

Thesis/Project Guidelines
Department of Mathematics and Statistics
Texas A&M University –Corpus Christi

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Table of Contents

1. Purpose of this document	2
2. Sequence of courses and general timeline	2
3. Committee	4
4. Proposal.....	5
Sample Proposal Page	6
5. The Manuscript, contents and formats.....	7
General Formatting Instructions.....	7
Sample Title Page.....	10
6. Manuscript Review, approval and final procedures.....	11
Manuscript Review.....	11
Approval.....	11
Final Deposition of the Manuscript	12
Publishing results from a thesis or project.....	13
7. Thesis/Project, criteria for rejection.....	14
8. Timelines	15

1. Purpose of this document

This document was created by the Mathematics and Statistics Department faculty to set guidelines and parameters for graduate students in writing their theses and graduate projects. While these guidelines are substantial, they assist students preparing their theses by eliminating arbitrary choices. Since they reflect scholarly standards, failure to comply with them can delay a student’s completion of the thesis or project.

2. Sequence of courses and general timeline

A student graduating with a master’s degree should be experienced in focused and independent research. For this reason, both tracks leading to the MS in Mathematics include courses that provide instruction in research and generate a product of research. In the Applied and Computational Mathematics track, that product is a “thesis,” while in the Curriculum Content track, the product may be a “thesis” or a “project.” This document will make references to either as a thesis/project but you should keep in mind which you are doing.

This section outlines the specific sequence of research and thesis or project courses to follow in each track of the program. In all cases, proposals for a thesis or project are to

be completed during the research course. Students may not enroll in the thesis or project course without having an approved proposal.

Both the research and thesis/project classes require students to be continuously enrolled until they complete their proposal or final manuscript, respectively. This means that a student not completing all requirements for a course will get a grade of IP (In Progress) and must take the same course the next long (Fall or Spring as the case may be) semester. Summer enrollment is not required but is allowed. A regular letter grade is assigned the semester when all requirements are completed. Students who do not maintain continuous enrollment in the thesis or project course must have a new proposal signed before reenrolling in that course.

Applied and Computational Mathematics Track

All students in this track learn research methods and develop a thesis proposal in MATH 5394 and complete the thesis in MATH 5995. A project is not allowed under this track. Any references to a project should be taken as being for the thesis.

MATH 5394 Research Methods in Mathematics

A one hour per semester course taken three times in three semesters. Students taking the course the first semester attend a research seminar; in the second semester the students will make research based presentations at the seminar. In the third semester, students will develop, present and get approval of a thesis proposal. See later sections for details on thesis proposals.

MATH 5995 Thesis

A course for doing research as needed and writing a thesis. Again, an approved thesis proposal is needed to enroll for this course, and is generally taken immediately after the third enrollment in MATH 5394. The course is complete on student submission and faculty approval of the thesis. (See later sections for details on completion of the thesis.)

Curriculum Content Track

Students in this track must complete either a project (in MATH 5997) or a thesis (in MATH 5995) after having completed MATH 5393. Students in this track should consult the faculty in the track about the difference between a project and a thesis.

MATH 5393 Literature Review and Research Methodology

A single course for learning research methods and developing a proposal for a project or thesis. Successful completion of this course includes development of an approved proposal for the project or thesis.

MATH 5997 Directed Research

A course for doing research as needed and writing a project. Again, an approved project proposal is needed to enroll for this course. The course is complete when the student submits and gets approval of a project. See later sections for details on completion of the project.

MATH 5995 Thesis

A course for doing research as needed and writing a thesis. Again, an approved thesis proposal is needed to enroll for this course. The course is complete when the student submits and gets approval of a thesis. See later sections for details on completion of the thesis.

3. Committee

The purpose of the committee is to provide guidance and technical advice throughout the project or thesis research and preparation. The committee chair is the principal source of such guidance. Any preliminary drafts of the manuscript are reviewed by the student and the committee chair. Normally, only the final draft of the manuscript, after the approval of the committee chair, is presented to the full committee.

This committee is selected by the student, to be composed of three faculty members with at least two, including the chair, from the Department of Mathematics and Statistics at TAMUCC. All members of the committee should have expertise relevant to the project or thesis, but final authority on the content of the thesis or project will lie with the chair.

