Department of Geology and Geological Engineering

South Dakota School of Mines and Technology

Graduate Student Handbook

2016-2017

TABLE OF CONTENTS

Links to Online Resources: GGE Degree Programs

	GGE	SDSMT
Master's Program		
Master of Science in Geology and Geological Engineering	Online	Here
Master of Science in Paleontology	Online	Here
Doctoral Program	Online	Here
Geology Specialization	Online	
Geological Engineering Specialization	Online	
Qualifying Exam	"	
Dissertation Proposal Defense	"	
Language Requirements	"	
Comprehensive Examination: Summary of Rules and Organization	"	
Admission to Candidacy	"	
Dissertation	"	
Dissertation Defense	"	
GGE Graduate Program Checklists	Online	
General Outline for Thesis Proposal	Online	
Instructions for the Preparation of Theses and Dissertations	"	

GGE FACULTY AND STAFF
Links to Individual Webpages

Department Administration		
Laurie C. Anderson Professor	Department Head and Museum Director	MI 303 PRL 1212
Cleo Heenan	Senior Secretary	MI 305
Geological Engineering Faculty		
Larry D. Stetler Professor	Geological Engineering, Sedimentology, Surface and Ground Water, Environmental Geology, Petroleum	MI 310
J. Foster Sawyer Associate Professor	Sedimentology, Ground Water, Petroleum Geology	MI 318
Kurt W. Katzenstein Assistant Professor	Geomechanics, Geological Engineering, INSAR	MI 316
Liangping Li Assistant Professor	Groundwater, Geostatistics, Data Assimilation, Reservoir Modeling	MI 314
Geology Faculty		
Maribeth H. Price Professor	GIS, Remote Sensing	MI 301
Timothy Masterlark Professor	Geodynamics	MI 308
Zeynep Oner Baran Assistant Professor	Structural Geology	MI 312
Darren Pagnac Associate Professor	Vertebrate Paleontology	PRL 213
Christiana Belanger Assistant Professor	Micro Paleontology	PRL 111
Gokce K. Ustunisik Assistant Professor	Igneous Petrology, Experimental Petrology, Planetary Petrology, High Pressure/Temperature Geo-Chemistry, Chemical Volcanology	MI 302

Support Staff

Christopher Pellowski Coordinator, Instructor	Field Geology	MI 300
Curtis V. Price Instructor AY16-17	GIS	MI 315
William M. Roggenthen Senior Lecturer	Research Scientist IV Geological Engineering	MI 304
Edward F. Duke Professor	Manager of Analytical Services Petrology, Geochemistry, Remote Sensing	MI 234
Nuri Uzunlar Professor	Director, Black Hills Natural Sciences Field Station	MI 306
Sally Shelton Instructor	Collections Manager, Museum of geology	PRL 114

Postdoctoral Faculty

Sui Tung	Postdoctoral Research Scientist

Emeritus Faculty

Arden D. Davis Professor Emeritus of Geological Engineering	Groundwater, Environmental Contamination, Digital Modeling
James E. Fox Professor Emeritus of Geology	Curator of Invertebrate Paleontology Sedimentology, Petroleum Geology, Invertebrate Paleontology
Alvis L. Lisenbee Professor Emeritus of Geology	Structural Geology
James E. Martin Professor Emeritus of Geology	Emeritus Curator Museum of Geology Vertebrate Paleontology, Biostratigraphy
Colin J. Paterson Professor Emeritus of Geology	Economic Geology, Mineral Resources, Petrology
Perry H. Rahn Professor Emeritus of Geological Engineering	Hydrogeology, Environmental Geology
Jack Redden Professor Emeritus of Geology	Economic Geology, Petrology, Structural Geology, Precambrian Geology

Adjunct Faculty

Mr. Mark Anderson	Director, South Dakota Water Science Center, US Geological Survey, Rapid City, SD
Dr. David Bapst	Adjunct Assistant Professor, SDSM&T Geology and Geological Engineering, Rapid City, SD
Dr. Rachel Benton	Park Paleontologist, Badlands National Park, Interior, SD
Mr. Derric Iles	State Geologist, South Dakota Geological Survey, Vermillion, SD
Dr. Kelli McCormick	Lecturer, SDSM&T Mining Engineering and Management, Rapid City, SD
Mr. Daniel J. Soeder	Geologist, Hydrologist, Technical Project Coordinator, Senior Research Scientist; DOE National Energy Technology Laboratory, Morgantown, West Virginia
Dr. Joshua Valder	Hydrologist, South Dakota Water Science Center, US Geological Survey, Rapid City, SD
Dr. Haiyan Zhou	Adjunct Assistant Professor, SD Mines Geology and Geological Engineering, Rapid City, SD

GENERAL INFORMATION

KEY INFORMATION

Outside door keys, laboratory keys, and office keys for the Mineral Industries (MI) building and the Geology and Geological Engineering Department are available upon request and approval from the Department Head, Laurie Anderson. The department secretary, Cleo Heenan, prepares the request form. For access to the Paleontological Research Lab (PRL) and offices and labs within the PRL, submit a request to Sally Shelton, Associate Director. You must have a student ID in order to pick up keys from Facilities Services. All keys must be returned to Facilities Services and the proper form signed off on prior to graduation.

