



# **Graduate Education Thesis & Dissertation Writing Workshop**

Spring 2023

Maribeth Price, Dean of Graduate Education

## **Part I: Guidance on writing your thesis or dissertation**

# The Office of Graduate Education

- C 2201

- Maribeth Price
  - Dean of Graduate Education
- Rachel Howard
  - Admissions, applications, assistantships
- Leslie Hill
  - Student progress, POS processing, degree audits, thesis/dissertation processing



# How you earn a research degree

- READ journals to find a question that hasn't been answered or a problem that hasn't been solved
- DEFINE a question and methods to answer it
- DO the research
- WRITE up the answer
- DEFEND it publically
- PUBLISH it



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# Who is responsible?



- This is YOUR project
  - Your ideas
  - Your work
  - Your writing
  - Your job to finish
- However, many others will help if you ask:
  - Your Advisor/Major Professor
  - Your Program's Graduate Coordinator
  - Your Committee
  - Your Department
  - The Office of Graduate Education
- Outstanding training for workplace projects



SOUTH  
DAKOTA  
MINES



# The process

Where to start, how to proceed

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CURIOUS SMART TENACIOUS

# Where do I start?



- Define a topic area and establish committee
- Review the literature
- Develop a research question/hypothesis
- Develop and refine methods
- Collect and analyze data
- Write up the results
- Get approval of document from advisor
- Get approval from committee
- Defend
- Revisions and final edits

Process is not as  
linear as it appears!

# Define a topic area



- 
- What do you want to be an expert in?
  - What skills/knowledge do you want to gain?
  - What professional areas interest you?
  - What do you think will help you find a job?
  - What can your advisor give you funding for?

**Ideally, the topic excites and interests you. You will be spending a lot of time on it—it helps if it enjoyable.**



# Establish a Graduate Committee

- Guides your coursework and research
- Master's committee (3 or more)
  - Major professor (has at least a master's degree)\*
  - Graduate Division Representative\*
  - At least one additional member
- Dissertation committee (5 or more)
  - Major professor (must have a PhD)\*
  - Graduate Division Representative\*
  - At least three additional members



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**\* Must be full-time Mines faculty**

Graduate Division Rep must be from another department/program

All members must have a minimum of a BS degree

Off-campus members OK...

... but committees must have at least three and/or a majority of full-times Mines faculty



# Committee roles

- Major professor

- Guide student's coursework
- Assist student in choosing a committee
- Assist student in developing research problem
- Guide student's research and progress
- Mentor student's development as a research professional

- Graduate Division Representative

- Uphold Graduate Education and University scholarly standards
- Assure that procedures are correctly and fairly applied
- Participate in examinations and provide outcome reports
- Assist in the resolution of committee disputes or student concerns.

- Members

- Assist student to complete research
- Assist major professor in guiding student as needed
- Evaluate thesis for technical and written quality



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# Review the literature



- Learn to use search engines to find journal articles, and the library to get them
- Get a bibliography program such as EndNote
- Read, read, read, every week
- Critically review each paper
  - What was established? What questions were answered?
  - What new questions arose? What is the next step? Could you do that next step?
- Develop a way to organize what you learn
- Start writing—the lit review is Chapter 1.

# Your research question



- Use your reading and advisor's guidance to develop a research question or hypothesis
  - A good research question can be clearly answered yes or no
  - A good hypothesis is a statement that can be proved or disproved
- Both
  - Define a problem in concrete, definitive terms
  - Define the scope of the problem
  - May be a portion of a larger problem
  - Help you clearly see what to do next

# Refine your question

- Is your research question focused? Is it answerable?
- Compare these proposed research problems:



Physiological impacts on intellectual capacity

The effects of caffeine on student performance

College students obtain higher test scores when they consume caffeine before exams.

# Plan methods in detail

- What form of caffeine?
- How long before exams?
- What is your control?
- Does student height, weight, or gender matter?
- How is performance measured?



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# Develop and refine methods

- What data are needed?
  - Preliminary versus primary
- How will it be gathered?
  - Consult literature for standard practices
  - Determine if new practices will be tested?
- How will it be analyzed?
  - What statistical or analytical techniques are needed? The design must support the analysis.
- What problems might arise? How can the risks be mitigated?
- What results are anticipated?



# WRITE your methods



- This is Chapter 2!
- Write the chapter while defining methods
  - The writing process itself helps clarify thoughts
  - You will better anticipate problems
  - Less likely to fail to collect important data
- Include data analysis methods
  - Visualize statistics or figures needed to prove or disprove the hypothesis
- Consult your statistician beforehand



# The Proposal

Widely used in industry and academia

Required for MS students

Part of the PhD Comprehensive Exam



- A proposal describes the aim, scope, and method, and deliverables for the work
  - Reviews the literature
  - Establishes the research question/hypothesis
  - Defines the methods
  - Shows preliminary data, if any
  - Poses alternatives in case of “unexpected” challenges and outcomes
  - Establishes objectives and deliverables for the project (in essence, the contract between you and your committee).