The chair should be selected prior to the student's enrollment in MATH 5393 or third semester of MATH 5394 and the full committee selected before completion of the course. All members of the committee must sign the proposal prior to the student's enrollment in MATH 5995 or MATH 5997 as appropriate. Any change to the thesis committee membership, after the proposal has been signed, requires written approval by the remaining committee members and by the department chairperson. Corrected thesis proposal cover sheets should be suitably filed.

The final approval of the thesis by the committee members takes place at a student presentation of the thesis or project in an oral defense. The defense is described in Section 6, later in the document. The committee chairperson is responsible for notifying the department office of the need to organize a defense. All committee members are expected to attend the defense. For extraordinary circumstances, it is acceptable for a committee member to give approval to the thesis or project based on the document without attending the defense. If a committee member is unable to review the written document, he or she should be replaced as per the previous paragraph.

4. Proposal

The primary intent of the proposal is to assure that all involved parties understand and agree to the planned thesis or project work. Such an agreement should minimize misunderstanding as to what is required for completion of the thesis or project.

The proposal should follow a specified style format (e. g., APA or other specific journal format) and must contain at least the following:

- A. Cover page--Figure 1 on the next page shows a sample sheet.
- B. Abstract--A clear and concise (at most one page) overview of the planned thesis or project activity.
- C. Introduction--Introduction of the area and/or issue to be explored, purpose statement and research or guiding questions
- D. Related work and justification--A statement describing selected previous work by others in the area of the thesis or project topic. In addition, a short discussion as to why the proposed work should be considered as a significant component leading to the student's receipt of a Master's Degree in Mathematics.
- E. Planned actions--A statement of the steps required to finish the work. A timeline should be included.
- F. End results intended--A general, but clear, statement of what will be produced (and how it will be used if a project).
- G. Bibliography--include all sources consulted in generating the proposal.

Once approved, five copies of the proposal are to be made: one for the student, one for each of the three committee members and one for the department office file. The signed, original copy will be placed in the Office of the Dean.

If a committee chair and candidate agree that the direction of research is on an appropriate course different from the one proposed the student is encouraged to submit a revised proposal to be approved and filed in the same manner as the original. The original proposal is then discarded.

As described in the section on the Sequence of Courses, not maintaining continuous enrollment in the thesis or project course is cause for canceling the original proposal. A new proposal, with approval and filing in the same manner as the first, is needed to continue the research.

Notes:

- (1) The proposal is to be submitted on high quality, white, 8 1/2" x 11" paper.
- (2) The text of the proposal must be of letter quality type of size 12 points.

(Left and top margins 1.5 inches)

Project/Thesis Title

(3 blank lines)

A PROPOSAL for a THESIS/PROJECT in MATHEMATICS

(2 blank lines)

by

(2 blank lines)

STUDENT NAME

(2 inches)

APPROVED: _____ Date: _____

Dr. ***** , Chair

Dr. ***** , Member

Dr. ***** , Member

Dr. ***** , Chair, Department of Mathematics & Statistics (NOTE:
for thesis only)

Dr. ***** , Dean, College of Science & Technology (NOTE: for thesis
only)

(1 inch)

Style: _____

5. The Manuscript, Contents and Format

There are two types of manuscripts in the Mathematics Graduate Program at TAMUCC, thesis and project. The two do not differ in style or format requirements, but the project manuscript may predominantly serve as documentation for a curriculum content project. This section outlines guidelines for preparing the thesis or project manuscript. The thesis will be a complete document to be bound and filed in the University Library. The project manuscript is kept on file in the Department Chair's Office. Each manuscript must include certain accessory pages. Presented below is a list of all pages and sections to be included in a thesis or project. They are stated in order of appearance in the manuscript. A thesis or project manuscript may be divided into three main parts.

I. Preliminary pages

- Title/Approval Page
- Abstract
- Table of Contents
- List of Tables (if more than one is presented)
- List of Figures (if more than one is presented)

II. Text (The components below may be combined or renamed appropriately for a project)

- Introduction
- Literature Review
- Methodology (if required by the committee chair)
- Results
- Discussion
- Summary
- Conclusion
- References

III. Appendix or Appendices (as appropriate)

IV. Copy of IRB approval letter (as appropriate)

General Formatting Instructions:

All narrative material of the thesis/project paper should be clear to the reader through careful, well-organized writing, meaningful figures and tables and adequate utilization of references.