OFFICE INFORMATION

Teaching and research assistants are assigned offices on a priority basis using the guides listed below. Depending upon space, remaining graduate students are assigned offices as space allows. Office space is provided in both MI and the PRL for graduate students. Offices are allocated in accordance with the following priority list:

1. Students on a TA, RA, and/or Fellowship
2. Students that are working with proprietary data, those that need a hard (Ethernet) SDSM&T network connection (note, only SDSM&T owned computers can be physically connected to the Ethernet), and those that are nearly finished with their thesis/dissertation
3. PhD students without support
4. MS students without support

FACULTY ADVISOR

As part of the admission process into the GGE graduate programs, a faculty member must be identified as your advisor. This person usually 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.

During the 1st semester enrolled in the graduate programs, the major advisor should be confirmed and with that person's assistance, a full advisory committee selected. Each student must complete a Program of Study (POS) that outlines previous course credits incoming to the program and all courses and research credits that are to be completed as part of the graduate program. The full committee must meet and sign the POS. The completed POS with all signatures but the Department Head will be delivered to the department secretary where it will be reviewed and approved by the Department Head. When this signature is obtained, a copy will be made for the Department, and the original will be forward to the Graduate Office on your behalf.

MAIL

Mail is delivered once a day around 2:00 p.m. All graduate students will be assigned a mail slot located in room MI 311.

PHOTOCOPYING

Student use of the department copier code is limited to TA responsibilities for copying class handouts, coursework assignments, exams, etc. The code is not for personal use. Copying costs are extremely high for the department, so we appreciate your help in enforcing this. The code is available from the department secretary, Cleo Heenan.

The copier also has scan-to-email capabilities. Please use this function if there is a paper or large handout required for a lab. This can be scanned and emailed to you as a PDF or other formats and then distributed to the class, or placed on the course D2L website for access. Providing lab resources as a PDF file is cost effective for both the department and the students, who can choose to print it or use it as an electronic file. Scanning to email directions are taped on the wall above the copier. Please abide by applicable copyright laws when scanning and photocopying.

GRADUATE POLICIES

The Graduate School and the Department have many policies concerning registration, enrollment, requirements, funding, grades, research committees, and more. Knowing these policies will assist each student to navigate the graduate program and complete the degree with a minimum of setbacks. It is important to read and review these documents periodically as they do change from time to time. For example, this document is updated each fall. It is each students responsibility to know, understand, and abide by these policies. Questions about them may be directed to the graduate advisor, the department head, the Graduate Education office staff, or the department Interim Graduate Coordinator Dr. Masterlark.

Policies established by the Graduate Education office apply to all graduate students at SDSMT regardless of department. These are located under the "Graduate Education Policies" section of the SDSMT online catalog.

GGE Department policies apply to all graduate students in the MS and PhD programs offered by the department, and are located in the SDSMT catalog sections for each academic program (MS in Geology and Geological Engineering, MS in Paleontology, etc.). Links to these sections of the Department website and the SDSMT online catalog are included in the TOC on page 2 of this document.

GRADUATE STUDENT INFORMATION

1. It is the student's responsibility to comply with all university requirements in the SDSMT Catalog as well as departmental requirements in this handbook and the department website.
2. All graduate students must select and meet with a graduate advisory committee (should be done early in the first semester) and submit a POS no later than the mid-term of the second semester of the student's registration as a degree-seeking candidate. Only coursework that is to count toward the graduate degree should be included on the POS. The graduate student and the student's advisory committee must sign the program of study. An electronic form is available from the Graduate Education office, online, or the department secretary.

   Graduate committee memberships vary by degree as follows: MS committees consist of the major professor, an out-of-department professor (known as the Graduate Division Representative), and one additional faculty member typically having interest of expertise in the student's research topic. There is a total of three committee members. PhD committees have two additional members that can be within the department or an additional out-of-department member if their expertise lines up with the research topic or area. PhD committees must have at least five members. All committees must have a minimum of three full-time SDSMT faculty members. Refer to the online Graduate Education Policies for additional information about who may serve on graduate committees and who can be the major professor.

3. Emeritus and Adjunct Professors may be voting members of graduate student committees but may not serve as major advisor. In situations where Emeritus and Adjunct Professors serve on graduate student committees, the committees shall consist of one additional full-time departmental faculty member. In this situation the student's committee will then consist of a minimum of four members for MS degrees and six members for the PhD degree. A minimum of three members from the SDSMT campus is required, or when there are more than five members a majority must be from the SDSMT campus. Consult the SDSMT catalog for any additional committee requirements for MS and PhD programs.

