

DEPARTMENT OF MINING ENGINEERING AND MANAGEMENT

MASTER OF SCIENCE STUDENT HANDBOOK



SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY

AUGUST 2023

MINING ENGINEERING AND MANAGEMENT FACULTY AND STAFF

Department Administration

Robert Hall Professor	Department Head, Mining Equipment and Automation	MI 235B
Jennifer Parrow	Senior Secretary	MI 235
Parker Pombrio	Computer Support Specialist	MI 120C

Mining Engineering Faculty

Ivy Allard Senior Lecturer	Management, Finance, Economics, Human Resources, International Business, Mediation/Negotiation, Mining Law, Project Management, Reputation Management,	MI 233A
Mark Bowron Lecturer	Mineral Economics and Finance, Resource Industry Mergers and Acquisitions	MI 233B
Andrea Brickey Professor	Mine Planning, Surface and Underground Mine Design, Mine Systems Optimization.	MI 230
Michael Schlumpberger Instructor	Supply Chain Management, Operations, and Maintenance in the Global Mining Industry, Management	MI235
Kelli McCormick Senior Lecturer	Mineral Exploration and Geostatistics, Mineralogy and Petrology, Ore Deposits, Mine Health and Safety, Computer Applications	MI 235A
Rudra Mitra Associate Professor	Rock mechanics, mining systems engineering VR/AR and innovation in learning & teaching	MI 231
Purushotham Tukkaraja Associate Professor	Ventilation, Materials Handling and Transportation, Rock Fragmentation	MI 229

Emeritus Faculty

Charles Kliche Emeritus Professor	Slope Stability and Blasting
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PROGRAM REQUIREMENTS

Program requirements

Incoming M.S. students must choose one of the three offered Specializations. Links to detailed core courses and electives for each specialization are listed [here](#) under Mining Engineering and Management Programs.

Minerals Industry Management

The Minerals Industry Management Specialization was designed for those employed within the Mining (Minerals) Industry who are currently working in administrative departments, moving into management positions, and those who will move into management positions that desire additional and specific education.

Mining Industry Applications

The Mining Industry Applications Specialization was designed for those employed within the Mining (Minerals) Industry who are currently working in a variety of mining departments on or off a mine site, and for those employed in associated industries. This Specialization allows a Mining (Minerals) Industry employee who has a BS degree to further their education in the mining industry where they can add to their experience with a degree from a top-rated engineering school.

Mining Engineering

The Mining Engineering Specialization provides advanced level mining and other engineering courses to engineering professionals in the United States and around the world. It was designed for those employed within the Mining (Minerals) Industry who are currently working in a variety of departments on or off a mine site. Entry to this Specialization is available to students who have earned a BS or MS in Mining Engineering, and to those from Engineering degrees other than Mining Engineering. Applicants with an Engineering degree must have taken or complete leveling classes in Calculus I, II, and III, Differential Equations, General Chemistry I, Statics and Dynamics, Fluid Mechanics, General Physics I and II, Mechanics of Materials

GENERAL INFORMATION

Faculty Advisor

For students wishing to pursue a thesis, a faculty member must be identified as your advisor who will become your major professor. This faculty member will work with you upon your arrival to the program and assist in course registration and defining the area of interest upon which to focus your program. The link to [Admitted Students](#) provides additional links and instructions for admitted students.

Within the first six months of being enrolled in the graduate program, the major professor should be confirmed, and a full advisory committee selected. The graduate committee is setup in discussion between student and advisor.

For non-thesis students (both distance and on-campus) the graduate coordinator will be your designated advisor. This advisor will be identified in your acceptance letter.

Non-thesis MS students in the Mining Engineering specialization must email the Graduate Education office to declare the non-thesis option. Thesis MS students must complete a [Program of Study](#) (POS) that outlines previous course credits incoming to the program and all courses and research credits (if applicable) that are to be completed as part of the graduate program. The full committee and Department Head must sign the POS. The POS must be completed within a year of being enrolled.

Course Registration

Registering for courses is done through the [Self-Service Banner](#) system. Banner is accessible via the SD Mines website. A username and password accessing SD Mines email and various platforms will be provided to you upon acceptance into the MS program. Course offerings for the upcoming semester, along with at least one additional semester, can be viewed and course registration completed in the system. The course prefix for Mining Engineering and Management courses is MEM. Please contact the Graduate Coordinator, your advisor, or the Office of the Registrar for any assistance.

