COLORADOSCHOOLOFMINES

THESIS WRITER'S WORKSHOP

Suzanne Beach

Office of Graduate Studies

Ye Li

Arthur Lakes Library

What we will cover

- Deadlines/ Registration
- Electronic Thesis & Dissertation (ETD)
- ETD Resources
- ProQuest Account
- Formatting

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DEADLINES

Thesis Defense

- Students must be registered the semester of defense and check-out
  - If you defend and check-out in different semesters, then you need to register for both semesters.
- Students should defend at least one week prior to thesis upload
  - Most students have content revisions to make before approval
  - Content must be approved before you upload
- OGS does not make deadline exceptions
  - If you cannot meet the deadline, you will need to delay graduation and you may need to register again
    - Thesis based students who have not met the graduation deadlines will not be allowed to walk in the graduation ceremony

Thesis Defense

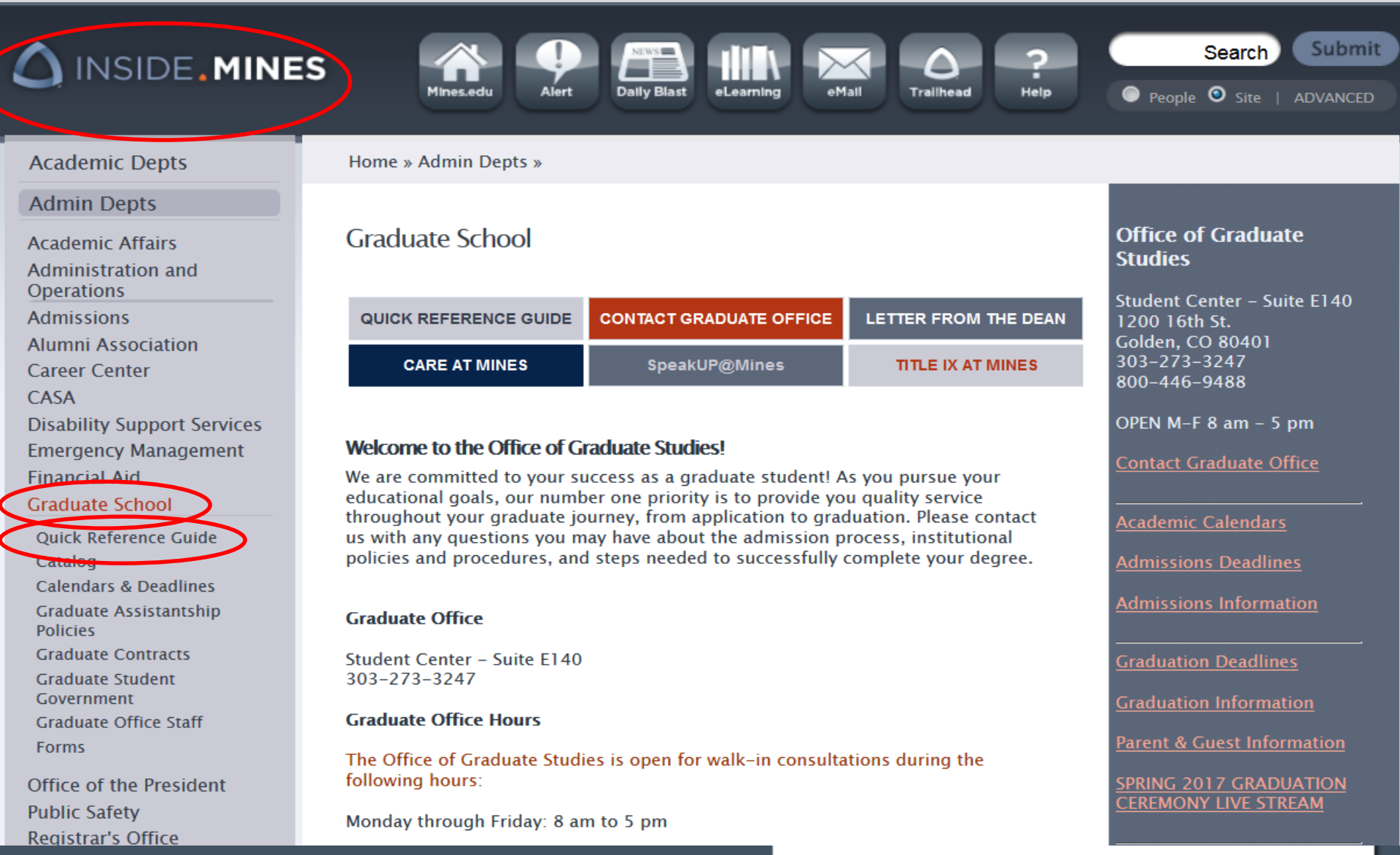
- Defense Options if your entire committee cannot attend the defense
  - Skype
  - Teleconference
  - Proxy
    - The committee member who cannot attend selects another member, preferably your advisor to act as a proxy
    - The committee member reviews your thesis beforehand and submits questions for the proxy to ask at your defense
    - The proxy will ask the questions and vote on behalf of the missing committee member.

Thesis Deadlines

http://inside.mines.edu/GS-Graduation-Information-and-Deadlines

- Thesis Upload Deadlines
  - December 2017 graduation
    - Standard Check-out (must register for fall)
      - PhDs: November 13, 2017
      - MS: November 20, 2017
  - Spring 2018 graduation
    - Early Check-out (must have registered for fall, but do not need to register for spring)
      - January 17, 2018
    - Standard Check-out (must register for spring)
      - PhDs: April 9, 2018
      - MS: April 16, 2018
- All upload deadlines require students to submit signed submittal page to OGS by 5:00pm and upload into ProQuest by midnight.

Thesis Deadlines



Deadlines

Committee and Thesis/Dissertation Information

COMMITTEE INFORMATION	STEP-BY-STEP THESIS GUIDE	THESIS WRITERS GUIDE
THESIS FORMATTING HELP	THESIS UPLOAD	

Graduation Information

DEADLINES	APPLY TO GRADUATE	WALKING IN GRADUATION
DEGREE EVALUATION	CHECKOUT REQUIREMENTS	REGALIA
COMMENCEMENT PRACTICE	COMMENCEMENT HANDBOOK	CEREMONY
LETTER OF COMPLETION	AWARDING DEGREES	TRANSCRIPT / DIPLOMA

Forms

FORMS

Thesis Deadlines

Graduate Student Graduation Checklists & Deadlines

Graduation Calendars 2016–17 through 2018–19

Master's non-thesis graduation deadlines

Master's thesis graduation deadlines

PhD graduation deadlines

See deadlines several years out

May 2017 Graduation

Graduate Student Ceremony

Thursday, May 11 at 7:00 PM, Student Recreation Center – Lockridge Arena

See specific deadlines for each check-out timeframe

Early Checkout

Master's thesis and PhDs must submit committee form prior to November 1, 2016
All graduate students must submit Degree Audit form by November 1, 2016
PhDs must submit Admission to Candidacy form by January 10, 2017

- Student must have been registered for fall 2016 credits
- Student does not need to register for spring 2017 credits
- Apply to graduate in Trailhead by January 18, 2017
- Upload thesis in ProQuest and submit signed submittal page to OGS by January 18, 2017
- Checkout by January 25, 2017

Degree will be awarded May 15, 2017 – May 26, 2017
Student may walk in May graduation ceremony

Standard Checkout checklist & deadlines

PHD - GRADUATION DEADLINES

Must be registered for at least 1 credit during the semester of the defense, upload and checkout.

	Academic Year	2017-2018	2018-2019
AUGUST	**August Early Checkout :**	Spring registration required Summer registration not required	
	Degree Audit form	March 1, 2017	March 1, 2018
	Admission to Candidacy form	March 1, 2017	March 1, 2018
	Apply to Graduate in Trailhead	April 15, 2017	April 15, 2018
	Thesis Upload & Submittal Page	May 15, 2017	May 14, 2018
	*Checkout form***	*May 19, 2017*	*May 18, 2018*
	August Standard Checkout :	Summer registration required Fall registration not required	
	Degree Audit form	March 1, 2017	March 1, 2018
	Admission to Candidacy form	May 8, 2017	May 8, 2018
	Apply to Graduate in Trailhead	April 15, 2017	April 15, 2018
	Thesis Upload & Submittal Page	July 24, 2017	July 25, 2018
	*Checkout form***	*August 1, 2017*	*August 1, 2018*
DECEMBER	**December Early Checkout :**	Summer registration required Fall registration not required	
	Degree Audit form	May 1, 2017	May 1, 2018
	Admission to Candidacy form	August 21, 2017	August 20, 2018
	Apply to Graduate in Trailhead	August 29, 2017	August 28, 2018
	Thesis Upload & Submittal Page	August 29, 2017	August 28, 2018
	*Checkout form***	*September 5, 2017*	*September 4, 2018*
	December Standard Checkout :	Fall registration required	
	Degree Audit form	May 1, 2017	May 1, 2018
	Admission to Candidacy form	August 21, 2017	August 20, 2018
	Apply to Graduate in Trailhead	September 5, 2017	September 4, 2018
	Thesis Upload & Submittal Page	November 13, 2017	November 12, 2018
	*Checkout form***	*November 17, 2017*	*November 16, 2018*

December 2017 Standard Checkout Dates-Master's Thesis

May 1st

Degree Audit Form

- Must be submitted the semester prior to the semester you intend to graduate.
- Master's thesis forms submitted without an Advisor/Thesis Committee Request form on file will not be accepted.

After Degree Audit Processed

Check your Degree Evaluation

- Check after you receive an email from OGS.
- If you see any No comments, you may need to submit an addendum.

Addendum

- If you make any changes to your Degree Audit form, an addendum must be submitted.
- Submit by census day of semester of graduation.

Sep 5th

Apply to Graduate

- Complete the Graduation Application in Trailhead.

Obtain Checkout Form

- Your check-out form will be emailed to your CSM email address.

Nov 20st

Submittal Page

- Submit signed submittal page to the Office of Graduate Studies by 5:00 pm.

Thesis Upload

- Submit your thesis through ProQuest by midnight.
- Thesis content must be approved by committee prior to uploading.
- Thesis formatting must be reviewed & approved before checkout.

Dec 8th

Thesis Formatting Approval

- Thesis formatting must be accepted by OGS by 1:00pm

Checkout Form

- Completed Check out form must be submitted to OGS by 5:00pm.
- Submit form between September 6 - December 8

Dec - Jan

Degree Awarded

- Degrees will be awarded December 18, 2017 - January 5, 2018
- Degree Evaluations must have all "yes" marks
- Students transferring credit from another university must have official Transcripts on file with OGS by December 22nd, 2017

December 2017 Standard Checkout Dates-PHD's

May 1st

Degree Audit Form

- Must be submitted the semester prior to the semester you intend to graduate.
- Forms submitted without an Advisor/Thesis Committee Request form on file will not be accepted.

After Degree Audit Processed

Check your Degree Evaluation

- Check after you receive an email from OGS.
- If you see any No comments, you may need to submit an addendum.

Addendum

- If you make any changes to your Degree Audit form, an addendum must be submitted.
- Submit by census day of semester of graduation

Aug 21st

Admission to Candidacy Form

- Submit this form after you have completed the PhD qualifying process

Sept 5th

Apply To Graduate

- Complete the Graduation Application in Trailhead

Obtain Checkout Form

- Your check-out form will be emailed to your CSM email address.