4. All graduate students must maintain a 3.0/4.0 GPA. In the event that the graduate student fails to achieve a 3.0 GPA, the student will be placed on probationary status. Students placed on probation must achieve a semester GPA higher than 3.0 in the immediately following semester. If the cumulative GPA remains less than 3.0 after the probationary semester, the student must petition the departmental faculty for continuation of probationary status for one more semester. If, at the end of this extended semester of probation, the cumulative GPA is greater than 3.0 the student will be reinstated as a graduate student in good standing. If at the end of the extended semester the cumulative GPA remains less than 3.0, further enrollment in the graduate program will be denied. Students on probation may not hold a TA or RA position. See Probation section in SDSMT catalog for more information.

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. See section under Probation and Reinstatement Policy in the SDSMT online catalog.

6. 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. See section under Continuing Registration Requirements in the SDSMT online catalog.

7. Each graduate student is required to organize meetings with his/her graduate advisory committee at specified intervals as established by department policy. The purpose of these meetings will be to ensure coursework and research topics are being adequately advanced according to the POS and to gage progress within the program.

OTHER IMPORTANT INFORMATION

1. Faculty expectations of graduate students may vary. As a general rule, GGE faculty expect graduate students to at least maintain the following:
   - Be professional—act professional and speak in a professional fashion. Homework and lab assignments should be completed in as professional a manor as possible.
   - Learn—do not just pass exams but know the subject.
   - Consult literature regularly—use the journals and books in the library or lose them! Do not reshelve journals after use in the library. This is a method of determining journal usage statistics. The Library also has many online resources and each student should be familiar with these.
   - Attend seminars—Friday 4:00 p.m. and any others scheduled during the semester will be posted in the MI building by ~Wednesday each week as well as email reminders.
   - Participate in professional organizations—Darton Geological Society, student chapters of SEG, SPE, AAPG, Tech Geological Association, Paleo Club, or other organizations appropriate for your specialty. Many memberships for students are free so take advantage of this and begin to interact with other members at local, regional, and national meetings.
   - Participate in field trips—these are offered on weekends during the semesters as well as during the summers.
   - Attend professional meetings in your specialty. Graduate students should submit abstracts on their research and prepare and present either a poster or orally as much as possible.
   - 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 Graduate Teaching Assistantship (GTA) and Graduate Research Assistantship (GRA):

- First year of study—It is department policy to fund as many GTA's as possible for a student's initial year. Expectations for the GTA are given below. During the first year, each student should consult with their major professor and work together to apply for and obtain additional funding for the second and subsequent years.
- Second year and beyond—Additional years funding will consist of GRA support. Do not expect continued GTA funding beyond the first year. In some instances, GTA funding may continue for students whom display excellence in teaching, working with under-graduate students, in coursework (exemplified by a 4.0 GPA), and in participation in department activities and professional societies. A brief request form is required each semester for consideration for awards. Please see the department secretary for assistance.

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 should occur. In the first two weeks of the spring term, registration for the following fall should occur. This becomes most effective after the POS has been completed, suggesting that the POS should receive early and studious attention. Courses that do not meet minimum registration will be cancelled. For 400/500 levels, the minimum is 10 students. 600 level courses must have 7 registered student and 700 level courses require a minimum of 4 students. The planned offering of classes in the GGE programs for the next 2 years is available from the department secretary and the GGE online website.

4. Consult the SDSMT online catalog, Graduate Education website, and the department Graduate Student Handbook and website regularly. It is each student's responsibility to complete the degree requirements as specified.

5. Note deadlines for choosing major advisor and thesis committee, and completing program of study and thesis proposal.

6. Research methods—consult your advisor and use books on research in library, etc.

7. Thesis standards within the department will be maintained at a high and consistent level. The department head serves on all thesis committees to ensure standards are maintained.

8. Finish your degree program as soon as possible.

9. Return any items checked out from the department before graduation or leaving to avoid a hold on your academic record.

10. Jobs—summer jobs in each student's profession will enhance the likelihood of being hired after graduation. In fact, prior job experience is virtually required for permanent positions at the advanced level the graduate degree will provide. The bulletin board on third floor of MI will have all job announcements posted that come into the department or individual faculty. Each student should also send resumes to companies using their individual online HR processes.

11. Faculty workloads—both the faculty and department secretary typically remain extremely busy with full schedules. Individual faculty consultations are encouraged but please use either posted office hours or make arrangements with a person via email. Notify the faculty person if it becomes impossible to attend a scheduled meeting.