Distance Students

The MS Program in the Department of Mining Engineering and Management can be completed without coming onto the SD Mines campus. All graduate-level courses are offered either fully on-line or mixed (offered both on-line and on-campus). Instructors in the program typically use the Desire to Learn ([D2L](#)) system to deliver their courses to those students who are not on-campus. Each course has a separate “internet/on-line” section for which distance students should register. Once the semester begins, the Instructor will communicate through D2L or via email regarding how the course will be delivered. Recorded lectures are accessed through D2L. It is important that distance students check their SD Mines email frequently as this will serve as one of the primary communication methods between the Instructor and student and will also be used to provide links to access the various course delivery systems. The D2L course system will also be used regularly to deliver and manage course content (see below for more information about D2L).

Permission of Instructor Form

When registering for courses using Self-Service Banner, the system may require verification that prerequisite courses have been satisfied before you will be able to register for the course. In many of these cases, a Permission of Instructor form must be completed and signed by both the Instructor of the course and the Department Head for the department offering the course. The Permission of Instructor form can be found on the SD Mines website <https://www.sdsmt.edu/Academics/Registrar/Forms/>.

Accessing Course Materials

Course materials can be accessed using the ([D2L](#)) on-line course management system. A username and password for the D2L system will be provided to you upon acceptance into the MS program. The course syllabus, handouts, homework, exams, and other materials will be posted by the Instructor to the appropriate course folder in D2L. Students can also submit homework, reports, and exams through D2L. If the Instructor is using a video system to record lectures, those lectures can be accessed either through D2L or through a website link provided by the Instructor.

At the beginning of each semester, the Instructor will post information regarding the course on D2L and may also email you. It is the responsibility of the student to access D2L at the beginning of the course for information to view course materials.

OTHER GRADUATE STUDENT INFORMATION

1. It is the graduate student's responsibility to comply with all university requirements in the [SD Mines Catalog](#), as well as departmental requirements in this handbook and the [department website](#).
2. A student must maintain a B (3.00) or better grade point average for all courses that appear on the graduate transcript at SD Mines. Thesis research credit hours and grades are not counted in the determination of this GPA. Thesis research grade requirements and additional policy information not presented in this section can be found under [Probation and Reinstatement Policy](#).
3. A current graduate student who does not meet 2. above during any semester will be placed on probation and will be informed by the dean of graduate education. A failure to remove the deficiencies during the following semester may be considered sufficient grounds for terminating the student's enrollment in the graduate program. Assistantships are not available to students on probation unless an exception is granted by the dean of graduate education. Probation imposed because of overall GPA deficiencies will continue each semester until the GPA reaches the acceptable level.
4. In addition to probation triggered by academic performance, a student may be placed on probation for failing to meet programmatic or institutional requirements, such as making satisfactory progress in completing courses, meeting stated deadlines for applicable qualifying, comprehensive, and final examinations; selection of a graduate student advisory committee; and filing of a program of study in the Office of Graduate Education. Probation for such deficiencies will be removed after the requirement has been satisfied. A student's probationary status will be reviewed at the close of each semester for appropriate action: removal from probation, continuation of probation, or termination. A student may petition the dean of graduate education for reconsideration of a termination decision.
5. Degree-seeking graduate students must be registered on a continuing basis during each fall and spring semester of the regular academic year. Failure to maintain continuing registration will result in deactivation of the graduate student's program. [Leave of absences](#) are available for students that need to interrupt their graduate studies for personal or professional reasons, for a period up to one calendar year. Please refer to the [SD Mines Catalog](#) for more information.
6. Each graduate student seeking to complete a thesis is required to organize meetings with his/her graduate advisory committee at specified intervals as established by their advisor. The purpose of these meetings will be to ensure coursework and research topics are being adequately advanced according to the POS and to gauge progress within the program.

GUIDELINES FOR GRADUATE TEACHING ASSISTANTS

Many of the GTA positions within the department will require the GTA to oversee a laboratory section for a course. This will require working with the faculty member responsible for the course and lab to ensure the correct and proper materials are used and discussed in the lab sessions. SD Mines uses the web-based program Desire to Learn, or D2L. Every student enrolled has a D2L account and if the faculty utilizes this service, there will be a course D2L page. This is useful to post lab materials and to communicate with the students in the lab. Feedback and other means of student contact can be made with D2L. In general, the duties for a GTA include

- Meet for every scheduled lab, be punctual, and be there for the entire lab period.
- Prepare all photocopies, handouts, quizzes, exams, etc., prior to the course meeting time. The copier code is available from the Department Administrative Assistant.
- Many of the labs include one or more field trips and GTAs typically serve as drivers for these excursions.
 - Have necessary paperwork completed to be able to drive State vehicles. Your supervisor must initiate through DocuSign both the volunteer form and the fleet check out form (Under My SD MINES, PowerForms).
- A full-time GTA is equal to 20 hours per week. As part of the load, the faculty member in charge of the course may ask you to assist with grading in the lecture class.
- All instructors, whether faculty or graduate students, are required to be familiar with and abide by all [FERPA](#) regulations protecting student privacy. A brief set of FERPA guidelines is included at the end of this document.

