

Colorado Mesa University
Master of Science – Athletic Training
Capstone Experience Guidelines

The purpose of the Capstone Experience within the Master of Science in Athletic Training program is to help athletic training students to learn to read, understand, and apply scholarly articles. The requirements of the Capstone Experience are worked on over the entirety of the two-year program, resulting in a document that will be submitted to the library.

During the first semester of the program, students enroll in KINE 501 – Research Methods, wherein they examine methods of research in Kinesiology. Topics include the selection of the problem, hypothesis testing, historical research, descriptive research, experimental research, tools of research, and data interpretation. In conjunction with this course, students will participate as groups in an ongoing research project in the Monfort Family Human Performance Lab. As part of the project, each student will individually utilize library databases to become more familiar with the topic while applying the content learned in class. Utilizing both the annotated bibliography and rhetorical precis approaches, students will summarize no less than five (5) relevant articles and complete an Institutional Review Board (IRB) application associated with the research project. Additionally, each student will complete Collaborative Institutional Training Initiative (CITI) training to qualify them to conduct research using human subjects. The assignments associated with this course will become Chapter 1 of the capstone project.

During the second semester of the program, students enroll in ATRN 502 – Research Methods II. This course further builds on the methods of research in Kinesiology, focusing on epidemiology, public health, and evidence-based practice. Work on the first-semester research project will continue. Additionally, students will begin working on their final capstone project by completing a PICO assignment wherein they critically appraise a question related to their ongoing research topic. The development of this question will be guided by two athletic training faculty members and one CMU preceptor. These three individuals will constitute the student's capstone committee with a specific member of the team identified as the capstone committee chair. Students will choose whether to summarize the articles used via the annotated bibliography or rhetorical precis format. The result of this assignment is a presentation at the University's Student Showcase event. The assignments associated with this course will become Chapter 2 of the capstone project.

During the third semester in the program, students enroll in KINE 587 – Research. They will follow the Journal of Sport Rehabilitation author guidelines (see Appendix A) for a Critically Appraised Topic (CAT) and write up the answer to their question from ATRN 502 following these guidelines. A draft of the Summary of Best Evidence table will be due to your committee chair by September 15. A draft of the remainder of the paper will be due to your committee chair by October 31. A final draft of the article will be due to your entire committee on the last day of classes for the Fall semester. The completed manuscript will become Chapter 3 of the capstone project.

The final aspect of the capstone experience will be a presentation given during finals week of semester 4. This 45-minute presentation will provide an overview of the research project the student completed during year 1 of the program, including lessons learned and applied during year 2. Additionally, the PICO project will be discussed in detail, including how they applied the question asked at their immersion site, an overview of each article reviewed, and the conclusions observed.

Per the Capstone Guidelines, the completed project will contain the following elements in this order:

1. Title page (see page 3 of the Capstone Guidelines in Appendix B for formatting specifics; see page 7 for an example)
2. Committee approval page (see page 3 of the Capstone Guidelines in Appendix B for formatting specifics; see page 8 for an example)
3. Abstract
 - a. Overview of the research project and PICO assignment completed following the Capstone Guidelines (see pages 3 and 4 of the Capstone Guidelines in Appendix B for formatting specifics; see page 9 for an example)
4. Body
 - a. Introductory paragraphs (minimum of 2) outlining what will be presented in the chapters that follow
 - b. Chapter 1 – KINE 501 Assignments
 - i. 5 relevant articles summarized utilizing both the annotated bibliography and rhetorical precis approaches
 - ii. IRB proposal
 - c. Chapter 2 – ATRN 502 Assignments
 - i. PICO assignment
 1. Article summaries in the chosen format
 2. Abstract submitted for Student Showcase consideration
 - ii. Student showcase presentation
 - d. Chapter 3 – Critically Appraised Topic in a publishable format
 - e. Chapter 4 – Final presentation
 - f. Concluding paragraph(s) discussing lessons learned during the Capstone Experience and how these lessons will be applied to their career
5. Bibliography of all references consulted in AMA format (see page 4 of the Capstone Guidelines in Appendix B for formatting specifics; see page 10 for an example (note the example is in APA format))
 - a. Include the references for all assignments as well as those for the Critically Appraised Topic
 - b. List references alphabetically since chronologically will not work across the different assignment types
6. Non-plagiarism Affirmation (see page 6 of the Capstone Guidelines in Appendix B for formatting specifics)