PROFESSIONAL CONDUCT

Graduate school prepares the student for employment in a professional work environment and its rules of conduct resemble those of the workplace. Workplace conduct for graduate students is different than for undergraduate student conduct. As compared to graduate study, undergraduate programs include more free time, typically spent on hobbies, friends, and extra-curricular activities. These activities usually had minimal consequences especially after a routine was set. However, graduate study demands more of a structured workday that bleeds over into the evening and weekend hours, and often leaves little to no extra time for free-time activities. The reality is that the industries that hire SDSMT GGE graduate students (MS and PhD) expect a full workday that often bleeds over into 'off-time' hours to be completed. What they do not expect is to hear is complaining words or see dispassionate work effort. Most (if not all) industries hire at a salary and although it is nice to think of this as a 40-hour workweek, it is for a job regardless of the hours it may require to complete it. All workplace managers are concerned with maintaining a positive work environment for everyone, and adhering to these expectations now will only enhance your experience at the job after graduation. This can be successfully achieved by practicing professional conduct skills now as a graduate student. Consider all fellow students as work colleagues, and treat them, faculty, and undergraduates with professional courtesy and respect at all times.

Monitor speech—be careful what is said and how it is said. Negative comments about people, spreading rumors, and gossiping are destructive to workplace effectiveness, and can turn around and hurt YOU in the end, both personally and professionally. Faculty, staff, and fellow students are more likely to think poorly of YOU if they hear negative comments. They will not think negatively about the person you are complaining about.

Be inclusive—work with everyone. In the workplace professional teams include people from diverse disciplines. As such each individual must cooperate and get along with all other team members. Although there are conflict resolution methodologies in place, it is never wise beginning a project with the expectation of utilizing them. Include all team members in all work-related activities, not just friends. It is important to not leave people out, even if you personally do not like them.

Be respectful and polite, always. There will be times that not everyone working on a particular project may be liked. However, workplace interactions should not reflect personal feelings. It may be necessary to evoke an 'extra' polite attitude toward these individuals counter to what true feeling may actually be. This is a sign of a true professional, that no one observing will be able to distinguish any type of favoritism or special treatment.

Learn constructive ways to handle conflict. Disagreements and conflict will occur, but strive toward a better method to handle them. Many disagreements can be successfully resolved through a respectful discussion if both parties remain polite, listen, and try to understand the

other side. Most industries have in place some method for conflict resolution and some person or persons in charge of this process. These are set up to be fair and just if they are ever required. Learn more about conflict resolution now if there is a desire or need. Talk with your major advisor, the department head, or the counseling office.

GUIDELINES FOR TEACHING ASSISTANTS

Most TAs will be in charge of a laboratory section for a course. This will require working with the faculty member in charge of the course and lab to ensure the correct and proper materials are used and discussed in the lab sessions. SDSMT 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 to and to communicate to the students in the lab. Feedback, and other means of student contact can be made with D2L.

1. Initially consult with faculty member responsible for the class to determine what material should be included in the syllabus.
2. Distribute and/or post on D2L a course outline to students, including objective of course, topics to be covered (and schedule), schedule for quizzes and exams, grading policy, policy for absences, policy for late submission of lab work, etc. For most labs, the faculty in charge will let you know what these are.
3. Meet for every scheduled lab, be punctual, and be there for entire lab period.
4. Be prepared—give introduction to lecture (if required), and plan selected exercises to last for entire lab period. Typically the material in the lab has been discussed in the lectures so the introduction in the lab may only be needed to go over the lab methods, etc.
5. TAs must maintain at least three hours of office hours each week that are clearly posted outside of the office. A copy of the TAs schedule must be supplied to the department secretary each semester. Office hours are to be used as additional opportunities for help for the students, and NOT instead of student's attendance at the lab. If a student misses a lab with an excused absence, then the makeup time will be selected by you and the student.
6. Multi-section classes—if one lab day is missed due to a holiday, cancel all sections for the week (unless during another week, the other lab section falls on a holiday, or a Saturday field trip can be utilized). Consult with the faculty in charge for instructions on how to handle these situations.
7. Prepare all photocopies, handouts, quizzes, exams, etc., prior to the course meeting time. The copier code is available from the department secretary. Recall that it is possible, and preferable, to copy to email and save these handouts as PDF files that can be distributed on D2L. Obvious need for paper copies are items such as exam sheets, etc.
8. Field trips. Most labs include one or more field trips and TAs typically serve as drivers during these excursions.
    - Reserve van(s) early through the department secretary. If the trip is cancelled please notify the secretary as soon as possible so that the van reservation can be cancelled.
    - Arrange for drivers (other TA's or RA's) if necessary.
    - Provide the department secretary a list of all the names of students who will be on the field trip and ask her to submit an insurance form. Do this in advance of the scheduled field trip, two days are preferred so there is not a rush required in the

department office. Discourage students from driving their own vehicles unless it is absolutely necessary and then they can only drive themselves, not other students.

