

Non-Thesis Project Guidelines and Requirements

Final Product Options

Non-thesis products (called “Creative Components”) can take one of three forms:

1. Curriculum Development Project,
2. Action Research Project or,
3. Presidential Awards for Excellence in Mathematics and Science Teaching ([PAEMST](#)) OR Portfolio Project based upon National Board of Professional Teaching Standards ([NBPTS](#)) certification

Specific choice of option should be made in consultation with your major advisor. Detailed descriptions of each option are listed further below, however all non-thesis projects require and outside reader, proposal, paper, and public presentation of the project.

Major Advisor and Outside Reader

The major advisor acts as the supervisor of the non-thesis project. Once a non-thesis option is decided on, the student and advisor select an Outside Reader who will serve as an additional reader of the drafts of the final paper. This person must be a Regular Graduate Faculty member at UNI and it is recommended that s/he be a Science Education faculty member.

The major advisor and Outside Reader assist students in the design and writing of the non-thesis project and ultimately have the final say on when it is acceptable for graduation. Please note that the expected turn-around time for feedback on drafts from your advisor and readers should be no less than two (2) weeks. Be sure to plan and communicate a proposed timeline with your advisor to ensure timely completion of a quality project and paper.

Non-thesis Proposal

It is strongly recommended that SCI ED 6500 *Research Methods in Science Education* precede initiation of the non-thesis project. Before beginning, a formal written proposal of the project must be presented to the Advisor and Outside Reader. The proposal usually consists of the **Introduction, Literature Review** and proposed **Project** (Chapters 1-3, described below) of the final non-thesis paper. The Non-thesis Proposal paper is shared and then orally presented to the Advisor and Outside Reader and **MUST BE ACCEPTED BEFORE** the project begins.

Human Participants

Student projects involving human participants must be conducted in compliance with the University policy for protection of human subjects. Students planning such projects must submit an application and gain approval for use of human participants in their project **before** beginning any research activities and data collection that involves human participants. Further information about regulations and completing a Human Subjects Review Form are available on the [IRB Website](#).

Non-thesis Paper Components

Length and specific components of the science education non-thesis written paper vary depending on the nature of the project. The following are suggestions intended to guide the student:

Chapter 1 Introduction and Framework: This section must include a statement of the project, a brief explanation of the creative component product and an explanation of the significance of the creative component to classroom and/or professional community.

Chapter 2 Relevance and Literature Review: The literature review should thoroughly describe the significant findings of the primary science education literature relevant to the chosen topic. Be sure to explain the potential impact (relevance) of the literature findings on the classroom setting and/or the professional community. Additionally, connections/mapping to the Iowa Science Standards, or District standards should be made here if appropriate to the project.

Chapter 3 Project: This section contains a more complete explanation of the project and time line. For example:

- a Curriculum Development Project would include a description of unit plans, assessment plans, or the integrated technology;
- an Action Research Project would require a description of the research question(s) and data collection and analysis methods;
- a PAEMST or NBPTS Project would include a summary of and artifacts for the required portfolio components.

Actual curriculum or assessment instruments can be provided in this section or can be appended to the document. If electronic media are used, they can be included in an appropriate form (e.g. CD/DVD, flash drive, etc..)

Chapter 4 Reflection on the Project: The final section summarizes experimental or assessment results and describes what was learned through the project. Be sure to describe and discuss:

- the impact of project on the classroom setting and/or the professional community
- how the project could be repeated, extended or continued and how the project should be revised based on what was learned
- how completion of this project led to your professional growth

- future directions for your professional growth

References: Be sure to include all works cited. If resources for curriculum development, etc. were used include a general bibliography of those resources.

Required Paper Style

Science Education uses American Psychological Association (APA), *Publication Manual*, 6th edition as a reference and formatting style. This includes all headings (except the running head) and page numbers. Please consult the Sample Front Matter document for more details on formatting and the contents of the first several pages of your non-thesis paper document.

Non-Thesis Presentation and Final Submission

Upon satisfactory completion of the non-thesis project and paper, a public presentation of the project is required. The presentation should be ~45 min in length summarize all elements of the non-thesis project. This presentation may be made in person on campus OR on-line video conferencing and should include an electronic slide presentation and time for questions. Presentations must be completed no later than 2 weeks before the end of the graduating semester or summer session.

