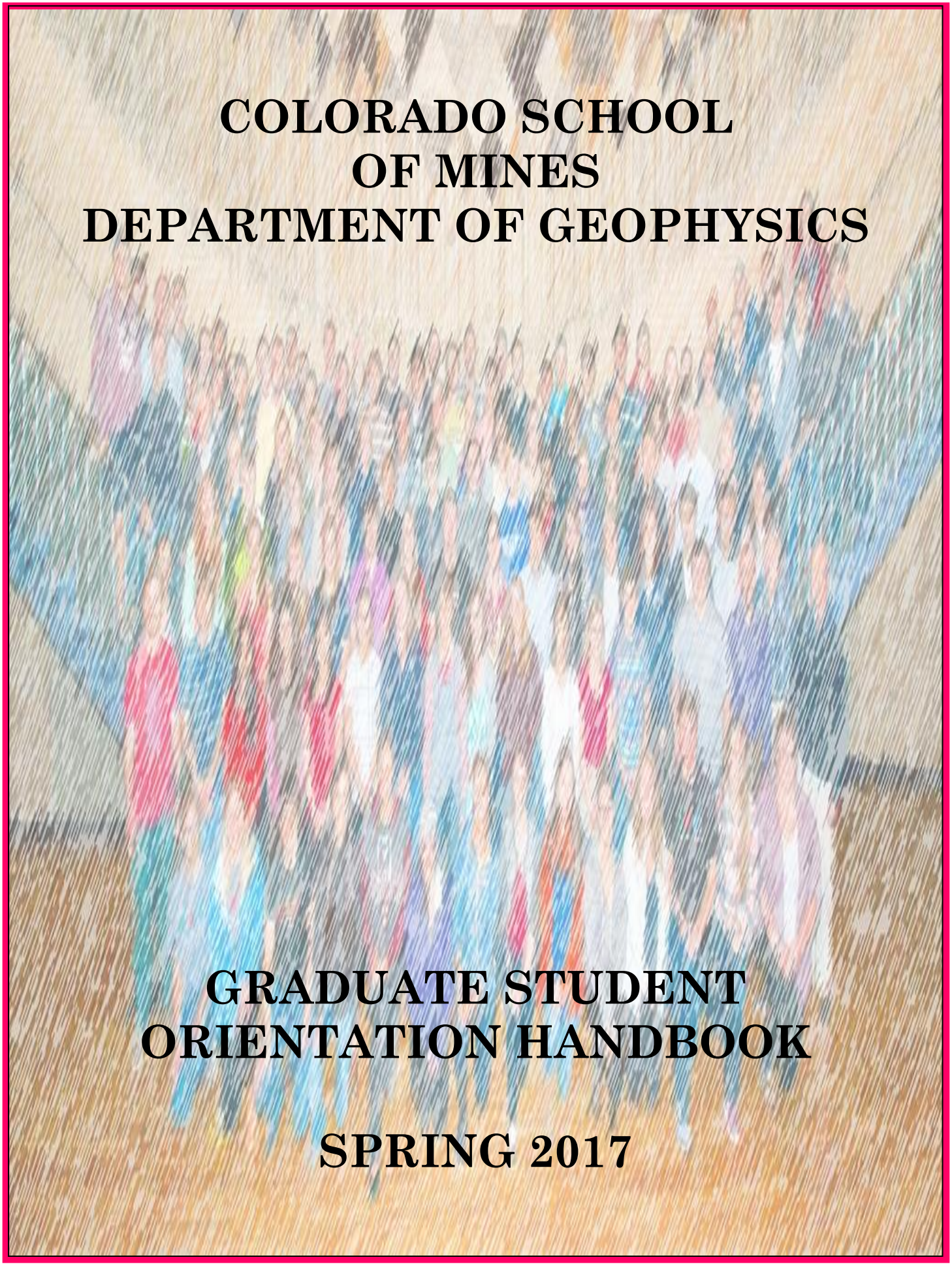

COLORADO SCHOOL OF MINES DEPARTMENT OF GEOPHYSICS

GRADUATE STUDENT ORIENTATION HANDBOOK

SPRING 2017

Photo by Agata Bogucka, Communications Manager, CERSE. Taken on April 2016.

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1 INTRODUCTION

Welcome to the Department of Geophysics at Colorado School of Mines! This new-student handbook is written and updated each semester, in the hope that it will assist you in working through the administrative side of your degree program. We encourage you to use it as a reference as you proceed through your program, as it will help answer the most commonly asked questions that our students have.

Please note that while you should find clarification herein regarding your department-specific program requirements, this document is subject to change and is not intended to replace or repeat information provided in the Colorado School of Mines Graduate Bulletin. The Bulletin is the legal contract between you and the School. You are strongly encouraged to become familiar with it; it is important that you clearly understand the details outlined in that document. The Bulletin can be accessed at bulletin.mines.edu.

For your convenience, we have divided this handbook into separate sections. The first section contains general information of benefit to *all* Geophysics graduate students. The subsequent three sections target the three graduate programs offered in the Department (Master of Science, Professional Masters in Petroleum Reservoir Systems, and Doctor of Philosophy).

We are glad you're here. Good luck!

2 NEW STUDENT CHECKLIST

☐ Obtain campus Blaster Card.

☐ If you are a thesis-based graduate student who will have office space in the Department, see a member of the administrative staff to complete a hard key request for Access Services.

☐ Create your campus e-mail account and log into Canvas for the first time.

☐ Verify that you are on the Department's internal email distribution lists. Set your spam filter/forwarding so that all Mines-related email gets through.

☐ See the Department to have your photo taken.

☐ Consult with your interim advisor to register for courses and research credit (9-15 credits is considered full-time status). Registration must be complete not later than Census Day, **Wednesday, January 25, 2017.**

☐ IF YOU ARE BEING PAID THROUGH COLORADO SCHOOL OF MINES:

- Complete background check paperwork as required by the University.
- Submit completed employment paperwork to Human Resources (all TAs and RAs are included in this). International Students: Bring your visa documentation for review by Human Resources.
- Return to the Department with your orange verification slip so that you can sign your TA or your RA contract.

☐ Provide Social Security card to Human Resources. International Students: Initially, you will not have a Social Security card but bring your Social Security number application and HR will make a copy of this. You will then need to provide them with the actual card once you receive it. ***Failure to provide this information may result in a delay in receiving your first stipend payment.***

☐ Arrange to attend Sexual Harassment Prevention Training through the Human Resources Office. Register on blackboard.mines.edu. This is required of all employees of the School, including teaching and research assistants.

☐ US CITIZENS AND PERMANENT RESIDENTS: Contact the Registrar's Office for information about obtaining Colorado residency and begin the application process. You must submit your application before the first day of the Spring semester, 2018.

3 USEFUL GROUPS, PEOPLE, AND OFFICES

3.1 Graduate School

Get to know the staff in the Graduate School, for they will provide vital assistance to you throughout your program. Consult their website, gradschool.mines.edu, regularly. They post current deadlines, Graduate Bulletin information, and most of the forms that you will need to complete and submit at some point during your program.

The Graduate School is the authority for the Mines Graduate Program; the Department consults with them regularly for guidance in campus-wide policy, and with individual graduate students. They are located in Guggenheim Hall, in the first (bottom) level, on the south end of the building.

3.2 Graduate Advisory Committee

The Graduate Advisory Committee (GAC) is the body of Department faculty and a representative from among the Geophysics graduate students who oversee most aspects of the graduate program. They are an excellent resource for questions or concerns regarding the more general aspects of the program. In addition to reviews and recommendations for graduate applications, the GAC reviews all graduate requests for Independent Study, Thesis Committee or Advisor requests, coordinates teaching assistant (TA) assignments, and addresses matters regarding the general processes of the program like the Qualifying (Comps) Process for PhD students, or reconciliation of background deficiencies.

The current chairman of the GAC is Dr. Bob Benson (rbenson@mines.edu).

3.3 Society of Geophysics Graduate Students (SGGS)

The SGGS is Geophysics' official grad student organization. They help facilitate communication between the graduate students and the Department faculty and CSM Administration on a variety of matters. They also organize student activities throughout the year and raise money to assist students with travel to professional meetings and to support their yearly activities. The current president of the SGGS is Austin Bailey (aubailey@mymail.mines.edu). We encourage you to participate in the opportunities they make available.

The SGGS elects new officers each fall. The President acts as student representative of the GAC.

Contact information for the SGGS officers is on the Department website, http://geophysics.mines.edu/GEO-Student-Organizations.

3.4 Geophysics Department – Key Faculty and Department Staff

Roel Snieder, Interim Department Head
Green Center Room 240F, x3456; rsnieder@mines.edu
As Department Head, Roel is ultimately responsible for all Geophysics Department matters. He is final the approving authority for thesis committees, candidacy forms, and thesis defenses. He leads the faculty in determining course offerings and schedules, curriculum, and in fact, teaches several courses himself throughout the year. If you need program guidance or assistance, or if you have an issue regarding the Department program that you would like to discuss, you are encouraged to make an appointment to see Roel. His calendar is on-line at https://inside.mines.edu/~rsnieder/ and he manages his own schedule. Please, stop by and say hello!

There are currently several staff members in the Department of Geophysics and its research centers, to help you navigate the administrative aspects of your program. All of these individuals are happy to answer whatever questions you may have. If they don't have a ready answer, they will know who does!

Michelle Szobody, Office Manager
Green Center Room 240C, x3935; mszobody@mines.edu
Michelle currently oversees all Department operations and budgetary matters, handles student administration, including graduate student coordination, travel arrangements, meeting logistics, student contracts, and curriculum scheduling, and manages Department outreach programs.