9. Grade lab work, quizzes, and exams promptly. It is a good idea to have deadlines for lab work that enable the grading to be completed and work returned by the next lab period. Be fair—offer constructive advice that guides and helps the students. The faculty in charge of the course will most likely provide some sort of grading criteria to be used. If a student's name is attached to a test or assignment scores, and this information is shared with a third party, it is a violation of the Family Educational Rights and Privacy Act (FERPA). An example would be returning tests or assignments in a manner that is not private, i.e., leaving tests in a location for students to sort through to find their test score, posting names and scores on a bulletin board, or leaving unclaimed tests in a location where they can be seen by others. Hand the test paper directly to the student as this eliminates the possibility that one student could see another student's grade or record. See additional information about FERPA at the end of this document.
10. For multi-section classes, strive for equal treatment in terms of material covered and grading of work or exams. Be fair and consistent and always coordinate with TAs of the other sections.
11. Keep the lab rooms clean and orderly. Minimize leaving lab materials on benches as other courses and classes utilize these rooms. Most of the labs have already prepared items that are kept in steel trays inside the wooden cabinets that line the walls of most labs. The faculty in charge, or the TA from the last year will assist in locating the materials for the lab. Keep these in the same locations and do not move them around unless directed by the faculty.
12. At the end of the semester, reorganize all lab materials in all trays for the next semester. Provide a copy (electronic documents are preferred) of all lab materials utilized to the faculty in charge.
13. A half-time GTA corresponds to 10 hours of work per week, full-time GTA is equal to 20 hours per week. As part of the load, the faculty in charge of the course may ask you to assist with grading in the lecture class.
14. All hours worked as a GTA must be logged into the online record-keeping system. As a TA, training will be provided on the location of this website and the proper method to fill in the hours worked. This must be completed by a specific time each month or that month's pay will be delayed.
15. 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.

IMPORTANT LANDMARKS IN MASTER'S STUDY

1. All graduate students must meet with a graduate advisory committee and submit a program of study no later than the mid-term of the second semester of the student's registration as a degree-seeking candidate.
   Students are required to meet with the full committee at the following times: prior to signing the POS, at the coursework examination, and for the defense. Faculty are very busy, please begin scheduling these meetings well in advance. It is the student's responsibility to arrange these meetings, reserve the room, and notify all attendees of the place and time for the meeting. Students may also request meetings with some or all of

the committee to get feedback on progress or goals. You should be meeting with your major professor at least once per semester; many faculty members will require more frequent meetings.

2. A thesis proposal must be submitted to the major advisor and committee before the end of the third semester of coursework and before commencing thesis research.
3. The oral coursework examination will be completed no sooner than the second year of graduate studies and at least three months before the thesis seminar and defense. If the five-year limit is exceeded and if the graduate student is readmitted to the graduate program, the student must retake the oral coursework examination.
4. Presentation of the thesis seminar followed by the thesis defense. The oral coursework examination, thesis seminar, or the defense may not be scheduled during finals week, the week before finals, or the summer. In addition, the thesis defense must occur at least four (4) weeks prior to any Graduate School deadlines. Under special circumstances the student may petition the department chair for consideration of summer scheduling. If accepted, this will require registration for 2 credits during the summer the defense occurs.

IMPORTANT LANDMARKS IN DOCTORAL STUDY

1. The program of study shall be filed with the graduate office before the mid-term of the semester after a total of nine credit hours have been earned.
2. Students are required to meet with the full committee at the following times: prior to signing the POS, at the qualifying/comprehensive examination, and for the defense. Faculty are very busy, please begin scheduling these meetings well in advance. It is the student's responsibility to arrange these meetings, reserve the room, and notify all attendees of the place and time. Students may also request meetings with some or all of the committee to get feedback on progress or goals. You should be meeting with your major professor at least once per semester; many faculty members will require more frequent meetings.
3. PhD students must complete a qualifying exam that tests the student's mastery of the coursework, and a comprehensive exam indicating that the student has originated a workable dissertation proposal. These exams are given together over an ~two (2) week period and include a written coursework exam and an oral examination in which the proposal is defended. Guidelines for the PhD examinations are given below, or click here.
4. The qualifying examination consists of a written exam prepared by the Department Faculty that covers defined topics areas of expertise (see below) covered by the student's coursework. The qualifying exam occurs before the comprehensive exam.
5. The comprehensive examination and dissertation proposal defense occur no sooner than five (5) and no later than ten (10) days after the qualifying exam.
6. Advancement to candidacy is granted upon successful completion of the comprehensive examination/dissertation proposal defense. Graduate school rules require that the application for candidacy be made no less than twelve months before the dissertation defense.
7. Dissertation defense to occur at least four (4) weeks prior to the Graduate School deadline to facilitate all correction are completed for submission of the final copy to the Graduate School.

ADDITIONAL GRADUATE STUDENTS REQUIREMENTS

In addition to the general outlines above, each graduate student is required to follow the rules of expectation for activities during semesters they are registered for thesis/dissertation research credits at SDSMT. This list is maintained online and provided below.