General formatting guidelines for the completed document can be found on page 2 of the Capstone Guidelines in Appendix B. Print two copies of the completed document for signing. Once all signatures are present, an electronic copy of the project will be made and maintained by the program, one hard copy will be given to the Director of Graduate Studies, who will deliver it to the Library for archival, and the other hard copy will be given back to the student.

APPENDIX A – Journal of Sport Rehabilitation Author Guidelines for Critically Appraised Topics (CATs) (https://journals.humankinetics.com/view/journals/jsr/jsr-overview.xml?tab_body=author-guidelines; Accessed August 3, 2022)

These manuscripts are a shorter summary of available evidence focused on a specific clinical question in sport rehabilitation. A critically appraised topic (CAT) is similar to a systematic review in that it summarizes the best evidence in a body of literature; however, it is intended to answer a focused clinical question for topics on which a clinical recommendation is needed, with emerging or limited evidence. CATs provide an excellent mechanism for busy evidence-based practice clinicians to collect and disseminate information they find while searching for answers to important clinical questions. A CAT is typically written when the results of a search include 3-5 high quality studies. If the search results in more than 5 studies, to answer that clinical question, a systematic review is more appropriate. Conversely, a summary of a single paper is referred to as a Critically Appraised Paper (CAP) (Note: *JSR* is not accepting CAPs for review.) A CAT seeks to find the best available evidence that is more readily available to clinicians, and then critically appraise the papers selected for inclusion using accepted standards for evidence-based practice. Examples of published CATs can be accessed on *JSR*'s [website](#) within each issue.

Structured Abstract. Structured abstracts should provide the following key information in one page or less.

- **Clinical Scenario:** A brief description of the clinical scenario leading to the clinical question
- **Clinical Question:** A focused clinical question of importance in sport rehabilitation
- **Summary of Key Findings:** A bulleted list of the key clinical findings from the search
- **Clinical Bottom Line:** The most important take-home message from the available evidence; a statement regarding the level of available evidence and subsequent strength of recommendations is required
- **Strength of Recommendation:** A brief description of the strength of evidence summarized following the critical appraisal

Clinical Scenario. A brief description of background information that demonstrates need and clinical relevance for the focused clinical question. This section should be approximately 2-4 paragraphs.

Focused Clinical Question. The focused clinical question should be developed and presented using the PICO format [Patient/Client and Condition; Intervention (or Assessment); Comparison; Outcome(s)].

Search Strategy and Criteria. Clearly describe the process used to search for and include evidence to answer the focused clinical question.

- **Search Strategy:** Include the databases and sites searched, the search terms used, search limits, and timeframe of search. The search should ideally be conducted within 3 months of submission for publication and should seek to obtain the best available evidence.

- **Inclusion and Exclusion Criteria:** Describe the criteria for selection - the processes through which studies were selected for inclusion for further analysis.

Evidence of Quality Assessment. Describe the quality assessment scale used to appraise the quality of the evidence in the included studies

Summary of Search and Key Findings. In narrative form, describe the results of your search.

Results of Quality Assessment from Best Available Evidence. Describe the sources of evidence used, including the reasons the studies were selected (level of evidence, strengths and weaknesses related to issues of validity, and quality assessment scale results. Authors are encouraged to use the Center for Evidence-Based Medicine (2011) definitions for level of evidence (<https://www.cebm.ox.ac.uk/>).

Summary of Best Evidence (Table). This summary of included evidence is a comparative presentation that must be presented in a table. The table headings/rows must include citation, study design, participants, inclusion/exclusion criteria, intervention investigated, outcome measures, results, level of evidence, quality assessment score, and contribution to CAT question. The contribution to CAT question should be the CAT authors' rating of how the study answers the focused clinical question. A numerical score should be used to rate the contribution to answering the question based on results and quality, such that 1 is no contribution, 3 is an inconclusive contribution, and 5 is a conclusive contribution.