Nov 13th

Submittal Page

- Submit signed submittal page to the Office of Graduate Studies by 5:00pm

Thesis Upload

- Submit your thesis through ProQuest by midnight.
- Thesis content must be approved by committee prior to uploading.

Nov 17th

Thesis Formatting Approved

- Thesis formatting must be accepted by OGS by 1:00pm.

Survey of Earned Doctorate

- Complete prior to submitting checkout form

Checkout Form

- Completed checkout form must be submitted to OGS by 5:00pm

Dec - Jan

Degrees Awarded

- Degrees will be awarded December 18, 2017 - January 5, 2018
- Degree Evaluations must have all "yes" marks
- Students transferring credit from another university must have official Transcripts on file with OGS by December 22, 2017

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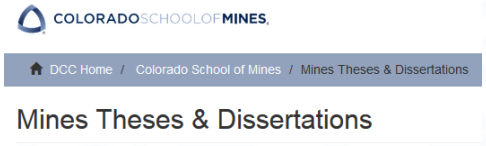
ELECTRONIC THESIS & DISSERTATION (ETD)

What is an ETD?

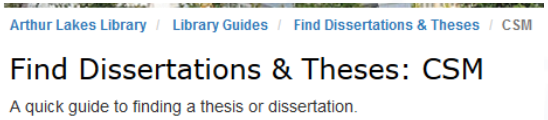
- **E**lectronic **T**hesis / **D**issertation
  - Electronic submission
  - Electronic format review
  - Electronic acceptance
  - Electronic publication
- The Office of Graduate Studies (OGS) does not require hard copies of your thesis.

ETD Advantages

- Increased access to research
- Additional visibility for students and universities
- ETDs available through
  - Mines Theses and Dissertations
    - Mines Institutional Repository – Mines Theses & Dissertations dspace.library.colostate.edu/handle/11124/20028 (Open Access)
    - Search for Mines theses via new Library Catalog Theses view
    - ProQuest Dissertations and Theses @ Colorado School of Mines (Subscription based)
  - Theses and Dissertations from other institutions
    - ProQuest Dissertations and Theses Global: The Sciences and Engineering Collection (Subscription based)
  - Find more: libguides.mines.edu/theses
- Lower cost
- Greener option



ProQuest



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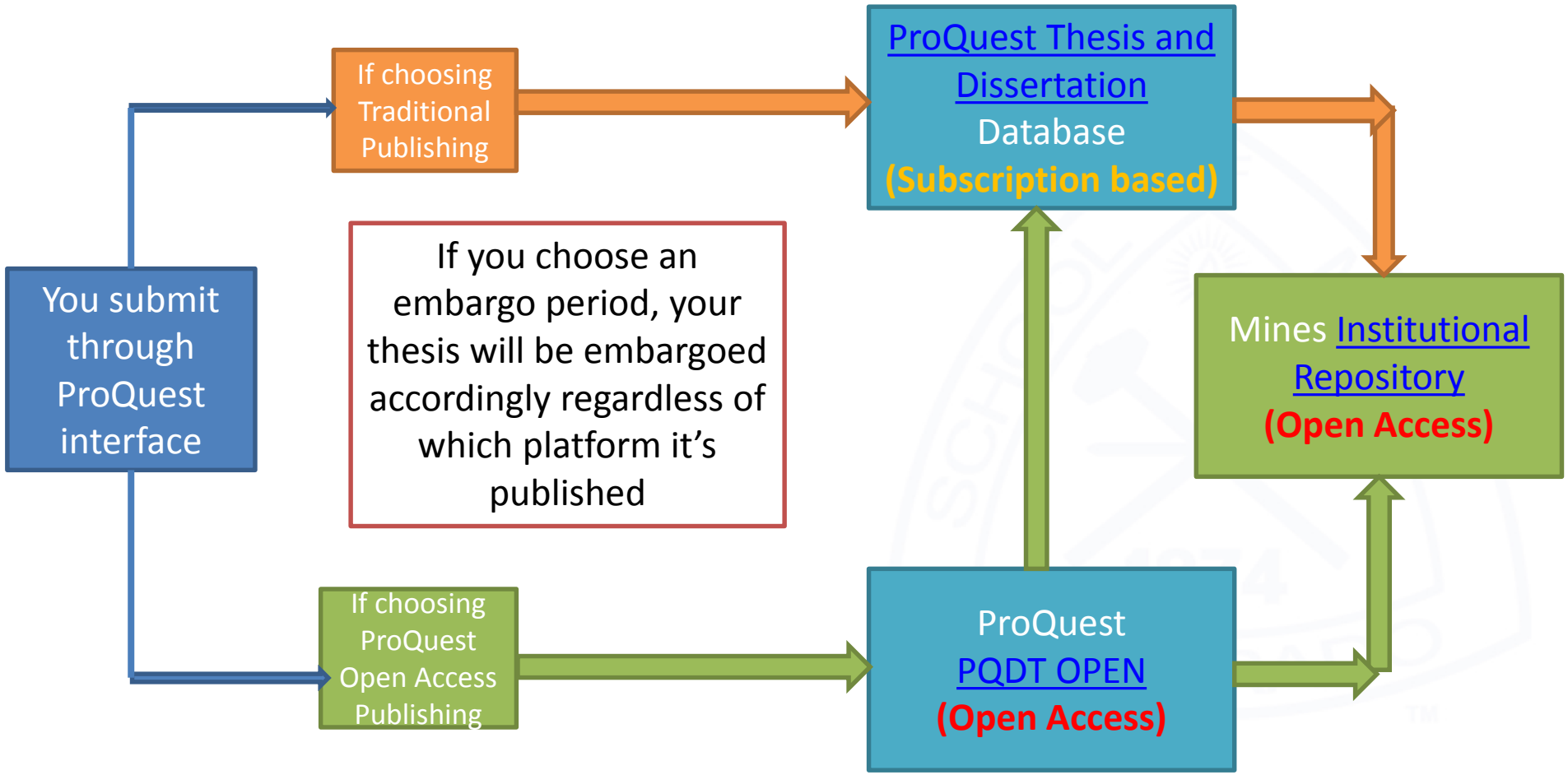
Cost

You Choose

- Traditional Publishing free → Including Open Access via Mines Institutional Repository
- Open Access Publishing $95.00 → Making it Open Access on ProQuest platform
- Copyright $55.00 → You **own the copyright** of you thesis **regardless** of whether you pay this fee. By paying this fee, ProQuest registers your copyright with the U.S. Copyright Office. See ProQuest FAQ for details.

See the ProQuest *Traditional Publishing Agreement* and the *Open Access Publishing Agreement*.
Links can be found on Mines Thesis & Dissertation website.

What happens after your submission…



Thesis Hard Copy Distribution

1. Department copy
2. Student copy

- No cost to you
- Ensure that your department has your most current mailing address, because they will mail your thesis to you.
- If you do not receive a copy of your thesis, please contact your department.
- If you order extra copies, you must pay and contact ProQuest for delivery information.

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ETD RESOURCES

Academic Depts
Admin Depts
Academic Affairs
Administration and Operations
Admissions
Alumni Association
Career Center
CASA
Disability Support Services
Emergency Management
Financial Aid
Graduate School
Quick Reference Guide
Catalog
Calendars & Deadlines
Graduate Assistantship Policies
Graduate Contracts
Graduate Student Government
Graduate Office Staff
Forms
Office of the President
Public Safety
Registrar's Office

Graduate School

QUICK REFERENCE GUIDE | CONTACT GRADUATE OFFICE | LETTER FROM THE DEAN

CARE AT MINES | SpeakUP@Mines | TITLE IX AT MINES

Welcome to the Office of Graduate Studies!

We are committed to your success as a graduate student! As you pursue your educational goals, our number one priority is to provide you quality service throughout your graduate journey, from application to graduation. Please contact us with any questions you may have about the admission process, institutional policies and procedures, and steps needed to successfully complete your degree.

Graduate Office

Student Center – Suite E140
303-273-3247

Graduate Office Hours

The Office of Graduate Studies is open for walk-in consultations during the following hours:

Monday through Friday: 8 am to 5 pm

Office of Graduate Studies

Student Center – Suite E140
1200 16th St.
Golden, CO 80401
303-273-3247
800-446-9488

OPEN M-F 8 am – 5 pm

Contact Graduate Office

Academic Calendars

Admissions Deadlines

Admissions Information

Graduation Deadlines

Graduation Information

Parent & Guest Information

SPRING 2017 GRADUATION CEREMONY LIVE STREAM

Quick Reference Guide – Admissions, Policies, and Forms

GRADUATE SCHOOL | CONTACT GRADUATE OFFICE | GRAD STUDENT GOVT
CARE AT MINES | SpeakUP@Mines | TITLE IX AT MINES

SCROLL DOWN

Degree Requirements

GENERAL REQUIREMENTS | MINORS | TRANSFER CREDIT
DEGREE AUDIT FORM | DEGREE AUDIT DONT'S | RESEARCH CONDUCT (RCR)
ADMISSION TO CANDIDACY

Committee and Thesis/Dissertation Information

COMMITTEE INFORMATION | STEP-BY-STEP THESIS GUIDE | THESIS WRITERS GUIDE
THESIS FORMATTING HELP | THESIS UPLOAD

ELECTRONIC THESES & DISSERTATIONS (ETD)

Follow Step-by Step Guide

Make sure you:

- Have submitted all the required forms
- Look at the Graduation Calendars and Deadlines to make sure you understand when everything is due.
- Have Applied to Graduate in Trailhead by the deadline.

Write your Thesis/ Dissertation

For formatting rules refer to:

- Thesis Writer's Guide
- Sample Thesis
- The Writing Center offers assistance with writing and formatting
- Student Services staff with the Office of Graduate Studies can answer formatting questions & review your thesis

Submit your Thesis Defense Request Form

Submit the form to your department

- See your department for deadlines
- OGS recommends that you defend at least 1 week prior to the upload deadline to allow time to make all the departmental corrections.

Defend your Thesis/ Dissertation

- Defend at least one week prior to the upload deadline. Please plan enough time to make all content revisions.
- All students must be registered to defend, unless checking out early (see Graduate Bulletin)
- OGS forms to bring to defense:
  - Submittal Page-signed by advisor, co-advisor (if applicable) and department head
    -Submittal Page cannot be signed until all content revisions are complete.
  - Checkout Card (includes your Statement of Work Completion) -signed by entire committee & department head.
    OGS prints checkout cards after students have applied to graduate in Trailhead.

Make Corrections on Thesis/ Dissertation

- Content corrections must be approved by committee before uploading thesis/ dissertation in ProQuest.
- After all corrections have been approved by your advisor/committee, obtain the signatures on the Submittal Page.
- Refer to the Checklists & Deadlines chart for upload and check-out deadlines

Submit Signed Submittal Page

Submit to Office of Graduate Studies (OGS)

- Student Center Room E140
- Submit by 5:00 p.m. on day of upload deadline. *Failure to submit your signed submittal page by 5:00 pm on the day of the upload deadline means that you have missed the deadline.*

Create an Account with ProQuest

It may take about an hour to create an account and upload. Please create only one account.