All graduate students registered for thesis/dissertation research credits will be required to perform the research activities outlined by your major professor and/or research committees. Each committee may require different criteria to demonstrate successful completion of the assigned work. In addition, to receive a satisfactory grade, all students must complete **one of the following** each semester you are enrolled in research credits:

- Present research in the form of a poster or oral presentation at an approved academic conference. These include:
    - All annual or sectional professional society meetings
    - Industry-sponsored meetings
    - State or local scientific conferences
    - Graduate Student Seminar Series (see below)
    - Graduate Brownbag Seminars (new in Fall 2016)
- Publish or submit research paper in a scholarly journal.
- Defend your thesis/dissertation through a public presentation.
- Submit a research proposal to a funding agency.
- Successfully pass the MS comprehensive oral coursework exam.
- Successfully write and pass the PhD comprehensive exams.
- Prepare and present one 20-25 minute presentation on your research at the Graduate Student Seminar Series, scheduled each semester by Dr's Stetler and Katzenstein. Email notifications will be sent to all graduate students in the last month of each semester.
- Prepare and present one 20-25 minute presentation on your research at the Graduate Brownbag Student Seminar Series. Schedule with Dr. Masterlark.

A satisfactory grade for thesis credits each semester will require the student to participate in the required dissemination of research progress listed above. Each student's major advisor will make the final decision as to meeting these requirements.

Graduate students who are not registered for thesis credits are strongly urged to attend the Graduate Student Seminar Series and the Graduate Brownbag Seminars so that insight into the types of research occurring within the department is attained and provide constructive feedback to presenters.

All graduate students are strongly encouraged to attend the regularly scheduled department Friday Seminar Series throughout the year.

All graduate students are encouraged to attend other students research proposal defenses for understanding of the process and completing adjustments to your own defense.

GRADUATE COMMITTEE STUDENT REPRESENTATIVES

The Department maintains a Graduate Committee composed of five voting faculty members and two graduate student advisory members--one MS student and one PhD student. The committee is chaired by the Graduate Coordinator (currently Dr. Masterlark). The committee is charged with:

- Reviewing and formulating policies related to the department's graduate programs,
- Reviewing and approving graduate curriculum requests,
- Providing recommendations on individual student requests and exceptions related to graduate programs,
- Providing input on other graduate program-related items as required.

The faculty members are appointed by the department head and encompass all three areas of the department including geology, paleontology, and geological engineering.

The graduate student members are nominated and elected by a special meeting of graduate students at the beginning of each academic year. It is the responsibility of the graduate students to hold this meeting, which must be advertised a week in advance. Written nominations may be submitted to the department secretary during that week, and additional nominations must be solicited at the meeting. All nominees must have previously agreed to serve before being nominated. An election by secret ballot will determine the representatives, and the result of the election will be reported to the Graduate Coordinator. If a committee seat goes vacant during the academic year, another special meeting and election may be held to fill the position.

The faculty on the Graduate Committee may elect to hold a faculty-only meeting when issues concerning individual students must be discussed. The student representatives will be informed that such a meeting is taking place, but will not be advised of the content of the meeting.

MS EXAMINATIONS

When the student has substantially completed the required 24 credits of coursework for the MS, the student must complete a comprehensive oral coursework examination. This should be scheduled through the student's major advisor with committee approval at least three months prior to the thesis defense.

PhD EXAMINATIONS

When the student has substantially completed the required 36 credits of coursework for the PhD, and before work on the dissertation research commences in earnest, the student must complete a combined examination composed of two parts. The first part is the **Qualifying** exam, which is a course-work based exam to test and demonstrate the doctoral student's proficiency in the foundational material of his or her discipline. The second part is a "**Comprehensive** and Admission-to-Candidacy Exam," which is a wide-ranging exam to demonstrate the doctoral student's readiness to pursue doctoral research; it includes the submission and defense of the doctoral research proposal. After the successful completion of

both exams, the student will be admitted to Ph.D. candidacy. The final defense must take place no earlier than 12 months after admission to candidacy.

The student must make a request to the student's committee to take the Qualifying and Comprehensive examinations no later than two months prior to the examination. Both exams must also be scheduled with the Graduate Office; students should review its policies regarding the scheduling and reporting of qualifying and comprehensive exams well in advance to ensure that all requirements are met. The department requires that the qualifying examination must take place within one working week. The comprehensive examination must be held no sooner than five working days and no later than 10 working days after the completion of the qualifying exam.

If the student has not completed all requirements for the Ph.D. degree by the fifth year following the comprehensive examination, his/her active candidacy status will be automatically terminated and the comprehensive examination must be repeated.

The qualifying examination

The qualifying examination will consist of a written examination covering the student's field of study and related subjects. It will be prepared by the student's advisory committee, with potential suggestions from any faculty member from whom the student has taken a graduate course. The examination may be scheduled for spring and fall semesters only, and may not take place during the last week of classes or the week of final examinations.