Joana Perez, Administrative Assistant
Green Center Room 240J (Geophysics Front Desk), x3451, perez@mines.edu
Joana handles day-to-day administrative matters for the Department of Geophysics and coordinates logistics for Geophysics Field Camp. She covers administrative matters specific to several of our research groups, generates the annual Department newsletter, and is the Department webmaster.

Brian Passerella, Laboratory Coordinator
Green Center Room B52, bpassere@mines.edu
Brian manages the Department technical equipment and inventory, and administers all of our field equipment for our courses, including Field Session, and assists with undergraduate lab courses. Among other things, he is an excellent resource for teaching assistants in need of equipment for class projects.

Center for Wave Phenomena (CWP)

Dawn Umpleby, CWP Administrator
Green Center Room 260C, x2178, dumpleby@mines.edu
Dawn handles business and contract matters for the Center for Wave Phenomena. She also coordinates all communications and publications, manages the CWP website, and handles travel arrangements, student and faculty personnel matters and meeting logistics for CWP and its faculty and students.

Reservoir Characterization Project (RCP)

Sue Jackson, RCP Project Manager
Green Center Room 280P, x3458, sujackso@mines.edu
Sue manages publications, the website, and other special projects for the Reservoir Characterization Project. She also coordinates between RCP students and industry sponsors and oversees the technical presentations given at RCP semi-annual meetings.

3.5 On-Campus and Off-Campus Offices

Public Safety, x3333
Report ALL thefts, first to Public Safety and then to Michelle. In the case of an emergency, always call 911, first. The physical address of the Green Center building is 924 16th Street, Golden.

Human Resources, x3250
Located in Guggenheim Hall, Basement Floor, North End of Building
For all personnel matters, including employee benefits.

International Student and Scholar Services, x3210
Student Center, South Wing
Brandon Samter, Director, bsamter@mines.edu
The CSM International Office handles matters related to the unique needs of our students and scholars who come from outside the United States.

Office of International Programs, x3210
Student Center, South Wing
Kay Godel-Gengenbach, Director
Any time a student travels internationally, he or she must visit OIP. This office is a valuable resource regarding study and travel abroad, both for domestic students, and international students.

Blaster Card Office
Elm Hall
Bob Mask, Manager
All students and employees must have a Blaster Card, which is the campus identification card. This card allows access to electronic doors, and is a student's access card to check materials out of the Arthur Lakes Library, and to use the Recreation Center facilities. It may be required for other CSM events and activities. The Blaster Card office also issues RTD bus and light rail passes.

Parking Services
Nan Braddock, nan.braddock@is.mines.edu
The Parking Office is located in the Facilities Management Main Office, across from the Geology Museum, on Maple Street. Anyone who parks on campus must either pay for an annual parking permit, or pay one of the kiosks, to park within campus boundaries.

Access Services
Access Services (more commonly known as the Key Shop, or Lock Shop) is located west of the Facilities Management Main Office, across from the Geology Museum on Maple Street, in a small, gray building. They handle all hard key requests and are the office at which you will turn in your key when you check out of the program. Their hours are limited each day due to campus need; see the Facilities Management website through inside.mines.edu for more information.

Cashier, x3298
Located in Student Center, North Wing, Main Floor
Use the Cashier's Office to pay parking fines and other expenses levied to your student account. The Cashier will also cash small-balance personal checks.

For more information about available student services, please visit
http://bulletin.mines.edu/graduate/studentlifeatcsm/.

Social Security Administration
www.ssa.gov; 1-800-772-1213
Nearest office is at 13151 West Alameda Parkway, Lakewood
Open 9:00 a.m. to 4:00 p.m., Monday through Friday (Federal holidays excluded)
ALL Mines employees, including graduate and undergraduate students paid through the School, are required to have a federal Social Security number to receive wages through the School. For new arrivals from outside the US, see the International Office immediately upon arrival in Golden (this information is also conveyed to international students during orientation before the start of the semester). The personnel there can direct our international visitors and students concerning the Social Security number process. We recommend you visit this office early on a Wednesday or Thursday morning, when the lines are usually shorter.

Drivers License Office
16950 West Colfax Avenue, Suite 104, Golden, CO 80401; (720) 497-1182
Open Monday through Friday, 8:00 a.m. until 5:00 p.m.
Contact the office directly for information on appropriate documents for obtaining a State of Colorado Driver's License or office identification card. We recommend you schedule several hours to visit the driver's license office, as the queue can become quite long. Or, schedule an appointment on-line at https://www.colorado.gov/pacific/dmv/node/46216/.

US Post Office
Nearest office is at 12th and Jackson Streets in Downtown Golden
Open 9:00 a.m. to 5:00 p.m., Monday through Friday (Federal holidays excluded)
There are also a post office box and Federal Express drop-box located on Illinois Street, in front of the Arthur Lakes Library.

4 DEPARTMENT EXPECTATIONS AND CODE OF CONDUCT

The Department of Geophysics endeavors to foster a professional working and learning environment that is ethical, collegial, and safe. To that end, we hold all students, faculty, and staff to the highest standards of integrity and professional conduct both on campus, and when representing the Department and the University off-campus.

In the past, the Department has had the rare, but unfortunate, case of academic misconduct among its graduate students. Academic misconduct harms not only the student committing the act, but harms also the Department's reputation and the University's reputation, by association. It is important that you understand what constitutes academic misconduct, and you are urged to read and become familiar with the University's Standards and Code of Conduct, Honor Code, and policies on Academic Integrity and Misconduct, all published in the *Graduate Bulletin.*

All students, faculty and staff on the Colorado School of Mines campus are entitled to a work environment that is free of harassment. Employees of the University, including graduate students funded as teaching and research assistants, are required to attend training sessions on the prevention of sexual harassment, in particular. The University also has in place a policy regarding sexual harassment and to address harassment cases, should they arise. That policy appears in the *Graduate Bulletin*, http://bulletin.mines.edu/.

Also in place is a policy regarding personal/amorous relationships between employees, including graduate students. A copy is available on the CSM website at https://inside.mines.edu/UserFiles/File/PoGo/Policies/BOT/BOT_Amorous_Relationships_Policy.pdf.

5 OTHER USEFUL INFORMATION

The information below should answer most day-to-day questions you will have about the Department and its facilities. If you have additional questions, you should see your academic advisor or a member of the staff. Your more senior colleagues are also a great resource.

5.1 Audio-Visual Equipment for Presentations

The Department owns two projectors and a conference phone that students may use for presentations, including comps and thesis defenses, as availability permits. Please see Joana or Michelle to reserve this equipment. You are responsible for the setup of the equipment and for returning the projector and all of its peripherals when you have finished. Please do not take either projector without having first reserved the equipment.

5.2 Building Access

During the academic year, the Green Center's exterior doors are locked at 10:00 p.m., Monday through Friday. They remain locked until 7:00 a.m. the following weekday morning. In order to access the building during hours when it is locked, you must have your Blaster Card activated for the three card readers on the building (southwest corner, northeast stairwell, bottom of garage ramp). Michelle will activate your card at the time she receives your hard key request.

Access doors to second-floor student offices lock automatically at approximately 5:30 p.m. and remain locked until 7:00 or 7:30 a.m. the next weekday. For security reasons, it is expected that if you are the last person to leave that room, you close the door behind you. Therefore, most thesis-based students who have been assigned office space will need also a standard key to access the student offices inside the building. See a member of the Department staff with your Blaster Card to complete a key request form. Michelle will approve the form, and you will then visit Access Services to check out your key. Key replacement cost is $65. Failure to return your key or pay the fine will result in a hold on your diploma and transcript.

The Department considers access to the building a convenience. Therefore, abusing the privilege will result in your building access being suspended. Do not lend your Blaster Card or your key to *anyone*. If there should be some problem outside of normal business hours, your card is on the record as having been used and that is one of the first things Public Safety looks at if we report anything.

Unless you are actively moving equipment in or out of a room or the building, do not prop open *any* interior or exterior door of the Green Center. Doing so can be a violation of the City of Golden Fire Code and a security concern. A persistent habit of leaving doors propped may result in a removal of building access.

5.3 Copying/Scanning

The copy room is across the hall from the main Geophysics office. The machine is accessible by a code. If you work as a TA and have copying to do for the course with which you are assisting, please see the Department office for the correct code. If you have research-related copying authorized by the research center with whom you are working, you will need the code from the appropriate administrative staff. Please direct personal copying and scanning to Kinkos, or to the campus Copy Center. If you have trouble with the machine in the Green Center, please do not try to fix it yourself. See the staff for assistance.

5.4 E-Mail

One of the first things you should do upon or before your arrival on campus, is set up your campus email account, using CCIT instructions and guidelines. Adhere to CCIT's guidelines for virus protection, data encryption, passwords, and other computer-related matters.

The official mode of communication at Mines is through your Mines email address. Check your email at least once each day and read everything you receive so that you do not miss critical information. Adjust your spam filters so that they do not filter out Mines-related email. The School's administrative offices will not accept this as an excuse if you miss an important deadline.

The Department of Geophysics has its own, internal distribution lists for faculty and students. We will permit you to use a personal email address on these internal distributions; however, the address must be identifiable as yours. For example, John.Smith@gmail.com is a usable email address; GeophysicsFan1947@yahoo.com is not.

The Daily Blast is a daily email list of announcements covering a spectrum of topics, from upcoming meetings, to activities and news items of interest to students, faculty, and staff, to lecture announcements. Links to more information through the Blast are usually available. Many important messages are distributed through this medium that you may not receive otherwise. Therefore, it is to your benefit to read, or at least scan through, the Daily Blast each morning.

5.5 Fax Machine

Email is the usual medium, but the Department has a fax machine. Any of the staff will be happy to send your fax for you. Generally, we will not send personal faxes. However, one exception would include a transmission related to an internship or post-graduation employment.

