office of Academic Affairs.

In cases where a student works with a supervising organization, some expenses for the C-ILE may be covered by the host organization.

### **Timeline for MPH Students**

#### **MPH LPHT (excluding dual degrees)**

MPH students must enroll in *PBH 614 LPHT Capstone-ILE 2* and present their C-ILE within three consecutive trimesters, including the trimester in which they registered for *PBH 613 LPHT Capstone-ILE 1*.

If the C-ILE is not completed (i.e. student has not registered for PBH 614, presented, turned in their final manuscript, and submitted all other assignments, as outlined in the course syllabus) by the end of the third trimester, the student is at risk of being withdrawn from the program. If a student is withdrawn from the program, they will be able to request reinstatement within two years from withdrawal, or can reapply beyond that, but will be subject to all admissions considerations and program curricular requirements in place at that time (see **Student Handbook, located under Handbooks & Forms on the [Student Resources](#) page**).

Generally, LPHT students register for *PBH 614 LPHT Capstone-ILE 2* and present their C-ILE in the trimester following the completion of the *PBH 613 LPHT Capstone-ILE 1*.

#### **MPH Dual Degrees**

Dual degree MPH students have three consecutive trimesters, including the trimester in which they registered for *PBH 613 LPHT Capstone-ILE 1*, to enroll in *PBH 614 LPHT Capstone-ILE 2* and present at the C-ILE Symposium. They then have two additional trimesters after *PBH 614 LPHT Capstone-ILE 2*



to submit their C-ILE manuscripts. Generally, dual degree MPH students register for PBH 613 in the fall trimester and then register for PBH 614 in the summer trimester. At the end of the summer trimester, the students present their C-ILEs. Dual degree MPH students submit their C-ILE manuscripts before the end of the spring trimester of the following year.

If the C-ILE is not completed (i.e. student has not registered for PBH 614, presented, turned in their final manuscript, and submitted all other assignments, as outlined in the course syllabus) by the end of the fifth trimester, the student is at risk of being withdrawn from the program. If a student is withdrawn from the program, they will be able to request reinstatement within two years of withdrawal, or can reapply beyond that, but will be subject to all admissions considerations and program curricular requirements in place at that time (see [Student Handbook](#)).

## **MPH LEAP**

MPH LEAP students register for *PBH 611 LEAP Capstone-ILE 1* in the spring trimester and *PBH 612 LEAP Capstone-ILE 2* in the summer trimester. LEAP students present their C-ILE during the LEAP C-ILE Symposium in June. LEAP students who do not successfully complete either PBH 611 or PBH 612 in a timely manner may not be eligible to graduate at the end of the academic year as expected.

## **Grading of MPH C-ILE**

Students in the MPH program receive a letter grade at the end of the *PBH 611 LEAP Capstone-ILE 1* and *PBH 613 LPHT Capstone-ILE 1*. Students who do not successfully complete assignments will receive an IP (In Progress) grade. They must fill out an *MPH Capstone-ILE In Progress Agreement* (see [Handbooks & Forms](#)) and work with their C-ILE instructor to successfully complete all the assignments before they can register for PBH 612 or PBH 614. The IP grade changes to a letter grade at the end of the trimester in which they successfully complete and submit the C-ILE proposal and any other course assignments. Students who do not successfully complete all course assignments may receive a course grade of C+ or lower and be required to re-take the course.

Students in the MPH program will receive a letter grade at the end of the *PBH 612 LEAP Capstone-ILE 2* and *PBH 614 LPHT Capstone-ILE 2* if they have successfully completed all course assignments and submitted approved C-ILE deliverables (presentation, poster, and C-ILE manuscript). Students who do not successfully complete assignments will receive an IP grade. They must fill out an *MPH Capstone-ILE In Progress Agreement* (see [Handbooks & Forms](#)) and work with their C-ILE instructor to successfully complete all the assignments. The IP grade changes to a letter grade, at the end of the trimester in which they successfully complete and submit the C-ILE manuscript, present their oral presentation (flash talk and poster), and submit any other course assignments. Students who do not successfully complete all course assignments may receive a course grade of C+ or lower and be required to re-take the course.

Dual degree MPH students completing their C-ILEs in a joint Capstone class will follow the procedures of their other program. PA/MPH students will receive a letter grade in *PBH 615 PA Capstone-ILE*. Students who do not successfully complete all course assignments may receive a course grade of C+ or lower and be required to re-take the course.