The results of the qualifying examination must be determined prior to the comprehensive examination and should be reported to the student as soon as possible following the completion of the exam.

The qualifying examination will consist of three parts, all of which must be completed within one working week. Each part will be three hours in length. Students may not be required to take more than one part per day.

General	33%
Specific Topic 1	33%
Specific Topic 2	33%

For students in the **Geology Specialization**, the General part of the qualifying exam will include **General Geology**. Specific topics will be chosen by the student with approval by the student's committee; examples are listed below. A student may propose hybrid fields with other disciplines if approved by his or her graduate committee.

- Structural Geology
- Sedimentation/Stratigraphy
- Paleontology
- Igneous/Metamorphic Petrology
- Economic Geology/Mineral Exploration
- Geophysics/Geodynamics
- Geospatial/Geocomputation
- Petroleum Geology
- Groundwater/Hydrology

For students in the **Geological Engineering Specialization**, the General part of the qualifying exam will include **Geological Engineering, Geology, and Fundamentals of Engineering**. Specific topics will be chosen by the student with approval by the student's committee; examples are listed below. A student may propose hybrid fields with other disciplines if approved by his or her graduate committee.

A student may substitute successful completion of the Fundamentals of Engineering (F.E.) examination for one of the three (3) parts.

- Groundwater
- Engineering Geology
- Petroleum Engineering
- Mineral Exploration/Production
- Hydrology and Hydraulic Engineering
- Geophysics
- Geochemistry
- Rock Mechanics
- Geotechnical Engineering

The Comprehensive Examination and Admission to Candidacy

The comprehensive examination consists of the oral presentation and defense of the student's dissertation research proposal. All Ph.D. students are required to prepare a research proposal for the research to be accomplished for the dissertation. The proposal must be given to the student's committee at least one month before the qualifying examination takes place, so that the candidate's committee may review the proposal to evaluate whether it is defendable. If not, then the student will have an opportunity to resubmit, although this may alter the final dates of the qualifying and comprehensive examinations. After the proposal has been pre-approved by the committee, the student will petition the Graduate Office to formally schedule the examinations.

The comprehensive exam will last approximately three hours. The student will prepare a 20-30 minute oral presentation of the dissertation proposal to begin the examination. This presentation is open to the public. After the presentation, the student's committee may examine the candidate orally on the proposal itself, on science or engineering topics related to the work to be completed, or on topics from the qualifying examination. The oral examination section must include the student's full committee, and may also be attended by any department faculty, but is closed to the public. The examination is passed if the student demonstrates that the research proposal is workable and worthy of a dissertation, and that he or she possesses the requisite scientific and technical knowledge needed to successfully complete the research.

Graduate Education policies stipulate that satisfactory completion of the comprehensive examination requires that no more than one member of the graduate student advisory committee votes against passing. If the student passes 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. If, in the opinion of 2 or more members of the graduate student advisory committee, the student has failed the comprehensive examination, another such examination may not be attempted during the same semester. After failure to pass a second time, work toward the doctorate can be continued only with the consent of the graduate student

advisory committee, the Council of Graduate Education, and the dean of graduate education, pending successful future completion of the comprehensive examination.

Additional Graduate School policies pertaining to PhD examinations are located in the SDSMT Catalog.

Thesis/Dissertation Drafts and Defense

The Graduate School maintains deadlines for final submission of thesis/dissertation defense results. These are typically at the end of each semester. However, to facilitate faculty feedback on thesis/dissertations and to allow adequate time for these changes to be made and reviewed by the committee, all thesis/dissertations must be defended at least four (4) weeks prior to the deadlines established by the Graduate School.

At least two weeks prior to the defense, all theses and dissertations must be made available for examination by all department faculty. After approval of the defense copy by the major advisor, students should prepare the document in PDF form and submit it to the department secretary for posting on the geology department administrative drive, followed by an announcement to the department faculty.

GGE GRADUATE ASSESSMENT PLAN

The Department has initiated a program of continual assessment for the graduate degrees. This assessment is conducted by the graduate committee during the thesis/dissertation exams and defenses. The purpose of this assessment is to collect data to be used by the faculty to assess the quality of the graduate programs. The intended use of these data are for program quality, i.e., identify areas of potential weakness and strengthen them across the graduate programs. These assessments are not used to evaluate or grade the graduate student. The form used for the MS/PhD defense is included below.

GELE Graduate Program Assessment Form Date: _____

Program: _____ Event Type: **MS or PhD Defense**

Instructions: This evaluation is used to track long-term trends in the graduate programs. It is not used to grade the student or to determine whether the defense has been passed. The committee discusses each item to arrive at a **consensus or majority** opinion. Place a bold circle or X in the appropriate box.