5.6 Green Center Facilities

There are two **conference rooms** located on the second floor. The Adams Room (GC 270) is the larger of the two, where the Department holds staff meetings and most defenses. The

Adams Room doubles as a place where graduate students, faculty, and staff can visit in small groups (aka a "lounge"), when the room is not otherwise in scheduled use. The Adams Room is equipped with a large TV monitor, suitable for presentations. There is an HDMI cable connect via an outlet on the wall. Users are responsible for any needed adapters to connect, and must leave the HDMI cable connected to its port.

Room 237 is a smaller conference room, ideal for Thesis Committee meetings and other small, short-term gatherings. See the Department to check availability and to reserve either of these rooms.

In both rooms, users are responsible for reserving the space(s) through the Department in advance for meetings and other functions, and are responsible for leaving each room in the same or better condition than the condition in which it was found.

Emergency alarms make an unmistakable sound when set off in the Green Center. If the alarm sounds, regardless of whether it is an actual emergency or a drill, **leave the building immediately**, closing doors behind you, and move at least 75 feet from the building. No one is permitted to re-enter the building until it is cleared by the Golden Fire Department.

Food storage and break rooms are available on the second floor. There are two small kitchenettes, one in 260 and one in 280, with refrigerators and sometimes other small appliances that users have contributed over time. The appliances in these locations are to be shared among all occupants in the office cluster. You may use these facilities to store and prepare your lunch/coffee/snacks each day. However, please respect your colleagues by cleaning spills and debris from the counters and appliances, do not leave food to expire in the refrigerators, and do not bring amounts of food so large as to prevent others from using refrigerator space.

For your convenience, courtesy of the SGGS, 260, 280, and 287, are equipped with Keurig individual coffee brewers. Students and other users of the machines provide their own K-cups, and are responsible for cleaning and maintaining the machines.

There is a break room/lounge directly across the hall from the main Department office. In it, you will find a refrigerator, microwave, and several tables where you may prepare and eat meals. In this room, the nozzle to the right of the faucet on the sink delivers filtered water from the cold-water faucet only.

Temperature control of Geophysics offices is administered by Facilities Management. If the temperature in your office is uncomfortably cold or warm, report it to the staff, who will submit a request for someone to make necessary adjustments. In the interest of not duplicating work orders, please do not submit the request yourself.

Due to the configuration of the building and its aging air handling systems, and campus policies concerning building temperature, it may take several hours for the temperature to change, if it can be adjusted. You are encouraged to prepare accordingly.

Space heaters are forbidden in the community office space and labs because of the potential fire hazard, and the burden they place on the building's electrical capacity. If found, they will be confiscated and disposed of. Space heaters are occasionally used in the faculty/staff offices, because of the older windows in the building, but are discouraged.

As a Geophysics thesis-based graduate student, **workspace** is provided for you in the Green Center. Arrangements are often made by the Department of Geophysics in advance of the start of the semester; if you have not yet been notified of where your workspace has been assigned, please see Michelle, or your research group advisor.

Space is a premium in the building; please be mindful of the volume of books, papers, computer equipment, and personal items you are actually using in the office. Do NOT introduce new furniture to the area, without prior approval from the Department of Geophysics, as it adds to the flammable material in the area and can create other fire code violations and interfere with your neighbors' spaces.

Please take telephone calls and longer conversations and meetings to empty offices or conference rooms. Keep your desk reasonably tidy, as we have off-campus visitors and consortium representatives who visit the building occasionally. It is beneficial to clean your workspace periodically; you may use your own cleaning products, or the Department has a supply.

5.7 Reading Room

The Department of Geophysics possesses numerous books dedicated not only to Geophysics but to a number of other disciplines, as well. The Reading Room is located in the extreme northwest corner of the second floor, 240A. We invite you to use that room to read and study quietly. Occasionally the room is available for meetings when the conference rooms are booked; see one of the staff to inquire.

We ask that you remove materials from the Reading Room only as necessary, and please return materials to the appropriate shelves when you are done using them. There is no librarian on duty, and your assistance with this is much appreciated by the staff.

Theses published by every graduate student to complete a graduate degree in the CSM Department of Geophysics are shelved in the main Department office. You are welcome to access theses (they are behind locked cabinet doors—ask Joana for the key) and check them out for not more than one month to read and refer to. We urge you, however, to investigate whether the thesis is available on-line before becoming responsible for the physical copy. Theses are expensive to replace, if lost or unreturned.

5.8 Student Mailboxes/Campus Mail

Every Geophysics graduate student is issued a shared box for receiving Mines-related mail. The boxes are located in the main Department Office, across from the front reception desk. The mailboxes are generally reconfigured to accommodate new students within the first week or two after the semester starts. Be sure to check your mailbox regularly to keep it clear for new mail.

Mines does not permit personal mail or shipping to be sent or received through the School. If you need to send or receive a personal package, please do so through the US Postal Service, or a UPS or Fed Ex office. If you are not comfortable with having packages sent to your residence when you will not be home, request that it be sent to the address of a trusted friend or neighbor.

For your own security, do not have bank or credit card statements, or other documents of a personal nature, sent to the Department. For the benefit of mailbox volume, please consider having professional journals sent to your home address, or receiving them electronically.

5.9 Campus Theft and Personal Safety

Though reported thefts here in the Green Center are relatively rare, they happen. Do not leave valuables like laptop computers, cameras, phones, and other personal entertainment devices, or anything else that you would not wish to lose, unattended. It is best to carry these items with you when you come and go from the office, or leave them at home.

If you must leave something of value behind, store it in a locked cabinet or office. Purchase a locking security cable for your laptop computer. Do not assume that a locked office or cabinet or cable will prevent theft completely, but storing your items in the short term as such should deter most thefts. Close and lock, if possible, office or workroom doors if you are the last to leave.

Never prop open a locked office or lab door at any time, or for any reason.

Report any campus theft immediately to the Public Safety Office, and then notify the Department.

Golden and the Mines campus are generally safe places to live and work, and crimes against persons in Golden are relatively rare. However, it is always wise to take certain common-sense precautions to maximize your personal safety. When walking after dark, stay in well-lit areas and walk with a friend or colleague. Public Safety will provide an escort for you, if you contact them! Pay attention to your surroundings at all times. Invest in devices for securing windows and doors in your home.

6 GENERAL PROGRAM INFORMATION

The next several pages are handouts that in past years were distributed loose-leaf to new graduate students. For your convenience we now include them bound with the other items. Those handouts are listed and explained below.

All forms provided or discussed below can also be found on either the Department of Geophysics website, geophysics.mines.edu, or on the Graduate School website, http://gradschool.mines.edu/GS-Forms.

6.1 Heiland Lecture

The Carl Heiland Lecture Series (commonly referred to as "the Heiland") is a tradition in the Department of Geophysics, named for a member of the founding Department faculty, Carl Heiland. It takes place every Thursday at 4:00 p.m. during the fall and spring semesters. It is held in CTLM102.

Heiland Lecture announcements are distributed by email, put on bulletin boards around the building, appear on the Department website, and are posted to the Daily Blast. Reminders are also sent out by email shortly before the lecture each week. You will find the semester's schedule of lectures also on the Department website.

Is there a noted geophysicist you think would be an interesting addition to the Heiland schedule? We encourage you to invite him or her to be a part of the tradition. Talk to the Department Office for details and logistics.

6.2 GPGN581 and GPGN681

The Heiland Lecture Series is held as part of the Geophysics Graduate Seminar course, GPGN581 (MS) and GPGN681 (PhD). All students enrolled in thesis-based graduate programs are required to register for the appropriate one of these two courses, only once, during the first semester of their graduate program. Students are then required to demonstrate regular attendance at the lectures throughout their programs at Mines, as part of the course provisions.

Students not enrolled in a thesis-based program are not required to register for the course; however, we strongly encourage you to attend the lectures, as the speakers are often quite interesting to hear, and attending enables you to become better acquainted with the faculty and your fellow students.

Also, as part of this course, students must give an individual scientific presentation at a high-caliber professional conference.

For PhD students, this requirement must be satisfied by giving an oral or poster presentation at conference or workshop of a professional organization, such as (but not limited to) SEG, AGU, LPSC.

Master of Science (MS) students may complete the requirement by giving a poster or oral presentation at a professional conference or workshop, or at the CSM Graduate Research Conference (GRADS), held each spring term on the campus.

Completion of the presentation component of the course must be documented, approved, and on file in the Department for the student to receive final credit for this course, and before the student may schedule his or her thesis defense. Therefore, it is important that the student plan early in his or her program to fulfil this requirement successfully.

Master of Science students may, under extraordinary circumstances, apply for an exception to complete this requirement by giving an individual presentation at a research consortium meeting. This is NOT regarded by the Department as a regularly accepted method of fulfilling the requirement, and must be proposed by the student to the Graduate Advisory Committee (GAC) not later than the semester prior to the term during which the student expects to present. Note: the oral presentation must be an individual effort. ***Consortium meeting poster presentations are never acceptable as such exception requests.***

Fulfilment of the presentation requirement is documented in the format published on the Department of Geophysics website. A continuing grade of PRG will be issued for each student who regularly attends the Heiland Lectures and completes the individual presentation. The PRG will remain on the student's transcript, and the student will receive 1.0 credit of coursework toward the appropriate degree.

6.3 Thesis Committee Composition and Responsibilities

General Department Rules for Thesis Committees

It is expected that your committee be both diverse and rigorous, while composed of members whose expertise and involvement will assist you with producing a high-quality thesis.

The Department of Geophysics requires for MS students: three members, minimum, two of whom must be full-time, active Department of Geophysics faculty. Exceptions to this requirement may be entertained on a case-by-case basis. Full-time research faculty may serve as primary advisors and regular committee members. A member of the Adjunct Geophysics faculty, or an off-campus geoscience professional, may be acceptable as a third committee member. A minor representative must be in addition to the three core members.

