

THE UNIVERSITY OF ARIZONA COLLEGE OF ENGINEERING

School of Mining Engineering & Mineral Resources

Graduate Student Handbook

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Introduction

Arizona (UA) Graduate College website: http://grad.arizona.edu/. Specifically, general information about non- academic resources for graduate students can be found at: http://grad.arizona.edu/new-and-current-students.

General Program Information

The School offers the following advanced degrees in Mining Engineering: Master of Engineering (ME) with no Thesis, Master of Science with a thesis (MS Thesis), and the Doctor of Philosophy (PhD). The Mining Engineering Graduate programs also offer an Accelerated Master's Program (AMP) leading to an ME Non-Thesis or MS Thesis degree. Students in the ME Non-Thesis degree program will broaden their knowledge in their chosen discipline, and by selecting the MS Thesis program, students will complete a research project working in close collaboration with a faculty member. Students choosing the PhD degree will be trained to do independent and original research. The Schoolalso offers various certificate programs with coursework only lasting for about 1 year.

Graduates of each of these degree programs will be trained to be leaders in industry, academia, national laboratories, or consulting. SMEMR graduates are represented in many varied organizations, including Freeport McMoRan, WSP, Hexagon, Caterpillar, Komatsu, Rio Tinto, BHP Group Limited, Glencore PLC., and more. Upon graduation, students will be well-prepared to assume positions in a variety of industries and academia due to the diversity of the knowledge gained in the SMEMR degree program.

University Policies

Students are responsible for being aware of the policies described at the following websites pertaining to academic conduct, conduct of research, and general student conduct.

- Academic Integrity: https://deanofstudents.arizona.edu/student-rights-responsibilities/academic-integrity
- Responsible Conduct of Research: http://www.orcr.arizona.edu
- Student Conduct: https://public.azregents.edu/Policy%20Manual/5-308-%20Student%20Code%20of%20Conduct.pdf
- Graduate Policies and Procedures: https://grad.arizona.edu/policies

Information for New Students and Continuing Students

Basic User Guides

- 1. Introduction to GradPath
- 2. Intro to the Master's Plan of Study
- 3. Master's Committee Appointment Form
- 4. Introduction to the Doctoral Plan of Study
- 5. <u>Introduction to the Comprehensive Exam Committee</u>
- 6. Introduction to the Dissertation Committee Appointment
- 7. <u>Doctoral Exam Announcements</u>
- 8. Formatting Your Thesis Title Page
- 9. Formatting Your Thesis Approval Page
- 10. Formatting Your Doctoral Title Page
- 11. Formatting Your Doctoral Approval Page
- 12. Transfer credit form

Assignment of Research Projects and Advisors (new students)

The MS and PhD degrees are primarily research degrees. Consequently, one of the most important objectives for entering graduate students is to participate in the process for determining your research topic and faculty advisor(s)/mentor(s). Developing and maintaining an early working relationship with an advisor, who is responsible for mentoring, is extremely important.

For students entering the ME program an advisor is still assigned to you and their role in working with you while not research related will entail helping you plan out courses and completing and approving the required forms in order to ensure all is in order to successfully complete your degree program.

Reassignment of Faculty Advisor

Although the situation is extremely rare, the school realizes that it is sometimes in the best interest of the student to switch advisors. In such cases, ethical behavior requires that both the student and the new advisor consult with the first faculty advisor before making any such change. To change advisors, the student must obtain approval of the primary faculty advisor, the Graduate Program Coordinator, and Department Head. Once the approval is obtained, the student will do one of the following:

MS Student

- 1. If the student has already completed a Plan of Study in GradPath, then the student will submit a new Plan of Study with the new advisor listed.
- 2. If the student has not already completed a Plan of Study, then the student will simply list the new faculty advisor on the Plan of Study at such time as it is submitted to the Graduate College.

PhD Student

- If the student has completed a Plan of Study but has not completed the Comp Exam Committee
 Appointment form in GradPath, the student must submit a new Plan of Study with the new
 advisor listed.
- 2. If the student has completed the Comp Exam Committee Appointment form in GradPath but has not completed the Oral Comprehensive Exam, then the student must submit a new Comp Exam Committee Appointment form listing the new advisor as the Chair of the Comprehensive Exam Committee.
- 3. If the student has completed the Doctoral Comprehensive Exam, then the student will list the new advisor as the Chair of the Doctoral Dissertation Committee on the dissertation committee appointment form in GradPath.

If a faculty advisor determines that it is in the best interest of a student to be reassigned from the advisor's research group, then that faculty advisor shall consult with the program's Graduate Studies Committee members to determine best steps for reassigning the student.

Students should note that switching advisors could lead to loss of funding

Laboratory Chemical Safety Training (new students)

All entering MS and PhD and on occasion an in-person ME graduate students are required to take the General Laboratory Chemical Safety Training that is administered by the University of Arizona Research Laboratory & Safety Services through EDGE Learning. THIS IS REQUIRED PRIOR TO WORKING ON ANY PROJECT. Once in EDGE Learning, search for Course ID 0000003299: General Laboratory Chemical Safety Training. Students must submit an electronic copy of their completion certificate to their faculty advisor and to the graduate program coordinator, upon completion of the course. Students can access their completion certificate through the RLSS User Dashboard (rlss.arizona.edu/services) and EDGE Learning after they complete the Final Quiz. Students must allow one hour for the certificate to be processed and

available on that screen. Because the ME student does not work in a research lab, the ME student does not need to take the Safety Training.