ADDITIONAL REQUIREMENTS FOR THESIS-SEEKING STUDENTS

Checklists, guidelines, and deadlines for graduate students are found at <https://www.sdsmt.edu/Academics/Graduate-Education/Forms/>.

A graphical representation (Figure 1) of the timeline of important milestones for the successful completion of the M.S. degree in Mining Engineering is presented on the following page. This graphic is a compilation of Graduate Education-set deadlines and Mining Engineering and Management policy. Detailed information about the thesis committee, proposal defense and thesis defense are outline on the pages following the timeline.

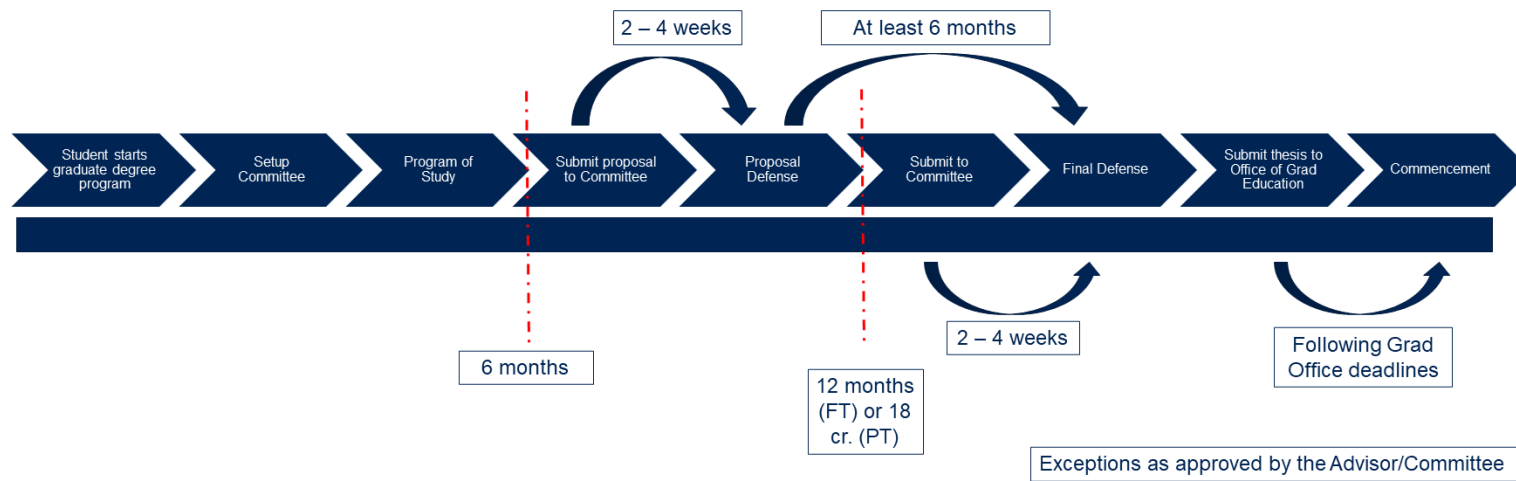


Figure 1. Timeline of important milestones for completion of an M.S. in Mining Engineering

MS Thesis Committee

1. All MS thesis committees must have a minimum of three full-time SD Mines faculty members. Required faculty members on the committee include the major professor, another faculty member from the MEM Department, and a Graduate Division Representative from outside the department. One additional faculty member or industry person having expertise in the student's research topic is desirable. Refer to the [Graduate Education Policies](#) in the SD Mines Catalog for additional information about who may serve on graduate committees and who can be the major professor.
2. Additional faculty/industry personnel beyond the three core committee members who have expertise in the student's research topic is desirable.
3. Off-campus persons, including emeritus faculty, retired faculty, and members of industry may serve as a co-major professor or committee member at large if they have unique expertise not available from on campus faculty.