- °If you need to upload supplemental files, make sure to allow sufficient time to upload all the files.
- •Review the ProQuest guide Preparing your Manuscript for Submission (including supplemental files)
- • Prepare Abstract
- •Identify other thesis and degree data including your subject category
- •Decide on publishing option
  - °ProQuest/UMI Traditional Publishing Agreement
  - ° ProQuest/UMI Open Access Publishing Agreement
- •Decide on delay agreement (embargos)
  - °6 months or 1 year (No exceptions made for longer delays)
- •Enter non-CSM email address
- •Confirm accurate spelling of department, advisor and committee members
- •Determine if you want to pay for copyright protection or need copyright permissions
- •Make sure you have followed the Thesis Writer's Guide.
- •Decide if you want to purchase an extra copy of your bound thesis
  - °You will receive 1 free copy. Contact your department for delivery guidelines.

Upload in ProQuest

Upload your thesis/ dissertation in ProQuest

- •Upload by midnight on day of deadline

Formatting Revisions/ Approval

OGS will review your formatting within approximately 48 hours of upload (Monday-Friday)

- • Check email daily (or more) to check for necessary revisions. Make sure to check the personal email you entered in ProQuest
- •Correct all necessary revisions promptly (corrections are not optional)
- ° Revision emails will be sent from a ProQuest email address
- °Follow directions in email to submit revisions
- °All students who upload by the deadline will be guaranteed 2 format reviews.
  - -In the event a student does not make the necessary revisions and requires OGS to review the thesis a 3rd or 4th time, the student may not have the thesis approved by the check-out deadline.
  - -If the thesis is not approved by the check-out deadline, the student will not be able to check-out.
- •Once formatting has been approved, you will get an email from ProQuest & you may check-out
- •Formatting must be approved by check-out deadline
  - °If formatting is not approved by deadline, then:
    - Graduation will be delayed and/or
    - You will need to register for the next semester

Check-Out to Graduate

Submit all forms to OGS by 5:00 pm on day of check-out deadline:

- •Completed Check out Card, which includes your Statement of Work Completion form
- •Survey of Earned Doctorate (PhDs only)-online

Thesis Writer's Guide

The Colorado School of Mines Office of Graduate Studies (OGS) publishes this guide for graduate students in all departments who must prepare a masters thesis or doctor of philosophy dissertation as part of the requirements for a CSM graduate degree. In this guide, the word "thesis" refers to both the thesis and the dissertation, unless otherwise noted.

GRADUATION REQUIREMENTS

- Step-by-Step Guide
- Calendars and Deadlines
- Graduation Checklists and Deadlines

THESIS WRITER'S WORKSHOP

Thursday, September 29, 2016 10 am to 12 pm Student Center Ballrooms D

- Thesis Writer's Workshop PowerPoint Presentations

THESIS PREPARATORY MATERIALS

- Before Writing Your Thesis
- Graduate Student Government resources including Latex template
- Writing Center
- Embargoes and Proprietary Research
- Using Student Models
- ProQuest Information and FAQs (includes contact information)

FORMATTING INFORMATION, EXAMPLES and ASSISTANCE

- Thesis Checklist
- Sample Thesis
  - How to Format Page Numbers
  - How to Format Page Orientation
- Formatting Assistance including contact information for the Writing Center and the Office of Graduate Studies

FORMAT REQUIREMENTS

- Fonts
  - How to Embed Fonts (required for printing)
- Page Numbering
- Margins
- Line Spacing and Indenting
- Text Alignment
- Titles
- White Space
- Thesis Length and File Size
- Copyright Permissions

THESIS COMPONENTS

- Page Sequence

FRONT MATTER

- Title Page
- Copyright Page
- Submittal Page
- Abstract
- Table of Contents and Lists
- Acknowledgments
- Dedication

BODY of the THESIS

- Thesis Text
  - Headings
    - Chapter Page–Double Numbering System
    - Chapter Page–Three Level System
  - Journal Paper Format
- Figures and Tables
- Numbers and Equations
- References
- Appendices
- Supplemental Electronic Files

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Thesis Checklist

Upon completing your thesis/dissertation, compare the following Checklist against a final copy of your manuscript. When all items in your manuscript conform to those specified on this Checklist, provide the signed Submittal Page (page ii of your thesis/dissertation) to the Office of Graduate Studies (OGS) and electronically submit your thesis to ProQuest.

Format review of your manuscript will not commence prior to receipt of a signed Submittal Page in the OGS.

Sample Thesis

Thesis Formatting Checklist Print Version

FORMATTING REQUIRMENTS

____ **Fonts**
- Style: Times New Roman, Arial or Helvetica
- Size: 10-12 point type
- Same font size and style used consistently throughout thesis
- Black font
- No handwritten symbols in text or equations

____ **Page Numbering**
- Pages are centered, 3/4 inch from the bottom of the page
- Front Matter: lower case Roman numerals (i, ii, iii, etc)
- Body of Thesis: Arabic numerals (1, 2, 3, etc)
  - -Chapter one begins as page 1

____ **Margins**
- 1" from all edges
- Text, figures, tables, equations, etc may not go beyond the 1" margin

____ **Line Spacing and Indenting**
- 1½ or double line spacing in front matter
- 1½ or double line spacing in all text in paragraphs
- Be consistent: if you use double spacing in the front matter, use double spacing in the main body text
- Exceptions:
  - -Figure and Table captions are single spaced
  - -Multi-line entries in the Table of Contents, Lists and References are single spaced.
- Use appropriate spacing between the text of paragraph and the Figure/Table captions to differentiate.
- Indent at the beginning of each paragraph

____ **Text Alignment**
- Left margin is justified
- Right margin is not justified

____ **Titles** (Title Page, Table of Contents, List of Figure/Tables, chapters, References, etc)
- Centered on page
- All capital letters
- Inverted pyramid

____ **White Space**
- Text must extend to the bottom of the page
- Figures/Tables do not need to directly follow the text referring to the figure/table.
  - -If a figure/table won't fit:
    - -Refer the reader to the page where the figure/table can be found
    - -And move the next section of text up to the page with the white space.
- White space is only allowed:
  - -At the end of a chapter
  - -When a figure/table fills more than 50% of the page and no other text is added to the page
  - -If the next 2 lines of a paragraph won't fit at the bottom of the page
  - -If the next subheading + 2 lines of text won't fit at the bottom of the page

____ **Thesis Length and File Size**
- No upper page limit
- No file size restriction or

____ **Copyright Permissions**- Required if:

Article has been published
- -Co-author permission
- -Publisher permission

Article has been accepted for publication
- -Publisher permission
- -Co-author permission

Article has been submitted, but no yet accepted/rejected by journal
- -Co-author permission

Future publication, but not yet submitted
- -No permission needed

There is not a Copyright permission form
Permissions may be in the form of an email
Add permissions at the end of the thesis or upload in ProQuest

Sample Thesis

THESIS TITLE CENTERED ON THE PAGE VERTICALLY &
HORIZONTALLY IN ALL UPPER CASE LETTERS

Do not add a blank page after title page – no blank pages are allowed in the document

by
Author's Name

"by" is lower case

Author's Name is 1" up from bottom of page

Note: No page number

Title is in capital letters and centered horizontally

TABLE OF CONTENTS

Correct: Double line spacing between different titles

Correct: Multiple line titles are single spaced.

Incorrect: Multiple line titles must be single spaced.

Correct: Text does not extend passed the last leader dot

Incorrect: Text extends beyond the last leader dot

Table of Content Rules:

- Title is in all capital letters & centered horizontally
- Single line spacing for multi-line titles and captions
- Double line (or 1.5 line) spacing between different titles (you must be consistent throughout the entire document).
- Do not list the Table of Contents in the Table of Contents page
- Page numbers are preceded by ellipses (…) and are right justified
- Text should not extend beyond the last leader dot of the ellipses for a clear line of sight of the page numbers
- Each list entry must appear exactly as it does in the text

Copyrights

- Students own the copyright to their thesis.
- If you choose to register your thesis with the US Copyright Office:
  - You may pay ProQuest to register your thesis.
    - For more information: https://inside.mines.edu/Copyright and ProQuest FAQ
- If you choose to copyright your thesis, the copyright page is the second page (not numbered) following the title page. Submittal page is still numbered “ii”.

Copyright Permissions

You do not need to receive permission from committee members.

To reuse any material, you do need to receive permission from:

- 1. Article (including text, figures, tables) already published
  - Publisher permission
  - Co-author permission
- 2. Article (including text, figures, tables) accepted for publication
  - Publisher permission
  - Co-author permission
- 3. Article (including text, figures, tables) submitted but not yet accepted/rejected
  - Co-author permission
  - Cite your thesis in future revisions
- 4. Future article submission
  - No permissions required but check the guidelines in the journal which you planned to publish in for any restrictions prior to publishing

Copyright Permissions Cont.

- Emails granting copyright permission are acceptable.
- Many publishers have links to request (mostly free) permission for reuse in thesis via Copyright Clearance Center.
- Upload copyright permissions into ProQuest or add the emails to the end of your thesis/dissertation.

Always credit the original publication properly as directed in the permissions.

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PROQUEST ACCOUNT

Create an account with ProQuest

- ProQuest is the service CSM uses for ETDs
- https://secure.etdadmin.com/cgi-bin/school?siteId=316
- It may take about an hour to create the account with ProQuest, so make sure to give yourself plenty of time.
  - You may begin creating your account before you are ready to upload. Just make sure to remember your log-in information.

ProQuest ETD ADMINISTRATOR

Home | Training and Support | Resources & Guidelines | Submitting Your Dissertation/Thesis | About ETD Administrator

Make your thesis or dissertation available to the research community with ProQuest ETD Administrator

At Colorado School of Mines

Here's why:

- It's easy
- Submissions, revisions, re-submissions, and approvals with your administrator, online
- Your work deposited, as applicable, into Colorado School of Mines repository
- Your work, part of the most comprehensive collection of dissertations and theses in the world—ProQuest Dissertations & Theses Global
- Our university resources and guidelines just a click away

Here's the workflow:

1. Submit
You

2. Review
Your institutional administrator

3. Revise & Approve
You and your administrator

4. Deliver
Your administrator, to ProQuest

5. Done
Your work is now on ProQuest!

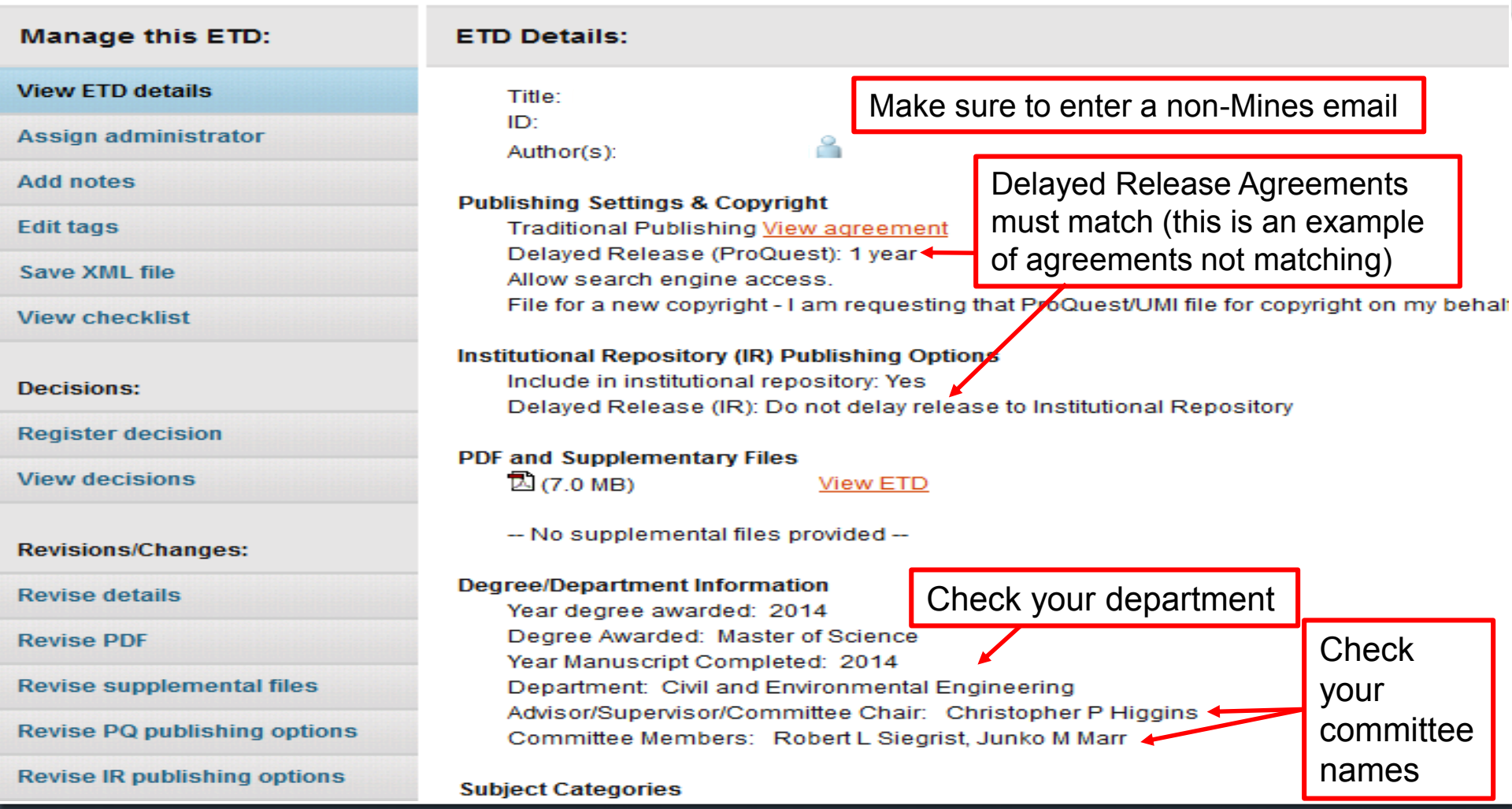
Sign up and get started today!

Already signed up? Log in

Institutional Administrators—**Learn more** | **Explore our demo site**

ProQuest

Submit your Thesis–ETD Details:



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Thesis Needs Revisions

From: Administrator of Colorado School of Mines
To: S t u d e n t
Subject: Request for minor changes to your submission
Date: Thursday, August 21, 2014 1:04:45 PM

Dear Student,

I'm writing you to request minor changes to your submission, "THESIS TITLE".

- Please log into ProQuest and click on the PDF in "View ETD details." You should find notations/comments made in the PDF requesting revisions.
- To submit your revised PDF, please go to the following page: View ETD (http://www.etdadmin.com/xxxxxx)
- After you UPLOAD your revised thesis, please remember to click the SUBMIT REVISION button at the bottom of the page.

Regards,
Colorado School of Mines Administrator

Thesis Acceptance

From: Administrator of Colorado School of Mines
To: **Student email**
Subject: **Thesis Title**

Date: Tuesday, July 15, 2014 8:43:25 AM

Dear student,

Congratulations. Your submission, 10522 has cleared all of the necessary checks and will soon be delivered to ProQuest/UMI for publishing.

Regards,
Colorado School of Mines Administrator

Remember, you are not done with formatting until you have received this email. If you are not getting ProQuest emails, please check your spam email, check your ProQuest account or contact OGS. If your formatting has not been approved by the check-out deadline, then you have missed the deadline.

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ETD FORMATTING

Formatting Highlights

1. Consistency matters
   - Consistent font style & size
   - All primary text is black. Colored text is only acceptable in figures and tables, but not the figure number or caption.
   - Headings and titles all have consistent font and style
2. Use only acceptable fonts and ALL fonts must be embedded
3. No blank pages
4. Avoid excess white space on pages
5. Center page numbers at bottom of pages
6. Thesis margins should be 1 inch from all edges
7. Front matter page numbers in lower case Roman numerals
   - Title page, submittal page, table of contents, list of figures & tables, abstract
8. No signatures on submittal page included in ETD (always numbered ii)
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10. Rotate page orientation to optimize electronic viewing of illustrations (i.e. landscape figures)

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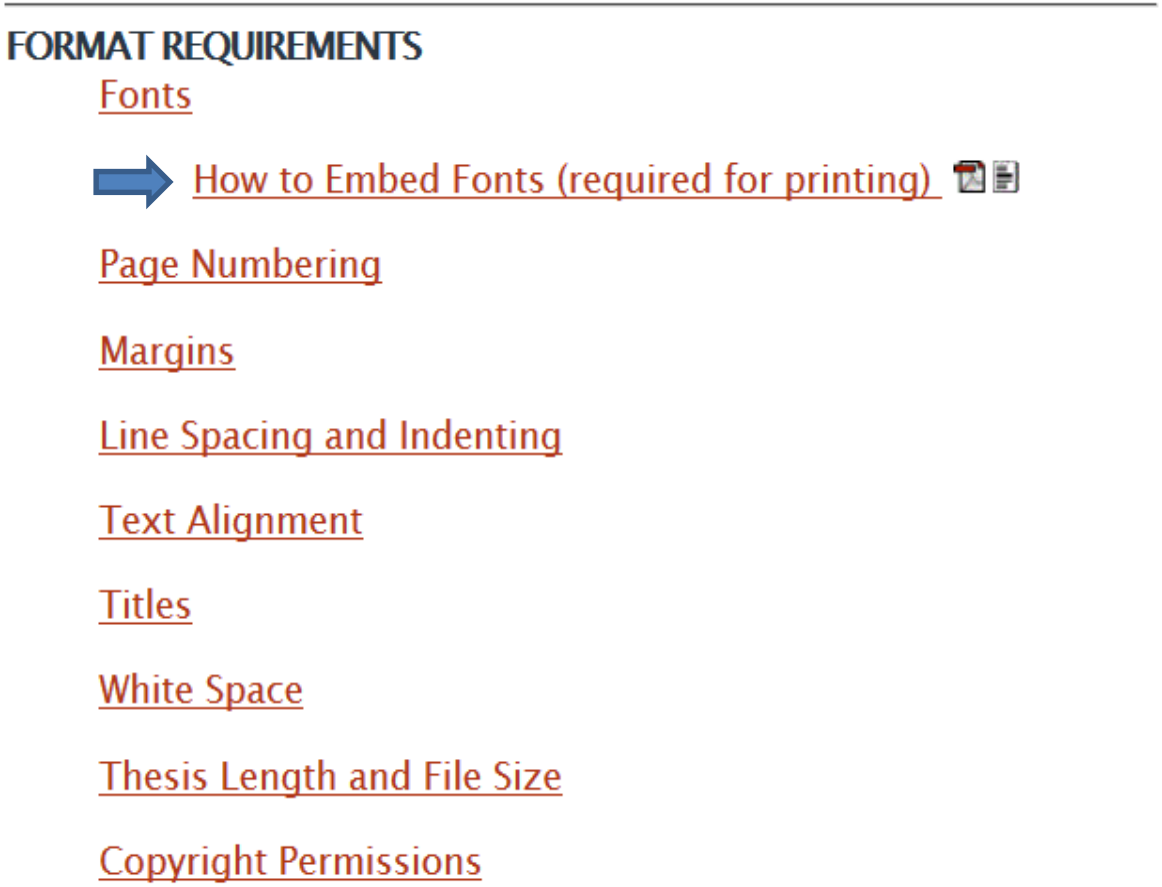

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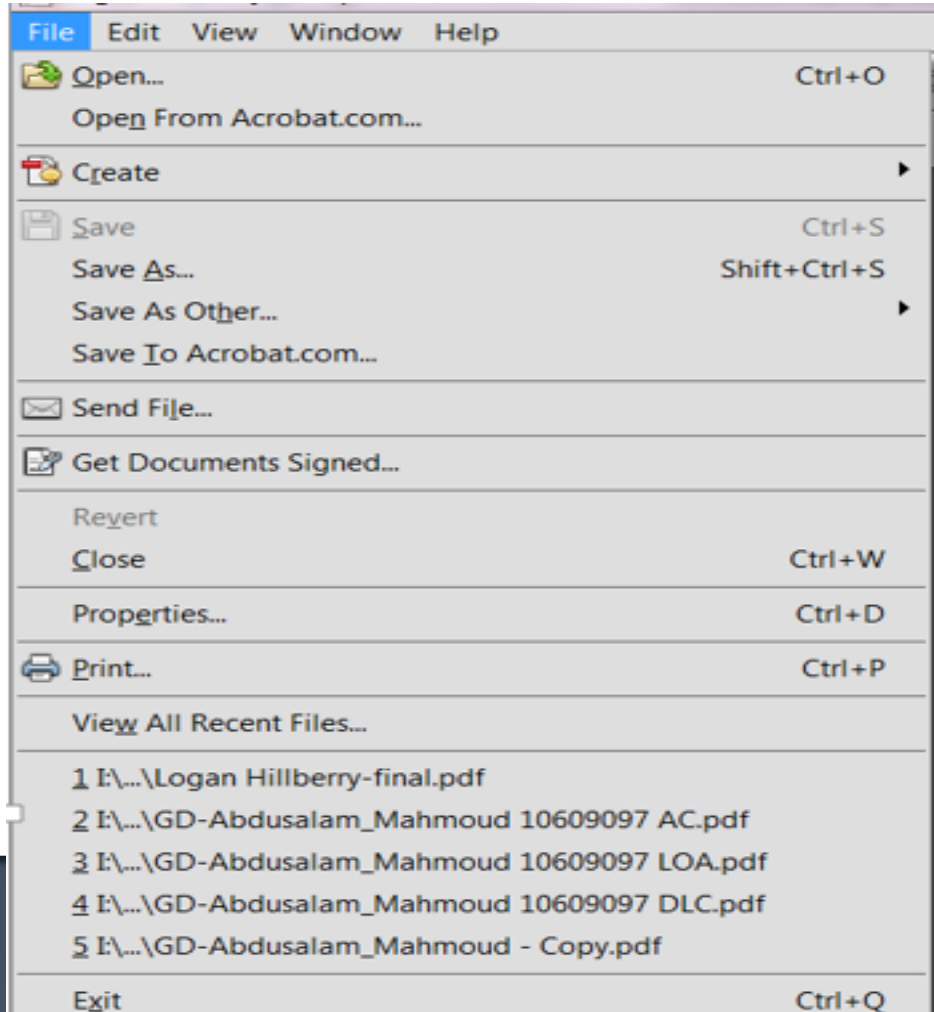