Satisfactory Academic Progress

A high level of performance is expected of all students in the SMEMER graduate degree programs. Students must maintain a minimum of a 3.0 cumulative GPA throughout the program and must consult with both their faculty advisor and the graduate program coordinator to discuss issues pertaining to unsatisfactory progress, which includes conditions resulting in academic probation (https://grad.arizona.edu/policies/academic-policies/academic-probation) such as a GPA below 3.0 at the end of a given semester. Students failing to meet GPA requirements will be placed on probation by the Graduate College for one semester. If the cumulative GPA is not raised to the required minimum in the following semester, the student's faculty advisor and the relevant graduate studies committee will decide whether to: (1) academically disqualify the student from the program; or (2) with Graduate College approval, allow the student to continue probation upon approval of a remediation plan. The student is expected to work with the student's faculty advisor and the graduate program coordinator to improve their academic standing.

Moreover, students should refer to their individual program sections within this handbook for additional benchmarks required to maintain satisfactory academic progress, as well as making use of the degree benchmark checklists for each program available in the Appendix of this handbook.

Help with Academic and Other Issues

In most circumstances, graduate students should first pose questions on academic matters to their faculty advisor. Other members of their thesis or dissertation committee should also provide guidance and mentoring. The Graduate Studies Committees can help with advice, especially on curriculum questions and deadlines. Students may also contact the department chair at any time concerning issues related to their graduate studies. For non-academic questions and issues (e.g. navigating GradPath or required benchmarks), the best resource is the graduate program coordinator, or the <u>Graduate College</u> <u>Degree Counselor</u> for SMEMR as well as the Graduate D2L.

School Seminar

All full-time MS and PhD graduate students enrolled in the Mining Engineering graduate programs are required to register for 1 seminar unit (MNE 696A *School Seminar*) and attend the School seminar or colloquium each semester **unless it conflicts with another required course.** Enrollment will not be waived for conflicting elective courses. In rare instances, a student may obtain permission to enroll in both MNE 696A and a concurrent course, but the student must log in to view the Zoom recording of the seminar each week and complete any assignments on time. MNE 696A is required even if the student has satisfied the seminar requirements for their degree. Students in the Master of Engineering ME program for Mining Engineering need to enroll in 1 unit of seminar for their degree requirements.

Research and Teaching Assistantships and Other Funding Opportunities

Teaching and research assistantships, traineeships, and fellowships provide the most common forms of support for graduate students. While these assistantships are common, they are also extremely competitive and not awarded to every graduate student conducting research. Assistantships at 0.50 full time equivalent (FTE) or higher include stipend, health insurance, and full tuition. Assistantships at less than 0.50 FTE include a stipend, health insurance, out-of-state tuition, and 50% of in-state tuition: http://grad.arizona.edu/financial-resources/ua-resources/employment/GA.

Research assistantships (RAs) are awarded to graduate students by faculty advisors and funded by the faculty advisor's research program. Priority is given to PhD candidates. RA contracts may be for 0.25 FTE, 0.33 FTE, or 0.50 FTE. The faculty advisor is responsible for supervising RAs whom they employ.

Teaching assistantships (TAs) are awarded/assigned by the GSC each semester. Priority is given to 2nd–5th year PhD students. *Note that it is strongly recommended that all PhD students TA at least one semester during pursuit of their degree.* All students must have the appropriate background for the course for which they will TA (e.g., they have taken an equivalent course as an undergraduate), students cannot TA for a course they plan on taking in the future+ and they must pass the Graduate College's Teaching Assistant Online Training and Orientation (TATO) test. TA and grader position descriptions typically are provided to all graduate students and faculty during the semester preceding the semester where the TA or grader is needed. Students may be nominated for positions by their faculty mentors. Duties may include conducting laboratory and discussion sessions and holding office hours. FERPA training is required for all TA positions. Further information regarding FERPA requirements can be found at: http://registrar.arizona.edu/personal-information/ferpa-tutorial. TAs are supervised and reviewed by their assigned course instructors. The review process is mandatory and provides constructive feedback for the TAs. The continuation of a student continuing as an RA/TA is subject to a students performance every semester.

Out-of-state tuition is waived with all RA and TA contracts. RAs and TAs receive partial or full in-state tuition coverage as part of their employment benefit as follows:

0.25 FTE: 50% in-state tuition covered

0.33 FTE: 50% in-state tuition covered

0.50 FTE: 100% in-state tuition covered

Students awarded less than 0.50 FTE are responsible for payment of 50% of their in-state tuition. For specific information on tuition costs, students can refer to the online Tuition Calculator at https://tuitioncalculator.fso.arizona.edu.

Students who are awarded TA/RA positions will receive an offer letter outlining their specific funding, including tuition coverage at 50% or 100%, prior to the beginning of the semester in which they will serve as a TA/RA. One important requirement prior to serving as a TA/RA is to complete online training in Title IX (https://equity.arizona.edu/training/online-training).

Graders are hired as needed for core mining engineering courses. PhD, MS, and IN-PERSON ME students with the appropriate background for the course are eligible to apply for grader positions. Graders are

hired on an hourly basis for no more than 5 hours per week during the semester. There is no tuition coverage benefit with grader contracts.

One of the scholarships that may be given by the UA Graduate College is the <u>Thesis & Dissertation Tuition Scholarship</u> for non-resident students who are within two years of completing their MS or PhD degrees and are taking only 900-level graduate courses. The scholarship can reduce tuition for these students to the in-state resident amount. If you are interested in taking advantage of this scholarship, please contact, the graduate program coordinator, as it requires a department nomination. Students who are awarded the scholarship are required to attend the MNE 696A School Seminar each week although they cannot enroll in the course. Scholarship recipients who do not attend the seminars will not be nominated for the scholarship for any additional semester.

Other Resources

The Graduate College offers students many resources for parents, for professional development, for health and wellness, and more. Information on the resources available can be found a https://grad.arizona.edu/new-and-current-students.