For PhD students: five total members, including your advisor, at-large/chair, and minor representative. Your advisor and two regular committee members must be from the Department of Geophysics; exceptions to that may be entertained on a case-by-case basis. All five primary committee members must be full-time members of the Mines faculty. Full-time research faculty may serve as primary advisors and regular committee members. Adjunct Geophysics faculty and off-campus professionals may serve as committee members but would be in addition to the five core members.

If a student requests more than one committee member in his or her core committee, on-campus or off-campus, who is affiliated with the same research group, then the Department also requires that the student include one additional committee member who is not affiliated with that research group. For example, if an MS student requests two committee members from CWP (say, his advisor and one other CWP faculty member), then the student will be asked to add a fourth committee member from outside the CWP group to balance the committee.

Committee Members Who Have Left Mines

If a student's thesis advisor or a member of the student's committee has left his/her full-time faculty position at Mines, whether through retirement, resignation, or other circumstance, the student will have up to a year to complete the graduate program with the same advisor/committee member, provided both the student and the committee member agree to the retention.

If the committee member/advisor and student agree that it is best for the committee member to rotate off the committee right away, then the student must file a Thesis Committee Change form with the Department to accommodate that. This may or may not require adding a new committee member, depending upon the current composition of the committee.

Extensions beyond this year may be sought by the Department with the Office of Graduate Studies under special circumstances.

Thesis Committee Roles and Responsibilities

The information you find below was written by the staff in the Office of Graduate Studies.

You will find both paperwork for establishing or changing a thesis committee, as well as very useful quick-references regarding committee composition and qualifications, on the Grad School's website.

The Office of Graduate Studies regularly fields questions from faculty and students regarding the appropriate roles and the institutional expectations of students, Thesis Advisors and the various Thesis Committee members in directing, completing and monitoring thesis-based graduate programs. While many of us assume that these roles are obvious and should be known to all parties, experience has shown that this may not always be the case. And, when there is confusion about roles and expectations, this can lead to persistent problems that become increasingly difficult to resolve as a student progresses through their degree program.

Below, is an attempt to define the roles and expectations Mines has of faculty as members of Thesis Committees and of students engaged in research-based degree programs.

Thesis Advisor

The Thesis Advisor has the overall responsibility for guiding the student through the process of the successful completion of a thesis that fulfills the expectations of scholarly work at the appropriate level as well as meets the requirements of the Department/Division and the School. The Advisor shall:

1. be able and willing to assume principal responsibility for advising the student;
2. have adequate time available for this work and be accessible to the student;
3. provide adequate and timely feedback to both the student and the Committee regarding student progress toward degree completion;
4. guide and provide continuing feedback on the student's development of a research project by providing input on the intellectual appropriateness of the proposed activities, the reasonableness of project scope, acquisition of necessary resources and expertise, necessary laboratory or computer facilities, etc.;
5. establish key academic milestones and communicate these to the student and appropriately evaluate the student on meeting these milestones.

Regular Committee Member

With the exception of the student's advisor, all voting members of the Thesis Committee are considered Regular Committee Members. The Regular Committee Member shall:

1. have adequate time to assume the responsibilities associated with serving on a student's Thesis Committee;
2. be accessible to the student (at a minimum this implies availability for Committee meetings to be held no less than once per semester and availability to participate in a student's qualifying/comprehensive examinations – as dictated by the practices employed by the degree program – and the thesis defense);
3. ensure that the student's work conforms to the highest standards of scholarly performance within the discipline, within the expertise provided by the Committee member;
4. provide advice to both the student and the student's advisor(s) on the quality, suitability and timeliness of the work being undertaken;
5. approve the student's degree plan (e.g., courses of study, compliance with program's qualifying and comprehensive examination process, thesis proposal, etc.), assuring that the plan not only meets the intellectual needs of the student, but also all institutional and program requirements;
6. review thesis and dissertation drafts as provided by the student and the advisor and provide feedback in a timely fashion; and
7. participate in, and independently evaluate student performance in the final thesis defense.

Minor Committee Member

In addition to the responsibilities of a Regular Committee Member, the Minor Committee has the following added responsibilities:

1. provide advice for, and approval of coursework required as part of a student's minor degree program in a manner that is consistent with institutional and minor program requirements;
2. participate in, as appropriate, the student's qualifying and comprehensive examination process to certify completion of minor degree requirements; and
3. work individually with the student on the thesis aspects for which the Minor Committee member has expertise.

Thesis Committee Chairperson

In addition to the responsibilities of a Regular Committee Member, the Chairperson of Committee has the following added responsibilities:

1. chair all meetings of the Thesis Committee including the thesis defense;
2. represent the broad interests of the Institution with respect to high standards of scholarly performance;
3. represent the Office of Graduate Studies by ensuring that all procedures are carried out fairly and in accordance with institutional guidelines and policies;
4. provide a non-specialist's view of the quality of the work, ensuring that the student's mastery of the subject matter is broad and comprehensive;
5. ensure there are no conflicts of interest with the departments/divisions of the student, advisor(s) or the minor field of study and effectively address or manage, as appropriate, conflicts that may arise.

Student Responsibilities

While it is expected that the student receives guidance and support from their advisor and all members of the Thesis Committee, the student is responsible for actually defining and carrying out the program approved by the Thesis Committee and completing the thesis/dissertation. As such, it is expected that the student assumes a leadership role in defining and carrying out all aspects of his/her degree program and thesis/dissertation project. Within this context, students have the following responsibilities:

1. to formally establish a Thesis Advisor and Committee by the end of their first year of residence in their degree program;
2. to call meetings of the Thesis Committee as needed;
3. to actively inform and solicit feedback from the student's Advisor and Committee on progress made toward degree;
4. to respond to, and act on feedback from the student's Advisor and Committee in a timely and constructive manner;

5. to understand and then apply the institutional and programmatic standards related to the ethical conduct of research in the completion of the student's thesis/dissertation; and
6. to know, understand and follow deadlines defined by the institution and the degree program related to all aspects of the student's degree program.

6.4 Establishing or Changing a Thesis Committee

Establishing Your Committee

You are required by Mines to establish a thesis committee not later than the end of the first 12 months of your program. The Department encourages students to establish committees as early as possible. Thesis Committee request/change forms are available on the Graduate School website. Read the Bulletin carefully to ensure that your committee meets institutional and departmental requirements *before* you submit your request to the Department. Geoprofessionals outside CSM may be accepted as thesis committee members, with the approval of the Department.

Thesis-based MS and PhD students should use the following process.

1. Complete the Thesis Committee Request form appropriate to your program, and have your committee members sign where indicated on the form. Off-campus members may email their acknowledgment and approval, or you can scan/fax the form for them and they can email/fax the form back with their signature.
2. Add a second page to the form, with a line or two describing your research. The GAC will use this information while reviewing your request.
3. Any off-campus member, who has voting status, must provide a current CV.
4. Give the completed, signed form and research description to Michelle.
5. The GAC will review your request at their next meeting after you submit your form. If they have any feedback, Michelle or your advisor will relay that information to you. Otherwise, if they approve as you have submitted it, Michelle will pass the request along to Roel.
6. Then, Roel will review. If he has any feedback, it will be passed along. Otherwise, once the request is approved, Michelle will forward the form to the Graduate School and notify you that she has done so.
7. The Grad School will send the Department a scanned copy of the fully approved form, which Michelle will then forward to you for your records.

Changing Your Committee

From time to time and for various reasons, a student may wish to add, remove, or change a thesis committee member. If the committee composition changes dramatically, the request will go to the GAC for full review under the process outlined above. If the change is limited to a single member, then complete a new Thesis Committee Request with the names of all members in the new committee composition. Committee members dropping off a committee must sign their acknowledgment. Bring the form to Michelle, who will submit it to Roel for review and comment or approval.

6.5 Changing Your Degree Program

From time to time, a graduate student's circumstances change, either professionally or personally, and the student is compelled to move to a different program. See below for guidelines concerning the most common transfers from one program to another.

Petroleum Reservoir Systems to Master of Science/Thesis

Students wishing to move from the Professional Masters / Petroleum Reservoir Systems program to either Master of Science, Geophysics or Master of Science, Geophysical Engineering must apply to the new program through the institutional application system:

https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=cosm-g

A reduced application fee is assessed. Students MUST adhere to the published deadlines for applying to all new programs, and provide the following as part of the application:

- New Statement of Purpose
- Unofficial transcripts from prior post-secondary degree programs, including the current PMPRS
- Three new letters of recommendation

The Department will accept GRE and TOEFL or IELTS scores from the Petroleum Reservoir Systems application. Please upload these score reports with your new application, or contact Graduate Admissions to connect those credentials to your new application.

Master of Science / Thesis to PhD

Students currently in the Master of Science, Geophysics or Master of Science, Geophysical Engineering program, who wish to apply to the PhD program in either Geophysics or Geophysical Engineering, must apply to the new program through the institutional application system:

https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=cosm-g

A reduced application fee is assessed. Students MUST adhere to the published deadlines for applying to all new programs, and provide the following as part of the application:

- New Statement of Purpose
- Unofficial transcripts from prior post-secondary degree programs, including the current Master of Science program
- Three new letters of recommendation

The Department will accept GRE and TOEFL or IELTS scores from the original application. Please upload these score reports with your new application, or contact Graduate Admissions to connect those credentials to your new application.