Format. The general format and style of the proposal and thesis/project paper should follow either the most recent issue of a peer-reviewed scholarly journal in the field of the student's research or an established style, e.g. APA. The student's graduate committee

must approve the format before the manuscript is written. The style should be noted on the lower left of the proposal page and the Thesis/Project title page.

An article from the format journal or the appropriate style manual should be used to determine the placement of table titles, figure titles, and equation numbers and for reference citation style. Whenever there are differences in format and layout between the specifications of this document and the chosen format, this document overrules the journal. Consistency of style and format should be the rule throughout the thesis.

Type Style and Word Processors. Manuscripts must be prepared using a word processing program appropriate for the style chosen. Some journals may require a specific type of source files, e.g., LaTeX or MS Word. Others may require 'camera ready' copy. The manuscript must:

- Use paper which meets the size and quality defined herein;
- Be printed with a laser quality printer;
- Meet all other style and format conventions established in this document or chosen format; and
- Be printed using a 10–point minimum and 12 point maximum size with a standard book face font: Arial, Helvetica or Times Roman. If necessary, fonts may be mixed on tables, figures and in the appendices.

Paper Size and Quality. Graduate manuscripts for binding must be printed or duplicated on high quality, white 8.5 x 11–inch bond paper having at least 25% (cotton) rag content and being acid free. All text must be clear and uniform throughout the thesis.

Spacing. The proposal and thesis/project paper text must be double-spaced. The exceptions to this rule are quotations exceeding 6 typed lines (those should be inset one inch from the existing margin and single-spaced.) Paragraphs should be indented one half inch from the right margin.

Margins. All typing must be within a margin of 1.5 inches from the left edge of the paper and one inch from the other three edges. The extra space on the left side allows for binding the completed thesis. All figures and tables must also conform to these margins.

Pagination. All pages in a graduate manuscript, except the Title/Approval page, are numbered. The preliminary pages of a thesis/project paper are numbered with lower case Roman numerals centered in the footer. The first numbered page is the Abstract page that is numbered “ii.”

The text and all supplementary pages of all graduate manuscripts are numbered with Arabic numerals. All page numbers except those on the first page of a chapter or section must be placed in the header at the right margin of the paper. On the first page of each chapter or section, the page number must be centered in the footer.

Emphatic Type. Emboldening, italics or underlining should be limited to definitions, statements of theorems, bibliographic references and foreign language terms. It should be in the same font and size.

Correctness. The final manuscript must be accurate, grammatically correct, consistent in style and acceptable in form and neat in appearance.

Headings and Subheadings. The style and format for all headings and subheadings in a graduate manuscript should follow the standard practice of the format. However, there should be a four-line break between the last sentence in a major section of text and the next major heading if not a page break. Never place a stand-alone heading on the last line of a page.

Title page format. An example of a correctly spaced title page for a thesis/project manuscript is included on p. 12 below.

Figures and Tables. Tables and figures may appear on separate pages or be embedded within the text. They should be placed in the manuscript as close as possible after their first reference in the text.

Each table or figure must have a number and title, which must be transcribed on the List of Tables and Figures pages. The title should be as concise as possible, but should clearly describe the content of the table or figure. Follow the format for figures and tables of the chosen format style.

Figures consist of graphs, maps, drawings and other illustrations. All graphic material prepared for a graduate manuscript must be neat, clean, consistent and appropriate in size and professional in appearance.

Photographs or other images must be scanned and printed as part of the manuscript. The resolution and size of the images must be appropriate and professional.

Captions for figures must follow the style of the chosen format. Reductions of tables, charts or figures must remain large enough to be easily read; no lettering less than 8 points in size is acceptable. Color reproductions of figures and images are acceptable but not encouraged. Caution should be used with color to ensure that black and white reproductions made at a later date will be comprehensible.

Footnotes. Avoid the use of footnotes for other than bibliographical citations. If they are essential, follow the chosen format style exactly.

References. Follow the format used by the format journal when developing the References section. Consult with your committee chair on cases that may not be clearly defined. Materials "in press," government documents and gray literature may pose some problems. Web citations should be used sparingly for references not able to be

documented otherwise. Web citations should be carefully documented following the chosen format.