Degree Requirements, Timelines and Deadlines

- The School of Mining Engineering and Mineral Resources offers three graduate degrees:
 - 1. PhD in Mining and Geological Engineering
 - 2. MS in Mining and Geological Engineering
 - 3. ME in Mining and Geological Engineering
- Specific requirements for each degree path are detailed in subsequent sections of the handbook.
- Students can seek guidance from multiple sources:
 - 1. Their faculty advisor
 - 2. Members of their committee
 - 3. The graduate studies committee
 - 4. The **staff graduate program coordinator** (most reliable source)
- The graduate program coordinator assists with:
 - 1. Navigating required forms
 - 2. Managing timelines and deadlines
 - 3. Ensuring on-time graduation
 - 4. **Degree checklists** are available and should be reviewed regularly throughout the program.
- For questions, students can contact:
 - 1. The staff graduate program coordinator
 - 2. The Graduate College Degree Counselor for SMEMR

Graduate Studies Milestones & Timely Progress

Milestones and Checklists

- The seven **degree benchmark checklists** (see appendix) outline when key administrative steps should occur to ensure satisfactory progress toward degree completion.
- Examples of milestones include:
 - o Comprehensive exams
 - Submission of research proposals
 - o Timely filing of required forms (e.g., plan of study, committee appointments, etc.)

Student Responsibility

- The graduate program coordinator reviews student progress regularly and may provide reminders to those who are falling behind.
- However, it is the **student's responsibility** to know and follow all degree requirements, timelines, and deadlines.

Unsatisfactory Progress

- Students who do not make satisfactory academic or research progress will:
 - 1. Receive written notification of their status.
 - 2. Be required to create a **remediation plan** signed by their faculty advisor.

Time Limits for Degree Completion

- MS students must complete degree requirements within 4 years.
- PhD students must complete degree requirements within 6 years.

If the Time Limit is Exceeded:

- 1. A letter will be sent (with a copy to the Graduate College) **strongly encouraging** completion within 1 year.
- 2. If the student misses this 1-year deadline:
 - o Another letter will be sent (copy to Graduate College).
 - The student must submit a time extension request within 1 month of receiving the letter.
 - This request must include:
 - A justification for the extension.
 - A letter of endorsement from the faculty advisor and advisory committee.
 - A copy to the graduate program coordinator.

Extension Limits

• The extension process may be repeated **only once** before the student is considered **noncompliant** with timely progress.

Extenuating Circumstances

 If extreme circumstances prevent timely completion, a leave of absence may be requested only if the student is in good standing (GPA ≥ 3.0).

Non-Compliance and Dismissal

- Students who:
 - o Fail to complete requirements, and Fail to submit a time extension request
 - → Will be considered in **chronic non-compliance**.
- In such cases, the Graduate College will be asked to **dismiss** the student from the SMEMR program.
- Dismissed students **may reapply** to the program (reapplication does not guarantee readmission).

Graduate College Degree Information & Resources

Where to Find Official Requirements

Specific details about the steps toward earning your degree—including official requirements, deadlines, and procedures—can be found on the Graduate College website.

Students must follow the instructions provided at the following links:

- University of Arizona Catalog
- Graduate Student Academic Services (GSAS)
- <u>Degree Requirements</u>

GradPath Forms – Required for All Graduate Students

- All PhD, MS, and ME students must submit GradPath forms to the Graduate College electronically.
- Students are responsible for reviewing all Graduate College information carefully and being aware of applicable deadlines.

Additional Important Resources

From the Graduate Student Academic Services page, students can access:

- New & Current Students resources for parents, professional development opportunities, and health/wellness information.
- Important Degree Dates & Deadlines essential timeline information for degree completion.

Transfer Units

MS and MEng Degrees

• No more than **6 units** of the required **24 course units** may be transferred from another accredited institution.

Certificate Programs

• A total of **3 units** may be transferred into a certificate program.

Graduate Credit from Non-Degree or Other Institutions

- Up to 12 units of graduate credit earned in Non-Degree status and/or transferred from other
 institutions may be applied toward an advanced degree after regular admission to a degree
 program.
- Students in Non-Degree status must be admitted to a **degree-seeking program** in order to complete a graduate degree.
- See: Graduate College Non-Degree Admission Requirements

PhD Students

- **From Outside Institutions**: Up to **30 units** may be transferred from an accredited university, subject to approval by the **faculty advisor** and **Graduate College**.
- These units must be:
 - o In courses relevant to the PhD study program
 - Meeting all requirements for the PhD program
- From a UA Master's Degree: Up to 24 units of coursework and 6 units of thesis may be transferred, if accepted by the faculty advisor.

Credit Transfer Process

Contact Faculty Advisor

- o Email your faculty advisor with course details and syllabi.
- Advisor reviews whether the transfer credit applies toward your degree.

Complete Transfer Credit Evaluation Form

- If approved by your advisor, fill out the Evaluation of Transfer Credit Form in UAccess
 Student GradPath.
- o Must be completed before the end of your first semester in residence.

Submit to Graduate Coordinator and Director of Graduate Studies

- o Email both with:
 - Course syllabi
 - How the credit will be used (e.g., core course replacement or emphasis area credit)

Graduate Studies Committee Review

o Committee will decide and notify the student.

Eligibility & Restrictions

- Only graduate-level courses with a grade of A (4.0) or B (3.0) are eligible.
- Transfer credit becomes effective only after completing **12 units of graduate coursework** at UA with a **minimum GPA of 3.0**.
- Courses must be **no older than 6 years** from the start of your program to be accepted.

SMEMR Waivers and Appeals Process

Requesting a Waiver

- Applies to **ME**, **MS**, and **PhD** degree requirements.
- Students must complete a **Graduate Student School Petition** and submit it to the appropriate **Graduate Studies Committee Chair**.
- Requests are reviewed by the **program's Graduate Studies Committee**.

