Graduate Education Orientation and FAQs:

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How to Successfully Complete your Graduate Degree Program

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Who is responsible for your Education?

YOU!

• Others can and will help, including professors, administrative staff, department heads and fellow students:
  – Your Advisor or Major Professor (sometimes they are the same person)
  – Your Program’s Graduate Coordinator
  – Your Committee
  – Your Department
  – The Office of Graduate Education (Rachel and Trudy are extraordinarily helpful and knowledgeable.)

But the onus is on YOU.
But also note that .... the skills, expertise and friends & colleagues that you establish in graduate school will generally be friends and helpful for the remainder of your life.

- Many, many long-standing scientific and engineering collaborations that last for decades began in graduate school.
- Many career opportunities are created by the faculty and fellow students that you worked with in graduate school.
What is the graduate school experience?  
How is graduate school different from undergraduate?

- **Pace:**
  - Just as undergraduate education goes at a pace 2-3 times faster than high school education, so too does graduate education proceed at a pace 2-3 times faster than undergraduate education.

- **Rigor, Depth and Specialization:**
  - The subject-matter depth is much greater, the standards by which one is held is much higher, and the curricula are much more focused and specialized (there are no “gen eds” in graduate school, and students generally do not take courses outside their discipline).

- **Freedom, Self-discipline and Self-sufficiency:**
  - Graduate students have considerable freedom to construct a specialized program of study and research topic, graduate students are expected to do most of their learning and discovery outside the classroom, and graduate students are expected to emerge as intellectual leaders in their discipline.
Who is your key source of advice?

- **Your Advisor and/or Major Professor:**
  - If you are pursuing a research degree (Ph.D. or thesis M.S.), then your primary source of advice is your “Major Professor”. They guide your research, provide academic advising and often provide research assistantship funding, if it is available. To FIND a Major Professor, talk to the faculty in your program and seek a match, in terms of research interests, their need/want for students, and funding.
  - Upon entry to your program, many students do not have a Major Professor, in which case your department/program-assigned “Advisor” is your primary source of academic advising.
  - If you are pursuing a non-research “professional” M.S. degree, then your primary advisor is also called your Advisor, and is usually assigned by your department or program.

- **Your Program’s Graduate Coordinator:**
  - This faculty member coordinates all things associated with a specific graduate program and may or may not be assigned to be your initial or final Advisor, but they are always a resource.

- **Your Department Head:**
  - This faculty member is also the leader of the department and/or program and are always a resource.
What is the role of the Committee?
(For research degrees, committees have multiple faculty, whereas some non-thesis MS programs have a single professor as the entire “committee” and, therefore, the sole advisor to the student.)

➤ Your Major Professor:
➤ If you are pursuing a research degree (Ph.D. or thesis M.S.), then your primary advisor is called your “Major Professor”. They are your primary guide to help you in your research, pose the problem that you are pursuing for your research, usually provide academic advising and usually provide research assistantship funding, if it is available.

➤ Other Committee Members:
➤ These committee members are generally from your academic program, and provide advice and expertise to your research that complements the advice and expertise of your Major Professor.

➤ The Graduate Representative:
➤ This faculty member represents the Graduate Dean, and must be approved by the Dean. They must not be a member of the program in which you are enrolled. Their job is primarily to provide QA/QC: namely to ensure that the work is worthy of the degree conferred, and that the committee is fair to the student.
Other Committee and Major Professor notes:

1) Students **CAN** change Major Professors and/or Advisors. It may affect funding, or when you complete your degree, but you have the right to do so.

2) Sometimes committee members disagree, or conflicts arise. Your Major Professor’s job, in part, is to help resolve those conflicts. The Graduate Dean can help, as well.

3) Sometimes Major Professors leave the university. On such occasions, one should contact the Graduate Coordinator and Department Head as SOON as you can to make alternative arrangements. Typically, but not always, someone else on your committee will volunteer to be your new Major Professor.
Once you have formed your committee (which might be one faculty member – for non-thesis MS students), a 1st draft **Program of Study** should be filed:

- Varies from program to program, but whether you are enrolled in a research-driven degree program, or a non-research professional degree program, the ingredients are largely:
  
  - It is a plan of course-work (and research credits, if applicable) to chart your path to completion of your degree. *Both you and your advisors (major professor, committee, graduate coordinator) are responsible* for ensuring that it complies with the requirements of the program and university.
  
  - Note that Programs of Study (POS) are a plan, *not fixed in stone*, and can be changed at any time up to the point of a final POS in preparation for graduation.
  
  - Thus, early POS’s are valuable to you, because they help you focus on what you need to do to complete your degree.
  
  - YOU are responsible for completing the POS by middle of second semester.
What is the difference between a thesis M.S. and a non-thesis M.S.?