Duplication of the manuscript. There are three acceptable methods of reproducing copies of proposals, theses or projects: (1) offset printing, (2) photocopying, and (3) use of an acceptable computer printer. Use only one method to duplicate pages. Emphasize quality reproduction. Duplicated figures must be consistent in quality with the rest of the manuscript.

(Left margin 1.5 inches, top margin 1 inch)

Thesis/Project Title (3 blank lines)

By

STUDENT NAME

Month Year

(2 blank lines)

A Thesis/Project Submitted
in Partial Fulfillment of
the Requirements for Degree of

(2 blank lines)

MASTER OF SCIENCE

(2 blank lines)

The Graduate Mathematics Program
Curriculum Content Option
Department of Mathematics and Statistics
Texas A&M University-Corpus Christi

(3 blank lines)

APPROVED: _____ Date: _____

Dr. ***** , Chair

Dr. ***** , Member

Dr. ***** , Member

Dr. ***** , Chair, Department of Mathematics and Statistics (NOTE:
for thesis only)

Dr. ***** , Dean College of Science and Technology (NOTE: for
thesis only)

Style: _____

6. Manuscript Review, Approval and Final Procedures

Manuscript Review

When a student is satisfied with a draft copy of the thesis or project manuscript, it is submitted to the committee chair. It is advisable to allow other graduate students and individuals to proofread the draft before submitting it to the committee chair. The student should include documentation of the chosen format style.

The committee chair will critically examine the manuscript for mathematical or curricular content, soundness of reasoning, accuracy, grammar and organization. The committee chair will return the corrected manuscript with suggested changes and request a revised copy. Once revised, it is always advisable to return the corrected copy with the revised copy for the next review. The process of submission of the manuscript and revision will continue until the committee chair is satisfied with all aspects.

Don't be surprised or despondent if the submitted manuscript undergoes several drafts. Even full professors are used to numerous editorial changes when submitting manuscripts for publication. It is important to submit the manuscript to the committee chair in the best possible form, because it is part of the learning process, avoids frustration on the part of your committee chair, and will expedite your getting the manuscript accepted in a timely manner. Write concisely, and be sure to spell check and grammar check your paper, but do not depend on the computer to make all the proper corrections.

Upon the direction of the committee chair, the student will submit a copy of the approved draft to each graduate committee member, along with documentation of the chosen style format. Each committee member will edit the manuscript. Do not expect next day service on return of the manuscript, so be sure to allow time to revise and resubmit the manuscript to the committee members. If significant changes are required, the student should discuss them with the committee chair. If there are differences in opinions from committee members, the chair of the committee will determine the final outcome of any concerns.

Approval

Once the manuscript is approved by all members of the graduate committee, the final copy of the thesis or project is submitted to the Chair of the Department of Mathematics and Statistics. This copy must be submitted at least two weeks prior to the scheduled oral examination. A letter or memorandum from the committee chair must accompany the manuscript certifying that the manuscript is in final form and is approved by the committee. The letter must also announce the date of the defense of the thesis or project.

Defense of the Thesis or Project. The defense is a formal presentation of the student's research to an audience of at least the graduate committee, but may also include

mathematics faculty, students and the public. The oral/graphic presentation should be approximately 30 minutes long and allow additional time for questions from the audience. The committee must meet in a closed-door session before announcing any result of the defense. It may call in the student for questioning during that session. The student must prepare and submit a formal announcement of the defense to the committee chair for approval at least two weeks prior to the defense date. It is the student's responsibility to contact each committee member. All graduate committee members must attend the defense.

The departmental staff will reproduce sufficient copies of the notice. The student will be responsible for providing adequate information to the departmental staff so that they may notify each Mathematics and Statistics faculty member, the Department of Mathematics and Statistics Chair and the Dean of the College of Science and Technology. The staff should also arrange a time for the event and reserve the meeting room and appropriate media equipment based on the information from the student. The student must place notices on bulletin boards in appropriate places in the Center for Instruction and the University Library. This notice must be distributed at least one week before the date of the defense. The defense must also be posted on appropriate listservs. The notice should not exceed one page in length. Graduate students are encouraged to attend as many oral defenses as possible.