Requirements for Approval

- The petition must present a compelling case.
- Additional pages may be attached if needed.
- Petitions must be submitted in the same semester for which the change is requested otherwise, the petition will be automatically denied.

Appeals

- If a waiver is denied:
 - o The student may appeal to the **School Director** with the support of their faculty advisor.
 - o The School Director will review the case after discussions with:
 - The student
 - The student's faculty advisor
 - The relevant Graduate Studies Committee members
 - o The School Director's decision is **final**.

SMEMR Incomplete Policy

- Incomplete grades are given at the discretion of the course instructor.
- They should be completed in a **timely manner**.
- Per the <u>Graduate College Policy on Incompletes</u>:
 - o An incomplete must be completed within one year from the last day of the course term.
 - A one-year extension may be granted if approved by both the course instructor and the Graduate College Dean before the one-year deadline.

Annual Evaluation

Frequency

• All SMEMR graduate students are evaluated **each semester** for satisfactory progress toward their degree.

Process

- 1. **Student Meeting** Once each semester, the student meets with their **faculty advisor** to:
 - Review academic progress
 - o Discuss academic goals and any program changes
- 2. **Student Self-Report** The student provides information on:
 - Teaching or research assistantships
 - o Publications and conference presentations
 - o Scholarships, fellowships, honors, and awards
 - o Completed professional development activities
 - o Plans for the upcoming academic year
- 3. **Advisor Review** The faculty advisor adds comments, signs the review, and submits it to the School.
- 4. **Performance Reviews for TAs/RAs** Teaching Assistants (TAs) and Research Assistants (RAs) also receive **official performance reviews**, which are filed with the School.

Transitioning from MS to PhD or Adding an MS to a PhD Program

Transitioning from MS to PhD

Eligibility:

- Must be in exceptional academic standing.
- o Transition is recommended by the student's faculty advisor.

Application Requirements:

- 1. Apply to the PhD program through **GradApp** and pay the application fee.
- 2. Select your faculty advisor as a reference (strongly recommended).
- 3. Reference letters from the MS application may be reused; consult the **Graduate Program Coordinator** for guidance on navigating the application form to meet reference requirements.

Exam Expectations:

 Students transitioning from MS to PhD must take the Qualifying and Comprehensive Examinations on the same schedule as if their first day in the MS program was their first day in the PhD program.

Transitioning from ME to PhD

- Rarity: This pathway is extremely rare.
- Requirements:
 - Must meet all MS-to-PhD eligibility requirements plus:
 - Have worked on a research project.
 - Have presented a thesis as part of that research.
 - Should be discussed thoroughly with the faculty advisor before pursuing.

Note for ME Students: GRE required + GPA > 3.5 + On-campus + Admission.

Adding an MS to a PhD Program

Eligibility:

o Decision made with the advice of the student's faculty advisor.

Process:

- 1. Complete a **Change of Program Form** (signed by the student and the Graduate Studies Chair).
- 2. Submit the completed form via email to the **SMEMR Degree Counselor** at the Graduate College.
- 3. The **Graduate Coordinator** can provide the Change of Program form.

No Additional Application Required:

o Students do **not** need to apply for the MS or pay an application fee.

Graduate Student Academic Grievance Procedures

Step 1 – Initial Communication

- A student with any type of grievance should **first** discuss the issue with:
 - o Their graduate research advisor, or
 - o The Chair of the Graduate Studies Committee
- The choice depends on which is **more appropriate** based on the matter at hand.

Step 2 – If the Issue Cannot Be Addressed by the Advisor or Chair

- The student may bring the matter to the attention of:
 - The Graduate Program Coordinator, and/or
 - The School Director
- This step is intended to resolve grievances **informally within the School**.

Step 3 – Formal Grievance Process

- If the matter cannot be resolved informally:
 - 1. Review the University of Arizona Graduate College Grievance Policy.
 - 2. Consult the **Summary of Grievance Types and Responsible Parties** website, which outlines:
 - Types of grievances
 - Offices responsible for addressing each type
 - How and where to file formal reports
 - 3. Formal grievances may cover issues such as:
 - Academic policy or procedure disputes
 - Grade disputes
 - Research ethics concerns
 - Inappropriate behavior by students, faculty, or staff

Bias-Related Concerns

- Students who experience or witness bias may contact the **Bias Education & Support Team** (BEST).
- BEST is **not** an investigative or punitive unit.
- Services include:
 - o Education
 - Support
 - o Resources for those impacted by bias
- Purpose: To help create a more equitable and inclusive environment in the School and at the University.

Discrimination or Harassment Reports

- Students who believe they have been subject to discrimination or harassment based on:
 - Race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information
- Should report to the Office of Institutional Equity:
 - o Location: University Services Building, Room 113
 - o Phone: (520) 621-9449

International Student Requirements & Resources

1. Official Guidance

- All details for international graduate students are available on the Graduate College site: https://grad.arizona.edu/international-students
- For immigration rules and maintaining F-1/J-1 status, visit the International Student Services
 (ISS) portal: Maintaining Status | Arizona International

2. Full-Time Enrollment & F-1 Unit Requirements

Typical Enrollment

To maintain F-1 student status, graduate students generally must enroll in:

- 9 units/semester, or
- **6 units/semester** if on a paid university assistantship <u>Full-Time Enrollment for Graduates</u> Arizona International

Thesis/Dissertation Only

After coursework completion, students enrolled only in 900-level thesis or dissertation units
must take 1–3 units/semester. This must be pre-approved by an academic advisor and
submitted to ISS before the semester starts

Summer Session Completion

 If completing your degree in summer, refer to the Continuous Enrollment section on the Graduate College website for appropriate enrollment rules.