- A thesis M.S. is a research-driven degree:
  - Setting aside the distribution of credits, the central accomplishment and education of a student pursuing a thesis M.S is completion of their research,
  - Coursework for a thesis M.S., in contrast, serves to provide M.S.-level foundation and position the student to do research.

- A non-thesis M.S., and an M.Eng., is a coursework-driven degree:
  - The central accomplishment and education of a student pursuing a non-thesis M.S. is completion of their foundational and specialized advanced courses.
  - Some, but not all, non-thesis M.S. degrees require a small research project (much less than a thesis) to give the experience of planning, completing and communicating a project, much as in the workplace.
For Ph.D. students, there is a Qualifying Exam (not M.S. students)

- Varies from program to program, but typically it is an 4-8 hour test that examines your competence in the core (foundational) subjects of your program:
  
  - Example: Physics

  - Most Physics Qualifying Exams around the nation test student’s understanding of:

    - Quantum Mechanics
    - Electromagnetism
    - Classical Mechanics
    - Mathematical Methods of Physics

  - Obviously every discipline has it’s own set of “core subjects” that students must master.
For students in research-driven degree programs, define the problem, conduct literature review, refine the problem:

- Ph.D. students must also pass a “Comprehensive Exam”, typically taken after 2 years in the program.

- The Ph.D. research proposal (which is part of the Comprehensive Exam), like any proposal, must
  - define the problem,
  - document the literature and research that has been done, to date,
  - address how you are going to solve the problem,
  - show preliminary data, if any,
  - address alternatives, if your proposed methods to solve the problem do not work,
  - list objectives and “deliverables” that, when complete, indicate completion of the project and the beginning of writing of the dissertation.

Note: it is a good idea to write a brief proposal for research M.S. students, too. Discuss this with your Major Professor.
What is the Timeline or Sequence of Events?  
[Typical, for full-time students, M.S. (thesis or not)]

**Y1: non-Thesis MS**  
Foundational & Required Classes (Fall & Spring)

**Y2: Complete Foundational & Specialized Classes (Fall & Spring)**

**Y2: Work on non-Thesis Project & Exam - for some programs (Fall and Spring)**

End of Y2: Complete non-Thesis MS project (if required) and !Graduate! (Spring and Summer)

**Y1: Thesis MS**  
Foundational & Required Classes (Fall & Spring)

End of Y1: (Spring & Summer)  
Find thesis advisor & topic

**Y2: Conduct Research (Summer & Fall)**

**Y2: Write Thesis (Fall & Spring)**

End of Y2: Defend Thesis, make committee-required edits and !Graduate! (Spring and Summer)
What is the Timeline or Sequence of Events?
[Typical, for full-time students entering with an M.S., pursuing a Ph.D.]

**Y1: Ph.D. Students**
Foundational & Required Classes (Fall & Spring)

**End of Y1:** Find thesis advisor & topic, prepare and take Qualifying Exams (Spring & Summer)

**Y2:** Complete specialized classes in your area of interest, begin research under your Major Professor (Fall & Spring)

**End of Y2:** Write Dissertation Proposal and take Comprehensive Exam for admission to candidacy (Spring & Summer)

**Y5:** Complete any loose ends in research and write dissertation (Fall, Spring & Summer)

**End of Y5:** Defend Dissertation, make committee-required edits and !Graduate! (Spring & Summer)

**Y2-Y5:** Conduct Research, occasional classes, periodic presentations of results – locally and nationally

**End of Y5:** Defend Dissertation, make committee-required edits and !Graduate! (Spring & Summer)
A word about funding, intellectual property, and all that....

• Some research areas, and some funding agencies and companies, require that you control, limit or delay the distribution of information from your research. **If so, this MAY affect your ability to publish your results which, in turn, MAY influence your post-degree job search.** For examples:

  – Intellectual Property that you or your professor want to patent,
  – Intellectual Property that the funding company wants to patent,
  – Intellectual Property that the U.S. Government wants to control.

• **BEFORE** you begin a research project, check with your Major Professor to see if there are any such constraints.
Lab Safety Training

• Conducted by the Environmental Health and Safety Office on campus for staff/students
  – General Hazard Communication Lab Safety
  – Biosafety/Blood Borne Pathogens
  – Hazardous Waste Training
  – Radiation Safety
  – Laser Safety

• Take the types of training required for work in each type of lab
  • http://www.sdsmt.edu/Campus-Services/Environmental-Health-and-Safety/
A word about safety:

1) **Students are NOT immortal**

2) MOST injuries on university campuses happen to students – especially graduate students

3) The biggest hazards, in terms of likelihood are the common hazards that one tends to neglect:
   - heavy objects falling on your feet
   - back injuries from lifting heavy objects
   - falling off a ladder
   - electrocution
   - laser injuries to your eyes,
   - chemical burns, etc.