Master of Science, Geophysics to Master of Science, Geophysical Engineering
Master of Science, Geophysical Engineering to Master of Science, Geophysics
PhD, Geophysics to PhD, Geophysical Engineering
PhD, Geophysical Engineering to PhD, Geophysics

Students currently in one of the thesis-based programs in either Geophysics or Geophysical Engineering, who wish to move to the other discipline, must apply through the institutional application system.

https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=cosm-g

This is considered a new program and must be reviewed as such by the Department, the Graduate School, and the International Office, if appropriate. A reduced application fee is assessed. Students MUST adhere to the published deadlines for applying to all new programs, and *MUST apply to the other program by the posted deadlines at least one semester prior to the planned program completion.*

Provide the following as part of the application:

- New Statement of Purpose, documenting the reason(s) for switching to the other program
- If applying to Geophysical Engineering, document the engineering course work taken to satisfy the engineering requirement of that program
- A letter of recommendation from your current thesis advisor

In the case of this category of program change requests, only, the Department waives the requirement for all other credentials. Please notify Michelle after you have submitted your application so that she can coordinate with the Graduate Admissions Office to receive the file with reduced credentials.

PhD to Master of Science/Thesis

On rare occasions, students choose to switch from the PhD program in either Geophysics or Geophysical Engineering, to the Master of Science program in Geophysics or Geophysical Engineering.

If the student is switching between Geophysics and Geophysical Engineering, regardless of degree level, he or she must apply through the campus application system and submit to the guidelines outlined in the section just above this.

If the student is moving from PhD to MS in the Department, but not switching between Geophysics and Geophysical Engineering, the student may submit a Degree Level Change Request to complete this process fairly simply. Start by visiting http://inside.mines.edu/GS-Program-Change. The student and his/her advisor must sign, and then bring the form to Michelle, who will obtain the Department Head signature and forward the paperwork to the Graduate School.

6.6 Degree Audits, Admission to Candidacy, and Reduced Registration

Degree Audit

Every student enrolled in any graduate program at Mines must complete a Degree Audit, which must be approved before the student may apply to graduate, or qualify for reduced registration status (described in a subsequent section), but is typically done during the semester in which the student expects to complete all of his/her course work.

The degree audit application is available on the Graduate School website. Download and complete the form appropriate to your program. Make sure that you complete the sections properly, with course work listed in appropriate sections, and obtain all necessary approvals from your committee. Failure to do so could result in your degree audit being delayed or rejected.

Scan signatures from committee members are acceptable. Email approval is also acceptable; however, the committee member approving by email must specify that he or she has reviewed your degree audit form, and approves.

After you have completed the form and obtained your committee members' approvals, bring the form to Michelle, who will review the application for the Department, process the paperwork, and submit the departmentally approved form to the Graduate School.

The Graduate School has submission deadlines for degree audits, for any student who is applying for reduced registration or who expects to graduate in a specific semester. Read email from the Graduate School as appropriate to this topic, and adhere to the deadlines. Note that you must submit your paperwork to Michelle at least 2 – 3 days ahead of the Graduate School deadlines, to ensure enough time for a departmental review.

The Department will not approve any degree audit form for a student who has not successfully completed all course work, or who is not actively enrolled for his or her final semester of course work completion. It is, therefore, to your benefit to formulate a course plan with your advisor as early as possible in your graduate program, and adhere to that plan.

- Petroleum Reservoir Systems students typically can expect to complete a Degree Audit during the third semester of their programs.

- Master of Science students typically can also expect to complete the Degree Audit process during the third semester of their graduate programs. Completing and documenting the GPGN581 individual requirement is not mandatory for the Department to approve a degree audit form. However, students are strongly encouraged to have met this requirement by that time, and *may not schedule any thesis defense until the requirement is met, and documented.*

- PhD students should be able to complete a Degree Audit form within two to 2-1/2 years after the start of their programs. Completing and documenting the remaining

PhD programmatic requirements is not mandatory for the Department to approve the degree audit form. However, PhD students are strongly encouraged to meet those additional requirements at the earliest possible time, to avoid unnecessary administrative delays. See the Admission to Candidacy section below for more information.

Some helpful hints for completing your Degree Audit application:

- Do not duplicate line items. For example, if you have received advisor or thesis committee approval to have a course, taken at another institution, apply toward your minor program, list that course under "Minor Courses" but do not also list it under "Transfer Credit".
- The approval from your thesis committee to incorporate transfer credit must be on file with the Department.
- Your research credit will be accounted for and the Graduate School will confirm that you have accumulated enough research credit to graduate. Therefore, you may estimate the amount of research credit you expect to have accumulated by the time of graduation on the Degree Audit form.
- You must complete and sign the Responsible Conduct of Research statement on Page 2 of the form. If you did not receive any support from the National Science Foundation, then you are generally exempted from this institutional requirement. Note, however, that all PhD students whose programs began on or after January, 2013, are required to complete SYGN502, Introduction to Research Ethics.
- Remember to list GPGN581 (or GPGN681) with a grade of PRG.
- For any course work in which you are currently enrolled, list the course, but leave the grade blank.
- 300-level course work does not count toward a graduate degree and therefore should not be listed on the form.
- Proofread your form before you obtain signatures, and verify that course numbers, course titles, grades, and semesters of enrollment are all accurate.

Admission to Candidacy (PhD Only)

Admission to Candidacy is the formal process for confirming that you have successfully completed the PhD Qualifying process, and are now ready to finish, write, and defend your thesis. We strongly encourage you to make use of your graduate progress checklist, to better track the completion of your program requirements as you proceed toward admitting to candidacy in the PhD program. You may inquire at any time with Michelle, about whether your program requirements are documented as having been met.

The PhD Admission to Candidacy application is available on the Graduate School website.

As with degree audits, the Graduate School has submission deadlines for Admission to Candidacy, for any PhD student who is applying for reduced registration or who expects to graduate in a specific semester. And, as with degree audits, plan to submit your Admission

to Candidacy application to Michelle at least 2 – 3 days ahead of the Graduate School's deadlines.

Neither the Department nor the Grad School will approve an Admission to Candidacy form for any PhD student who does not have an approved degree audit form on file. An Admission to Candidacy form can be approved by the Department only after a student has successfully completed both steps of the Geophysics PhD Qualifying Examination.

A PhD student may submit both a Degree Audit and an Admission to Candidacy form at the same time.

A PhD student may submit both a Degree Audit and an Admission to Candidacy form without having met the foreign language, practical teaching, and GPGN681 individual requirements. However, PhD students are strongly encouraged to complete all of these requirements before admitting to candidacy, and *may not schedule any thesis defense until all remaining programmatic requirements are met and documented.*

Reduced Registration

Reduced Registration status is afforded by the School to thesis-based graduate students who have accumulated a requisite number of course and research credit and have approved Degree Audit and Admission to Candidacy (for PhD students) forms on file with the Graduate School. See the Bulletin for specific requirements, but MS students finishing their third semester, and PhD students finishing their sixth semester, are usually eligible for this status.

The Petroleum Reservoir Systems program, as a non-thesis program, is not eligible for reduced registration status.

Once a student is eligible for reduced registration, he or she need not reapply for it each semester. It is important that you notify the Department administrative personnel when the Graduate School contacts you with eligibility confirmation, so that funding paperwork can be completed accurately in subsequent semesters.

As a reduced-registration student, you will register for 4 credits of research, and will be considered a full-time student. If you must, or choose to, enroll in a course after becoming reduced-registration eligible, there will be additional tuition assessed. Do not register for additional credits without first consulting with the faculty member responsible for your funding.

6.7 Defenses and Comprehensive Exams

Students are encouraged to attend the defenses of their fellow students, both from within their own research groups, as well as from other groups. Not only will this prepare you for

the process of your own defense, but it will increase your knowledge about the research beyond your specialty, and can inspire future collaborative opportunities!

General Department/Mines Policies for Defense Scheduling

1. Your comps/thesis manuscript *must* be complete and distributed to your committee and to the Department Head before a defense date will be confirmed.
2. You must be registered during the term in which you schedule any defense.
3. Standard days/times set aside by the Department for defenses are Wednesdays and Fridays at 3:00 p.m.
4. Non-standard defense days/times are available with Department approval. Mondays, generally, are not acceptable days for defenses.
5. The Department of Geophysics does not hold defenses during the summer term. Students may not schedule a defense during Spring or Winter Break.
6. Defenses should be scheduled at least 2-3 weeks ahead of the defense date, to provide adequate preparation time for the student and his/her committee and for advertising of the defense.
7. The Department's Defense Request Form is available on the Department website, at http://geophysics.mines.edu/UserFiles/Image/geophysics/Defense%20Form.pdf). The form is required to schedule any defense and must be approved by all thesis committee members before submitting to the Department.

Specific Requirements for Comprehensive (Comps) Defenses

1. Refer to the PhD Qualifying Process document on page 61 or download from the Department website. Hereafter, we'll refer to the PhD qualifying process as "1st Comps" and "2nd Comps", or generally "Comps" or "Comps process" for simplicity.
2. Remember: your First Comps process must be complete (e.g., your paper must have been submitted to a peer-reviewed journal) before you may schedule your 2nd Comps (thesis proposal) defense.

Specific Requirements for Thesis Defenses

You must have an approved Degree Audit, and for PhD students, an approved Admission to Candidacy form on file with the Graduate School. All other program requirements must be completed and on file with the Department, *before* you may schedule any thesis defense.

The next few pages will provide the logistical guidance needed for scheduling a defense. Following that, you will find a list of frequently asked questions regarding defenses. We encourage you to use this information as you get closer to the time when you will defend either a comprehensive project or your thesis.