3. Enrollment Flexibility & Final-Term Rules

- For the final semester, students may request a Full-Time Enrollment Exemption if they cannot enroll full-time due to completing degree requirements, medical condition, or academic difficulty Full-Time Enrollment Exemptions | Arizona International
- If only one or no in-person unit is available, you must meet with an international student advisor before your final term to avoid jeopardizing your immigration status

4. Employment Restrictions for International Students

On-campus employment (e.g., GAs) is limited to 20 hours/week while classes are in session
 Supplemental Compensation | University of Arizona Graduate College

• During official breaks (e.g., winter or summer), international students may work more hours per departmental guidelines.

5. ISS e-Forms & Support Tools

The ISS office provides a helpful array of **e-forms** for crucial tasks including:

- Travel signature updates
- OPT/STEM OPT applications and reporting
- Cap-gap extension
- Enrollment verification
- Social Security letter
 You can manage these via the [ISS Forms & Requests page] Forms & Requests | Arizona International

6. Additional Key Resources

Financial Assurance

International students must meet the **Financial Guarantee Requirement**, which includes tuition, fees, living expenses, and a mandatory **\$200 International Student Fee** <u>Financial Guarantee Requirement |</u>
Arizona International

Application & English Proficiency

International applicants must submit credential evaluations (e.g., WES, ECE) and meet English proficiency requirements International Applicants | University of Arizona Graduate College

Degree Requirements - Mining Engineering

Requirement	PhD*	MS (Thesis)	ME (Non-Thesis)
Core Units **	34	23	16
Electives (Excluding Minor)	_	_	9
Minor*	12	Not Required	Not Required
MNE 696A – Graduate Seminar (Core Unit)	2	1	1
MNE 910 – Thesis	_	6	_
MNE 599 OR 909 – Independent Study/Report	_	_	0–3
MNE 920 – Dissertation	18	Not Required	Not Required
Total Units	66	30	30

Key Notes

- 1. Core Courses
 - o Offered once per academic year (either Fall or Spring).
 - o Students must plan ahead to meet requirements.
- 2. Minor Requirements for PhD
 - o Minor units vary by department (often 9–12 units).
 - o Regardless of minor size, PhD students must meet 36 core units (34 core + 2 seminar).
 - o At least 22 units of combined major + minor coursework must be graded (A/B).
- 3. Graduate Seminar Attendance (MNE 696A)
 - o Required every semester for all MS and PhD students until:
 - MS: program completion
 - PhD: completion of Comprehensive Exam
 - o PhD students are not required to attend after candidacy advancement.
- 4. Course Descriptions & More Information
 - o Graduate College Requirements: <u>Doctor of Philosophy</u>

- o Accelerated Master's Program (AMP): <u>SMEMR Graduate Admissions</u>
- o Course Descriptions: <u>Online Degrees MGE</u>

PhD Program – Mining Engineering

Degree Requirements

- Major Coursework: 36 units (exclusive of dissertation research and minor coursework)
- Departmental Seminar (MNE 696A): 2 units
- Dissertation (MGE 920): 18 units
- Minor Coursework: 12 units (requirements set by the minor department)
- Must also complete all core courses outlined in program guidelines

Course Requirements

All Mining Engineering PhD students must complete courses in **each** of the categories below. Suggested courses are listed, but substitutions may be made with **faculty advisor approval**:

Category	Minimum Units	Example Courses
Business Fundamentals	3	MNE 530, SIE 557
Applied Engineering / Mathematics	3	MNE 520, BE 513, MNE 542, MNE 559, SIE 530
Entrepreneurship / Innovation / Design	3	MNE 515, MNE 536, SIE 567
Advanced Engineering Science	3	MNE 507, MNE 511, MNE 559, MNE 527

Important:

- All required coursework must be completed **before** taking the comprehensive exam.
- Students may take **research units** prior to passing the comprehensive exam, but **dissertation units** are not allowed until after passing.

Qualifying Examination

- Timing: First semester of the second year of PhD study
- Format:
 - o Oral exam
 - o Up to four papers selected by the committee chair and graduate director
 - Student presentation (~45 minutes) covering:
 - Disciplinary questions
 - Novel research
 - Research methodology and gaps
 - Followed by oral examination from committee
- Preparation: Student receives papers at least 10 days prior to the exam
- Evaluation:
 - o Pass/Fail by majority vote
 - o 2 of 3 or 3 of 4 negative votes = Fail
- Retakes:
 - o One re-exam allowed in the same semester if failed the first time
 - o Failure twice → decision made by department leadership and Graduate Studies Director
- Requirement: Must pass to remain in the PhD track

Choice of Minor

- Required for all PhD students (9–12 units depending on minor department)
- Selection should align with research interests and be discussed with faculty advisor
- May minor in Mining Engineering if approved by faculty advisor
- Minor department administers and approves the minor

Plan of Study

- File with Graduate College via GradPath during the third semester (after Qualifying Exam)
- Must include:
 - 1. Courses to transfer from other institutions
 - 2. Courses completed at UA for the degree
 - 3. Additional coursework to fulfill requirements
- Do not list more than 2 units of MNE 696A
- After comprehensive exam, only dissertation units should remain on the plan
- Approvals Needed: Faculty advisor, minor advisor, Graduate Studies Chair
- Meet with Graduate Program Coordinator before submission to avoid errors

Comprehensive Examination

Purpose: Evaluate the student's breadth and depth of knowledge in both major and minor fields.

Components

- Written Exam
- Oral Exam (defense of thesis proposal)

Committee

- At least 4 members:
 - o 3 SMEMR faculty
 - o 1 faculty member from the minor department
- Special members from other programs or institutions require pre-approval by the program and Graduate College Dean.