	(3) MASTERY	(2) PROFICIENT	(1) NEEDS SIGNIFICANT WORK	Comments
Demonstrates knowledge of concepts and terminology of the discipline				
Knowledge	Answers nearly all questions well	Answers most questions well	Answers some questions well	
Breadth	Frequently brings in related concepts, details and examples to strongly support answers	Sometimes brings in related concepts, details and examples to support answers	Rarely brings in related concepts, details and examples to support answers	
Facility (oral)	Most answers presented easily with little to no prompting	Most answers presented after some additional prompting	Most questions require substantial prompting	
Facility (written)	Answers are well organized and presented	Answers are adequately organized and presented	Answers are poorly organized and presented	
Explores and evaluates scientific and technical literature				
Breadth and depth	Fully discusses history and development of previous work	Adequately discusses history and development of previous work	Inadequately discusses history and development of previous work	
Interpretation of literature	Shows how previous work leads to a valid research question	Develops a valid research question with little reference to prior work	Develops poor or weak research question	
Design of methodology	Develops well-supported and effective methodology to collect/model and analyze data	Develops adequate methodology to collect/model and analyze data	Poorly designed methodology unlikely to yield valid results	
Manages citations	Strongly supports discussion with properly formatted citations	Adequately supports discussion with properly formatted citations	Frequently fails to support discussion; citations absent or poorly formatted.	
Analyzes, interprets, and evaluates scientific and/or engineering data and methods				
Data gathering or modeling	Uses strong data collection, modeling methods with few errors	Uses sound data collection, modeling methods with minor conceptual or procedural errors	Uses inconsistent or poorly designed data collection, modeling methods; value of results compromised	
Data/model analysis	Thoroughly investigates data/models using strong techniques with few errors.	Adequately investigates data/models using appropriate techniques with minor errors.	Insufficiently investigates data/models using questionable techniques or with major errors.	
Evaluate results	Critiques results using sound scientific principles; suggests ways to improve the work	Identifies flaws or errors that may impact the value of the work	Fails to identify fundamental flaws or errors that compromise the value of the work.	

Present completed form to the Department Graduate Coordinator.

GELE Graduate Program Assessment Form Date: _____

Communicates effectively (written/oral)				
Rhetoric	Ideas clearly organized; arguments are masterful and convincing.	Ideas adequately organized; arguments are reasonable.	Ideas disorganized, arguments insufficient or poorly reasoned.	
Writing Skill	Consistently uses professional language, minimal writing errors	Mostly uses professional language; writing errors present but do not affect interpretation of work	Often uses inappropriate or colloquial language, contains errors that affect interpretation of work	
Verbal Skill	Articulate with excellent poise, inspires strong confidence	Speaks adequately and clearly, inspires reasonable confidence	Speaks awkwardly or unclearly, inspires little confidence	
Graphics	Graphics enhance the material; appropriately and effectively formatted	Graphics support the material; minor errors in formatting or that do not affect interpretation	Irrelevant graphics or lack of needed graphics; common errors in formatting that affect interpretation	
Acts professionally and ethically				
Participation	Member of two or more professional organizations; provides leadership in student organizations	Member of at least one professional organization; participates in student organizations	Not a member of any professional organizations; does not participate in student organizations	
Responsibility	Communicates regularly with committee, knows requirements and policies, completes tasks and paperwork promptly	Communicates sporadically with committee, needs extensive advising on policies, needs reminders to complete tasks and paperwork	Communicates infrequently with advisor or committee; ignores policies and deadlines; makes little progress unless pushed	
Conduct	Consistently treats all colleagues with respect	Usually treats all colleagues with respect	Sometimes treats colleagues with respect	
Impacts the profession				
Contribution	Powerful impact on the discipline, new and innovative contribution	Positive impact on the discipline, adds value but not innovative	Little to no impact on the discipline, pedestrian or ineffective contribution	
Presentation of results	Manuscript submitted to a peer-reviewed journal and/or published	Presented work at a professional conference	Presented work on campus	

List Committee members:

Comments/ideas for program improvement:

Comments/ideas for improving rubrics or this form:

Present completed form to the Department Graduate Coordinator.

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.

More information about FERPA is located at these sites:

http://www.sdsmt.edu/Academics/Registrar/FERPA/FERPA-Rights---Privacy/
http://www.sdsmt.edu/Academics/Registrar/FERPA/FERPA-Q-and-A/
Disclosure of Information from Education Records to Parents of Postsecondary Students
http://www2.ed.gov/policy/gen/guid/fpco/hottopics/ht-parents-postsecstudents.html

Family Policy Compliance Office (FPCO)
https://www2.ed.gov/policy/gen/guid/fpco/index.html
Balancing Student Privacy and School Safety: A Guide to the *Family Educational Rights and Privacy Act* for Colleges and Universities
https://www2.ed.gov/policy/gen/guid/fpco/brochures/postsec.html