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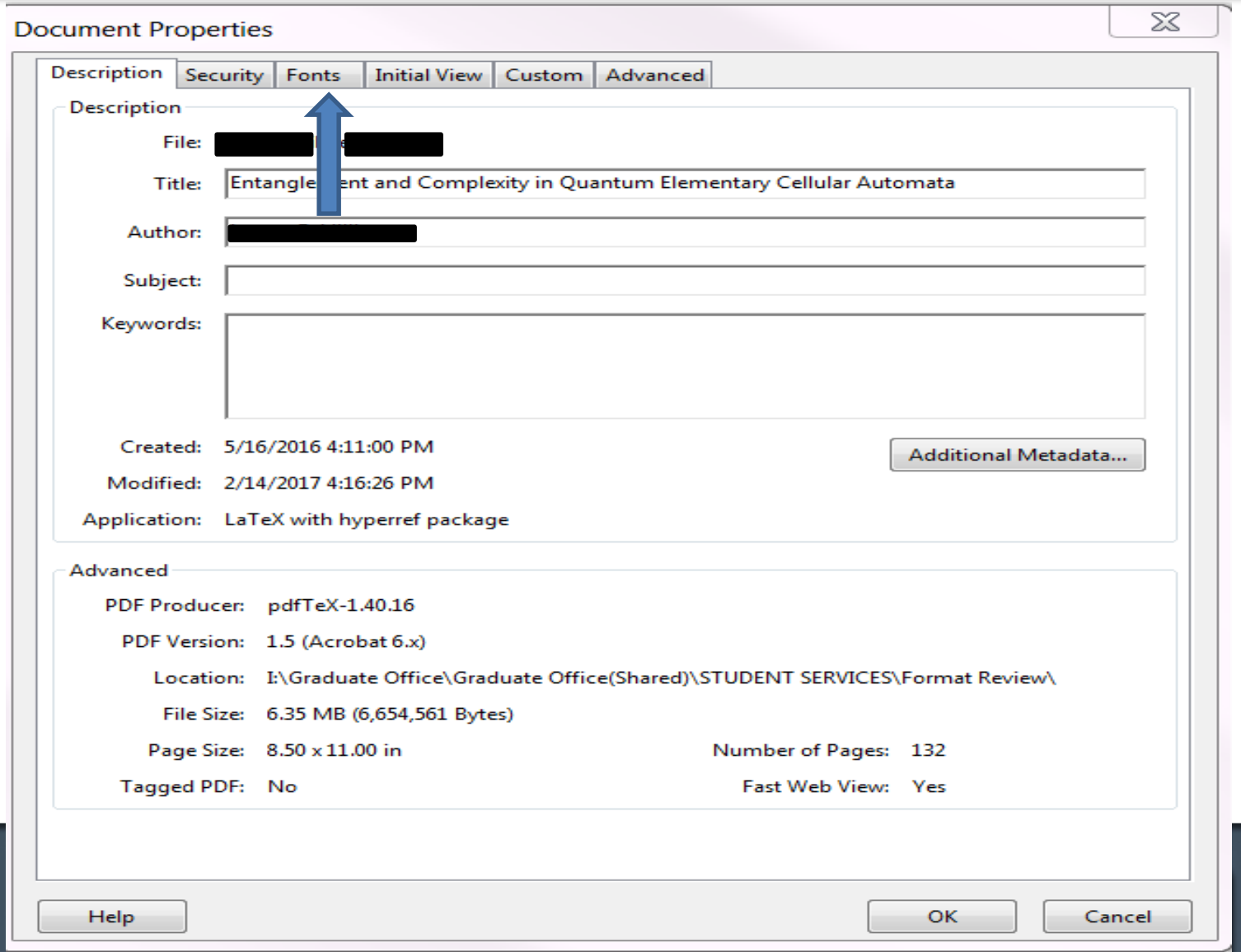

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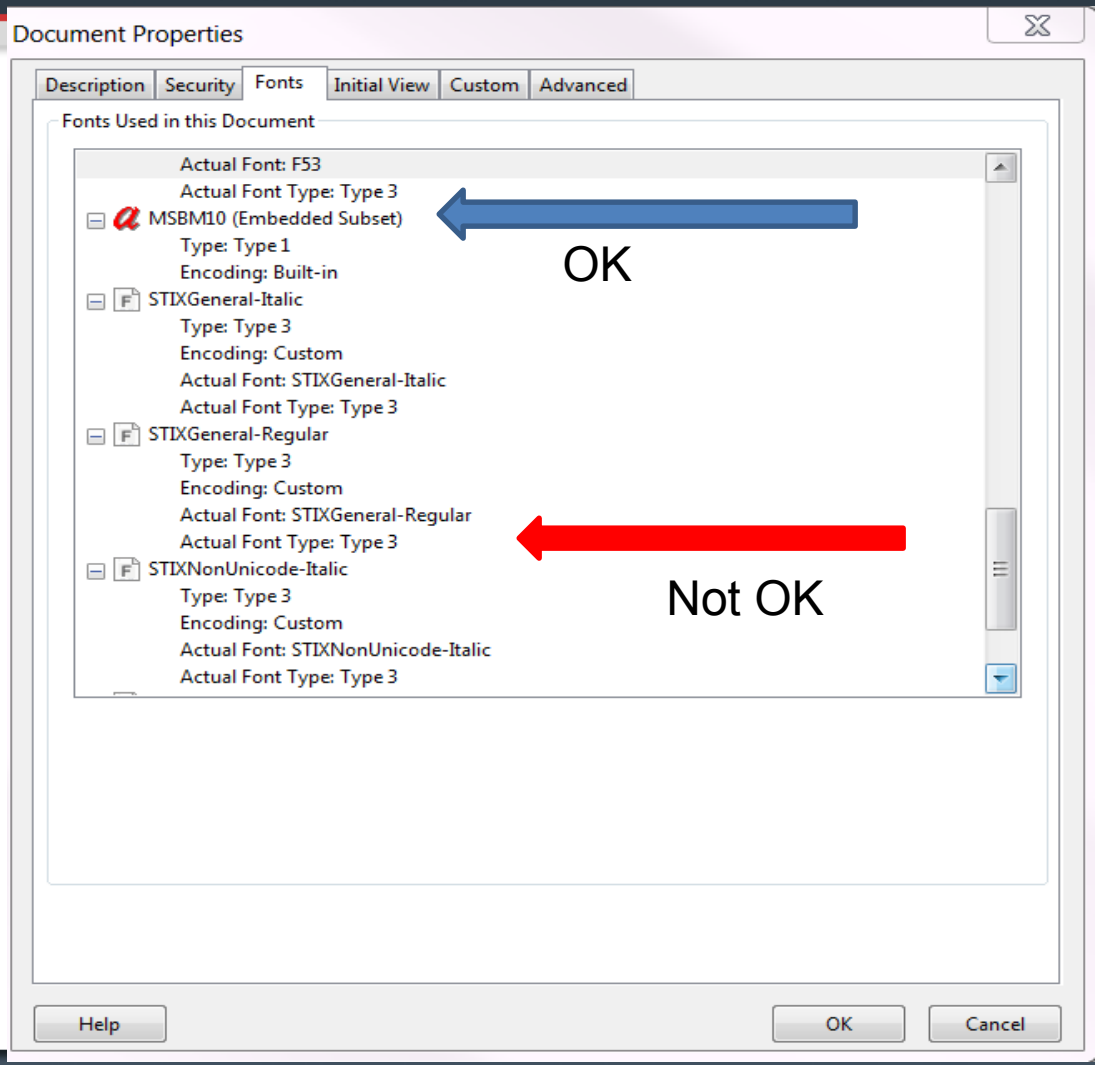

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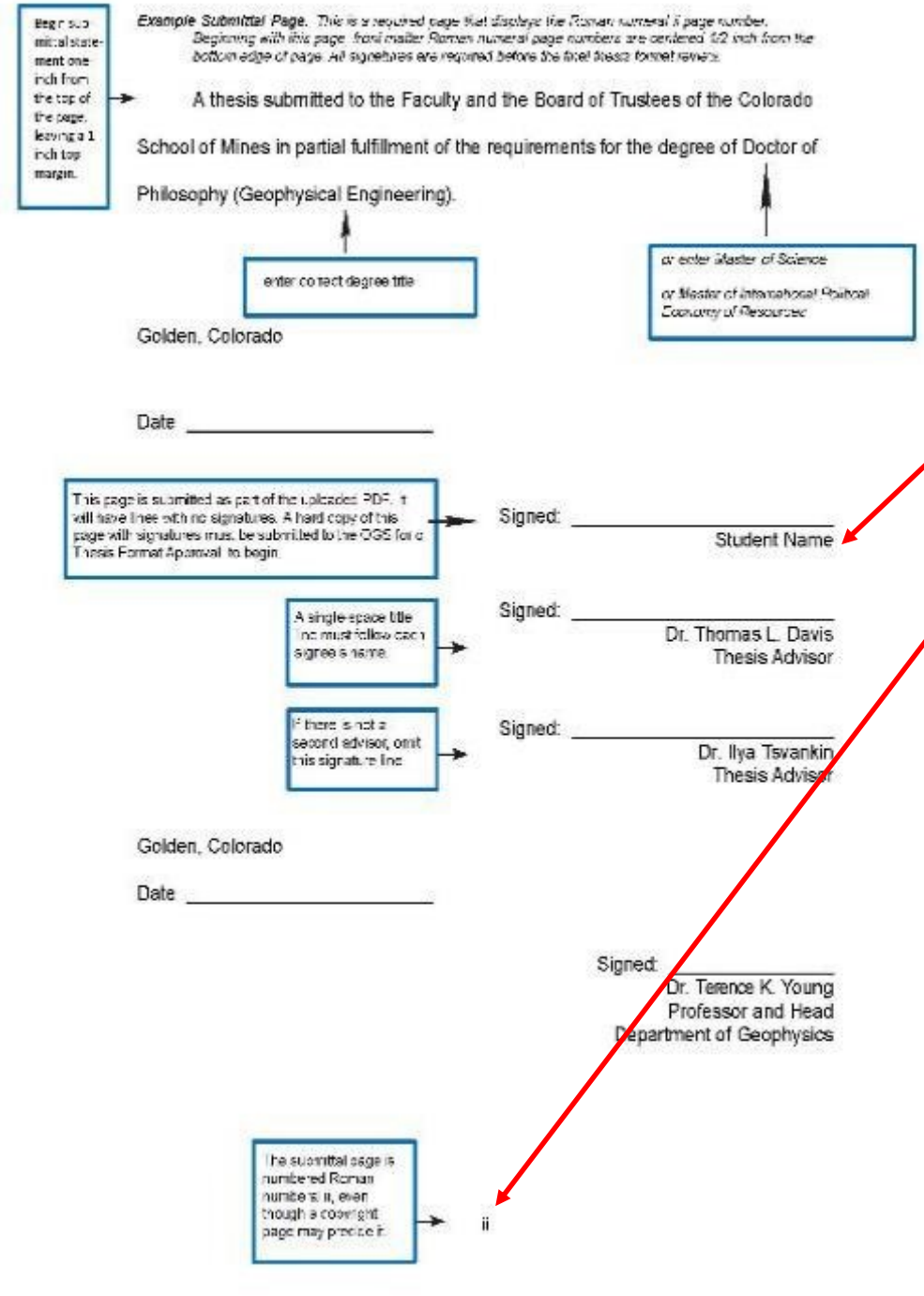

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Example: Abstract. This is a required page that displays the Roman numeral iii page number.
Note: the optional acknowledgments page follows the same format as the abstract page.