Timeline & Graduate College Policy

- Must be completed at least 3 months before the dissertation defense (Graduate College policy).
- Maximum time allowed between completing the comprehensive exam and finishing the degree:
 5 years.
- Extensions beyond 5 years require a **formal petition** to the Graduate College.
- Department may suggest a longer gap (e.g., 6 months), but this is program-specific and should be confirmed with the faculty advisor.
- Official policy: Doctor of Philosophy Comprehensive Exam

Eligibility to Take the Exam

- 90% of coursework complete
- Most graded units (22) finished
- Minor coursework completed

Forms & Scheduling

- Before Exam:
 - o File the Comprehensive Exam Committee Appointment Form in GradPath
 - Submit the Comprehensive Exam Announcement Form in GradPath at least 10 business days before the exam

Outcome

- Must pass both written and oral components to advance to doctoral candidacy
- One re-take allowed if failed

Dissertation Committee

- Formed immediately after passing Comprehensive Exam
- Minimum 3 members (UA faculty approved to serve on graduate committees)
- Must include:
 - Dissertation director (faculty advisor)
 - o 2 other SMEMR faculty members
- Can include members from other programs or institutions with pre-approval
- Submit **Doctoral Dissertation Committee Appointment Form** via GradPath
- Changes to committee should be reported immediately

Annual Interaction with Dissertation Committee

- Required each spring semester after Comprehensive Exam until graduation
- Presentation should include:
 - Progress to date
 - Publication status
 - o Research plans
- Signed Annual Dissertation Committee Review Form must be returned to Graduate Program Coordinator
- Final Oral Defense replaces annual review in the final semester

Final Oral Defense

- Conducted after dissertation approval by committee
- Includes public presentation + closed questioning session
- GradPath Announcement Form required (≥10 business days before defense)
- For online defenses, provide link to Graduate Program Coordinator for public announcement
- Work with Graduate Program Coordinator to set up electronic approval pages via AdobeSign

Publications Requirement (Strongly Recommended)

- Two **first-author** publications (accepted, in press, or published in peer-reviewed journals) prior to graduation
- Should be a major part of the dissertation
- Submit citations/publications to Graduate Program Coordinator for departmental records

MS Program – Mining Engineering

Core Course Requirements

All Mining Engineering MS students must complete the following at the University of Arizona or as an approved equivalent:

Category	Minimum Units	Example Courses
Business Fundamentals	3	MNE 530, SIE 557
Applied Engineering / Mathematics	3	MNE 520, BE 513, MNE 542, SIE 530
Entrepreneurship / Innovation / Design	3	MNE 515, MNE 536, SIE 567
Advanced Engineering Science	3	MNE 507, MNE 511, MNE 527

Degree Option: Thesis MS

Total Required Units: 30 graduate-level units

• Core Courses: As listed above

• MNE 910 – Thesis: 6 units

• MNE 696A - Departmental Seminar: 1 unit*

• Approved Electives: 9 units

Additional Notes:

- Students must attend MNE 696A Departmental Seminar every semester while enrolled, although only 1 unit is listed on the Plan of Study.
- The thesis option involves developing a research project leading to an MS thesis.
- After the thesis is approved by the MS Thesis Committee, the student must pass a Final Oral Defense Examination.
- The MS Thesis Committee must have at least 3 members:
 - Thesis director (faculty advisor)
 - 2 other SMEMR faculty members

- Additional members from other programs or institutions allowed with proper approval
- The thesis must be archived, and approval pages may be signed electronically via AdobeSign.

Plan of Study (MS Degree)

- Must be filed with the Graduate College via GradPath during the second semester of study.
- Plan must identify:
 - 1. Transfer courses from other institutions
 - 2. UA courses already completed toward the degree
 - 3. Additional courses to meet degree requirements
- Students should meet with the Graduate Program Coordinator before submission to prevent errors that could delay approval.
- Approvals required: Faculty advisor and Graduate Studies Committee (GSC) Chair.
- Students are responsible for knowing and meeting GradPath submission deadlines.

Final Oral Presentation & Oral Defense Examination (Thesis MS)

- Committee reported in GradPath via Master's/Specialist Committee Appointment Form.
- Committee Requirements:
 - o Minimum of 3 members approved by the Graduate College to serve
 - Must include thesis director (faculty advisor) + 2 SMEMR faculty members
 - Additional members from other institutions may be added with appropriate approvals
- Defense focuses on the thesis research.
- All SMEMR committee members must be present for the defense.

Accelerated MS Program (AMP – Mining Engineering)

Program Overview

- Allows current UA undergraduates in Mining Engineering to earn both BS and MS degrees in 5 years.
- Available only to current UA SMEMR undergraduates.

Eligibility

- Continuing UA undergraduate student
- Minimum cumulative GPA: 3.30
- At application: ≥75 undergraduate units completed (≥12 units in the major at UA main campus)
- For full admission: ≥90 units completed by end of application semester and GPA ≥3.30
- Research experience is desirable but not required

Application Process

- Apply during junior year (September or January) through GradApp (GradApp Link)
- Reference program info: AMP Mining Engineering
- Conditional admission granted after meeting GPA and unit requirements
- Senior year: May take up to 12 graduate units that double-count for BS and MS requirements (subject to rules)
- Graduate-level courses cannot double-count as both undergraduate electives and graduate electives

Admission to MS Status

- Second semester of senior year: Submit simplified MS application (application fee waived)
- After BS completion: Officially matriculate as MS student

Fifth Year (Graduate Status)

Focus on graduate coursework and thesis or project

- Select a **Faculty Advisor** for research/project guidance
- Submit Advisor Selection Form to Graduate Program Coordinator for records
- AMP MS follows same requirements as traditional Thesis MS