Clinical Bottom Line. This section includes the following:

- **Strength of Recommendation:** Provide the strength of recommendation based on the collective findings of the CAT by taking into account the individual studies' level of evidence and the number, consistency, and coherence of the evidence as a whole. *Authors must use the following text and insert the appropriate grade:* "Collectively, the body of evidence included to answer the clinical question aligns with the strength of recommendation of [insert: A, B, C]."
- **Answer to Clinical Question:** Describe the clinical bottom line that answers the proposed clinical question using the appraised evidence.

Implications for Practice, Education, and Future Research. Include a practical discussion based on the information provided from the appraisal of current literature. Anecdotal comments regarding whether or not this intervention is commonly used clinically, the cost of this intervention, and so on are appropriate.

Acknowledgments* (if applicable)

Conflict of interest* (if applicable)

References

Appendices (if applicable)

APPENDIX B – Colorado Mesa University Capstone Guidelines

Colorado Mesa University Capstone Guidelines



I. INTRODUCTION

This manual provides guidelines to aid in the written portion of the capstone project at Colorado Mesa University that will be submitted to the Director of Graduate Studies and CMU Tomlinson Library. It addresses technical aspects of writing documents such as the abstract, bibliography and title page. It also outlines required forms and signatures.

II. PROCESS

A. STYLE MANUAL REQUIREMENTS

Graduate students doing a capstone project should follow the style manual approved by their department. Manuals currently approved by graduate departments are available in Tomlinson Library. The document should conform to both the chosen style manual and the *CMU Capstone Guidelines*. If there are differences, students should follow the guidelines in this document.

Style manuals approved by the graduate departments are:

APA: American Psychological Association Style

AMA: American Medical Association Style

1. Business APA
2. Health Sciences APA
3. Teacher Education APA
4. Kinesiology AMA or APA

B. RESEARCH INVOLVING HUMAN OR ANIMAL SUBJECTS

If the research being conducted for a capstone project involves either human or animal subjects, federal law requires that the project be reviewed and approved – in advance – by the Institutional Review Board (IRB) for human subjects or the Institutional Animal Care and Use Committee (IACUC) for animal subjects. Detailed information about the form and applications, training programs, federal legislation, and IRB/IACUC materials can be found at the University's Sponsored Programs website:

<http://www.coloradomesa.edu/irsp/sponsored-programs/index.html>. Students will receive a letter granting approval or indicating that approval is not needed. A sample letter appears as Appendix A.

C. PLAGIARISM

All sources must be cited whenever use is made of the material of others, even if the use is limited and copyright permission is not necessary. Direct use of the work of others without citing the source is plagiarism. The University approved definition of plagiarism can be found in the *CMU Catalog*:

Plagiarism is the act of appropriating the written, artistic, or musical composition of another, or portions thereof; or the ideas, language, or symbols of same and passing them off as the product of one's own mind. Plagiarism includes not only the exact duplication of another's work but also the lifting of substantial or essential portion thereof.

Graduate students writing a capstone project are required to sign the Non-Plagiarism Affirmation when the work is submitted to the Director of Graduate Studies. A copy of this form appears as Appendix B.

III. FORMAT REQUIREMENTS

A. Types Styles and Fonts

1. Type style and font must be consistent throughout the capstone documentation
2. Script type may not be used
3. Any unusual type style should be approved in advance by the Director of Graduate Studies or the department
4. Recommended fonts:
 - a. Sans Serif: Arial 12
 - b. Serif: Times New Roman 12

B. Margins

1. All margins must be 1" (top, sides, and bottom)
2. The right margin is ragged (not justified)

C. Pagination

1. Page numbers should be centered at the bottom of the page approximately $\frac{3}{4}$ " from the edge of the page and within the margin
2. Only the Reference pages need page numbers
3. Pages are numbered with Arabic numerals

D. Spacing and Indention

1. Double-space
 - a. Body of abstract
 - b. Between entries in the references list
2. Single-space bibliography entries
3. Indent first line of paragraph $\frac{1}{2}$ "