ABSTRACT ← The title is centered in all capital letters one keyboard return below the top one- inch text margin.

The solving of large, real world, combinatorial optimization problems has been of interest to the operations research community for some time. Because the algorithms used in solving these problems tend to have high computational time complexities (Order N^2 or greater), even the theoretical solutions are difficult to achieve. Dealing with such problems in an industrial environment where other factors such as human interaction and non-determinism are present make the problem solution, and further, the implementation of the results, an even greater challenge. The contents of this document describe a method that can be used to solve these problems in an industrial environment. More specifically, the problems considered involve multiple objectives, each objective either being a combinatorial optimization problem or one that is somewhat subjective in its measurement. The method developed, which is grounded in the Analytic Hierarchy Process, is then used to solve a life optimation problem at the Coors Brewery in Golden, Colorado.

Abstract

- Statement including:
  - The thesis problem
  - Description of the research method or design
  - A report of the major findings
  - The conclusions
- Title centered, in all capital letters & 1” from top of page
- Page iii

TABLE OF CONTENTS

Double space between different entries.

Single space individual entries that take more than one line.

Table of Contents
List of Figures
List of Tables
References

- Titles in CAPITAL LETTERS
  - 1” margin from top of page
  - Centered horizontally
  - “TABLE OF CONTENTS” title appears on 1st page only
- Spacing between entries
  - Double space or 1.5 spacing between different entries
  - Single space individual entries

Table of Contents, List of Figures, List of Tables, References continued

LIST OF FIGURES

Figure 1.1:Map of San Juan Range: a) Aerial view of the San Juan Mountain Range with bordering towns, and b) Detail view of the field study area.....2

Figure 1.2: Regional Map of the San Juan Range and bordering topographical features 3

Figure 3.4: Paleogeographic reconstruction of the San Juan Range during the formation of the Rockies.....12

Note: Text in the incorrect version goes beyond the leader dots (.....)

Incorrect

List of Figures/ Tables need a tab (space) between the figure number and text.

Correct

LIST OF FIGURES

Figure 1.1	Map of San Juan Range: a) Aerial view of the San Juan Mountain Range with bordering towns, and b) Detail view of the field study area	2
Figure 1.2	Regional Map of the San Juan Range and bordering topographical features	3
Figure 3.4	Paleogeographic reconstruction of the San Juan Range during the formation of the Rockies	12

Table of Contents

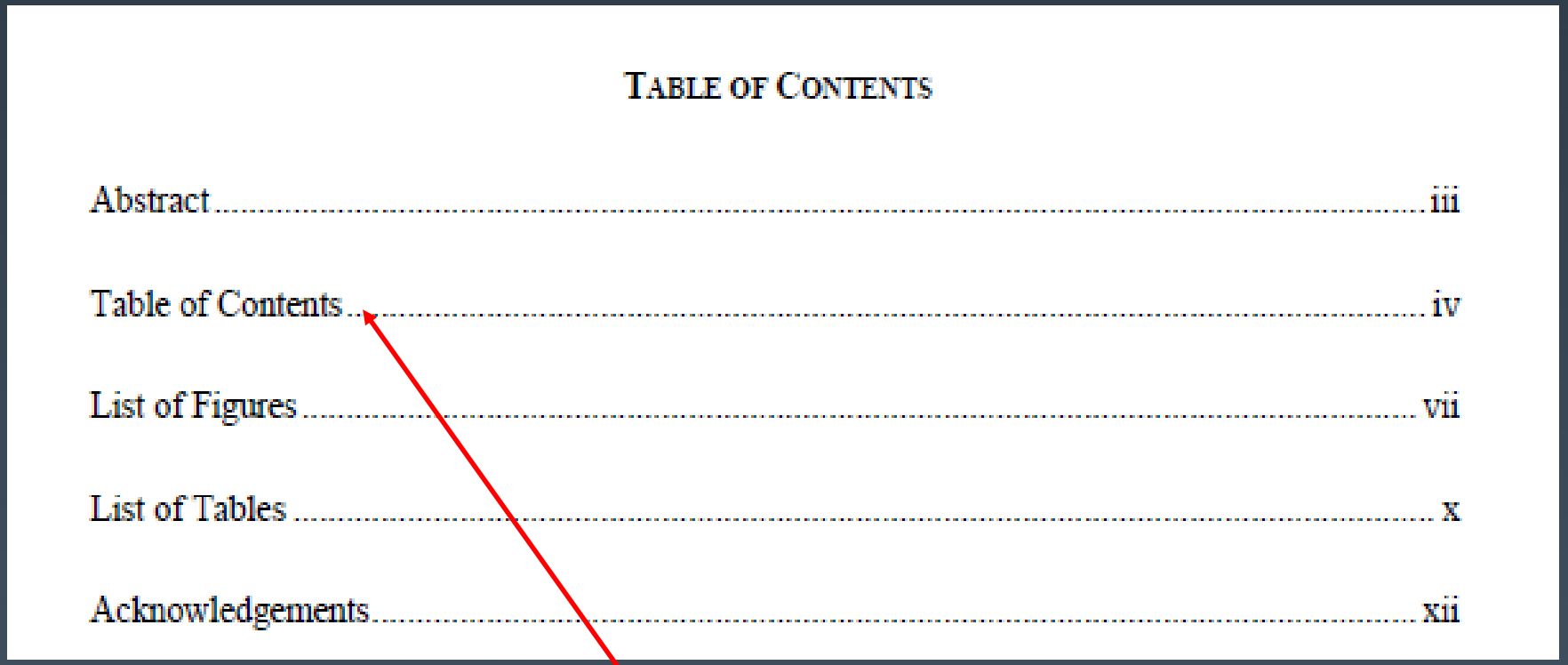

TABLE OF CONTENTS

Do not include your Table of Contents page in the Table of Contents

CHAPTER 1

INTRODUCTION

Metal and mineral extraction using underground mining methods requires detailed engineering and planning to ensure the safe and economic operation of a mine. Mine planning is an iterative process and involves the evaluation of numerous options and scenarios [1]. Currently, most underground mine plans are developed using manual scheduling techniques, i.e., an engineer selects the sequence of activities that attempts to meet a desired production goal. These labor-intensive manual schedules tend to only satisfy a few constraints and may or may not be feasible in application. Mathematical modeling can incorporate a greater number of constraints while producing an optimal or near-optimal schedule in less time than a manual schedule.

This dissertation presents an underground production scheduling model, ($\mathcal{Z}$), which is a variation of a resource constrained project scheduling problem (RCPSP). The RCPSP consists of an objective function, resource constraints, and precedence constraints [2]. Using the RCPSP formulation as a basis, the author formulates ($\mathcal{Z}$) as an integer optimization model that schedules underground mining activities for a two-year time horizon. Model ($\mathcal{Z}$) expands upon the basic RCPSP formulation by incorporating features that provide an operationally implementable solution that better reflects the actual mining environment.

A novel approach to scheduling is evaluated with the introduction of a ventilation constraint into the production scheduling model. Additionally, the ventilation constraint is used to evaluate three estimation methods that are based on the required airflow needed to dilute diesel particulate matter below regulatory limits.

Two solution methods are used to solve ($\mathcal{Z}$). First, the branch-and-bound algorithm is evaluated using the commercially available software, CPLEX. The second solution method uses the academic research software, OMP Solver, which implements an unconventional

Chapters

- Titles in CAPITAL LETTERS
  - 1” margin from top of page
  - Centered horizontally
  - Title in all capital letters
  - Chapter 1 begins with page 1
- Begin each new chapter on new page.

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- Figures & Tables must be numbered and have a descriptive caption.
  - Figure & Table numbers:
    - The first number (2) = the chapter number
    - The second number (4) = the figure number *within* the chapter
      - Example: Figure 2.4 is the 4th figure in chapter 2.
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Figures & Tables
Numbers & Captions

Figure numbers & captions are placed under the figure.
Table numbers & captions are placed above the table.

Figure Example:

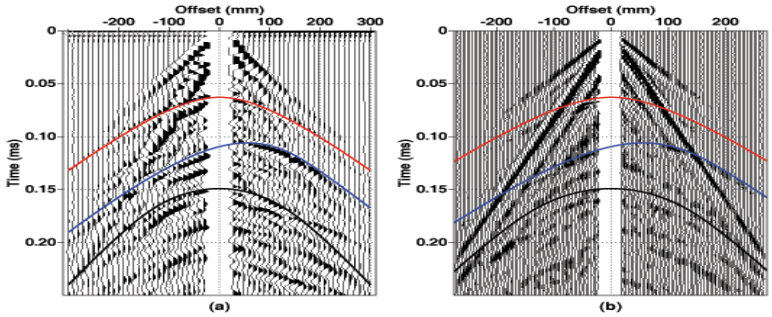

Figure 5.7 Horizontal component of the wavefield: (a) data recorded with the P-wave source and S-wave receiver transducer; (b) data recorded with the S-wave source and the laser vibrometer as the receiver.

The next paragraph begins here……

Table Example:

Table 1.1. Sediment gravity-flow continuum organized by increasing sediment concentration, grain size, and transport capacity (from Middleton and Hampton, 1973; Lowe, 1979; Lowe 1982.

Sediment Gravity Flow	Sediment Support Mechanism	Depositional Process	Sediment Concentration	Grain Size
turbidity current	**fluid turbulence**	**traction and suspension**	↓ increasing	↓ increasing
fluidized flow	hindered settling	suspension		
liquefied flow	hindered settling	suspension		
grain flow	dispersive pressure	frictional freezing		
debris flow	matrix strength	cohesive freezing		
slumps/slides	matrix strength	cohesive freezing		

Figures and Tables

Figure 2.8 Reconstruction of the mid-late Cretaceous……..

The Denver Basin, like the WIS, is an asymmetric foreland basin with a steeply-……..g western flank along the Front Range Uplift and a graduatlly shallowing eastern limb. It is bound to the south by the ……..a Uplift and the Las Animas Arch and to the north by the Hartville Uplift and the Chadron Arch. Present ……. 10,000 ft along the basin axis near Denver and Greeley but thins to < 500 ft along the eastern border ……..

The western margin of the Basin is defined by the Front Range Up……..

Don't wrap your text around figures or tables

Do place your main body text either above or below the figure/table

Figure 2.8 Reconstruction of the mid-late Cretaceous……..