UA Graduate College AMP Policies

- Undergraduate status maintained until BS requirements are met
- Must take at least 12 graduate credits in graduate status
- Up to 12 graduate units may be taken in senior year to double-count
- Must maintain ≥3.0 graduate GPA in senior year for MS admission
- AMP students should complete undergraduate requirements no later than one semester before MS graduation
- Neither degree is awarded until all BS requirements are met

Plan of Study (AMP MS)

- Filed in first semester of graduate status via GradPath
- Must include:
 - 1. Transfer credits
 - 2. UA courses applied toward degree (including graduate courses taken as an undergrad)
 - 3. Additional courses needed
- Meet with Graduate Program Coordinator before submission for accuracy
- Approvals required: Faculty advisor and GSC Chair

Final Oral Presentation & Oral Defense Examination (AMP MS)

- Same committee and defense requirements as traditional Thesis MS
- Committee: Minimum 3 Graduate College-approved members, including faculty advisor and 2 SMEMR faculty
- Additional members from outside institutions require approval
- Defense focuses on thesis research; all SMEMR members must be present

Master of Engineering – Mining and Geological Engineering (ME)

The Master of Engineering (ME) in Mining and Geological Engineering is a multidisciplinary professional graduate degree for recent graduates as well as working professionals. It is a **coursework-only degree** (no thesis) that can be completed in as little as one year (30 total units). It is designed for students with an engineering background who want to solve today's environmental and technical challenges, with emphasis on water, air, soil, and energy.

Core Requirements (17 Units Total)

Category	Requirement	Course Options
Business Fundamentals (3 units)	Take at least 1 course	SIE 557, MNE 530
Applied Engineering/Mathematics (3 units)	Take at least 1 course	SIE 530, MNE 542, BE 513, MNE 520, MNE 559
Entrepreneurship / Innovation / Design (3 units)	Take at least 1 course	SIE 567, MNE 536, MNE 515
Advanced Engineering Science (3 units)	Take at least 1 course	MNE 527, MNE 511, MNE 507, MNE 559
Research Seminar (1 unit)	Required	MNE 696A
Independent Study (0–3 units)	Optional	MGE 599
Emphasis Area	Choose one area	9 units minimum

Emphasis Area Options

Geomechanics

- MNE 527 Geomechanics (3–4 units)
- MNE 547 Underground Construction Geomechanics (3 units)
- MNE 580 Mechanics of Failure in Rock & Other Brittle Materials (3 units)
- MNE 515 Rock Excavation (3 units)
- MNE 517 Tailings Storage Facility Design (3 units)

Mine Information & Production Technology

- MNE 507 Equipment Operations Technology (3 units)
- MNE 519 Mine Planning Software (1 unit)
- MNE 536 Surface Mine Design (3 units)
- MNE 538 Underground Mine Design (2 units)
- MNE 542 Discrete Event Simulation in Mining (3 units)
- MNE 581 Digital Technology Management for Mining Innovation (3 units)
- SIE 531 Simulation Modeling & Analysis (3 units)
- SIE 548 Operations Research Modeling (3 units)
- SIE 554A Systems Engineering Process (3 units)

Mine Health & Safety

- EPID 573A Basic Principles of Epidemiology (3 units)
- PHPM 574 Health Administration & Policy (3 units)
- EHS 575 Environmental & Occupational Health (3 units)
- BIOS 576A Biostatistics (3 units) May satisfy math requirement
- HPS 577 Social & Behavioral Aspects of Public Health (3 units)
- MNE 522 Engineering Sustainable Development (3 units)
- MNE 526 Health & Safety in Mining (1 unit)
- MNE 576 Fundamentals of Mine Ventilation (4 units)

Mineral Processing

- MNE 511 Mineral Processing (3 units)
- MNE 539 Surface Chemistry of Flotation (3 units)
- MNE 550 Elements of In-Situ Leaching (3 units)
- MNE 565 Hydrometallurgy (3 units)

Sustainable Resource Development

- BE 526 Soil & Water Conservation Engineering (3 units)
- AREC 576 Natural Resource Law & Economics (3 units)
- MNE 522 Engineering Sustainable Development (3 units)
- MNE 541 Environmental Management & Mine Reclamation (3 units)

Plan of Study (ME Degree)

In conjunction with their faculty advisor, each ME student must develop a **Plan of Study** to be filed with the Graduate College using <u>GradPath</u> during the first semester of study. The Plan of Study must:

- 1. Identify courses the student intends to transfer from other institutions (if any).
- 2. List courses already completed at the University of Arizona to be applied toward the ME degree.
- 3. Outline additional coursework to fulfill degree requirements.

Students are strongly encouraged to meet with the Graduate Program Coordinator before submission to avoid delays in Graduate College approval. The Plan must be approved by the student's faculty advisor and the chair of the Mining & Geological Engineering Graduate Studies Committee (GSC).

Master's Committee Appointment Form

All Master's students, including ME students, must complete the **Master's/Specialist Committee Appointment Form** in GradPath. ME students should select "No" for the question, "Do you have a Master's committee?", and then submit the form.

Accelerated Master's Program (AMP) – ME in Mining & Geological Engineering

The AMP allows advanced University of Arizona undergraduates to complete both the **BS** and **ME** in Mining & Geological Engineering in **five years**.

Eligibility

- Must be a current UA undergraduate in SMEMR
- Minimum cumulative GPA: 3.30
- At least 75 completed undergraduate units (including 12 in major at UA Main Campus) to apply
- At least 90 completed undergraduate units and GPA 3.30 at time of full admission

Research experience is **not required** but is recommended.