Thesis Proposal Defense

1. A thesis proposal must be submitted to the thesis committee within one year of starting the M.S. program for full time students and upon completion of no more than 18 credits for part time students.
2. If the committee feels it is not defensible, the student will have the opportunity to resubmit the proposal.
3. Thesis-seeking students must present the thesis proposal to their thesis committee. This presentation should not be more than 30 minutes. All faculty and graduate students within the department will be invited to attend. This presentation provides an opportunity for the student to receive feedback and for the thesis committee to confirm the direction of the research.
4. The proposal defense presentation should include the key points below:
 - What is your research problem?
 - What are the associated research questions?
 - Significance and contribution to the discipline (i.e., how does it help mining or related field?).
 - What will you do and what methods will you use to complete the work?
 - What will you produce in the end?
 - Include a timeline of the work.
5. The thesis proposal presentation will be followed by an oral examination with the committee on the proposal itself, on science or engineering topics related to the work to be completed, or on topics from the qualifying examination.
6. Satisfactory completion of the proposal defense requires no more than one member of the graduate student advisory committee votes against passing.

7. At the conclusion of the thesis proposal defense, the thesis committee will provide one of three recommendations: (1) Satisfactory completion, the student is then eligible for admission to candidacy; (2) Pass with conditions, such as failure to pass a part of the examination. The committee shall inform the student promptly as to how and when the conditions may be removed; (3) Fail, the student must immediately meet with the thesis committee to either implement a new research plan or to switch to the non-thesis track. Another such examination should not be attempted during the same semester, though exceptions to this may be granted by the student's committee in consultation with the dean of graduate education. If the student fails a second time, work toward the M.S. can be continued only with the consent of the graduate student advisory committee, the Council of Graduate Education, and the dean of graduate education.
8. The completed proposal defense results must be reported to the Graduate Office using the [Masters Exam-Masters Proposal Reporting Form](#).

Thesis Research

1. All graduate students registered for thesis research credits will be required to perform the research activities outlined by the major professor and thesis committee. In addition, to receive a satisfactory grade for the thesis research, all students are encouraged to complete one of the following each academic year they are enrolled in research credits:
 - Present research in the form of a poster or oral presentation at an approved academic conference. These include:
 - Professional society meetings
 - Industry-sponsored meetings
 - State or local scientific conferences
 - Publish or submit a manuscript in a scholarly journal.
 - Submit a research proposal to a funding agency.
 - Successfully complete the proposal presentation.
 - Defend your thesis/dissertation.
2. A satisfactory grade for thesis credits each semester will require the student to participate in one of the required activities listed above. Each student's major professor will make the **final decision as to meeting these requirements**.
3. All graduate students are encouraged to attend other students' research proposal defenses for understanding of the process and completing adjustments to your own defense.

Thesis Drafts and Final Defense

1. The Graduate School maintains [deadlines](#) for final submission of thesis defense results. The final draft of the thesis, which must include all components of the document, should be submitted by the student to each member of the graduate student advisory committee within two to four weeks (not later than two weeks) before the time and date of the student's scheduled defense. Major changes made after submission will lead to postponement of the final defense.

2. Guidelines an M.S. student should follow to achieve successful completion of the defense and a quality thesis include the following:
 - Demonstrate how your research makes an original contribution by advancing knowledge in your field.
 - Show a thorough familiarity with the field and an ability to critically analyze the relevant literature.
 - Display a mastery of research methods and their application.
 - Offer a complete and systematic account of your scholarly work.
 - Present the results and analysis of your original research.
 - Document your sources and support your claims.
 - Locate your work within the broader field or discipline.
 - Write in a style that respects the norms of academic and scholarly communication.
3. The draft document should be an acceptable manuscript in terms of technical quality, completeness, and proper expression and usage in American Standard English. Under no circumstances will a defense go forward if the draft manuscript is incomplete. It is the responsibility of the major advisor to assure that the thesis is of sufficient quality before it is forwarded to the committee.
4. After approval of the defense copy by the major professor, students should prepare the document in PDF form and submit it to the Department Administrative Assistant for posting on the MEM Department administrative drive, followed by an announcement to the department faculty. At least two weeks prior to the defense, all theses must be made available for examination by all department faculty.
5. A [Defense Approval & Scheduling Form](#) must be completed by the student, signed by the committee, and submitted to the Office of Graduate Education no less than five working days before the scheduled time of the defense. The title and abstract of the thesis must be emailed to the Office of Graduate Education at the same time the Examination Schedule Request form is submitted. This is the responsibility of the student.
6. Any changes requested by the committee after the defense shall be made by the student, approved by the advisor, and then resubmitted (if required) to the committee within two weeks of the final defense.
7. The student can submit the thesis to the Office of Graduate Education only if the revised document is approved by the committee. The committee-approved thesis must be submitted to the Office of Graduate Education by the published deadline.