The presentation can NOT occur before the thesis document is in its final (or second to last) edited form. The writing and editing process often takes several drafts (and several months) during which, students will work mainly with the thesis committee chair but other committee members are available as additional resources.

Once the final paper has been approved and presented, the student will receive further instructions from the Graduate Coordinator regarding submission of electronic copies and posting to the Institutional Repository. The final non-thesis paper must be submitted no later than one week prior to the date of graduation for the semester or summer session.

If a hardbound copy of the non-thesis paper is desired by the student or advisor, copies must be printed on 24 pound white bond paper, 8½ x 11 inch, acid free, 25% or 100% cotton paper and mailed or delivered to the Science Education Office in McCollum Science Hall 153. NOTE: [CopyWorks](#) in Cedar Falls will take orders online and deliver copies to campus if desired. These copies will be professionally bound and returned to student by Science Education free of charge.

SCI ED 6299 Research

The Non-thesis option requires three (3) hours of SCI ED 6299 research credit. These three (3) hours may be taken in any combination at any time during the program, but should not be started until some direction for the project has been determined by the student and the major advisor. Project completion requirements to earn SCI ED 6299 credit are listed under the [Research \(SCI ED 6299\) link](#).

Curriculum Development project

The curriculum development project allows graduate students the flexibility to design curriculum that has significance in a formal or informal classroom setting or provides a significant service to the professional community of science educators. Possible ideas for the curricular development project include, but are not limited to:

- Original curriculum development (not simply a compilation of other work)
- Assessment package for the classroom
- Development and/or integration of technology within an existing curriculum

Action Research Project

The action research project option allows graduate students the opportunity to conduct a short research study that has significance to his/her classroom setting or professional community. Action research is often designed with a focus on one's classroom/students to investigate an issue or problem. Possible ideas for the action research project include, but are not limited to:

- Impact of different pedagogies upon student achievement/attitudes
- Impact of the integration of technology upon student achievement/attitudes
- Impact of different curriculum designs upon student achievement/attitudes
- Impact of different content on student's understanding of the nature of science

PAEMST Application and NBPTS Portfolio Projects

The National Board for Professional Teaching Standards (NBPTS) Portfolio may be used to satisfy this non-thesis project requirement. However, due to changes in [NBPTS](#) portfolio requirements, students are encouraged to consult with their advisor before pursuing this option to satisfy the non-thesis requirements. Student do not need to apply or receive NBPTS certification to satisfy the requirements for the MA non-thesis project.

The Presidential Award for Excellence in Science (PAEMST) Application allows graduate students the opportunity to fulfill the portfolio requirements to apply for the PAEMST Award, with the purpose of the graduate student applying for the award in elementary or secondary science. The requirements for the PAEMST award can be download from the [PAEMST](#) website.

Students need not win the PAEMST Award to satisfy the requirement for the MA project but must include a literature review on the impact of the practices of PAEMST winning teachers on student achievement and motivation (in Chapter 2) and portions of each of the three award application components (Administrative, Narrative, and Video) in Chapter 3.

Outline for Chapter 3 of PAEMST Project

All parts of the PAEMST application below must be included in the project description (Chapter 3), with the component headings serving as sub-heading dividers within the chapter. This includes:

- A brief introduction to the components at the beginning of the chapter.
- A description of the video including a link to the video on YouTube on a “private setting”. Alternately, a DVD can be included as part of an appendix

I. ADMINISTRATIVE COMPONENT – The administrative component includes a teacher information form, employment verification form, letters of recommendation, résumé, and a voluntary demographic information form.

- Teacher Information Form Complete form online.
- Employment Verification Form Download and print form, obtain appropriate signature, then scan and upload signed and dated form into online application.
- Letters of Recommendation Scan and upload three signed and dated letters of recommendation into online application.
- Résumé Upload file into online application. (2 page limit)
- Demographic Information (Optional) Form Complete form online.

II. NARRATIVE COMPONENT – The narrative component consists of a written response and supplemental materials. The applicant must select a mathematics or science concept that will be used in the written response to the Five Dimensions of Outstanding Teaching.

- Written Response Download template. Upload completed file into online application. (12 page limit)
- Supplemental Materials Upload files into online application. (10 page limit)

III. VIDEO COMPONENT – The video component consists of a videotaped classroom lesson that corresponds to the important concept chosen and discussed in the written response to the Dimensions of Outstanding Teaching.

- Video Upload file into online application. (Applicants are highly encouraged to upload their video well in advance of the application deadline.)