Application Process

- Apply via <u>GradApp</u> in the junior year (Sept or Jan).
- Conditional admission is granted after review by the School.

- During senior year, AMP students may take graduate-level courses that **double-count** toward both degrees (subject to restrictions).
- Early in the final undergraduate semester, submit the simplified ME application for full graduate admission (application fee waived).

Program Requirements

- Select a Faculty Advisor during senior year (see Section 3.1 for guidance).
- Complete the Advisor Selection Form and submit it to the Graduate Program Coordinator.
- 400-level SMEMR courses convened with 500-level courses may count toward both BS and ME, but only one core course may be taken as an undergraduate.
- AMP ME is non-thesis and follows the same requirements as the traditional ME program.

Graduate College AMP Policies

- Students remain classified as undergraduates until BS completion.
- Must take at least 12 graduate units in graduate status.
- During senior year, may take up to 12 graduate units that double-count.
- Undergraduate tuition rate applies during senior year; graduate rate applies after BS completion.
- Must maintain a 3.0 GPA in graduate coursework.
- Neither degree will be awarded until all undergraduate degree requirements are complete.

Plan of Study – AMP ME

Same as for the traditional ME degree, filed via GradPath during the first semester in graduate status.

Appendix A: Benefits for Graduate Students

1. Graduate Assistantship (GA) Eligibility

To qualify for a GA (Graduate Assistant/Associate) position:

- Be enrolled in a graduate degree-seeking program at the University of Arizona; certificate-only students are not eligible. https://grad.arizona.edu/funding/gaships/qualifications-appointment
- Maintain a minimum GPA of 3.0—the grade used at admission for new students, and cumulative for continuing students. grad.arizona.edu
- Must be enrolled in at least 6 graduate-level units before appointment begins.
 https://grad.arizona.edu/funding/gaships/appointment-periods-and-fte-information
- Graduate Associates must be in a doctoral program, with either a completed Master's or at least 30 doctoral credits at UA.

2. Employment Status & Work Limits

- GAs are limited to 26.4 hours/week (.66 FTE) during the academic year to comply with ACA regulations. Appointment Periods and FTE Information | University of Arizona Graduate College
- International students (F-1/J-1) are restricted to 20 hours/week while school is in session. https://grad.arizona.edu/funding/gaships/supplemental-compensation
- During breaks like summer and winter, housing and work-hour rules may change via supplemental compensation policies. <u>Supplemental Compensation | University of Arizona Graduate College</u>
- GAs are **exempt from Social Security (FICA)** deductions in semesters they're enrolled (min. 6 units in Fall/Spring; 3 in summer).
- Departments must provide clear workload descriptions, oversight structure, and mentoring support. GAs must receive an annual performance evaluation. <u>Supplemental Compensation |</u> <u>University of Arizona Graduate College</u>

3. Minimum Training & Language Requirements

- Teaching Assistants/Associates (TAs) must complete the TATO training module ("Staying Out of Trouble: UA Policies"), scoring a minimum of 95%, within two weeks of classes starting.
 Additional modules may be required depending on department. grad.arizona.edu
- TAs whose native language isn't English (and who don't hold a U.S. degree) must meet TOEFL criteria: ≥550 (paper) or ≥213 (computer) and Speaking ≥24.

4. GA Benefits Overview

- Tuition Remission:
 - 100% waived for GAs at .50 FTE or higher; 50% waived for less than .50 FTE. Covers only base graduate tuition; program-specific or differential fees are not included. <u>Benefits of</u> <u>Appointment | University of Arizona Graduate College</u>
 - Non-resident students also receive a nonresident tuition waiver, paying in-state rates.
 Benefits of Appointment | University of Arizona Graduate College
- **Health Insurance**: The university covers the **individual student health insurance premium**, but students must enroll in the plan each semester. grad.arizona.edu
- Bookstore Discount: GAs get a 10% discount at ASUA Bookstores (valid CAT card required).
 Benefits of Appointment | University of Arizona Graduate College
- Tuition Deferment Plan: Available to delay payment of remaining tuition and fees after remission—requires enrollment at least three days before classes begin. grad.arizona.edu

5. Supplemental Compensation & Placeholder Info

- Any compensation beyond the GA appointment (e.g., extra on-campus work) must go through the supplemental compensation form via UAccess. <u>Supplemental Compensation | University of Arizona Graduate College</u>
- GA placeholders can be set up for budgeting before appointment is finalized; they estimate
 tuition and insurance benefits but don't replace the actual appointment process.
 grad.arizona.edu

6. Parental Leave for GAs

- Eligible Graduate Assistants may take up to **12 weeks of paid parental leave** following events such as birth, adoption, surrogacy, or foster care placement.
- Eligible for 2 weeks leave after a miscarriage.
- Leave must begin immediately after the qualifying event, or up to **2 weeks prior**, and must be taken **continuously**. GA Parental Leave Policy | University of Arizona Graduate College

7. Graduate College Fellowships (Stipends Based on Need)

 All students awarded Graduate College fellowships must demonstrate financial need in addition to academic eligibility (3.0 GPA and enrollment). <u>Benefits of Appointment | University of Arizona</u> <u>Graduate College</u>

- Domestic students must file a FAFSA before funds are disbursed.
- International students must submit the "Financial Aid Calculation for International Students in Master's/Doctoral Programs" to their graduate coordinator. grad.arizona.edu

8. Appendix – PhD Comp Exam Written Portion Guidelines

- The written portion of the PhD Comprehensive Exam must be completed in the spring semester following the Qualifying Exam (typically 4th semester).
- It should include:
 - o A literature review (state-of-the-art) and a detailed research plan.
 - Length: 10–20 pages, single-spaced in US Federal Agency research article format (fonts as advised by committee).