# Collect and analyze data



- Meet regularly with major professor to discuss results and plan revisions, if needed
- Be precise and methodical
- Keep excellent notes—on everything
  - Pictures, drawings, figures, files
  - Experimental details, dates, equipment
  - Data, “good or “bad”, ALL of it
  - Lab books are more reliable than computer files
  - BACK UP all data and notes weekly
- If ethical, legal, or ownership issues arise, these records could be needed to defend your work.

# Write the thesis

- Revise literature review and methods if needed
- Add results, discussion, conclusions
- Write an abstract
- Check the formatting
- Polish the writing



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## Get approvals

- Major professor must approve it before you send to the committee
- Committee must approve it as defensible before you can defend



Committee approvals:

**I have reviewed this thesis/dissertation and verified that it appears to be an acceptable manuscript in terms of technical quality and proper expression and usage in American Standard English.** *(You are encouraged to provide written comments to the student immediately following your review, so that the student may work on revisions prior to the defense.)*

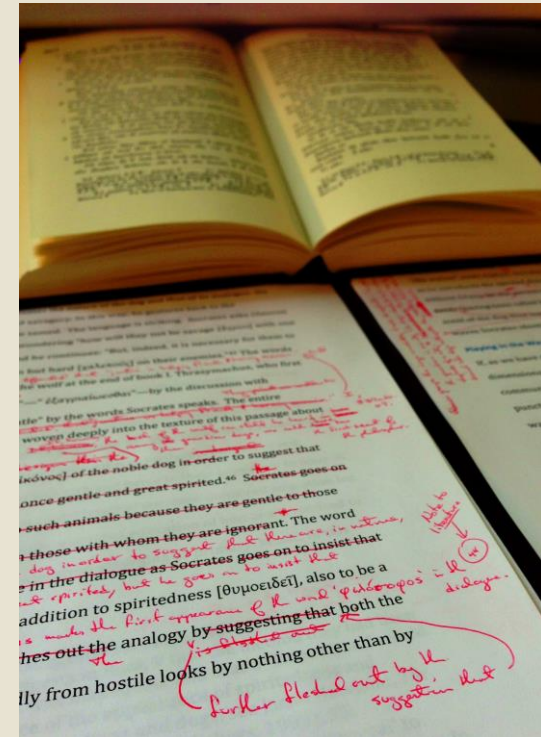
# Defend



- The defense is your “final exam”
- Typically a 30-60 minute presentation, open to the public,
- Followed by an oral examination by your committee in private
- **Revisions** usually suggested
- Details on this process are in the next section of this workshop

# How to minimize revisions

- Ask for feedback on early chapters
- Consult with the committee as you work
  - Discuss initial results and get suggestions
  - Explore interpretation and conclusions
- Learn to write well and/or edit well
- Expect at least one round of revisions from your major professor before your committee sees the document



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# The document

Creating and editing

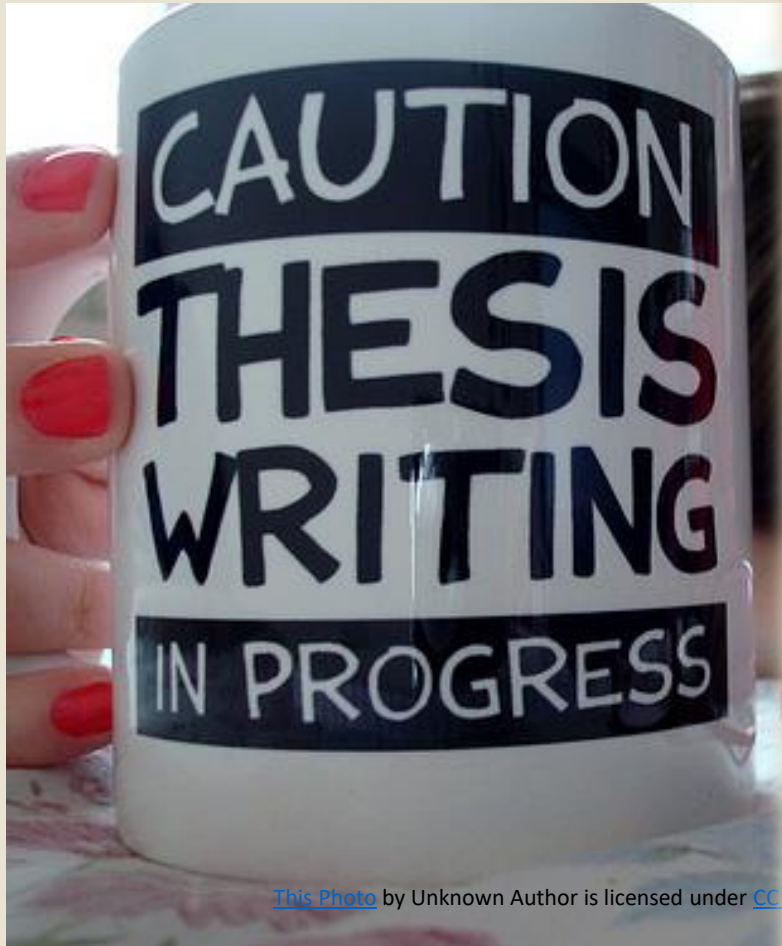


# When do you start writing?



- **In your first semester**
- Your proposal is a **first draft** of the thesis or dissertation!
  - Literature review to define the problem
  - Methods to plan how to tackle it
- Add to the draft as you read more papers, get results, create figures, interpret data.
- Put it all in; you can edit later
- For the final draft, you will be selecting, refining and interpreting what is already there