Instructions for Scheduling a Defense

1. Download the Thesis Defense Request Form from the Department's website.
2. Notify your committee members ***and Roel***, minimum of 3 weeks ahead of when you anticipate defending, that you are ready to defend your thesis or comps paper/proposal. Attach an updated copy of your thesis manuscript for review and feedback. **Roel will not sign your defense form until he has your properly formatted manuscript!**
3. Standard defense times in Geophysics are Wednesdays and Fridays from 3:00 to 5:00 p.m. When you are ready to distribute your manuscript, see Michelle to identify 2 or 3 available dates to provide as options for your committee to consider.
4. Complete the Defense Request Form and circulate among your committee for approval. Email approvals are acceptable.
5. Take the form to Michelle, who will obtain Roel's signature approval. Your defense will not be confirmed or announced without full approval.
6. Forward your abstract to Michelle, who will announce your defense to the Department, and send a reminder shortly before the defense date. *Helpful hint: if you copy Michelle when you email the manuscript to your committee and to Roel, she can use the abstract from the manuscript and save you a step.*
7. Reserve appropriate audio-visual equipment for your defense, if necessary.
8. Michelle will confirm your room reservation, send you the paperwork you'll need for after your defense. Follow instructions carefully to avoid delays afterward.
9. Thesis Defenses Only: Complete the GP Program Assessment Survey. A printed version may be brought to your defense, upon advisor request. Email the form to Michelle before your defense.
10. Thesis Defenses Only: Schedule an exit interview with Roel. See Joana to get on his calendar.
11. Set up the room for your defense. Please adhere to the Department rules for moving furniture, food/beverage service, etc. Food has been a tradition in Geophysics defenses, but is not required.
12. Upon completion of your defense, *regardless of the outcome*, you must return the signed defense form to Michelle for the Department and institutional files.

Post-Defense Instructions

1. Return all furniture in the room to the arrangement instructed by Michelle. Clean off table surfaces, dispose of trash/leftover food, etc. Cleaning supplies are available in the Department office.
2. Complete revisions as instructed by your committee.
3. Sign your thesis submittal page, have your advisor sign, and then bring it to Roel to obtain the Department Head signature.
4. Submit the fully signed Work Completion/Checkout form to Michelle with the thesis submittal page. Michelle will obtain the Department Head signatures after confirming the following:
    a. You have returned your desk key;
    b. You have returned any department materials currently in your possession; and
    c. You have completed the on-line exit survey.
5. Obtain remaining approvals on your Work Completion form, and complete the Regulated Materials section.

6. Submit both the Work Completion and the submittal page to the Graduate School. Along with the uploaded thesis, this will drive format review.
7. Submit your thesis electronically through ProQuest for format review, on or before the deadline published by the Grad School.
8. Receive an email regarding your reviewed thesis, make any necessary changes, and follow instructions for resubmitting the final version to the electronic thesis system.
9. If you work with a Department research center or group, submit an electronic copy of your thesis to the appropriate administrator, or to your thesis advisor. If you owe software code to your research group, make sure they have that in-hand, complete, with proper commenting and fully executable BEFORE you leave campus.
10. Return your building key, if you have one, to Access Services.
11. Provide your forwarding address to the Graduate School via Trailhead, so that they have an address to which to mail your diploma.

Thesis Defense and Graduation FAQ's

These are some of the most common questions from grad students on the verge of completing their programs. We encourage you to read this, as it may save you from unanticipated snags on your road to graduation.

Q: May I schedule a room before obtaining final approval for the defense date?

A: Once a manuscript is distributed and you are ready to poll your committee for their availability, Michelle will tentatively schedule your defense. However, the reservation will not be confirmed until the approved form is received from you and signed by Roel.

Q: I can't get my committee together on one of the set-aside days for defenses. What do I do?

A: It's important to keep Roel in the loop and work with him and with your committee to find a time when they CAN meet. Roel, as Department Head, has final approval on the date, and if you really do need to hold your defense on a day other than Wednesday or Friday afternoon, you need to explain this to and obtain special approval.

Q: May I schedule a defense during Winter Break or during the summer?

A: Winter and Spring Break defenses are not permitted, because school is not in session. Summer defenses are possible, but because of faculty travel schedules and because so many of your colleagues are also off-campus over the summer, we do not generally schedule defenses during the summer terms.

Q: I can't get my entire committee to agree on *any* regular defense day. What do I do?

A: For MS candidates, this is a problem because usually, there are only 3 members of the committee. In that case, you either should try to find a Wednesday or Friday other than the dates you initially looked at, or secure a date outside of that routine schedule, in which case, you need to seek special approval from Roel.

PhD committees tend to be larger, and the absence of 1 committee member for good and sufficient reason is often less of an issue. If the absent committee member is a non-voting member, then his or her absence is usually not a problem. However, you should still seek the advice of both Roel and your advisor on whether you should proceed without that missing committee member, or find another date for your defense. Note that committee members can sometimes attend the defense remotely, via Skype, conference phone, or some other medium.

Any absent committee member must document the expectation to be absent, and that he/she agrees to either make alternate arrangements with you and cast a vote on your defense, or state that they will not be in attendance and either concur with the committee decision or will abstain from voting. If the committee member is absent but will vote, or has attended the defense via Skype or other video conference, then the member must send email to the Department after the defense to cast his/her vote.

Q: What if one of my committee members is off-campus and cannot sign the defense request?

A: Faxed or scanned signatures are acceptable. Send the form to them electronically and have them sign and return in a similar manner. We will also accept an email from the committee member in lieu of a signature, but the committee member must state specifically they approve the defense to move forward, and are available at the proposed date/time.

Q. I'm a PhD student and have completed the teaching requirement (or the foreign language requirement); I just don't have the documentation. Can I still schedule my defense?

A: The Department policy is that you cannot defend without having fulfilled and documented having completed all program requirements.

Q: Do I have to supply food for my defense?

A: This has become a tradition and the offering would certainly be welcomed by attendees. However, you are in no way required to supply food or beverage for those who attend your defense.

FAQ's for Students Returning Specifically to Defend and/or Graduate

Q: Do I need to register for classes?

A: You must be registered for credits during the semester in which you defend your thesis. This is a non-negotiable Mines requirement. Contact the Grad School with questions. Note: There is a window of time during the very first part of a term where, if you are enrolled in the term immediately preceding, and have defended AND COMPLETELY CHECKED OUT by the specified deadlines, you may *not have to register for that semester. Contact the Grad School or Michelle for details.*

Q: What if I cannot be on campus to complete the checkout process after I defend?

A: You will need to appoint a trusted colleague on campus to do this on your behalf, but please make yourself available to sign and email documentation as necessary. If you leave campus before completing this process, BE SURE you return your key to Access Services before you go—it will hold up your transcript and your diploma!

7 PROFESSIONAL MASTERS PROGRAM, PETROLEUM RESERVOIR SYSTEMS

We encourage you to coordinate closely with your advisor at the beginning of your program regarding a course plan. The checklist on the next pages is specific to the Professional Masters program may be of assistance as you complete your course work, although upon your first meeting with your program advisor you will likely have an excellent course plan document to use, as well.

Graduate Student Progress Checklist
Professional Masters: Petroleum Reservoir Systems

Student: _____

Advisor(s): _____ **Semester of Admittance:** _____

1. Meet with program advisor at the beginning of the first semester in attendance to establish an appropriate sequence of courses. Date of meeting: _____

2. At least one formal meeting of the student and program advisor each semester, if deemed necessary. Minutes should be taken and submitted by your advisor for Department files.

   Meeting dates:

   _____ _____

   _____ _____

3. Course Requirements.

   400-Level Courses. There is a 9-credit maximum for 400-level courses allowed toward your degree. Any 400-level courses taken specifically to satisfy deficiencies do not count toward the degree.

   Specific Course Requirements (1). One course must be selected from the following:

   - PEGN419 Well Log Analysis and Formation Evaluation
   - GPGN519/PEGN519 Advanced Formation Evaluation

   Specific Course Requirements (2). Two courses must be selected from the following:

   - GEGN439/GPGN439/PEGN439 Multi-Disciplinary Petroleum Design
   - GEGN503/GPGN503/PEGN503 Integrated Exploration and Development
   - GEGN504/GPGN504/PEGN504 Integrated Exploration and Development

   Remaining Course Requirements. An additional 9 credits must consist of one course each from GP, GE, and PE.[1] The remaining 18 credits may consist of course work from any of the 3 participating departments or other courses approved by the program committee. Up to 6 hours may consist of independent study, including an industry project.

[1] If one or more of these courses is cross-listed among the three departments, it is preferred for record-keeping purposes, but not required, that you enroll in the section that will ensure that your transcript confirms your having completed one course in each department.

400-Level Courses: No more than 9 credits may be used to fulfill GP course requirements. Course sequence shall be decided upon at the beginning of the student's first semester in the Professional Masters program.

Course	Semester Completed	Credits Awarded

Specific Course Requirements (1). One course selected from the following:

_____ PEGN419 Well Log Analysis and Formation Evaluation; OR

_____ GPGN519/PEGN519 Advanced Formation Evaluation

Specific Course Requirements (2). Two courses selected from the following:

_____ GEGN439/GPGN439/PEGN439 Multi-Disciplinary Petroleum Design

_____ GEGN503/GPGN503/PEGN503 Integrated Exploration and Development

_____ GEGN504/GPGN504/PEGN504 Integrated Exploration and Development

Remaining graduate (500- and 600-level) courses taken at CSM: Course sequence shall be decided upon at the beginning of the student's first semester in the Professional Masters program.

Course	Semester Completed	Credits Awarded

Total Course Credits Approved: _____

NOTE: Total *must be 36 credit hours or more* beyond B.S. degree. Up to 9 credits of approved 400-level coursework may be included with committee approval.

5. Degree Audit Form submitted and approved: _____

6. Graduation Application submitted on Trailhead: _____

7. Checkout paperwork submitted to the Grad School: _____

8 MASTER OF SCIENCE PROGRAM

You should work closely with your advisor and thesis committee to make sure that you stay on track to complete your degree in the planned length of time. The at-a-glance information is a good fingertip resource for ensuring that you complete all your program requirements. The checklist that follows is highly useful for recording the requirements as you fulfill them.