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Figures and Tables

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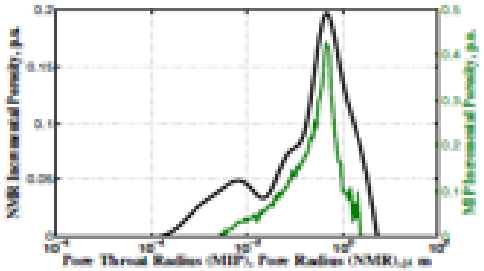

Figure 2.6 Sample AA1: Reservoir Sandstone

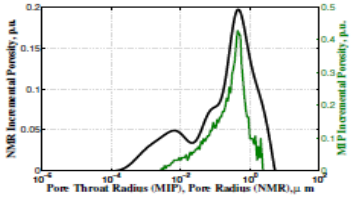

Figure 2.6 Sample AA1: Reservoir Sandstone

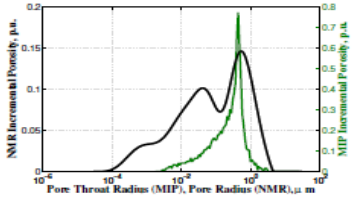

Figure 2.7 Sample AA2: Reservoir Sandstone

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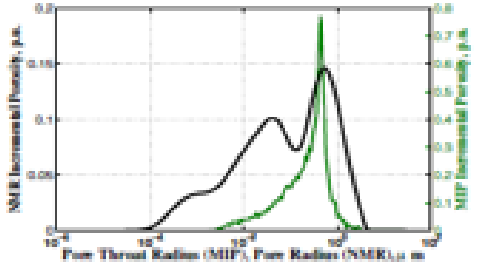

Figure 2.7 Sample AA2: Reservoir Sandstone

Figures & Tables
Spacing Before and After Captions

- Spacing between Figure/Table number & caption and proceeding/preceding paragraph must be consistent throughout entire thesis.
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    - See examples below of a thesis with too little space between the captions and paragraphs, making it difficult to see where the caption ends and the paragraph begins.

Spacing Between Captions and Text

Need more space

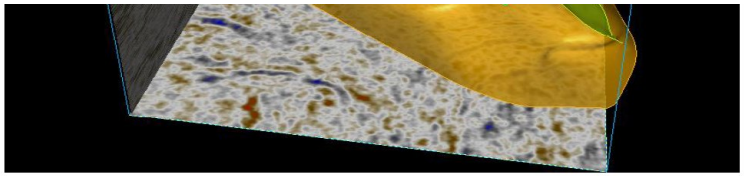

Figure 3.7 Bulding Structural Framework with Fault and Horizon Modelling

Unconformities are erosional or non-depositional surfaces between two packages of strata. Reflection terminations of layers above and below the unconformity surfaces are onlaps, downlaps, toplaps, and truncations as seen in Figure 3.8 (Mitchum et al. 1977). Erosional

Need more space

unconformities, their time equivalence, the scale of the interpretation, seismic character of the interpreted horizons, and the level of confidence in interpreting the seismic horizons (Table-4.1).

Table 4.1 Significant Parameters in the Seismic Interpretation

Age of the Seismic Horizon	Structural Significance	Scale	Interpreted On	Reflection Characteristics	Confidence
Late Miocene	Regional Post-Rift	Profile	Peak	Regional Unconformity	Medium
Base Miocene	Regional Post-Rift	Profile	Peak	Regional Unconformity	Medium

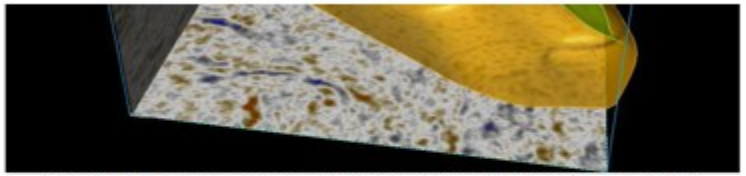

Figure 3.7 Bulding Structural Framework with Fault and Horizon Modelling

Sufficient space

Unconformities are erosional or non-depositional surfaces between two packages of strata. Reflection terminations of layers above and below the unconformity surfaces are onlaps, downlaps, toplaps, and truncations as seen in Figure 3.8 (Mitchum et al. 1977). Erosional

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Sufficient space

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Base Miocene	Regional Post-Rift	Profile	Peak	Regional Unconformity	Medium

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- Tables & Figures that cover more than 50% of the page may stand alone on a page.
  - Stand alone figures and tables need to be centered vertically and horizontally
- Figures that cover more than one page should be uploaded as supplemental files
  - Your figures may not go beyond the margins
  - You may not use a larger size page to accommodate the figure.
- Tables that cover more than one page must have:
  - The number & full caption on the 1st page
  - The number + continued on the following pages
    - Example: Table 5.3 Continued

Figures & Tables
Large Size Continued

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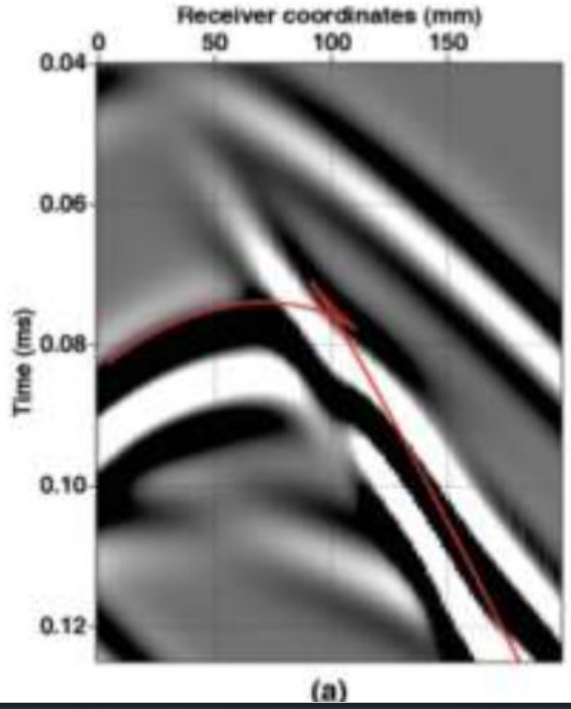
  - -The number and full caption on the preceding page
  - -The number and caption will be centered vertically and horizontally on the page.

Figure number and caption on the preceding page

Figure 5.13 S-Wave cusp in the transmission experiment: (a) The wavefield simulated with the spectral element method. The solid line is the S-wave time modeled using the inverted parameters from Figure 5.11. The observed cusp is larger than that predicted by the group-velocity surface.

Followed by the figure on the next page



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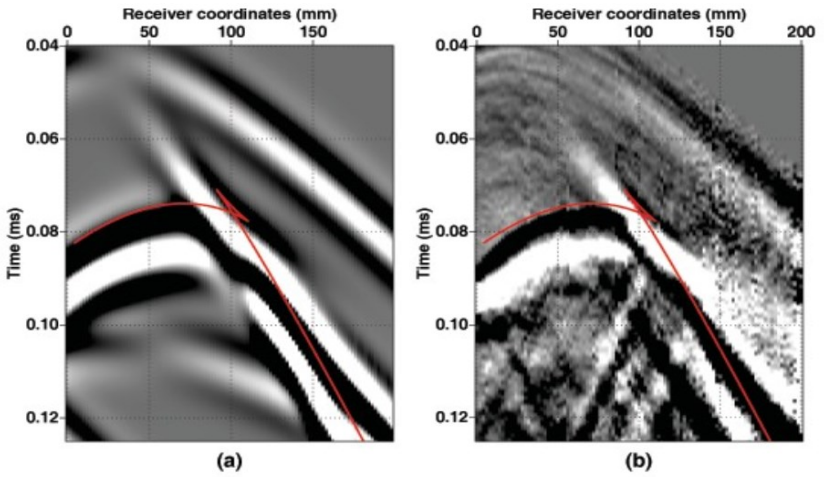

Figure 5.13 S-wave cusp in the transmission experiment: (a) The wavefield simulated with the spectral element method; (b) the wavefield recorded by the laser vibrometer. The solid line is the S-wave time modeled using the inverted parameters from Figure 5.11. The observed cusp is larger than that predicted by the group-velocity surface.

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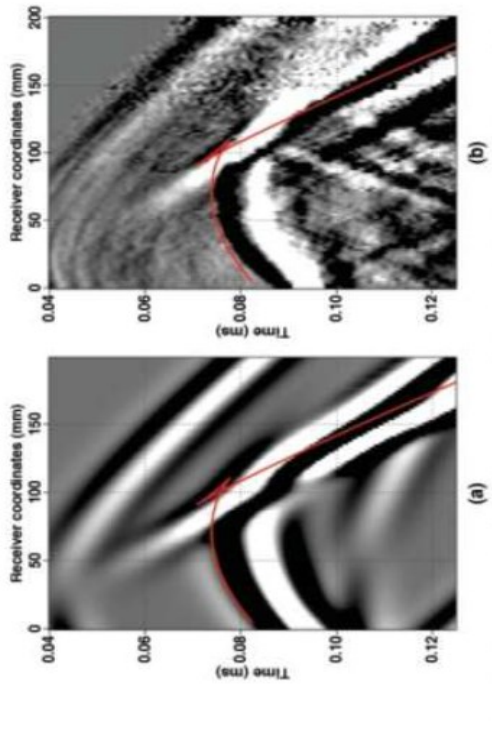

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77

Numbered Equations

- Equations must appear on separate line from other text.
- Equations must be centered on the page or indented.
- Equations that are not in running text must be numbered (see example below)

$$\Gamma - \delta \times a = 0 \qquad (2.1)$$

Equation indented or centered *Equation number aligned with right margin*

  - Equation numbers:
    - The first number (2) = the chapter number
    - The second number (4) = the figure number *within* the chapter
- It is OK to split equations between pages.

Equations in Running Text

- Equations are a part of a sentence.
- Equations are not entered on a separate line.
- Equations are not numbered

Example:

If the bridge has been balanced by setting $R_1 = R_2 \equiv R_0$, it is easy to show that $V_{out} = V_0/2$.

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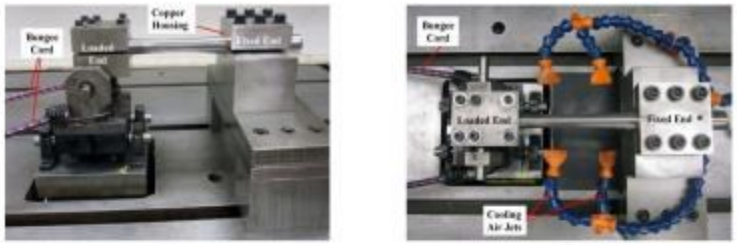
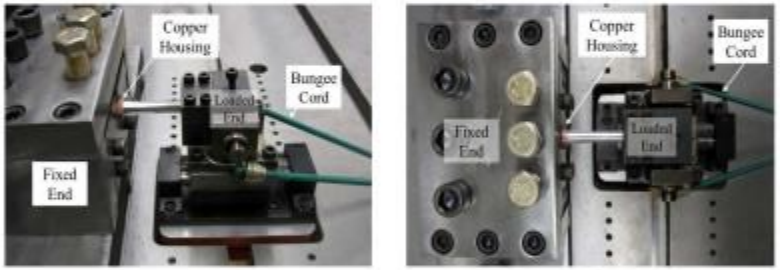
- You need to eliminate as much white space at the bottom of the page as possible.



(a) (b)

Figure 3.9 Bending fatigue set up for the SF-1-U: (a) front view and (b) top view with the cooling air connected *(color image; refer to PDF file)*.