See the SDSM&T Office of Environmental Health and Safety: [http://www.sdsmt.edu/Campus-Services/Environmental-Health-and-Safety/](http://www.sdsmt.edu/Campus-Services/Environmental-Health-and-Safety/)
1) Safety: Don’t get hurt, don’t get anyone else hurt,

2) Use the university resources to the maximum extent practicable – library, facilities, faculty, departmental – do not be “shy”,

3) Understand and follow the student conduct code in the SDSM&T Student Handbook: [http://www.sdsmt.edu/Campus-Life/Student-Resources/Student-Handbook/](http://www.sdsmt.edu/Campus-Life/Student-Resources/Student-Handbook/)

4) You ALWAYS have the right to talk to Human Resources (HR), the Dean of Students, the Graduate Dean, and Public Safety about any issues that YOU deem important.
5) Take charge of your education and research. Faculty are there to guide you, not teach you everything. Read journal articles every week. Go beyond the minimum in classes. Seek your own ideas and questions. Become the expert.

6) Build a relationship with your advisor/major professor

1) Faculty are always busy. They should reach out to you, but you can also reach out to them. When you do, respect their time by:

1) Arrange a meeting at least once a month (thesis/PhD) or once a semester (non-thesis), if they do not.

2) Have a clear purpose to accomplish when you meet.

3) Prepare. For example, Don’t just ask what classes you should take. Bring a list of courses that interest you and request feedback.

4) Do assigned tasks promptly and fully. Come back with questions and ideas.

5) Set goals at each meeting and review them at the next meeting.
Where is the Office of Graduate Education?

We are here:

Graduate Education Office
2201 Chemistry Building
South Dakota School of Mines and Technology
501 East St. Joseph Street
Rapid City, South Dakota 57701-3995

Phone: (605) 355-3468
E-mail: Graduate.Admissions@sdsmt.edu
Nuts and Bolts: New Student Checklist

• Activate your Mines email account—VERY IMPORTANT—this is the account that SD Mines uses to communicate with you!
• Complete the attendance confirmation on WebAdvisor
• Register for courses: as a graduate student at SD Mines you must be continually enrolled (Fall and Spring, not summer) for at least 2 credits each semester.
• Students with assistantships: attend the assistantship session at the end of this orientation.
• Obtain a parking permit (sign up online)
• Obtain your student ID (cashier’s office, Surbeck Center)
• Dates to remember:
  – January 18 - Last day to add/drop courses with a refund
    • Courses listed on your registration after this date cannot be changed
  – January 19 - Last day to make payment arrangements
    • You will be dropped from your courses if arrangements are not made
  – April 3 - Last day to withdraw from courses with a “W”
Grade Requirements

• Must maintain a 3.0 cumulative GPA of ALL graduate level courses taken (including credits not applied toward the degree)
• C grade or better in all graduate level courses applied to the degree
• See catalog for further details.

If you do not meet Grade Requirements

• Students may be placed on probation
• Students on probation are not eligible for assistantship funding without special approval
• Students must be in good standing within 1 year of probation notice; must be approved to continue program if on probation more than 1 year
• NOTE: courses remain on your transcript FOREVER. They cannot be removed.
Degree requirements (minimum)

- Ph.D. - 72 credits required in most programs
- M.S. or M.Eng.: 2 degrees, 3 options:
  - Non-thesis, coursework only - minimum 30 credits required, course credits only (no research)
  - Non-thesis, with research project - minimum 30 credits (up to 6 credits of non-thesis research credits can be used)
  - Thesis - minimum 30 credits (6-12 thesis research credits can be used, depending on program requirements)
- Individual program requirements vary (including total credits required and research credits allowed) - check with your advisor and refer to the catalog for more information
• Be familiar with the Graduate Education policies
  – In the academic catalog: http://ecatalog.sdsmt.edu/
• Grad ed forms can be found on our website:
  – http://www.sdsmt.edu/Academics/Graduate-Education/Grad-Ed-Forms/
• Additional forms for the Registrar including Permission of Instructor
  – http://www.sdsmt.edu/Academics/Registrar/RAS/RAS-Forms/
• Thesis writing workshops are held every semester (invitations are sent via e-mail). Thesis writing guidelines are available online:
  – http://www.sdsmt.edu/Academics/Graduate-Education/Grad-Ed-Forms/
Getting help

• Ask your advisor/major professor
• Maintain contact with your Graduate Advisory Committee
• Check with your department secretary
• Thesis writing workshops are held every semester (invitations are sent via e-mail). Thesis writing guidelines are available online:
  – http://www.sdsmt.edu/Academics/Graduate-Education/Grad-Ed-Forms/
• Contact the Office of Graduate Education
  – Located in Chemistry building, room 2201
Questions?