# Dealing with writer's block



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- Treat it as an ongoing, evolving document
- Everyone's first draft is imperfect!
- Don't worry about writing well at first
  - Get your thoughts down
  - Revise and edit later
- Write or edit something every week
- Update new lit review results or method changes as you go
- Make regular backups in at least two places

# Revising with your major professor



- Check whether he/she prefers individual chapters as you go, or a single document at the end.
- Check preferred format (paper, Word, PDF)
- Perfect your writing, so advisor can focus on your research, not your grammar
- Implement revisions before asking for more feedback!!!

# Stay determined



- There will be MANY iterations between you and your major professor, often more than you anticipated.
  - Lots of bold, red edits will come your way
  - Cultivate a positive attitude in response to constructive criticism.
  - Not all faculty as practiced in commending the positive as they are in finding things to fix...
- Allow sufficient time to complete final version
  - The “defense draft” should be given to major professor for approval 8-10 weeks before the end of the semester you intend to graduate.

# Thesis/Dissertation styles

Use one or the other. No hybrid styles are allowed!

## Traditional style

- Title Page,
- Abstract,
- Acknowledgements,
- Table of Contents,
- List of Tables,
- List of Figures,
- **Introduction**
- **Theory and/or Literature Search**
- **Methods**
- **Results**
- **Conclusions**
- Bibliography,
- Appendices,
- Vita.

## Journal style

- Title Page,
- Abstract,
- Acknowledgements,
- Table of Contents,
- List of Tables,
- List of Figures,
- **Introduction** *to the full body of work represented by the articles*
- **One or more journal articles,**
- **Conclusions** *including a summary of conclusions from the articles and implications from the work as a whole*
- Bibliography *of all references,*
- Appendices *(include documentation for permission to reproduce published/copyrighted articles),*
- Vita.

Chapter titles and organization are flexible to accommodate differences in disciplines, but these components should be present and recognizable.

# Thesis/Dissertation Writing Manual

- Read this document early on
- Saves time if you format the proposal and early drafts correctly
- LaTeX template available
- Learn to use Word styles
- Use a bibliography program for citations



Table of Contents	
1	Introduction .....
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3	Guidelines on Use of Multi-author and Copyrighted Content .....
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3.2	Works anticipated for publication .....
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4	Copyrighting Theses or Dissertations .....
4.1	Ownership .....
4.2	Copyrighting .....

# Restricted thesis or dissertation



Restricted-access theses or dissertations are restricted by either:

- (A) Federal Law as (i) *Export Controls*: EAR (Department of Commerce), ITAR (State Department), FAC (Department of Treasury) or (ii) *Antiquities Acts*
- (B) Intellectual Property concerns, namely proprietary Information (either by contract with a private company, or SDSM&T proprietary information).



# Things to know about restricted work



- It shouldn't delay graduation
  - Does delay publication
  - May impact your job search.
- Defense attended only by the committee
- Library copies embargoed for defined period
- Restricted work must be declared as such when you schedule the defense.
- Discuss whether your work will be restricted with your major professor before you start.

# Looking ahead



- More info during the next session
- You must stay continuously registered or on leave until you finish
- You must complete the degree within 5 years (MS) or 8 years (PhD)
- The defense process will take longer than you think.
  - Final written draft should be completed by mid-term of your final semester

# Suggested Writing Resources



- Purdue University [Online Writing Lab \(OWL\)](#)
- Purdue University [Using Articles](#)
- Grammarist.com [What are Articles?](#)
- The Punctuation Guide [Punctuation Guide](#)
- University of Rhode Island [Becoming a Better Writer](#)
- University of Arizona [Preparing for Graduate Writing](#)

# Most common writing errors at Mines



- Improper use of commas
- No noun after “this” or “these”
- Wordy or confusing style
- Colloquial phrasing
- Missing definite or indefinite articles “The” or “A/An”

# Questions?

## ACADEMICS

Home > Academics > Graduate Education

- Academics
- Academic Calendar
- Academic Catalog Online
- Academic Departments
- Academic Streaming Video
- All Degrees
- Cocurricular Programs
- Department Advisory Boards
- Devereaux Library
- Events and Outreach
- Exams and Testing
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## Graduate Education

- Academic Programs
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- Online Programs
- Policies
- Tuition and Costs

## Graduate Education



Workshop slides are here



Writing manual and forms are here

## Contact Us

### Graduate Education Office

South Dakota Mines  
Attention: Graduate Education, Mail stop C2201  
501 East St. Joseph St.  
Rapid City, SD 57701-3995

☎ (605) 355-3468

✉ [Graduate Education](#)

## How to Apply

Contact the program coordinator of the program you are interested in, and then apply online.

GRADUATE ADMISSIONS

**Apply**

GRADUATE ADMISSIONS

**Request Info**