The bending fatigue set-up for the SF-01-U fatigue tester is shown in Figure 3.10. The bungee cord and copper sleeve shown in Figure 3.10 were used to maintain the integrity of the fracture surface and to eliminate fretting between the sample and fixture during testing. The overall set-up of the fixture is similar to the large fatigue sample set-up with the exception that there is no cooling air applied to the sample. Even in low cycle fatigue testing, the small fatigue sample did not heat up more than 1-2 °C above room temperature so cooling air was deemed unnecessary.



(a) (b)

Figure 3.10 Bending fatigue set-up for the SF-01-U: (a) front view and (b) top view *(color image; refer to PDF file)*.

The temperature in the fatigue testing laboratory was maintained between 22 and 26°C. The humidity in the room was maintained below 35% relative humidity with the use of three dehumidifiers. No correlation between total fatigue life and room humidity was observed. For the majority of fatigue tests, the room humidity was below 20%.

3.3.4 Tensile Testing

Tensile testing was conducted to determine case and core tensile properties of all the induction processed conditions. Specimens were machined according to the ASTM E8-2008 standard [63] from the as-received bars of the 1045, 4145, and 1060 alloys (Figure 3.11). To simulate the core microstructures, the tensile samples were heat treated similarly to the initial heat treatments described in Table 3.2. Then, the specimens were tempered at 176 °C

Looks good.

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- Note: the text and illustrations fill the page

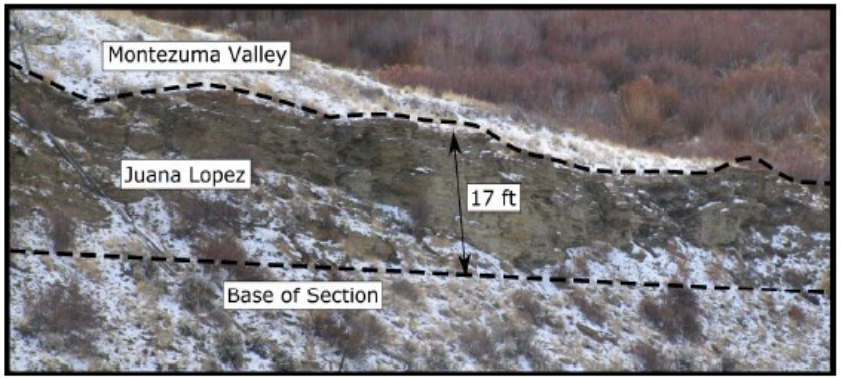

Figure 3-11: Delaney Buttes outcrop exposure of the Juana Lopez.

The Juana Lopez at Delaney Buttes was divided into 46 small scale parasequence hemicycles, nine parasequence sets, and two large scale sequences hemicycles (Figure 3-12) The Delaney Buttes outcrop has a net-to-gross ratio of over 70% with only 7.9% mudstone (Figure 3-13). This is a much higher value than measured at the other locations to the south and southeast. In terms of facies, the section contains abundant rippled beds, particularly wave rippled beds, and planar laminated beds (Figure 3-13).

Too much white space

Example of too Much Space:

- Note: the text and illustrations do not fill the page

White Space is Acceptable:

- At the end of a chapter.
- If you have a figure or table that fills more than 50% of the page AND the figure or table stands alone on the page.
  - If you add text before or after the figure or table, it is not a stand alone figure or table and you may not have excess white space.
  - If you have more than one figure or table on a page, it is not a stand alone figure or table and you may not have excess white space.
- If you cannot fit a table after the text AND the text fills the page at least ¾ of the way *(no more than 3.5 inches of white space at the bottom of the page).*

Rules for Eliminating Excess White Space

- Text should fill the page
- If you have text that refers to a table or figure and the table or figure will not fit on the same page as the text or on the page immediately following the text:
  - Make a reference to the table or figure, indicating the page number for the table or figure.
    - For example: …as is presented in Figure 2.1 (page 15).
  - Move text that would normally follow the table or figure to the preceding page before the table or figure.

between the abundance of the xxxxxxxxxxxxxxx and the prevalent xxxxxxxxxxxx patterns at the time of xxxxxxxxxxx.

Anderson et al., (2012) identify xxxxxxxxxxxxx and 8 xxxxxxxxx based on the same section as Jacob (2004) in xxxxxxxxxxx. They group xxxxxxxx into xxxxxxxxxxx, outer ramp (xxxxxxxxxxxxxxx), and xxxxxxxxxxx depositional settings. Most of xxxxxxxxxxx presented by Anderson et al., (2012) are xxxxxxxxxxxxx with definitions based on xxxxxxxxxxxxx, and xxxxxxxxxxxxxxxxxxxxxxxxx deposition.

2.5 Subheading

With the advent of xxxxxxxxxxxxxxxxxxx it has become relatively simple to analyze samples for xxxxxxxxxxx. Simpson et al. (1999) performed a xxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxx cutting samples from xxxxxxxxxx block in the southern margin of the xxxxx Basin. In addition, they analyzed 80 samples for total organic xxxxxxxxx xx identified through the xxxxxxxxxxxxxxxxxxxxxx (Ca precipitate) sedimentary input into the system and suggest that the xxxxxxxx, which shows an increase of xxx relative to the xxxxxxxxxxxxxxxxxxxxxxxx, is dominated by xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. Their results are shown in Table 2.9.

Eliminate Excess White Space

Move 2.6 subheading (page 2) + at least 2 lines of text in first paragraph to page 1 to eliminate excess white space.

Table 2.9 Individual coefficients and average coefficients for samples in the xxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxx (used for this study). From Anderson et al., 2012.

Test	Sample 1	Sample 2	Sample 3	Average
1	62.7	88.9	45.2	65.6
2	59.8	91.2	47.8	66.3
3	63.4	89.6	46.4	66.5
4	51.5	87..9	47.5	62.3
5	50.9	91.5	44.3	62.2
6	57.2	90.6	46.9	64.9
7	61.5	88.7	46.8	65.7

2.6 Subheading

The xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx units have been recognized as xxxxxxxxxxxxxxxxxxx system since their description by the first workers in the xxxxxxxxxxxxxxxxxxxxxx. With the advent of seismic data, however, xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx focus. Dowling and Fredrick (1977) and Smith and Langer (1998) wrote a definitive study on the xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxx and the xxxxxxxxxxxxxxxx of one or more xxxxx xxxxxxxxxxxxxxxxx system based on xxxxxxxxxx stretching from east to west across the basin. One of their most significant conclusions was the identification of xxxxxxxxxxxxxxxx surfaces, labeled A to H (xxxxxxxxxxxxx). As the xxxxxxxxxxx the depositional xxxxxxxxxxx into the basin from east to west. Smith & Miller (1988) grouped the xxxxxxxxxxxxxxxxxxxxxxx styles (Figure 2.12). The Early–Mid xxxxxxxxxxxxxxx (surfaces A-C) is low-xxxxxxxxxxxxxxx with an ill-defined shelf break. The xxxxxxxxxxxxxxx section (surfaces D-F) is xxxxxxxxxxxxxxxxxxx

Rules for Eliminating White Space continued

- New section headings at the bottom of the page:
  - Make sure the section heading + 2 lines of text will fit on the page.
    - If it will fit, then you should place the section heading + at least 2 lines on text of the page.
    - If it will not fit, then place section heading at the beginning of the next page.
    - You should never have a subheading + just 1 line of text from a paragraph at the bottom of the page.

3.2 Simplified CLT Design

The foundation and basement are identical to the LFW house model and the steel beams and columns are still needed to support the floor. The floor structure was 5 layer CLT panels

This is correct, if you can fit the subheading + 2 or more lines of text in the next paragraph on the bottom of the page, then you should add the text to that page.

Incorrect, if you can only fit the subheading + 1 line of text in the next paragraph on the bottom of a page, then should move the text t the next page.

3.2 Simplified CLT Design

The foundation and basement are identical to the LFW house model and the steel beams

Rules for Eliminating White Space continued

- New paragraphs at the bottom of the page:
  - Make sure at least 2 lines of text from a paragraph will fit on the page.
    - If it will fit, then you should place at least 2 lines of text from the paragraph on that page.
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Other changes deal with the installation of electrical, HVAC and plumbing systems to lend

themselves to be better suited to work with CLT. This means all mechanical, electrical and

This is correct, if you can fit 2 or more lines of text of a paragraph on the bottom of the page, then you should add the text to that page.

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Other changes deal with the installation of electrical, HVAC and plumbing systems to lend

CHAPTER 2

TITLE IN ALL CAPITAL LETTERS IN AN INVERTED PYRAMID SHAPE

Katherine xxxxx*,1 , Eric xxxxx 2, xxxxx Drewes 1, Christopher xxxx.,1

Abstract

The objective of this study was to examine xxxxxxxxxxxx xxxxxx to activated xxxxx. Compounds examined in this study included neutral, xxxxx as well as acidic xxxxxs which may carry a negative charge and xxxxxx which may carry a positive charge at the xxxxxx. These xxxxx were evaluated to examine how xxxxxxxxxxxx might differ for xxxxx in different states of charge. Additionally, multiple xxxxxx from geographically and operationally different xxxxxxxxxxxxxxxxx were studied to elicit how xxxxxxxx characteristics xxxxxxxx. Characterization of xxxxxxxxxxx from 6 full scale xxxxxxxxxxxxxxx and 3 xxxxxxxxxxxxxx showed no significant difference in fraction organic carbon (xxx) and xxxxx exchange capacity. xxxxxxxxxxxxxxx experiments demonstrated that xxxxxxxxx of xxxxx also exhibits little variation between xxxxxxx. Organic carbon normalized xxxxxxxxxxxxxxxxx (xxxxx) were determined as a measure of xxxxxxxxxxx, and were found to correlate well with xxxxxxxx partition xxxxxxxxxx (xxxxx) for xxxxxxx, and xxxxxxxxxxx xxxxxxx where log xxxxxxx is greater than 2. These data were xxxxxxxxxxxxxx

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APPENDIX F

SUPPLEMENTAL ELECTRONIC FILES

Include a paragraph broadly describing what is included as part of the supplemental electronic files and how these are related to the thesis. Also include a brief description of how the files/descriptions are organized in this Appendix. You may include as part of your supplemental electronic files any file that is a critical part of your thesis. This may include files containing laboratory measurements, other data, program source code, etc. Executable files may not be included.

Geographical Data Files	Files containing geographical location information of all survey lines. Files include raw survey data, reduced survey data showing relative location of each station with respect to a survey base station, and absolute latitude and longitude of each survey location. All files are in Microsoft Excel 2003 format. See figure 2.3 for area map show location and orientation of each survey line.
GeographDescript.txt	ASCII file containing description of data file format for all files containing geographical information included as part of these electronic supplementary files.
Line111.xls	Geographical survey information for line 111. See figure 2.3. See GeographDescript.txt for description of data included in each page and for each column of the spreadsheet.
Line112.xls	Geographical survey information for line 112. See figure 2.3. See GeographDescript.txt for description of data included in each page and for each column of the spreadsheet.
Line113.xls	Geographical survey information for line 113. See figure 2.3. See GeographDescript.txt for description of data included in each page and for each

Supplemental Files

- Add an appendix at the end of thesis/dissertation
- Appendix is listed in Table of Contents

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