Final Deposition of the Manuscript

The graduate committee and the Department of Mathematics and Statistics Chair will sign only after the student successfully completes the defense. The student must submit a minimum of five copies of the approved thesis or project manuscript for approval.

Thesis Manuscript. The student must submit the required number of signed copies (see below) of the thesis manuscript to the Dean's Office at least one week prior to the last day of classes of a given semester for signature. A receipt showing that payment for the binding fee (pay at the University Business Office [Bursar], Student Services Center 122) for each thesis must accompany the thesis manuscripts submitted to the Dean's Office. After binding, the student is responsible for picking-up and distributing the copies of the thesis manuscript to the following (the Library will retain two archive copies):

- One copy to the Mathematics and Statistics Graduate Program Coordinator;
- One copy for the committee chair; and
- One copy for the student.
- Optionally, additional copies can be made for other committee members, parents, and other friends/family members.

Project Manuscript. The student must submit the five copies of the final manuscript already signed by the committee to the Department Chair before the last day of final exams in a given semester. After the chair signs the copies, the student is responsible for picking-up and binding the manuscripts. Suggested bindings are comb, coil or strip.

The student will then distribute the bound manuscripts to the following:

- One copy to the Mathematics and Statistics Graduate Program Coordinator;
- One copy to each member of the committee;
- One copy for the student; and
- One copy (unbound) to be placed in the student's file in the department office.
- Additional copies may be made for parents and other friends/family members.

Publishing Results from a Thesis or Project

The thesis is not, by definition, a "published" work. However, it is anticipated that every student will submit the contents of his or her thesis, revised in an appropriate form, to a scholarly journal for publication.

Under normal circumstances, the student and committee chair will co-author any publication or presentation that results from the thesis research. If other faculty members, professionals or students made significant contribution to the research leading to the manuscript, the students should also list those individuals as co-authors. Both the student and committee chair should agree concerning authorship. To a certain degree, the committee chair and committee have a professional responsibility to assist the student in this process.

The student and committee chairs should make official acknowledgement of any researcher or faculty member if they are not a co-author but

- The student was supported by a grant that was awarded as a result of the researcher/faculty member's authorship.
- The student received some guidance for the researcher/faculty member.

Dissemination rather than publication may be more appropriate for the content of a project. As with the thesis, the primary credits and benefits should be shared by the student and committee chair. Where appropriate, other researchers and faculty should proportionately share in the acknowledgements, benefits and credits from the dissemination.

7. Thesis/Project, Criteria for Rejection

Any member of the thesis/project committee or official representative of the Department of Mathematics and Statistics may reject a thesis or project for any of the following reasons:

- Plagiarism--an attempt by the student to submit another person's work as their own, e.g., including published work without reference.
- Final manuscript describes work that is inconsistent with the approved thesis proposal.

- Final manuscript contains serious content errors. Such errors might include faulty proofs of main theorems or lemmas, unsupported statistical conclusions, fraudulent data, or incorrect computer programs written in support of the thesis.
- Final manuscript contains an excessive number of grammatical and/or spelling errors.
- Final manuscript does not conform to the required format.

8. Timelines

I. Overall timeline

A. Applied and Computational Mathematics track

- First semester in Program: MATH 5394 (1 credit hour)
- Second semester: MATH 5394 (1 credit hour)
- Third semester: MATH 5394 (1 credit hour)
- After third semester of MATH 5394: MATH 5995

B. Curriculum Content track

- After 18 SCH completed in program: MATH 5393
- After MATH 5993: MATH 5997 for Project or MATH 5995 for Thesis

II. Final Timeline for Thesis or Project Course

- Through 3 weeks before defense: Prepare manuscript with committee chair
- Three weeks before defense: submit final draft manuscript to committee
- Two weeks before defense, or at least two weeks before the end of the semester: Submit manuscript to department chair
- One week before defense: Announce title, abstract, date, time and location of defense.
- One week before last day of classes: submit final copies of thesis manuscript signed by committee and department chair to the Dean's Office for signatures
- Before the last day of class: Defense (leave time to incorporate changes into the final manuscript)
- Last day of class: Deliver copies of thesis manuscript with receipts for binding to Dean's Office.
- Before last day of final exams: Deliver copies of project manuscript to committee and department office.