IV. ORGANIZATION

A. Title Page

1. A sample page appears as Appendix C
2. Bold type is not used
3. No abbreviations or punctuation should be used
4. The title is in all capital letters, centered 2" from the top of the page
5. A title more than 4 ½" is divided into multiple lines, double-spaced and in inverted pyramid form
6. "Submitted by" block contains the word "by" on one line and the student's name on the second line. It is centered on the page approximately eight double-spaced lines from the first line of the title and is double-spaced
7. "Degree and graduating term" block is approximately seven double-spaced lines from the student name. It contains the following seven lines:
 - a. A capstone project
 - b. submitted in partial fulfillment
 - c. of the requirements for the degree of
 - d. [name of degree] in the Department of [name of department]
 - e. Colorado Mesa University
 - f. Grand Junction, Colorado
 - g. [graduating term and year]

B. Committee Approval Page

1. A Sample Committee Approval page appears as Appendix D.
2. A Committee Approval page is required.
3. Advisor and committee member names are indented approximately ½" from the left margin.
4. Titles before or after the names of advisor and committee members are not permitted (examples – Dr., Professor, Ph.D.).
5. Elements of the page:
 - a. Title of capstone project
 - i. Centered 2" from top of page
 - ii. All capital letters
 - iii. Single-spaced if more than one line required
 - b. Name of student as it appears on the title page
 - c. Required statement
 - d. Approval signatures, printed names and departments of advisor, committee members, department head and Director of Graduate Studies with dates approved

C. Abstract

1. Sample abstract page appears as Appendix E.
2. The abstract is a brief statement of the essence of the capstone project and should emphasize the results and conclusion of the research.
3. The acceptable length of the abstract is 150-300 words.

4. Bold print is not used.
5. The heading "ABSTRACT" is in all capital letters centered 2" from the top of the page.
6. Three blank lines single-spaced must be between the heading and the title.
7. The title must be in all capital letters and centered.
8. The title must match the title on the Title Page.
9. Three blank lines single-spaced must be between the title and the text.
10. The text of the abstract must be double-spaced with paragraph indentions.

D. References

1. A sample page appears as Appendix F.
2. The heading "REFERENCES" is in all capital letters centered 2" from the top of the page.
3. Three blank lines single-spaced must be between the heading and the first entry.
4. Entries are aligned flush with the left margin.
5. Entry spacing should follow that of the approved style manual for the discipline.
6. The style should follow that of the approved style manual for the discipline.

V. CAPSTONE PROJECT DOCUMENTATION

A. A record of the graduate capstone project will be submitted to the CMU Archives at Tomlinson Library.

B. Required elements to be submitted to the Library:

1. Title page
2. Committee Approval page
3. Abstract
4. Bibliography of references consulted
5. IRB/IACUC letter (if necessary)

C. Electronic Copy:

1. Capstone documentation must be converted to PDF format.
2. The PDF is submitted to the Director of Graduate Studies who will deliver it to the Library.

VI. APPENDICES TO THIS DOCUMENT

- A. IRB Sample Letter
- B. Non-Plagiarism Affirmation
- C. Sample Title Page
- D. Sample Committee Approval Page
- E. Sample Abstract Page
- F. References

Appendix A: Sample Letter From IRB:

TO: Person Doing Research

FROM: Chris Belcher
Grant Compliance Specialist

SUBJECT: IRB Approval – Expedited

DATE: February 29, 2017

SUBJECT: **Protocol 18-007: Measuring the thoughts of people**

The Colorado Mesa University Institutional Review Board (IRB) also known as the Human Subjects Committee has approved the above study. This project is deemed expedited in accordance with 45 CFR 46.110. No further IRB review is necessary unless modifications to the protocol related to human research subjects are proposed.

IRB Number: 18-007 This number is the protocol number that should be used in all correspondence with the IRB regarding this study.

Expedited Start Date: April 1, 2017

Expedited End Date: April 1, 2018

Consent Form: If you are using a consent form, all research subjects must use the approved and stamped consent form. You are responsible for maintaining signed consent forms for each research subject for a period of at least three years after study completion.