MS (Thesis Based) "At-A-Glance"
(Geophysics)[1]

Requirements

1. Satisfy background coursework requirements specified at entry by the Graduate Advisory Committee (GAC).
2. Establish a Thesis Committee by the end of your second semester.
3. Complete at least 26 credits of coursework and at least 12 credits of research, as approved by your committee and as dictated by the following criteria:
   a. All credits applied to the degree must be at the 400-level or above.
   b. Complete 12 research credits (GPGN707) under your Mines faculty advisor.
   c. Complete the following required courses:
      i. LICM501 Professional Oral Communication (1 credit)
      ii. GPGN581 Graduate Seminar (1 credit)[2]
   d. Background requirements may be in addition to the above course requirements for your degree.
4. Achieve a cumulative GPA of at least 3.0.
5. Submit a Degree Audit and apply for Reduced Registration status by stated deadlines.
6. Research, write and defend an MS thesis.
7. Complete your required thesis corrections; provide any associated software code and electronic copy of your finished thesis to your Center administrator (if working within one of the research centers).
8. Apply for graduation, and attend the ceremony in your honor!

[1] Typical completion time for a MS in Geophysics is 4-6 semesters.
[2] MS students enroll in GPGN581 only their first semester at CSM but attend Heiland Lecture every week until graduation, and complete the GPGN581 individual presentation requirement. Credit is awarded with a grade of PRG, in the semester in which the student graduates.

MS (Thesis-Based) At-A-Glance
(Geophysics)

Recommended timeline for success[1]

What	**By When**
Meet with interim advisor regarding background coursework and registration	First week in the program
Make formal appointment of advisor and committee; obtain committee approval of planned coursework	Middle of 1st semester
Choose thesis topic; begin background research for thesis	Not later than 2nd semester
Complete course requirements and thesis research	3rd semester
Submit Degree Audit form to Department Office Submit application to graduate	Late October, 3rd semester Early November, 3rd semester
Finish writing and defend thesis	Middle to end of 4th semester
Complete thesis revisions and check out	See Grad School website for deadlines
GRADUATE!	End of 4th semester
Attend Geophysics graduation event in your honor	Graduation Day

[1] Timeline is based on a students' starting during the Fall semester.

Graduate Student Progress Checklist
Master of Science Degrees: Geophysics and Geophysical Engineering

Student: _____ **Minor Degree Program:** _____

Advisor(s): _____ **Semester of Admittance:** _____

1. Official formation of thesis committee, including selection of advisor. Thesis Committee must be declared within the first calendar year of start of program, and requirements appear in the Graduate Bulletin. Form to establish a committee is downloadable from the Graduate School website. The official form must be submitted to the Department for approval before the Department submits it to the Graduate School.

   Date filed with the Department: _____

2. At least one formal meeting of the student and thesis committee each semester. Minutes should be taken and submitted by your Thesis Advisor or Committee Chair for Department files.

   Meeting dates:

   _____ _____
   _____ _____
   _____ _____
   _____ _____
   _____ _____
   _____ _____
   _____ _____
   _____ _____

3. Course Requirements.

   Background Recommendations. The student and advisor are supposed to plan the coursework using the list of "Background Recommendations" completed by the GAC. The advisor must submit a memo listing the courses the student will take to address the background deficiencies identified by the GAC. Deficiencies resolved in a method other than taking recommended courses must be justified by the Committee. If GPGN486 is determined to be a background requirement that course MUST be completed during the student's first semester of his/her program.

   Transfer Credit. The thesis committee may allow transferring up to 9 hours of credit for individual graduate-level courses at another institution. Students must supply the

committee with written documentation describing these courses or work experiences for which they wish to receive credit.

400-Level Courses. There is a 9-credit maximum for 400-level courses allowed toward this degree. Any 400-level courses taken specifically to satisfy deficiencies, however, do not count toward the degree.

Transfer Credits: The committee may allow transferring up to 9 hours of credit for individual graduate-level courses.

Transfer Description	Course/Requirement Fulfilled	Credits Awarded

400-Level Courses: No more than 9 credits may be used to fulfill GP course requirements. These courses may not be used specifically to satisfy deficiencies.

Course	Semester Completed	Credits Awarded

Required Courses: For students in the Geophysics MS program

a. Heiland (GPGN581) (Register in first semester of program and grade will show "PRG" with regular attendance and completion of individual presentation.)
b. Professional Oral Communication (LICM501)
c. GPGN707 (12+ credits)

Graduate (500- and 600-level) courses taken at CSM: These include the individual required courses from the previous page and any graduate level courses from CSM to satisfy the minor program.

Course	Semester Completed	Credits Awarded

Total Course Credits Approved: _____

NOTE: Total *must be 38 credit hours or more* beyond B.S. degree, including at least 12 research credits. Up to 9 credits of approved 400-level course work and up to 9 transfer credits may be included with thesis committee approval.

Engineering Courses: Students in the Master of Science Degree in Geophysical Engineering must either have a Bachelor's degree in engineering, or complete 16 credits of engineering coursework (included in the 26 total course credits required for a Master of Science degree). These courses may be taken at Mines or be transferred into the Mines program as indicated indicated above.

Course	Semester Completed	Credits Awarded

4. Thesis Proposal: Discussion in a thesis committee meeting of a written proposal for the planned thesis research. Typical length of the proposal is 5 to 15 typewritten pages. To help the committee evaluate the prospects for successful and timely completion of the thesis, the proposal should include
   - Scientific background
   - Indication of the purpose for and type of research to be performed
   - Specific research targets
   - Estimated target date for completion

   Scope and topic of thesis agreed upon: _____

   _____

   _____

   Thesis proposal reviewed and approved: _____

5. GPGN581 Individual Oral/Poster Presentation:

   Name of Professional Meeting: _____

   Date of Presentation: _____ Oral/Poster: _____

   Approved by Department: _____

6. Degree Audit Form submitted and approved: _____

7. Thesis completed presented, and defended: _____

8. Thesis corrections completed: _____

9. Graduation Application submitted on Trailhead: _____

10. Checkout paperwork submitted to the Grad School: _____

9 DOCTOR OF PHILOSOPHY PROGRAM

You should work closely with your advisor and thesis committee to make sure that you stay on track to complete your degree in a planned length of time. The at-a-glance information is a good fingertip resource for ensuring that you complete all your program requirements. The checklist that follows is highly useful for recording the requirements as you fulfill them. Given the expanded program requirements for Doctor of Philosophy, we strongly encourage making use of this checklist.

PhD "At-A-Glance"
(Geophysics)[1]

Requirements

1. Satisfy background requirements specified by the Graduate Advisory Committee (GAC).
2. Establish a Thesis Committee by the end of your second semester.
3. Complete 72 credits beyond a Bachelors Degree, approved by your committee, as follows:
   a. Transfer up to 36 credits for a thesis-based Masters Degree from another institution.
   b. Complete 24 research credits (GPGN707) under a CSM faculty advisor.
   c. Complete 12 credits in a minor program of study, as approved by your committee.
   d. Complete the following required courses:
      i. LICM501 Professional Oral Communication (1 credit)
      ii. SYGN502 Introduction to Research Ethics (1 credit)[2]
      iii. GPGN681 Graduate Seminar (1 credit)[3]
   e. Complete two of the following three courses:
      i. SYGN501 The Art of Science (1 credit)
      ii. SYGN600 College Teaching (2 credits)[4]
      iii. LAIS601 Academic Publishing (2 or 3 credits)
   f. Count no more than 9 credits at the 400-level for graduate credit
4. Achieve a cumulative GPA of at least 3.0.
5. Submit your Degree Audit to the Department and Graduate School for approval.
6. Propose, complete and defend a Doctoral Research Qualifying Project (1st Comps) within your first 18 months at Mines.
7. Write and defend a PhD thesis proposal (2nd Comps) before the start of your third year at Mines.
8. Apply for Admission to Candidacy and reduced registration.
9. Document the foreign language requirement: one year of college-level or two years of high-school-level courses in a single foreign language, or demonstrate fluency in a language other than English.
10. Participate in a practical teaching experience.
11. Research, write and defend a PhD thesis on original work that results in new knowledge and/or techniques.
12. Complete required thesis corrections; provide an electronic copy of your thesis and any associated software code to your Center administrator and check out with the Grad School.
13. Apply for graduation, and attend the ceremony in your honor!

---

[1] Typical completion time for a PhD in Geophysics is 8 – 9 semesters.
[2] Students who are funded by the NSF, or who begin PhD programs during or after the January 2013, must complete this course.
[3] PhD students enroll in GPGN681 only their first semester at CSM but attend Heiland Lecture every week until graduation, and complete the GPGN681 individual presentation requirement. Credit is awarded in the semester in which the student graduates, with a grade of PRG.
[4] SYGN600 does not substitute for the PhD practical teaching requirement.

PhD At-A-Glance
(Geophysics)

Recommended timeline for success[1]

What	**By When**
Meet with interim advisor regarding background coursework and registration	First week of program
Make formal appointment of advisor and committee; obtain committee approval of planned coursework	End of 1st semester
Choose 1st Comps project	End of 1st semester
Present proposal for 1st Comps project	Early in 2nd semester
Begin research for 1st Comps project	Middle of 2nd semester
Choose thesis topic	2nd semester
Begin background research for thesis	Middle of 3rd semester
Defend and submit 1st Comps paper	End of 3rd semester
Complete prereqs and core course requirements Submit Degree Audit form Defend thesis proposal Submit application for candidacy and reduced registration status[2]	End of 4th semester[3]: • Degree Audit by April of 4th semester • Admission to Candidacy by 1st day of class, 5th semester
Begin writing thesis	Middle of 6th semester
Finish thesis research	7th semester
Submit final thesis draft to committee and schedule defense	≥ 3 weeks before defense
Defend thesis	Middle of 8th semester
Submit application for graduation to Grad School	Published Grad School deadline
Complete thesis revisions and check out	See Grad School website for deadlines
GRADUATE!	End of 8th semester
Attend Geophysics graduation event in your honor	Graduation Day

[1] Timeline is based on a students' starting during the Fall semester.
[2] PhD students may register for reduced tuition (4 credits of research) after completing 72 hours of course and research credit and having approved Admission to Candidacy and Degree Audit forms on file with Grad School.

