

COURSE PROJECT OPTION THESIS/PROJECT PROPOSAL

- **Proposed Title Page** (according to the Graduate Studies Thesis Manual)
- **Abstract** – 150 words
- **Chapter 1: Introduction:** The introduction should be a pragmatic argument for your study about an issue in science education. To establish the importance of the problem you've selected, you may want to use personal anecdotal information (about your class, your school, and your district). Quantitative observations strengthen your argument. Speculation is not acceptable unless it is supported with specific evidence or a published reference. To show broader importance, you might also cite results from documents such as the Third International Mathematics and Science Study (TIMSS), standardized exams, National Association of Educational Progress (NAEP) reports, and even the National Research Council (NRC) reports. Chapter One should end with a clear statement of the problem and a preview of how your research will address this problem.
- **Chapter 2: Review of the Literature:** A brief introduction should preview the type of literature that will be reviewed, with the main literature that impacts this study identified. The review of the literature must include primary research articles. Subsets of the literature can be organized under sub-headings. The reviews should be critical and should identify any weaknesses or gaps that can be addressed in the current thesis. Each subset should conclude with a summary statement relating that section to your problem and the presence or absence of research related to your study and indicating a need. At the end of the review of the literature, a concluding paragraph should summarize the main findings and lead directly to your research questions and/or hypotheses.
- **Chapter 3: Research Methodology:** Find published primary research articles with the components of your planned research methodology to use as a model. The methodology you choose should be justified based on precedent, therefore reference citations are appropriate in Chapter Three. Chapter Three should introduce the research questions and/or hypotheses with great clarity. A good research question will limit the scope of the problem. This chapter should include information on the following:
 - Variables: Each variable to be investigated needs an explicit operational definition.
 - Hypotheses: Each hypothesis should explicitly identify independent, dependent, and controlled variables.
 - Research Design: the research design should introduce the treatments, data to be collected, time table, and plans for statistical analysis of the results.
 - Sample: the sample should be described in great detail so that others will understand the degree to which results can be generalized to other populations. Be sure to include the total sample size and the number of subjects in each treatment. Any characteristic that could become a confounding variable should be identified. Examples of co-variables include age, gender, socioeconomic status, language status, and academic achievement scores. You should identify all factors that could impact the results of your study.
 - Treatment: the treatment should be laid out in enough detail that someone else could replicate the study. The time variable should be explicit. Reputable sources for each treatment should be identified, with publications cited.

- Evaluation Instruments: describe what is measured by each instrument, with reference to the literature to support the validity and reliability for each measure. Sample evaluation instruments should appear in the Appendix.
- Data Collection: who will collect the data, what type of data will be collected at various points in the study, and how will the data be recorded. What procedures will guarantee that the data is confidential, secure, and valid.
- Data Analysis: describe how the data will be organized into tables, graphs, analyzed, what statistical package may be used, and what comparisons will be made.
- Limitations of the Research: disclose major limitations that might compromise your findings. Address issues of validity and reliability.
- Expected results: Data tables with n and p values should be organized according to each hypothesis studied. Expected results include the preliminary data from the Action Research and all pilot studies.
- Anticipated outcomes: Reflect back to they hypotheses and/or research question. Write a statement such as, "Should the results show that X is related to Y, then the implication is Z. If, on the other hand, X is not related to Y, then the implication is Q."
- Include permissions and a timeline for implementation and evaluation in table form.
- **References** - Be sure to use the proper formation to cite the literature in the body of the paper and in the reference list. Please refer to the *Publication Manual of the American Psychological Association* (latest edition).
- **Appended Materials** - Sample curriculum/instructional modifications to be implemented, examples of evaluation instruments.

The final thesis will incorporate these three chapters plus chapters Four and Five. Chapter Four includes all results, with tables, graphs, and statistical measures. The discussion in Chapter Four can place the results in context, but should not include interpretation of the results. Chapter Five begins with unambiguous statements telling the answer to each research question and whether results support or refute each hypothesis. Results should be related to other published literature so that it becomes clear how your results support or refute what's published. This should be followed by general conclusions, implications for instructional practice, and questions for further research. References: Use the American Psychological Association style manual, because all formatting must be presented in APA style. Use the Graduate Studies Thesis Manual for the Graduate Office for guidance on margins, pagination, and layout.



Master of Arts in Teaching Science Science Education

Name _____

Master of Arts in Teaching Science

COURSE PROJECT OPTION SCORING GUIDE

THESIS/PROJECT PROPOSAL

Content (80%)	Points (80)	
Statement of Problem (Chapter 1)	8	
Theoretical Framework (Chapter 1)	8	
Review of the Literature (Chapter 2)	8	
Hypotheses / Questions (Chapter 3)	8	
Definition of Variables (Chapter 3)	8	
Sample / Limitations (Chapter 3)	8	
Treatment (Chapter 3)	8	
Data Collection Methodology (Chapter 3)	8	
Data Analysis Methodology (Chapter 3)	8	
Expected Results (Chapter 3)	8	
Presentation (20%)	Points (20)	
Logical and Coherent Organization	4	
Correspondence of Theory, Hypotheses / Questions, Approach and Outcomes	4	
Quality of References	4	
Grammar and Syntax	4	
Spelling	4	
Total	100	
Areas of Strengths		
Areas of Needed Improvement		