OTHER IMPORTANT INFORMATION

1. MEM faculty expect graduate students to maintain the following:
 - Be professional – Act professionally and speak in a professional fashion. Consider all fellow students as work colleagues, and treat them, faculty, and undergraduates with courtesy and respect at all times. Homework and lab assignments should be completed in as professional a manner as possible.

- Learn – Do not just pass exams, know the subject. Ask questions during class and spend time on your own learning more about the subject.
 - Consult literature regularly – Use the journals and books in the Library. The Library also has many online resources, and each student should be familiar with these. Professional organizations, such as the Society for Mining, Metallurgy and Exploration, also have large digital libraries that are accessible with membership in the organization.
 - Attend seminars – They will be posted in the MI Building and announced via email. Students are encouraged to attend seminars given by other departments as well.
 - Participate in professional organizations – National and regional chapters of the Society for Mining, Metallurgy and Exploration (SME) and the International Society of Explosives Engineers (ISEE); along with student chapters of SME, ISEE, Mine Rescue, or other organizations appropriate for your specialty. Many memberships for students are free or significantly reduced, so take advantage of this and begin to interact with other members at local, regional, and national meetings.
 - Participate in field trips when they are offered.
 - Attend professional meetings in your specialty. Thesis-seeking graduate students should submit abstracts on their research and prepare and present either a poster, journal paper or conference paper including an oral presentation at the conference.
 - Apply for financial assistance from professional societies as well as those available within the department. These funds may be used to offset field and meeting travel expenses.
2. Awarding of GTA and GRA:
 - The MEM Department awards GTAs to qualified thesis students when the department has need of instructional support.
 - GRA support is provided by the major advisor.
 3. Subsequent semester registration – This should occur as early in a semester as possible. Within the first two weeks of the fall term, registration for spring term should occur. In the first two weeks of the spring term, registration for the following fall term should occur. This becomes most effective after the POS has been completed.
 4. Jobs – The bulletin board on the second floor of the MI Building outside the MEM Department office will have job announcements posted. Plan to attend the Career Fairs in the fall and spring. Visit company websites to apply for internships and full-time jobs.
 5. Participation in external training opportunities such as those provided by software companies, consultants, equipment or instrumentation manufacturers, etc. are encouraged. Many of these opportunities are free of charge for students.
 6. Primary source of advising is your major advisor. If specialized advice is needed from other faculty, be conscientious of faculty time.

FERPA

Family Educational Rights and Privacy Act of 1974

What does it do? Protects a student from the indiscriminate collection, maintenance, disclosure and release of personal information—especially information about status, academic performance, and grades.

Who is covered? Any student now or previously enrolled at the School of Mines whether student attended via distance education or as a student participating in a coop, internship, field camp, etc.

How can scores or grades be posted to protect the student's right to privacy? A method that uses a code that *completely disguises* identity—NOT social security numbers or student ID numbers. Hardcopies of tests, quizzes, homework, etc. cannot be returned in any manner that gives students knowledge of other students' performance. *Under no circumstances is performance information to be shared with more than one student via email, texts, or social media.*

Can I cite or refer to Directory information? At the School of Mines “directory information” includes the following: student's name; grade level or academic status (undergraduate, graduate or professional school); graduation date; diploma or degree; major field of study; and dates of attendance. This data can be disclosed unless a student has evoked privacy (see below)

Check Colleague to see if the student has an “E” (for privacy EVOKED) in the “privacy field” of the BIO screen. You can also check the privacy column in the “student list” sent out by RAS or just remember that any line entirely in RED PRINT means that the student has evoked privacy.

What access do parents or guardians have to education records? Records are released only under the following circumstances: 1) student signs consent form, 2) to comply with a court subpoena, 3) if the parent or guardian proves the student is a dependent by providing a current Federal Income Tax return and requests access to records. “Releasing records” includes discussing a student's performance on the phone, in person, or via any media.

What about FERPA and student workers? Student workers are held to the same standards as university employees. Make sure any student worker understands FERPA basics and signs a form (available online and through RAS) to indicate understanding and acceptance of FERPA protections.

For more information about FERPA, visit: U.S. Department of Education [Protecting Student Privacy](#)