Graduate Student Progress Checklist
Doctor of Philosophy in Geophysics and Geophysical Engineering

Student: _____ **Minor Degree Program:** _____

Advisor(s): _____ **Semester of Admittance:** _____

1. Official formation of thesis committee, including selection of advisor. Thesis Committee must be declared within the first 12 months of the student's program. Requirements appear in the Graduate Bulletin. Request form is downloadable from the Graduate School website. The official form must be submitted to the Department for approvals before the Department submits it to the Graduate School.

   Date filed with the Department: _____

2. The Department recommends at least one formal meeting of the student and thesis committee each semester. Minutes should be taken and submitted by your Thesis Advisor or Committee Chair for Department files.

Meeting dates:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3. Course Requirements.

   Background Recommendations. The student and advisor should plan coursework using the list of background "deficiencies" completed by the GAC. The advisor must list the courses the student will take to address the deficiencies identified. Those resolved in a way other than taking recommended courses must be justified by the thesis committee. If GPGN486 is a background requirement, then that course MUST be completed during the student's first semester of his/her program.

   Transfer Credit. The thesis committee may allow transfer of up to 36 credits for a thesis-based MS degree from CSM or another institution. Students must supply documentation describing these courses or work experiences for which they wish to receive credit.

Minor Program Credit. All PhD students are required to take at least 12 credit hours toward their minor program. The majority of minor credit must have been completed during the PhD program, and at Mines. May include cross-referenced courses, or courses outside the minor discipline. Your thesis committee, which includes a minor representative, must approve all courses.

400-Level Courses. A maximum of nine 400-level credits is allowed toward your degree. Any 400-level courses taken specifically to satisfy deficiencies, or which appear on an undergraduate transcript, may not be counted.

Transfer Credits: The committee may allow transferring up to 36 credits for thesis-based MS degree from Mines or another institution. Transfer credit may apply toward the minor program or specific course requirements, but cannot be counted as both a transfer course *and* fulfillment of another requirement.

Transfer Description	Course Name	Credits Awarded

Minor Program Credits: At least 12 credits must be completed in the minor program. These may include courses that cross-list with or are outside the minor department. No more than 5.5 total minor credits can be transferred from another institution.

Course	Semester Completed	Credits Awarded

400-Level Courses: No more than 9 credits may be used to fulfill Geophysics course requirements. These courses may not be used specifically to satisfy deficiencies.

Course	Semester Completed	Credits Awarded

Required Courses: For students in the Geophysics PhD program

_____ Heiland (GPGN681) (Register in first semester of program and grade will show "PRG" with regular attendance and completion of the individual presentation.)

_____ Introduction to Research Ethics (SYGN502)
NSF Funded students and PhD students beginning Spring 2013

_____ Professional Oral Communication (LICM501)

_____ Required two of three (SYGN501, SYGN600, or LAIS601)

_____ and _____

_____ GPGN707 (24+ credits)

Graduate (500- and 600-level) courses taken at CSM: These include the individual required courses from above and any other graduate level courses from CSM.

Course	Semester Completed	Credits Awarded

Total Course Credits Approved: _____

NOTE: Total *must be 72 credit hours or more* beyond B.S. degree, as detailed above.

Engineering Courses: Students in the PhD Degree in Geophysical Engineering must either have complete 16 credits of engineering coursework (included in the 72 total course credits required for a PhD degree). These courses may be taken at CSM or be transferred into the CSM program through a prior thesis-based Master's degree, as indicated above.

Course	Semester Completed	Credits Awarded

4. Date Degree Audit form completed and approved: _____

5. Graduate Teaching Experience (form and guidelines on page 53):

   Semester, course, and faculty mentor: _____

   _____

   Date form from faculty member submitted to Department for filing: _____

6. Foreign language requirement: Required of all PhD candidates. It is waived for students who come from countries whose primary language is not English. For students from English-speaking countries, the requirement is usually satisfied through 2 years of foreign language in high school (must be the same language, both years), or 1 year of college-level foreign language instruction (must be the same language both semesters), or by demonstrating fluency in a language other than English. Documentation for this requirement is a photocopy of your high-school or college transcript, or a statement from a member of the Mines faculty/staff that you have demonstrated fluency in a second language.

   How was your foreign language requirement satisfied? _____

   _____

7. GPGN681 Individual Oral Presentation:

   Name of Professional Meeting: _____

   Date of Presentation: _____ Oral/Poster: _____

   Approved by the Department: _____

8. 1st Comps: Students must pass two qualifying exams *during their first four semesters* in the PhD program. This deadline is a Colorado School of Mines requirement; the Department has the authority to grant short extensions on a case-by-case basis. For the 1st Comps, Geophysics and Geophysical Engineering PhD students must complete, present, and defend an original research-based project approved by their committee. The project shall result in a report suitable for conversion into a paper publishable in a peer-reviewed journal. See guidelines for the PhD Qualifying Process on page 54, or on the Geophysics website.

   1st Comps successfully completed and presented, DATE: _____

   Paper submitted for publication (DATE / JOURNAL): _____

   _____

9. 2nd Comps: The 2nd Comps must be completed by the fourth semester in the PhD program and is a presentation and defense of the student's *thesis proposal.* NOTE: the 2nd Comps cannot be scheduled by the Department until your 1st Comps paper has been submitted to a peer-reviewed journal. The student must successfully submit, present, and defend his/her proposed research for their final PhD thesis. The content of the thesis proposal is determined by the student and his/her thesis committee. Formatting guidelines are available on page 54, or on the Geophysics website.

   2nd Comps, successfully completed and presented, DATE: _____

   Scope and topic of thesis agreed upon: _____

   _____

   _____

10. Admission to Candidacy Form submitted and approved: _____
11. Thesis completed presented, and defended: _____
12. Thesis corrections completed: _____
13. Graduation Application submitted on Trailhead: _____
14. Checkout paperwork submitted to the Grad School: _____

Completion of Teaching Experience for PhD Program

Student Name: _____
Advisor: _____

Semester Requirement Completed[1]: _____
Course Taught: _____
Professor for Course: _____

Number of Lectures Given/Planned[2]: _____
Number of Labs Given/Planned/Graded[2]: _____
Number of Assignments Written and/or Graded[3]: _____

Additional Class Time (Details):
(Examples: gave and/or proctored exams, quizzes, held additional office hours)

_____
_____
_____
_____

Course Materials/Content Taught:
(General description of the material taught during the experience)

_____
_____
_____
_____

Additional Comments:

_____
_____
_____
_____

This form is to state that _____ has satisfactorily completed the Practical Teaching criteria required for the PhD program in the Department of Geophysics.

_____ _____

Approved, Course Professor **Approved, GAC Chair**

[1] Experience must take place within a single semester and for a single course.
[2] Student shall be responsible for planning/delivering a minimum of six lecture hours, or four lecture hours and two labs, to meet requirement. Other combinations must be proposed in advance.
[3] Creating and/or grading assignments is recommended but should be at the discretion of the supervising faculty member, based on the format of the course.

PhD Qualifying Process
Department of Geophysics

As set forth in the Graduate Bulletin of Colorado School of Mines, within the first two calendar years after enrolling into a PhD program a student is required to "demonstrate adequate preparation for, and satisfactory ability to conduct, doctoral research." In the Department of Geophysics this demonstration is a two-part qualifying exam.

Qualifying Exam, Part I

1. Under the supervision of a Geophysics faculty member, the PhD student performs research which shall result in a manuscript to be submitted in a peer-reviewed journal. This submission of the manuscript must occur prior to a students scheduling Part II of the Qualifying Exam (Thesis Proposal Defense). The manuscript is defended by the student in front of his supervising committee and peers in the same manner as a thesis.
2. Research conducted for a masters thesis at CSM may be used to generate a manuscript that is submitted for publication and defended as described above to meet the requirements for Part I of the Qualifying Exam. In this case, the student must have his/her PhD committee appointed and present at the defense.
3. Research conducted for a masters thesis at an institution other than CSM can also be used to generate a manuscript that is submitted and defended to satisfy Part I of the Qualifying Exam, provided there is a CSM Geophysics faculty member who is willing to supervise the student in this activity. In this case, the student must have his/her PhD committee appointed and present at the defense.

Qualifying Exam, Part II

1. Under the supervision of the advisor and the thesis committee, a PhD student researches and prepares a thesis proposal in a format that is consistent with formal proposals submitted for funding either (a) to agencies such as NSF, or (b) to industry. Lengths of thesis proposals will vary, but they will normally include, but not be limited to, at least the following elements:
   - Project Summary/Abstract
   - Project Narrative, including:
     — Introduction. What is the research problem/question?

- — Background. Why is this problem important? What related work has already been done by others? What are the key references describing this previous work?
- — Outline. What are the key steps or stages in this research? Give a brief description of each.
- — Method. What approach or method(s) will be used to solve the research problem?
- — Obstacles. What significant obstacles or challenges do you anticipate that could prevent you from success, and how do you expect to overcome them?

- Budget. Assume you are not already funded. What is an appropriate budget to cover your costs in performing this research?
- Timeline. What is the timeline for the research, including your estimates of key milestones, decision points, defense, graduation?
- Publications. How many publications do you imagine will be generated by this thesis, and on what aspects or sub-topics of the overall research?
- Bibliography and references cited.
- Biographical sketch.

2. The student defends the thesis proposal before his/her committee and peers in the same manner as a thesis.
3. The faculty believes a PhD student should work more independently on the thesis proposal and require less supervision than for Part I of the Qualifying Exam.