Mandatory Reporting to the IRB: The principal investigator must report, within five business days, any serious problem, adverse effect, or outcome that occurs with frequency or degree of severity greater than that anticipated. In addition, the principal investigator must report any event or series of events that prompt the temporary or permanent suspension of a research project involving human subjects or any deviations from the approved protocol.

Amendments/Modification: All amendments/modifications of protocols involving human subjects must have prior IRB approval, except those involving the prevention of immediate harm to a subject. Amendments/modifications for the prevention of immediate harm to a subject must be reported within 24 hours to the IRB.

If you have any questions, please feel free to contact me at 248-1485.

Appendix B: Non-Plagiarism Affirmation

NON-PLAGIARISM AFFIRMATION

EACH GRADUATE STUDENT MUST SIGN THE STATEMENT BELOW AFFIRMING THAT HE OR SHE HAS NOT BEEN GUILTY OF PLAGIARISM IN PREPARING HIS OR HER CAPSTONE PROJECT.

Plagiarism is the act of appropriating the written, artistic, or musical composition of another, or portions thereof; or the ideas, language, or symbols of same and passing them off as the product of one's own mind. Plagiarism includes not only the exact duplication of another's work but also the lifting of substantial or essential portion thereof.

I understand that if plagiarism is subsequently discovered in the preparation of this document, Colorado Mesa University, may, after a hearing, take appropriate action against me including possible revocation of my graduate degree. Academic Dishonesty sanctions are outlined in *The Maverick Guide* page 16. <http://coloradomesa.edu/student-services/documents/MaverickGuide.pdf>

I, _____, a candidate for the degree of _____, affirm that I have NOT engaged in plagiarism.

PRINT NAME: _____

SIGNATURE: _____

DATE: _____

Appendix C: Sample Title Page

[TITLE OF CAPSTONE PROJECT]

[ALL CAPS]

By

Joseph R. Maverick

A capstone project

submitted in partial fulfillment

of the requirements for the degree of

[name of degree] in the Department of [name of department]

Colorado Mesa University

Grand Junction, Colorado

[Term, Year]

Appendix D: Sample Committee Approval Page

[TITLE OF CAPSTONE PROJECT]
[ALL CAPS]

[student's name as it appears on the title page]

The final copy of this capstone project has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the Department of [name of department]. It has, therefore, been approved as meeting the requirements for the Degree of [name of degree].

APPROVED:

Capstone Advisor:

_____ Date: _____
[Advisor's name, Department]

Committee Chair:

_____ Date: _____
[Committee member name, Department]

ACCEPTED BY THE DEPARTMENT OF _____

_____ Date: _____
[Name, title]

ACCEPTED BY THE DIRECTOR OF GRADUATE STUDIES

_____ Date: _____
[Name, title]

Appendix E: Sample Abstract Page

ABSTRACT

TITLE IN CAPITAL LETTERS, CENTERED AND DOUBLE-SPACED

IF MORE THAN ONE LINE

The title of the abstract must match the title on the title page exactly. Letters must be capitalized and, if more than 4½” in inverted pyramid form.

The abstract is a summary of the research and includes the purpose of the project, pertinent findings, and significance of the paper. As a brief overview, an abstract gives the reader concise information that conveys the importance of the research.

The word “ABSTRACT” is centered 2” from the top of the page above the title. The body of the abstract is double-spaced. There are three single spaces between the heading and the title, and between the title and the body of the abstract.

Appendix F: Sample Reference Page

REFERENCES

Bauslaugh, G. (2016). *The right to die: The courageous Canadians who gave us the right to a dignified death*. Toronto: James Lorimer & Company Ltd.

Dietze, T.R., Rose, F.F., & Moore, T.A. (2016). Maternal variables associated with physiologic stress and perinatal complications in preterm infants. *Journal of Neonatal – Perinatal Medicine*, 9(3), 271-277.

<http://doi:10.3233/NPM-16915134>

Double-spaced to follow APA (2018). Follow spacing guidelines of your selected style manual.